**b) Infringement of the '015 Patent**

196. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 196 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 196 and, therefore, denies those allegations and averments.

197. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 197 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 197 and, therefore, denies those allegations and averments.

**7. Claim Chart 07- ThiEye Accused Products**

**a) ThiEye Design**

198. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 198 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 198 and, therefore, denies those allegations and averments.

**b) Infringement of the '015 Patent**

199. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 199 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 199 and, therefore, denies those allegations and averments.

200. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 200 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 200 and, therefore, denies those allegations and averments.

### c) Infringement of the '024 Patent

201. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 201 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 201 and, therefore, denies those allegations and averments.

202. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 202 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 202 and, therefore, denies those allegations and averments.

## 8. Claim Chart 08- Energen/Performance Tool Accused Products

### a) Energen/Performance Tool Design

203. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 203 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 203 and, therefore, denies those allegations and averments.

### b) Infringement of the '015 Patent

204. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 204 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 204 and, therefore, denies those allegations and averments.

205. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 205 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 205 and, therefore, denies those allegations and averments.

**c) Infringement of the '024 Patent**

206. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 206 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 206 and, therefore, denies those allegations and averments.

207. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 207 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 207 and, therefore, denies those allegations and averments.

**9. Claim Chart 09- HALO Accused Products**

**a) HALO Design**

208. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 208 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 208 and, therefore, denies those allegations and averments.

**b) Infringement of the '015 Patent**

209. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 209 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 209 and, therefore, denies those allegations and averments.

210. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 210 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 210 and, therefore, denies those allegations and averments.

### c) Infringement of the '024 Patent

211. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 211 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 211 and, therefore, denies those allegations and averments.

212. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 212 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 212 and, therefore, denies those allegations and averments.

## 10. Claim Chart 10- Clore Accused Products

### a) Clore Design

213. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 213 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 213 and, therefore, denies those allegations and averments.

### b) Infringement of the '015 Patent

214. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 214 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 214 and, therefore, denies those allegations and averments.

215. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 215 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 215 and, therefore, denies those allegations and averments.

### c) Infringement of the '024 Patent

216. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 216 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 216 and, therefore, denies those allegations and averments.

217. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 217 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 217 and, therefore, denies those allegations and averments.

## B. Infringement of the Asserted Trademarks

218. Paragraph 218 calls for a legal conclusion, and no response is required. To the extent a response is required, Smartech lacks sufficient knowledge and information to form a belief as to the truth of the allegations contained in paragraph 218 of the Complaint and therefore denies those allegations.

219. Paragraph 219 calls for a legal conclusion, and no response is required. To the extent a response is required, Smartech lacks sufficient knowledge and information to form a belief as to the truth of the allegations contained in paragraph 219 of the Complaint and therefore denies those allegations.

220. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response is required, Smartech lacks sufficient knowledge and information to form a belief as to the truth of the allegations contained in paragraph 220 of the Complaint and therefore denies those allegations.

221. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response is required, Smartech admits that

the Complaint contains Section VII titled "Specific Instances of Importation and Sale." Smartech lacks sufficient knowledge and information to form a belief as to the truth of the remaining allegations contained in paragraph 221 of the Complaint and therefore denies those allegations.

222. Paragraph 219 calls for a legal conclusion, and no response is required. To the extent that a response is required, Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 222 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 222 and, therefore, denies those allegations and averments.

**Audew**

223. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 223 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 223and, therefore, denies those allegations and averments.

**Autown**

224. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 224 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 224 and, therefore, denies those allegations and averments.

**Beatit**

225. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 225 is required,

Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 225 and, therefore, denies those allegations and averments.

**Imazing**

226. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 226 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 226 and, therefore, denies those allegations and averments.

**Jumtop**

227. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 227 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 227 and, therefore, denies those allegations and averments.

**Nexpow**

228. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 228 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 228 and, therefore, denies those allegations and averments.

**Sanrock**

229. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 229 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 229 and, therefore, denies those allegations and averments.

**Topdon**

230. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 230 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 230 and, therefore, denies those allegations and averments.

**Trekpow**

231. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 231 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 231 and, therefore, denies those allegations and averments.

## VII. SPECIFIC INSTANCES OF IMPORTATION AND SALE

232. The allegations of paragraph 232 are generalized, vague, and ambiguous and therefore cannot be admitted or denied. To the extent a response is required, Smartech lacks sufficient knowledge and information to form a belief as to the truth of the allegations contained in paragraph 232 of the Complaint and therefore denies those allegations.

### A. Carku Brands

#### 1. AllStart

233. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 233 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 233 and, therefore, denies those allegations and averments.

234. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 234 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 234 and, therefore, denies those allegations and averments.

235. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 235 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 235 and, therefore, denies those allegations and averments.

236. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 236 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 236 and, therefore, denies those allegations and averments.

**2. Antigravity Batteries**

237. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 237 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 237 and, therefore, denies those allegations and averments.

238. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 238 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 238 and, therefore, denies those allegations and averments.

239. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 239 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 239 and, therefore, denies those allegations and averments.

240. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 240 is required,

Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 240 and, therefore, denies those allegations and averments.

**3. Audew**

241. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 241 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 241 and, therefore, denies those allegations and averments.

242. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 242 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 242 and, therefore, denies those allegations and averments.

243. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 243 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 243 and, therefore, denies those allegations and averments.

244. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 244 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 244 and, therefore, denies those allegations and averments.

**4. Autogen**

245. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 245 is required,

Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 245 and, therefore, denies those allegations and averments.

246. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 246 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 246 and, therefore, denies those allegations and averments.

247. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 247 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 247 and, therefore, denies those allegations and averments.

248. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 248 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 248 and, therefore, denies those allegations and averments.

**5. Freeman**

249. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 249 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 249 and, therefore, denies those allegations and averments.

250. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 250 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 250 and, therefore, denies those allegations and averments.

251. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 251 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 251 and, therefore, denies those allegations and averments.

252. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 252 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 252 and, therefore, denies those allegations and averments.

**6. Gooloo**

253. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 253 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 253 and, therefore, denies those allegations and averments.

254. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 254 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 254 and, therefore, denies those allegations and averments.

255. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 255 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 255 and, therefore, denies those allegations and averments.

256. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 256 is required,

Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 256 and, therefore, denies those allegations and averments.

**7. Grepro**

257. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 257 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 257 and, therefore, denies those allegations and averments.

258. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 258 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 258 and, therefore, denies those allegations and averments.

259. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 259 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 259 and, therefore, denies those allegations and averments.

**8. iClever**

260. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 260 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 260 and, therefore, denies those allegations and averments.

261. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 261 is required,

Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 261 and, therefore, denies those allegations and averments.

262. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 262 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 262 and, therefore, denies those allegations and averments.

263. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 263 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 263 and, therefore, denies those allegations and averments.

**9. M Moock**

264. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 264 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 264 and, therefore, denies those allegations and averments.

265. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 265 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 265 and, therefore, denies those allegations and averments.

266. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 266 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 266 and, therefore, denies those allegations and averments.

267. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 267 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 267 and, therefore, denies those allegations and averments.

**10. Nekteck**

268. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 268 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 268 and, therefore, denies those allegations and averments.

269. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 269 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 269 and, therefore, denies those allegations and averments.

270. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 270 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 270 and, therefore, denies those allegations and averments.

271. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 271 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 271 and, therefore, denies those allegations and averments.

**11. PowerMax**

272. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 272 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 272 and, therefore, denies those allegations and averments.

273. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 273 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 273 and, therefore, denies those allegations and averments.

274. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 274 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 274 and, therefore, denies those allegations and averments.

275. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 275 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 275 and, therefore, denies those allegations and averments.

**12. Tacklife**

276. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 276 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 276 and, therefore, denies those allegations and averments.

277. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 277 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 277 and, therefore, denies those allegations and averments.

278. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 278 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 278 and, therefore, denies those allegations and averments.

279. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 279 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 279 and, therefore, denies those allegations and averments.

**13. Xiaomi**

280. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 280 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 280 and, therefore, denies those allegations and averments.

281. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 281 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 281 and, therefore, denies those allegations and averments.

282. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 282 is required,

Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 282 and, therefore, denies those allegations and averments.

283. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 283 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 283 and, therefore, denies those allegations and averments.

**B. Boltpower Brands**

**1. Ampeak**

284. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 284 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 284 and, therefore, denies those allegations and averments.

285. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 285 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 285 and, therefore, denies those allegations and averments.

286. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 286 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 286 and, therefore, denies those allegations and averments.

287. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 287 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 287 and, therefore, denies those allegations and averments.

**2. Arteck**

288. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 288 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 288 and, therefore, denies those allegations and averments.

289. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 289 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 289 and, therefore, denies those allegations and averments.

290. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 290 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 290 and, therefore, denies those allegations and averments.

291. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 291 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 291 and, therefore, denies those allegations and averments.

**3. Autown**

292. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 292 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 292 and, therefore, denies those allegations and averments.

293. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 293 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 293 and, therefore, denies those allegations and averments.

294. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 294 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 294 and, therefore, denies those allegations and averments.

295. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 295 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 295 and, therefore, denies those allegations and averments.

**4. Battery Tender**

296. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 296 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 296 and, therefore, denies those allegations and averments.

297. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 297 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 297 and, therefore, denies those allegations and averments.

298. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 298 is required,

Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 298 and, therefore, denies those allegations and averments.

299. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 299 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 299 and, therefore, denies those allegations and averments.

**5. Beatit**

300. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 300 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 300 and, therefore, denies those allegations and averments.

301. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 301 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 301 and, therefore, denies those allegations and averments.

302. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 302 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 302 and, therefore, denies those allegations and averments.

303. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 303 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 303 and, therefore, denies those allegations and averments.

### 6. Boltpower

304. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 304 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 304 and, therefore, denies those allegations and averments.

305. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 305 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 305 and, therefore, denies those allegations and averments.

306. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 306 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 306 and, therefore, denies those allegations and averments.

307. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 307 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 307 and, therefore, denies those allegations and averments.

### 7. DB Power/Valuelink

308. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 308 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 308 and, therefore, denies those allegations and averments.

309. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 309 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 309 and, therefore, denies those allegations and averments.

310. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 310 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 310 and, therefore, denies those allegations and averments.

311. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 311 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 311 and, therefore, denies those allegations and averments.

**8. DieHard**

312. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 312 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 312 and, therefore, denies those allegations and averments.

313. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 313 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 313 and, therefore, denies those allegations and averments.

314. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 314 is required,

Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 314 and, therefore, denies those allegations and averments.

315. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 315 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 315 and, therefore, denies those allegations and averments.

**9. Duralast**

316. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 316 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 316 and, therefore, denies those allegations and averments.

317. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 317 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 317 and, therefore, denies those allegations and averments.

318. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 318 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 318 and, therefore, denies those allegations and averments.

319. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 319 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 319 and, therefore, denies those allegations and averments.

### 10. EverStart

320. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 320 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 320 and, therefore, denies those allegations and averments.

321. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 321 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 321 and, therefore, denies those allegations and averments.

322. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 322 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 322 and, therefore, denies those allegations and averments.

323. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 323 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 323 and, therefore, denies those allegations and averments.

### 11. Fconegy

324. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 324 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 324 and, therefore, denies those allegations and averments.

325. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 325 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 325 and, therefore, denies those allegations and averments.

326. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 326 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 326 and, therefore, denies those allegations and averments.

327. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 327 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 327 and, therefore, denies those allegations and averments.

**12. Flylinktech**

328. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 328 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 328 and, therefore, denies those allegations and averments.

329. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 329 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 329 and, therefore, denies those allegations and averments.

330. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 330 is required,

Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 330 and, therefore, denies those allegations and averments.

331. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 331 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 331 and, therefore, denies those allegations and averments.

**13. Imazing**

332. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 332 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 332 and, therefore, denies those allegations and averments.

333. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 333 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 333 and, therefore, denies those allegations and averments.

334. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 334 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 334 and, therefore, denies those allegations and averments.

335. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 335 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 335 and, therefore, denies those allegations and averments.

### 14. Jumtop

336. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 336 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 336 and, therefore, denies those allegations and averments.

337. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 337 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 337 and, therefore, denies those allegations and averments.

338. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 338 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 338 and, therefore, denies those allegations and averments.

339. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 339 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 339 and, therefore, denies those allegations and averments.

### 15. KTI (K-Tool International)

340. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 340 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 340 and, therefore, denies those allegations and averments.

341. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 341 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 341 and, therefore, denies those allegations and averments.

342. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 342 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 342 and, therefore, denies those allegations and averments.

343. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 343 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 343 and, therefore, denies those allegations and averments.

**16. Lemsir**

344. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 344 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 344 and, therefore, denies those allegations and averments.

345. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 345 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 345 and, therefore, denies those allegations and averments.

346. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 346 is required,

Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 346 and, therefore, denies those allegations and averments.

347. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 347 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 347 and, therefore, denies those allegations and averments.

**17. Loftek**

348. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 348 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 348 and, therefore, denies those allegations and averments.

349. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 349 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 349 and, therefore, denies those allegations and averments.

350. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 350 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 350 and, therefore, denies those allegations and averments.

351. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 351 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 351 and, therefore, denies those allegations and averments.

### 18. Matco Tools

352. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 352 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 352 and, therefore, denies those allegations and averments.

353. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 353 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 353 and, therefore, denies those allegations and averments.

354. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 354 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 354 and, therefore, denies those allegations and averments.

355. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 355 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 355 and, therefore, denies those allegations and averments.

### 19. Nexpow

356. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 356 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 356 and, therefore, denies those allegations and averments.

357. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 357 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 357 and, therefore, denies those allegations and averments.

358. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 358 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 358 and, therefore, denies those allegations and averments.

359. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 359 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 359 and, therefore, denies those allegations and averments.

**20. PowerCache**

360. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 360 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 360 and, therefore, denies those allegations and averments.

361. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 361 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 361 and, therefore, denies those allegations and averments.

362. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 362 is required,

Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 362 and, therefore, denies those allegations and averments.

363. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 363 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 363 and, therefore, denies those allegations and averments.

**21. Roav**

364. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 364 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 364 and, therefore, denies those allegations and averments.

365. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 365 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 365 and, therefore, denies those allegations and averments.

366. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 366 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 366 and, therefore, denies those allegations and averments.

367. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 367 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 367 and, therefore, denies those allegations and averments.

**22. Sanrock**

368. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 368 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 368 and, therefore, denies those allegations and averments.

369. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 369 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 369 and, therefore, denies those allegations and averments.

370. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 370 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 370 and, therefore, denies those allegations and averments.

371. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 371 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 371 and, therefore, denies those allegations and averments.

**23. Schumacher**

372. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 372 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 372 and, therefore, denies those allegations and averments.

373. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 373 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 373 and, therefore, denies those allegations and averments.

374. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 374 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 374 and, therefore, denies those allegations and averments.

375. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 375 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 375 and, therefore, denies those allegations and averments.

**24. Tooliom**

376. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 376 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 376 and, therefore, denies those allegations and averments.

377. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 377 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 377 and, therefore, denies those allegations and averments.

378. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 378 is required,

Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 378 and, therefore, denies those allegations and averments.

379. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 379 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 379 and, therefore, denies those allegations and averments.

**25. Topdon**

380. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 380 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 380 and, therefore, denies those allegations and averments.

381. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 381 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 381 and, therefore, denies those allegations and averments.

382. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 382 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 382 and, therefore, denies those allegations and averments.

383. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 383 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 383 and, therefore, denies those allegations and averments.

**26. Topvision**

384. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 384 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 384 and, therefore, denies those allegations and averments.

385. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 385 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 385 and, therefore, denies those allegations and averments.

386. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 386 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 386 and, therefore, denies those allegations and averments.

387. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 387 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 387 and, therefore, denies those allegations and averments.

**27. Trekpow**

388. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 388 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 388 and, therefore, denies those allegations and averments.

389. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 389 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 389 and, therefore, denies those allegations and averments.

390. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 390 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 390 and, therefore, denies those allegations and averments.

391. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 391 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 391 and, therefore, denies those allegations and averments.

**28. Vavofo**

392. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 392 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 392 and, therefore, denies those allegations and averments.

393. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 393 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 393 and, therefore, denies those allegations and averments.

394. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 394 is required,

Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 394 and, therefore, denies those allegations and averments.

395. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 395 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 395 and, therefore, denies those allegations and averments.

**29. Vekkia**

396. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 396 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 396 and, therefore, denies those allegations and averments.

397. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 397 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 397 and, therefore, denies those allegations and averments.

398. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 398 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 398 and, therefore, denies those allegations and averments.

399. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 399 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 399 and, therefore, denies those allegations and averments.

### 30. Yaber

400. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 400 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 400 and, therefore, denies those allegations and averments.

401. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 401 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 401 and, therefore, denies those allegations and averments.

402. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 402 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 402 and, therefore, denies those allegations and averments.

403. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 403 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 403 and, therefore, denies those allegations and averments.

## C. Smartech Brands

### 1. Smartech

404. Smartech admits that the Amended Complaint is accompanied by Ex. 44C, which on its face is a declaration of Anne E. Hurst. Smartech further admits that it imports into the United States and sells within the United States certain portable battery jumpers. Smartech denies the remaining allegations of paragraph 404.

405. Smartech admits that the Amended Complaint is accompanied by Ex. 44C, which on its face is a declaration of Anne E. Hurst. Smartech further admits that it imports into the United States and sells within the United States certain portable battery jumpers. Smartech denies the remaining allegations of paragraph 405.

406. Smartech admits that it imports and distributes certain portable battery jumpers in the United States. Smartech further admits that what appears to be a receipt of purchase of a Smartech product is attached as Ex. 88 to the Complaint. Smartech also admits that paragraph 406 contains a link to a Smartech product page on Walmart's website. Smartech lacks sufficient knowledge and information to form a belief as to the truth of the remaining allegations contained in paragraph 406 of the Complaint and therefore denies those allegations.

407. Smartech admits that some pages of Ex. 88 contain the phrase "Made in China." Smartech lacks sufficient knowledge and information to form a belief as to the truth of the allegations contained in paragraph 407 of the Complaint and therefore denies those allegations.

**D. Weego Brands**

**1. Weego**

408. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 408 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 408 and, therefore, denies those allegations and averments.

409. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 409 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 409 and, therefore, denies those allegations and averments.

410. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 410 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 410 and, therefore, denies those allegations and averments.

411. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 411 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 411 and, therefore, denies those allegations and averments.

**E. Winplus Brands**

**1. Type S**

412. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 412 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 412 and, therefore, denies those allegations and averments.

413. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 413 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 413 and, therefore, denies those allegations and averments.

414. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 414 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 414 and, therefore, denies those allegations and averments.

415. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 415 is required,

Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 415 and, therefore, denies those allegations and averments.

**2. Winplus**

416. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 416 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 416 and, therefore, denies those allegations and averments.

417. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 417 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 417 and, therefore, denies those allegations and averments.

418. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 418 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 418 and, therefore, denies those allegations and averments.

419. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 419 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 419 and, therefore, denies those allegations and averments.

**F. Great Neck Brands**

**1. OEM Tools**

420. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 420 is required,

Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 420 and, therefore, denies those allegations and averments.

421. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 421 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 421 and, therefore, denies those allegations and averments.

422. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 422 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 422 and, therefore, denies those allegations and averments.

423. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 423 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 423 and, therefore, denies those allegations and averments.

**G. ThiEye Brands**

**1. Buture**

424. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 424 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 424 and, therefore, denies those allegations and averments.

425. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 425 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 425 and, therefore, denies those allegations and averments.

426. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 426 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 426 and, therefore, denies those allegations and averments.

427. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 427 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 427 and, therefore, denies those allegations and averments.

**2. Funnemge**

428. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 428 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 428 and, therefore, denies those allegations and averments.

429. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 429 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 429 and, therefore, denies those allegations and averments.

430. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 430 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 430 and, therefore, denies those allegations and averments.

431. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 431 is required,

Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 431 and, therefore, denies those allegations and averments.

**3. Utrai**

432. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 432 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 432 and, therefore, denies those allegations and averments.

433. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 433 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 433 and, therefore, denies those allegations and averments.

434. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 434 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 434 and, therefore, denies those allegations and averments.

435. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 435 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 435 and, therefore, denies those allegations and averments.

**H. Energen & Performance Tool Brands**

**1. Energen**

436. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 436 is required,

Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 436 and, therefore, denies those allegations and averments.

437. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 437 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 437 and, therefore, denies those allegations and averments.

438. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 438 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 438 and, therefore, denies those allegations and averments.

439. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 439 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 439 and, therefore, denies those allegations and averments.

**2. Performance Tool**

440. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 440 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 440 and, therefore, denies those allegations and averments.

441. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 441 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 441 and, therefore, denies those allegations and averments.

442. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 442 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 442 and, therefore, denies those allegations and averments.

443. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 443 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 443 and, therefore, denies those allegations and averments.

**I. Halo Brands**

**1. HALO**

444. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 444 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 444 and, therefore, denies those allegations and averments.

445. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 445 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 445 and, therefore, denies those allegations and averments.

446. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 446 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 446 and, therefore, denies those allegations and averments.

447. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 447 is required,

Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 447 and, therefore, denies those allegations and averments.

### J. Clore Brands

#### 1. Jump-N-Carry

448. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 448 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 448 and, therefore, denies those allegations and averments.

449. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 449 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 449 and, therefore, denies those allegations and averments.

450. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 450 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 450 and, therefore, denies those allegations and averments.

451. Smartech understands that this Paragraph is not directed to Smartech, and no response from Smartech is needed. To the extent that a response to Paragraph 451 is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 451 and, therefore, denies those allegations and averments.

## VIII. HARMONIZED TARIFF SCHEDULE ITEM NUMBERS

452. Paragraph 452 calls for a legal conclusion, and no response is required. To the extent a response is required, Smartech lacks knowledge or information sufficient to form a belief

regarding the allegations and averments contained in Paragraph 452 and, therefore, denies those allegations and averments.

## IX. DOMESTIC INDUSTRY

453. Paragraph 453 calls for a legal conclusion, and no response is required. To the extent a response is required, Smartech lacks knowledge or information sufficient to form a belief regarding the allegations and averments contained in Paragraph 453 and, therefore, denies those allegations and averments.

### A. Technical Prong

454. Smartech lacks sufficient knowledge and information to form a belief as to the truth of the allegations contained in paragraph 454 of the Complaint and therefore denies those allegations.

455. Smartech lacks sufficient knowledge and information to form a belief as to the truth of the allegations contained in paragraph 455 of the Complaint and therefore denies those allegations.

456. Smartech lacks sufficient knowledge and information to form a belief as to the truth of the allegations contained in paragraph 456 of the Complaint and therefore denies those allegations.

### B. Economic Prong

457. Smartech lacks sufficient knowledge and information to form a belief as to the truth of the allegations contained in paragraph 457 of the Complaint and therefore denies those allegations.

458. Smartech lacks sufficient knowledge and information to form a belief as to the truth of the allegations contained in paragraph 458 of the Complaint and therefore denies those allegations.

459. Smartech lacks sufficient knowledge and information to form a belief as to the truth of the allegations contained in paragraph 459 of the Complaint and therefore denies those allegations.

460. Smartech lacks sufficient knowledge and information to form a belief as to the truth of the allegations contained in paragraph 460 of the Complaint and therefore denies those allegations.

461. Smartech lacks sufficient knowledge and information to form a belief as to the truth of the allegations contained in paragraph 461 of the Complaint and therefore denies those allegations.

462. Smartech lacks sufficient knowledge and information to form a belief as to the truth of the allegations contained in paragraph 462 of the Complaint and therefore denies those allegations.

## X. RELATED LITIGATION

463. Smartech admits that NOCO filed a Complaint for infringement of the '015 patent against Smartech in the District Court for the Northern District of Ohio. Smartech also admits that the '015 patent is involved in Inter Partes Review No. IPR2020-00944 filed by Shenzhen Carku Technology Co., Ltd. and that the PTAB has instituted the review. Smartech lacks sufficient knowledge and information to form a belief as to the truth of the remaining allegations contained in paragraph 463 of the Complaint and therefore denies those allegations.

464. Smartech lacks sufficient knowledge and information to form a belief as to the truth of the allegations contained in paragraph 464 of the Complaint and therefore denies those allegations.

465. Smartech lacks sufficient knowledge and information to form a belief as to the truth of the allegations contained in paragraph 465 of the Complaint and therefore denies those allegations.

466. Smartech lacks sufficient knowledge and information to form a belief as to the truth of the allegations contained in paragraph 466 of the Complaint and therefore denies those allegations.

## XI. GEO

467. Smartech lacks sufficient knowledge and information to form a belief as to the truth of the allegations contained in paragraph 467 of the Complaint and therefore denies those allegations. Smartech denies that NOCO is entitled to any relief whatsoever, including without limitation the relief requested in paragraph 467.

468. Smartech lacks sufficient knowledge and information to form a belief as to the truth of the allegations contained in paragraph 468 of the Complaint and therefore denies those allegations.

469. Smartech lacks sufficient knowledge and information to form a belief as to the truth of the allegations contained in paragraph 469 of the Complaint and therefore denies those allegations.

470. Smartech lacks sufficient knowledge and information to form a belief as to the truth of the allegations contained in paragraph 470 of the Complaint and therefore denies those allegations.

471. Smartech lacks sufficient knowledge and information to form a belief as to the truth of the allegations contained in paragraph 471 of the Complaint and therefore denies those allegations.

472. Smartech lacks sufficient knowledge and information to form a belief as to the truth of the allegations contained in paragraph 472 of the Complaint and therefore denies those allegations.

473. Smartech lacks sufficient knowledge and information to form a belief as to the truth of the allegations contained in paragraph 473 of the Complaint and therefore denies those allegations.

474. Smartech lacks sufficient knowledge and information to form a belief as to the truth of the allegations contained in paragraph 474 of the Complaint and therefore denies those allegations.

## XII. REQUESTED RELIEF

475. To the extent paragraph 475 contains conclusions of law, no response is necessary. To the extent a response is necessary, Smartech denies the allegations in paragraph 475.

476. Smartech denies that NOCO is entitled to any relief whatsoever, including without limitation the relief requested in paragraph 476.

## SMARTECH'S ADDITIONAL DEFENSES

Smartech asserts the following additional defenses. Discovery is ongoing at the time of this Response, and therefore, Smartech has not yet had sufficient time and opportunity to collect and review all the information that may be relevant to the matters and issues raised herein. Smartech accordingly, under 19 U.S.C. §§ 210.14(b) and 210.14(c), reserves the right to seek amendment of, modify, and/or expand these defenses and to take further positions as discovery proceeds in this Investigation.

**FIRST ADDITIONAL DEFENSE**
(Invalidity)

1. The asserted claims of the Asserted Patents are each invalid for failure to meet the requirements of 35 U.S.C. §§ 101, 102, 103, 112, and/or 116.

2. Based on information and belief, and subject to further discovery, the asserted claims of the Asserted Patents are invalid under 35 U.S.C. §§ 102 and/or 103, based on at least the prior art references cited by the examiner during prosecution of Asserted Patents and related applications; prior art references disclosed during prosecution of those applications; prior art references disclosed during any prior litigation and/or any post-issuance proceedings involving either of the Asserted Patents; the Notice of Prior Art filed in this investigation; and/or the following prior art, either individually or in combination, and any prior art related to the following prior art:

- U.S. Patent No. 9,954,391 to Lei
- U.S. Patent No. 9,525,297 to Wang
- U.S. Patent No. 9,506,446 to Xinfang
- U.S. Patent No. 8,172,603 to Richardet
- U.S. Patent No. 8,076,900 to Brown
- U.S. Patent No. 7,345,450 to Krieger et. al
- U.S. Patent No. 7,095,339 to Peng et al
- U.S. Patent No. 6,426,606 to Purkey
- U.S. Patent No. 6,424,158 to Klang
- U.S. Patent No. 5,793,185 to Prelec et al
- U.S. Patent No. 5,650,974 to Yoshimura
- U.S. Patent No. 5,496,658 to Hein et al
- U.S. Patent No. 5,319,298 to Wanzong et al
- U.S. Patent No. 3,267,452 to Wolf
- U.S. Patent No. 3,085,187 to Godshalk
- U.S. Patent No. 3,105,183 to Hysler et al
- U.S. Patent Application Publication No. 2013/0314041 to Proebstle
- U.S. Patent Application Publication No. 2013/0241488 to Dao
- U.S. Patent Application Publication No. 2013/0154543 to Richardson et al
- U.S. Patent Application Publication No. 2012/0091944 to Rogers
- U.S. Patent Application Publication No. 2009/0174362 to Richardson et al
- U.S. Patent Application Publication No. 2007/0285049 to Krieger et al

- U.S. Patent Application Publication No. 2005/0252573 to Montani
- U.S. Patent Application Publication No. 2005/0110467 to Thomason
- U.S. Patent Application Publication No. 2005/0040788 to Tseng
- U.S. Patent Application Publication No. 2004/0130298 to Krieger et al
- Chinese Patent No. 202696190 to Zhang
- WO Publication No. 2013-137873 to Dao
- WO Publication No. 2010/129723 to Baxter et al
- Japanese Patent No. 2013137873A to Hirose et. al.
- U.S. Patent Publication No. 2010/0173182
- U.S. Patent Publication No. 2009/0174362
- U.S. Patent No. 7,345,450
- U.S. Patent No. 6,426,606
- DE 20 2013 102 599
- JP 2015-115979
- U.S. Patent Publication No. 2005/0110467 A1
- US 2012/0068662 A1
- U.S. Patent No. 7,508,171
- U.S. Patent No. 7,579,811
- U.S. Patent No. 5,831,350
- U.S. Patent No. 6,057,667
- U.S. Patent No. 6,249,106
- U.S. Patent No. 6,362,599
- U.S. Patent No. 6,344,733
- U.S. Patent No. 5,319,298
- U.S. Patent No. 6,144,110
- U.S. Patent No. 6,160,381
- U.S. Patent No. 6,271,605
- U.S. Patent No. 6,632,103
- U.S. Patent No. 6,774,607
- U.S. Patent No. 6,803,743
- U.S. Patent No. 6,919,704
- U.S. Patent No. 7,339,347
- U.S. Patent No. 7,508,171
- U.S. Patent No. 7,579,811
- U.S. Patent No. 8,125,181
- U.S. Patent No. 8,172,603
- U.S. Patent No. 8,199,024
- U.S. Patent No. 8,994,327
- U.S. Patent No. 9,007,023
- U.S. Patent No. 9,263,717
- U.S. Patent No. 9,263,907
- U.S. Patent No. 9,287,725
- U.S. Patent No. 9,871,392
- U.S. Patent No. 9,874,611

- U.S. Patent Publication No. 2001/0038276
- U.S. Patent Publication No. 2002/0075003
- U.S. Patent Publication No. 2004/0066168
- U.S. Patent Publication No. 2005/0162124
- U.S. Patent Publication No. 2010/0244766
- U.S. Patent Publication No. 2010/0301800
- U.S. Patent Publication No. 2011/0127947
- U.S. Patent Publication No. 2011/0279089
- U.S. Patent Publication No. 2012/0013189
- U.S. Patent Publication No. 2012/0139498
- U.S. Patent Publication No. 2013/0241488
- U.S. Patent Publication No. 2014/0159509
- U.S. Patent Publication No. 2015/0012174
- AU 199869971 B2
- EP 1673828 B1
- WO 2000/024108A1
- WO 2012/080996 A1
- U.S. Patent Publication No. 2013/0154543
- U.S. Patent No. 6,424,158
- U.S. Patent No. 9,954,391
- U.S. Patent No. 5,319,298
- WO Publication No. 2010/129723
- U.S. Patent No. 8,172,603
- U.S. Patent No. 9,506,446
- U.S. Patent No. 6,426,606
- Chinese Patent No. 202696190
- U.S. Patent No. 5,496,658
- U.S. Patent No. 3,085,187
- U.S. Patent No. 3,105,183
- U.S. Patent No. 3,267,452
- U.S. Patent No. 5,793,185
- U.S. Patent No. 7,095,339
- US 2005/0110467
- U.S. Patent Publication No. 2013/0241488
- US Patent No. 6,362,599
- US Patent Publication No. 2009/0174362
- US Patent Publication No. 2002/0075003
- JP 3182855U
- US Patent No. 6,212,054
- US Patent Publication No. 2010/0055546
- US Patent No. 7,675,261
- US Patent Publication No. 2013/0154544
- US Patent Publication No. 2010/0181959
- US Patent Publication No. 2003/0096158

- CN 201947042U
- US Patent Publication No. 2015/0012174
- U.S. Patent No. 6,424,158
- U.S. Patent No. 9,954,391
- U.S. Patent No. 5,319,298
- WO Publication No. 2010/129723
- U.S. Patent No. 8,172,603
- U.S. Patent No. 9,506,446
- U.S. Patent No. 6,426,606
- Chinese Patent No. 203504235
- U.S. Patent No. 5,496,658
- U.S. Patent No. 3,085,187
- U.S. Patent No. 3,105,183
- U.S. Patent No. 3,267,452
- U.S. Patent No. 5,793,185
- U.S. Patent No. 7,095,339
- US 2005/0110467
- U.S. Patent Publication No. 2013/0241488
- US Patent No. 6,362,599
- US Patent Publication No. 2009/0174362
- US Patent Publication No. 2002/0041174
- JP 3182855U
- US Patent No. 6,212,054
- US Patent Publication No. 2010/0055546
- US Patent No. 7,675,261
- US Patent Publication No. 2013/0154544
- US Patent Publication No. 2010/0181959
- US Patent Publication No. 2003/0096158
- CN 201947042U
- US Patent Publication No. 2015/0012174
- USB Battery Charging Specification Version 1.2;
- E-flite EC Connector Assembly Instructions 2008;
- Datasheet for LM7805 Voltage Regulator from Fairchild Semiconductor;
- Carku Product Brochure for the Epower-20 jump starter product;
- Carku Product Brochure for the Epower-21 jump starter product;
- MC78XX/LM78XX/MC78XXA 3-Terminal 1A Positive Voltage Regulator from Fairchild Semiconductor Corporation 2001;
- Schumacher SL1 System of Schumacher Electric Corporation
- HaiJiu SHF12000-12 System of Hangzhou HaiJiu Battery Company
- Asia Bright JPR Jump Start Products (e.g., JPR 1800, JPR 2600, JPR 4500, JPR 9000) of Asia Bright Industrial (Hong Kong) Co., Ltd.
- RESCUE 2100 Portable Power Pack System of QuickCable Corporation
- Projecta HP2200 System of Brown & Watson International Pty. Ltd.
- DieHard Portable Power 950 System of Schumacher Electric Corporation

- Stanley LI1000-CA of Baccus Global LLC

3. All asserted claims of the Asserted Patents are invalid for failure to comply with the requirements of 35 U.S.C. § 112 due to lack of written description, failure to particularly point out and distinctly claim the subject matter which is regarded as the alleged invention, failure to set forth the best mode contemplated by the inventors for carrying out the alleged invention, and/or failure to set forth a written description sufficient to enable any person skilled in the art to make and use the alleged invention.

**SECOND ADDITIONAL DEFENSE**
(Noninfringement)

4. Smartech has not directly infringed, indirectly infringed, contributed to or induced infringement of any valid or enforceable claim of any of the Asserted Patents, and has not otherwise committed any acts in violation of 35 U.S.C. §§ 271 and/or 19 U.S.C. § 1337.

5. The asserted claims of the Asserted Patents are not entitled to any construction that would cover any product made, sold, used, offered for sale, or imported into the United States by Smartech. Smartech does not infringe any of the Asserted Patents, either directly or indirectly, at least because the Smartech Accused Products do not meet every limitation of any of the asserted claims, the asserted claims are invalid or unenforceable, and/or Smartech has certain rights arising from various doctrines.

6. As non-limiting examples, Smartech's products do not perform at least the below-indicated claim elements of the asserted claims of the Asserted Patents:

For Claim 1 of the '015 patent:

- A vehicle battery isolation sensor connected in circuit with said positive and negative polarity outputs, configured to detect presence of a vehicle battery connected between said positive and negative polarity outputs;

- A reverse polarity sensor connected in circuit with said positive and negative polarity outputs, configured to detect polarity of a vehicle battery connected between said positive and negative polarity outputs and to provide an output signal indicating whether positive and negative terminals of said vehicle battery are properly connected with said positive and negative polarity outputs of said output port;
- A power switch connected between said internal power supply and said output port; and
- A microcontroller configured to receive input signals from said vehicle isolation sensor and said reverse polarity sensor, and to provide an output signal to said power switch, such that said power switch is turned on to cause said internal power supply to be connected to said output port in response to signals from said sensors indicating the presence of a vehicle battery with said positive and negative polarity outputs, and is not turned on when signals from said sensors indicate either the absence of a vehicle battery at said output port or improper polarity connection of positive and negative terminals of said vehicle battery with said positive and negative polarity outputs.

For Claim 1 of the '024 patent:

- A vehicle battery isolation sensor connected in circuit with the positive and negative polarity vehicle battery terminal connectors, the vehicle battery isolation sensor configured to detect a presence of the vehicle battery when connected between the positive and negative polarity vehicle battery terminal connectors;
- A reverse polarity sensor connected in circuit with the positive and negative polarity vehicle battery terminal connectors, the reverse polarity sensor configured to detect a polarity of the vehicle battery connected between the positive and negative polarity vehicle battery terminal connectors and to provide an output signal indicating that the positive and negative polarity terminals of the vehicle battery are properly connected to the positive and negative polarity vehicle battery connectors;
- A power switch connected between the power supply and the positive and negative polarity vehicle battery terminal connectors; and
- A microcontroller configured to receive input signals from the vehicle isolation sensor and the reverse polarity sensor, the microcontroller is configured to provide an activating output signal to turn on the power switch to cause the power supply to be connected to the positive and negative polarity vehicle battery connectors in response to the microcontroller receiving input signals simultaneously from the sensors indicating both the presence and connection of the vehicle battery to the positive and negative polarity vehicle battery connectors and proper polarity connection of the positive and negative polarity terminals of the vehicle battery with the positive and negative polarity battery terminal connectors, and the microcontroller is configured to provide a deactivating output signal to turn off the power switch to cause the power supply to be disconnected from the positive and negative polarity vehicle battery connectors in response to the microcontroller receiving input signals from the sensors indicating the absence of the vehicle battery connected to the positive and negative polarity vehicle battery connectors and/or improper polarity connection of the positive and negative polarity terminals of the vehicle battery to the positive and negative polarity vehicle battery connectors.

For Claim 29 of the '024 patent:

- a vehicle battery isolation sensor connected in circuit with the positive and negative polarity vehicle battery terminal connectors, the vehicle battery isolation sensor configured to detect a presence of the vehicle battery when connected between the positive and negative polarity vehicle battery terminal connectors;
- a reverse polarity sensor connected in circuit with the positive and negative polarity vehicle battery terminal connectors, the reverse polarity sensor configured to detect a polarity of the vehicle battery connected between the positive and negative polarity vehicle battery terminal connectors and to provide an output signal indicating that the positive and negative polarity terminals of the vehicle battery are properly connected to the positive and negative polarity vehicle battery connectors;
- a power switch connected between the power supply and the positive and negative polarity vehicle battery terminal connectors; and
- a microcontroller configured to receive input signals from the vehicle isolation sensor and the reverse polarity sensor, the microcontroller configured to control operation of the power switch, wherein the microcontroller is configured to turn on the power switch when receiving input signals from the vehicle isolation sensor and reverse polarity sensor indicating both the presence and connection of the vehicle battery to the positive and negative polarity vehicle battery connectors and proper polarity connection of the positive and negative polarity terminals of the vehicle battery with the positive and negative polarity battery terminal connectors, and wherein the microcontroller is configured to turn off the power switch when receiving input signals from the sensors indicating the absence of the vehicle battery connected to the positive and negative polarity vehicle battery connectors and/or improper polarity connection of the positive and negative polarity terminals of the vehicle battery to the positive and negative polarity vehicle battery connectors.

For Claim 30 of the '024 patent:

- a vehicle battery isolation sensor connected in circuit with the positive and negative polarity vehicle battery terminal connectors, the vehicle battery isolation sensor configured to detect a presence of the vehicle battery when connected between the positive and negative polarity vehicle battery terminal connectors;
- a reverse polarity sensor connected in circuit with the positive and negative polarity vehicle battery terminal connectors, the reverse polarity sensor configured to detect a polarity of the vehicle battery connected between the positive and negative polarity vehicle battery terminal connectors and to provide an output signal indicating that the positive and negative polarity terminals of the vehicle battery are properly connected to the positive and negative polarity vehicle battery connectors;
- a power switch connected between the power supply and the positive and negative polarity vehicle battery terminal connectors; and
- a microcontroller configured to receive input signals from the vehicle isolation sensor and the reverse polarity sensor, the microcontroller is configured to turn on the power switch to cause the power supply to be connected to the positive and negative polarity vehicle battery connectors in response to the micro-controller receiving input signals simultaneously from the sensors indicating both the presence and connection of the vehicle

battery to the positive and negative polarity vehicle battery connectors and proper polarity connection of the positive and negative polarity terminals of the vehicle battery with the positive and negative polarity battery terminal connectors, and the microcontroller is configured to turn off the power switch to prevent the power supply from being connected to the positive and negative polarity vehicle battery connectors in response to the microcontroller not receiving the input signals simultaneously from the sensors indicating both the presence and connection of the vehicle battery to the positive and negative polarity vehicle battery connectors and proper polarity connection of the positive and negative polarity terminals of the vehicle battery with the positive and negative polarity battery terminal connectors.

7. The doctrine of prosecution history estoppel and/or prosecution history disclaimers preclude infringement of one or more of the asserted claims of the Asserted Patents.

**THIRD ADDITIONAL DEFENSE**
(Lack of Domestic Industry)

8. NOCO has not adequately alleged and cannot prove the existence of a domestic industry, as required under § 1337(a)(2) and defined under § 1337(a)(3), in connection with any of the Asserted Patents, or such that a domestic industry is in the process of being established. Specifically, on information and belief, and prior to meaningful discovery, NOCO has failed to show that it practices the Asserted Patents or that NOCO has made a significant investment in plant and equipment, significant employment of labor or capital, or a substantial investment in the exploitation of the Asserted Patents, including engineering, research and development, or licensing, in the United States with respect to articles protected by the Asserted Patents.

**FOURTH ADDITIONAL DEFENSE**
(Lack of Unfair Act)

9. Smartech has committed no unfair acts, including any acts that violate Section 337.

**FIFTH ADDITIONAL DEFENSE**
(Prosecution History Estoppel)

10. NOCO's claims against Smartech are barred, in whole or in part, by prosecution history estoppel based on statements made by the applicants during prosecution of the Asserted Patents.

**SIXTH ADDITIONAL DEFENSE**
(Waiver and Estoppel)

11. NOCO's claims against Smartech are barred, in whole or in part, due to waiver and estoppel because it or its predecessors have long known of the basis for the allegations it now asserts against Smartech but unreasonably delayed in seeking relief.

**SEVENTH ADDITIONAL DEFENSE**
(Laches)

12. NOCO's claims for relief are barred, in whole or in part, due to its unreasonable delay in bringing this Investigation when NOCO has had information in its possession to initiate this suit for many years.

13. NOCO knew or should have known of the allegedly infringing products for at least six years prior to the filing of this suit.

14. NOCO's unreasonable delay in bringing this suit has caused Smartech significant prejudice as Smartech continued to make significant investments in both infrastructure, technology, service, employment, and substantial domestic investments.

**EIGHTH ADDITIONAL DEFENSE**
(Other Defenses)

15. Smartech further reserves the right to amend its Response to include other affirmative defenses that Smartech may learn of during the course of this Investigation.

## REQUEST FOR RELIEF

WHEREFORE, Smartech respectfully requests that the Commission:

a. Find that no violation of Section 337 of the Tariff Act of 1930, as amended, exists by reason of importation, sale for importations or sale after importation by Smartech of certain portable battery jump starters and components thereof as described in the Amended Complaint and Notice of Investigation;

b. Deny Complainant's request for a general exclusion order, a limited exclusion order, cease and desist orders, and bond directed to products manufactured by or for Smartech, its subsidiaries, affiliates, related companies and agents;

c. Find that the asserted claims of the Asserted Patents are invalid and unenforceable;

d. Determine that Smartech has not infringed any claims of the Asserted Patents;

e. Determine that Complainant has failed to meet the domestic industry requirement;

f. Grant Smartech such other and further relief that the Commission determines is appropriate based upon the facts determined by the investigator and the authority of the Commission.

## RESPONSE TO NOTICE OF INVESTIGATION

Pursuant to Commission Rule 210.13(b), Smartech hereby responds to the Notice of Investigation issued by the Commission on March 17, 2021. Without admitting any of the specific or general allegations set forth in the Complaint as referenced in the Notice, Smartech provides the following response:

Smartech acknowledges that the Commission has instituted an investigation as set forth in the Commission's Notice. Smartech denies that there has been any violation of 19 U.S.C. § 1337 by Smartech in the importation into the United States, the sale for importation, or the sale within the United States after importation of certain portable battery jumpers and products containing

same by reason of infringement of any valid and enforceable claims of any patents owned by or assigned to NOCO. Smartech acknowledges that NOCO alleges that an industry in the United States exists as required by Section 337, but Smartech lacks sufficient information and knowledge to form a belief as to the truth of NOCO's allegation that it meets the domestic industry requirement, and on this basis, denies such allegation. Smartech states that NOCO did not assert its Asserted Trademarks against Smartech. Smartech further acknowledges that NOCO requested that the Commission issue an exclusion order and cease and desist orders, but Smartech denies that NOCO is entitled to any relief. Except as expressly admitted, Smartech denies the allegations in the Notice of Investigation.

Date: April 22, 2021

Respectfully submitted,

/s/ *R. Eric Gaum*

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Counsel for Respondent Smartech Products, Inc.

## CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing was served to the parties, in the manner indicated below, this the 22nd day of April, 2021.

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| The Honorable Lisa R. Barton Secretary to the Commission U.S. International Trade Commission 500 E Street, SW, Suite 112 Washington, DC 20436 | ☒ **VIA ELECTRONIC FILING** [EDIS] |
| The Honorable Clark S. Cheney<br>Administrative Law Judge<br>U.S. International Trade Commission<br>500 E Street, SW<br>Washington, DC 20436 | ☒ **VIA ELECTRONIC MAIL**<br>Cheney337@usitc.gov<br>Patricia.Chow@usitc.gov<br>Benjamin.Rudofsky@usitc.gov |
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| **Complainant The NOCO Company** | |
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| **Respondent Advance Auto Parts, Inc.** | |
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| **Respondents AutoZone, Inc. and Best Parts, Inc** | |
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| **Respondent Deltran USA, LLC** | |
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| **Respondent Winplus North America, Inc.** | |
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| **Respondent QVC, Inc.** | |
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| **Respondents Schumacher Electric Corporation and Schumacher Power Technology Ltd; Lowe's Companies, Inc.; O'Reilly Automotive, Inc.; Walmart Inc.** | |
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| **Respondent Halo2Cloud, LLC** | |
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| **Respondent Shenzhen Carku Technology Co., Ltd.** | |
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| **Respondent Guangdong Boltpower Energy Co., Ltd. and Best Buy Co., Inc.** | |
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| **Respondents 70mai Co., Ltd., Antigravity Batteries LLC, Gooloo Technologies LLC, Horizon Tool, Inc., Great Neck Saw Manufacturers, Inc., Matco Tools Corporation, Nekteck, Inc., Paris Corporation, and PowerMax Battery (U.S.A.), Inc.** | |
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| **Respondent Anker Technology (UK) Ltd.** | |
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| **Respondent Shenzhen Dinjiang Technology Co., Ltd.** | |
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*/s/ R. Eric Gaum*
Taft Stettinius & Hollister LLP

**UNITED STATES INTERNATIONAL TRADE COMMISSION**
**WASHINGTON, D.C.**

**Before the Honorable Clark S. Cheney**
**Administrative Law Judge**

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| **In the Matter of**<br><br>**CERTAIN PORTABLE BATTERY JUMP STARTERS AND COMPONENTS THEREOF** | **Inv. No. 337-TA-1256** |

# RESPONSE OF HALO2CLOUD, LLC AND ZAGG INC TO THE SECOND AMENDED COMPLAINT AND NOTICE OF INVESTIGATION

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*Counsel for Respondent*
*Halo2Cloud, LLC and ZAGG Inc*

Pursuant to 19 C.F.R. § 210.13, Respondents Halo2Cloud, LLC ("Halo") and ZAGG Inc. ("ZAGG") (collectively, "Respondent"[1]), by and through its undersigned attorneys, submit this response ("Response") to the Second Amended Complaint[2] under Section 337 of the Tariff Act of 1930 filed by The NOCO Company ("NOCO" or "Complainant") on April 21, 2021 by way of Complainant's Unopposed Omnibus Motion to Amend the Complaint and Notice of Investigation and Withdraw Certain Allegations as to the Halo Accused Products which was granted on April 23, 2021 through Order No. 13, and the Notice of Institution of Investigation issued by the United States International Trade Commission ("ITC" or "Commission") on March 17, 2021, and published in the Federal Register on March 23, 2021 (the "Notice of Investigation").

## RESPONSE TO THE COMPLAINT

Respondent denies that it has engaged in unfair competition or violated Section 337 of the Tariff Act of 1930, as amended, by importing, selling for importation, or selling within the United States after importation any product that infringes any valid and enforceable intellectual property right at issue in this Investigation. Respondent further denies that any patent claims at issue in this Investigation are valid or enforceable. The responses below reflect the current status of Respondent's knowledge and belief regarding the subject matter of the allegations to which it responds. Respondent reserves the right to supplement, modify, and/or amend its responses based on any additional facts or developments that become available or that arise after the filing of this Response.

[1] ZAGG is the parent company to Halo, and in accordance with an agreement between the Halo Respondents and Complainant, responses for ZAGG and Halo will be provided jointly for the sake of efficiency and convenience.

[2] Halo and ZAGG dispute any and all allegations stated against Halo and/or ZAGG related to a violation of Section 337 that have been presented in any of the various versions of NOCO's complaints, amended complaints, or letters identifying changes to be made to the complaint.



ADC EX1002
IPR2025-00885

Respondent denies each and every allegation averred in the Complaint that is not expressly admitted below. Any factual allegation admitted below is admitted as to only the specific admitted facts, and not as to any purported conclusions, characterizations, implications, or speculations that might follow from the admitted facts. On personal knowledge, Respondent responds to the numbered paragraphs of the Complaint as follows:

## I. INTRODUCTION[3]

1. The NOCO Company ("NOCO" or "Complainant"), a 100 plus year old company designing and creating premium battery products in the United States for the automotive industry, respectfully requests that the U.S. International Trade Commission ("Commission") commence an investigation pursuant to Section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337 ("Section 337") to remedy the unlawful importation into the United States, the sale for importation, offer for sale, and/or the sale within the United States after importation by the owner, importer, or consignee, of certain portable battery jump starters and components thereof that infringe one or more of the valid and enforceable United States patents owned by NOCO.

**RESPONSE:** Respondent admits that NOCO filed a Complaint pursuant to Section 337 of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337, requesting that the Commission institute an investigation against certain Respondents. Respondent denies that it has engaged in any unlawful activity that constitutes a violation of Section 337. Respondent denies any remaining allegations in Paragraph 1.

2. On information and belief, the Proposed Respondents, as listed in Section II.B., *supra*, are manufacturers, importers, trading companies, and retailers based in China and the United States. Respondents have engaged, and continue to engage, in unfair acts in violation of Section 337 through the unlicensed importation, sale for importation, offer for sale, and/or sale after importation into the United States of portable battery jump starters having certain safety features ("Accused Products"). Upon information and belief, the Accused Products have been imported into the United States.

**RESPONSE:** Respondent admits that Complainant's allegations are based on alleged unfair

[3] Respondent repeats the headings in the Complaint for reference purposes only. To the extent such headings purport to express factual allegations to which a response is required, Respondent hereby denies any such allegations.

acts in violation of Section 337 through the alleged unlicensed importation, sale for importation, offer for sale, and/or sale after importation into the United States of portable battery jump starters having certain safety features. To the extent Paragraph 2 contains legal conclusions, no response is required. To the extent a response is required, Respondent denies Complainant's allegations that it has violated or that it continues to violate Section 337 in any manner. Respondent denies any remaining allegations in Paragraph 2.

3. The Accused Products infringe one or more of the Asserted Claims of United States Patent Nos. 9,007,015 and 10,604,024 (collectively, the "Asserted Patents"), which are both owned by NOCO. Pursuant to Commission Rule 210.12(a)(9)(i), copies of the '015 Patent and the '024 Patent, are attached to this Complaint as Exhibits 1 – 2, respectively.

**RESPONSE:** Respondent admits that NOCO alleges infringement of one or more claims of U.S. Patent No. 9,007,015 ("the '015 Patent") and one or more claims of U.S. Patent No. 10,604,024 ("the '024 Patent") (collectively, the "Asserted Patents"). Respondent lacks knowledge or information sufficient to form a belief as to NOCO's alleged ownership of the Asserted Trademarks and therefore denies such allegations. To the extent Paragraph 3 contains legal conclusions, no response is required. To the extent a response is required, Respondent denies that the Asserted Patents are infringed, valid, and/or enforceable. Respondent admits that Exhibits 1 and 2 to the Complaint appear to be, on their face, copies of the '015 Patent and '024 Patent, respectively. Respondent denies any remaining allegations in Paragraph 3 and any corresponding footnotes.

4. Certain of Respondents' Accused Products also infringe one or more of U.S. Trademark Reg. Nos. 4,811,656 and 4,811,749 (collectively, the "Asserted Trademarks"), which are both owned by NOCO, in violation of Section 337(a)(1)(C). Pursuant to Commission Rule 210.12(a)(9)(i), copies of the '656 Trademark and '749 Trademark are attached to this Complaint as Exhibits 3-4, respectively.

**RESPONSE:** Respondent admits that NOCO alleges infringement of one or more of U.S.

Trademark Reg. Nos. 4,811,656 and 4,811,749 (collectively, the "Asserted Trademarks"). Respondent lacks knowledge or information sufficient to form a belief as to NOCO's alleged ownership of the Asserted Trademarks and therefore denies such allegations. To the extent Paragraph 4 contains legal conclusions, no response is required. Complainant's allegations of trademark infringement do not appear to be directed at Respondent, and Respondent lacks knowledge or information to form a belief as to the allegations regarding trademark infringement and therefore denies the allegations. Respondent admits that Exhibits 3 and 4 to the Complaint appear to be, on their face, copies of the '656 Trademark and '749 Trademark, respectively. Respondent further admits that, in Footnote 2, NOCO represents that certified copies of the '656 Trademark and '749 Trademark have been requested and will be filed upon receipt. Respondent denies any remaining allegations in Paragraph 4 and any corresponding footnotes.

5. Complainant asserts that the Accused Products infringe at least the following claims of one or more Asserted Patents in violation of Section 337(a)(1)(B)(i), either literally or under the doctrine of equivalents:

| Asserted Patent | Asserted Claims |
|---|---|
| 9,007,015 | **1**, 4, 11, 14, 18, 19, 21 |
| 10,604,024 | **1,** 4, 5, 6, 16, 19, 23, 24, 26, **29**, **30** |

**Table 1.** The Asserted Claims

**RESPONSE:** Respondent admits that Paragraph 5 identifies asserted claims. To the extent Paragraph 5 contains legal conclusions, no response is required. To the extent a response is required, Respondent specifically denies infringing, directly or otherwise, any valid and enforceable claim of the Asserted Patents. Respondent denies any remaining allegations in Paragraph 5 and any corresponding footnotes.

6. Pursuant to Commission Rules 210.10(b)(1) and 210.12(a)(12), Complainant states that a plain English description of the category of Accused Products is portable, battery-powered devices that are used to jump-start batteries such as those in automobiles, trucks, and other

vehicles, and related components, namely battery cables and clamps.

**RESPONSE:** To the extent Paragraph 6 contains legal conclusions, no response is required. To the extent a response is required, Respondent lacks knowledge or information to form a belief as to the remaining allegations of Paragraph 6 and therefore denies such allegations.

7. As required by Section 337(a)(2) and (3), a domestic industry exists and is well established in the United States for each of the Asserted Products and for products and technology protected by the Asserted Patents and Asserted Trademarks.

**RESPONSE:** To the extent Paragraph 7 contains legal conclusions, no response is required. To the extent a response is required, Respondent denies that a domestic industry as required by Section 337(a)(2) and (3) exists or is well established in the United States for each of the Accused Products and for products and technology allegedly protected by the Asserted patents and Asserted Trademarks. Respondent otherwise lacks knowledge or information to form a belief as to the remaining allegations of Paragraph 7 and therefore denies them.

8. Complainant NOCO seeks a general exclusion order pursuant to Section 337(d)(2) excluding from entry into the United States all products that infringe one or more claims of any of the Asserted Patents and/or are sold or advertised using the Asserted Trademarks. Complainant further seeks cease and desist orders pursuant to Section 337(f) directing Respondents and those acting in conjunction with Respondents to cease the importation, offering for sale, promotion, marketing, advertising, demonstration, and warehousing of inventory for distribution, sale, and use of such products within the United States. Complainant also seeks a bond pursuant to Section 337(j).

**RESPONSE:** Respondent admits that Complainant seeks certain relief from the Commission and to the extent Paragraph 8 contains legal conclusions, no response is required. To the extent a response is required, Respondent denies that Complainant is entitled to any relief from the Commission, and specifically denies infringing any valid and enforceable claim of the Asserted Patents and the Asserted Trademarks. Respondent denies any remaining allegations in Paragraph 8.

9. In the alternative, should the Commission find that a general exclusion order is not

appropriate, NOCO respectfully requests that limited exclusion orders be entered against each named Respondent and its subsidiaries, predecessors, affiliates, agents, successors, and assigns.

**RESPONSE:** Respondent admits that Complainant seeks certain relief from the Commission and to the extent Paragraph 9 contains legal conclusions, no response is required. To the extent a response is required, Respondent denies that Complainant is entitled to any relief from the Commission. Respondent denies any remaining allegations in Paragraph 9.

## II. THE PARTIES

### A. Complainant NOCO

10. Complainant NOCO is an Ohio corporation having its principal place of business at 30339 Diamond Parkway #102, Glenwillow, Ohio 44139.

**RESPONSE:** Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 10 and therefore denies such allegations.

11. NOCO is a privately held family company that was founded in the United States over 100 years ago. Joseph H. Nook, a tire and battery distributor from Cleveland, Ohio, founded The NOCO Company in 1914. Mr. Nook set out to develop a product that would prevent battery corrosion. After several hundred different formulations, Mr. Nook began commercially manufacturing and distributing the world's first Battery Corrosion Preventative which he called "NCP2," which is an acronym for "No Corrosion Product" which is applied in "2 Steps." The NCP2 brand quickly became a household name in every major battery and automotive shop. For over 100 years, the NCP2 brand has been preventing battery corrosion on over a billion vehicles and applications worldwide.

**RESPONSE:** Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 11 and therefore denies such allegations.

12. Today, NOCO, still owned and managed by the Nook family, remains a leading innovator in the automotive battery industry, and designs and manufactures premium consumer battery chargers, jump starters, solar panels, and portable power devices as well as a wide range related battery products and accessories.

**RESPONSE:** Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 12 and therefore denies such allegations.

13. NOCO has all right, title, and interest in the Asserted Patents and Asserted

Trademarks. *See* Exs. 6 and 7.

**RESPONSE:** Respondent lacks knowledge or information sufficient to form a belief as to NOCO's alleged ownership of all right, title, and interest in the Asserted Patents and Asserted Trademarks and therefore denies such allegations. To the extent a further response is necessary, Respondent admits that Exhibits 6 and 7 appear to include, on their face, documents titled "Assignment" that were filed with the USPTO. Respondent denies any remaining allegations in Paragraph 13.

14. NOCO takes significant measures to protect its intellectual property rights. NOCO first began noticing the appearance of the Accused Products in the U.S. marketplace in 2014 shortly after the introduction of its Boost® products and since then has continuously endeavored to stop the entities involved. NOCO's IPR protection efforts are outlined in Section XI, *infra.*

**RESPONSE:** Respondent lacks knowledge or information sufficient to form a belief as to allegations of Paragraph 14 and therefore denies such allegations.

### B. Proposed Respondents

15. The sections below provide information sufficient to identify the Proposed Respondents. Additional information regarding the Proposed Respondents' unfair acts as they relate to the Accused Products can be found in Section VI below, and in the attached Confidential Declaration of Anne Hurst. *See* Ex. 44C. For the purposes of this Complaint, the Proposed Respondents are grouped by the entity that is believed to be the manufacturer of a particular design, and all entities related to the importation of that design.

**RESPONSE:** Respondent admits that NOCO, in the subsequent sections and relevant Confidential Declarations, provides information alleging to identify the Proposed Respondents. Respondent denies that it has engaged in any unfair acts as they relate to the Accused Products. Respondent denies any remaining allegations of Paragraph 15, including those provided in the corresponding footnotes.

#### 1. Carku Respondents

##### a) Advance Auto Parts, Inc.

16. On information and belief, Respondent Advance Auto Part, Inc. ("Advance Auto") is a company organized and existing under the laws of the United States, having its principal place of business located at 2635 East Millbrook Road, Raleigh, North Carolina 27604.

**RESPONSE:** Paragraph 16 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 16 as well as the footnote in the section heading, and therefore denies such allegations.

17. On information and belief, Advance Auto is in the business of importing and/or selling within the United States after importation, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 17 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 17 and therefore denies such allegations.

**b) Antigravity Batteries LLC**

18. On information and belief, Respondent Antigravity Batteries LLC ("Antigravity") is a company organized and existing under the laws of the United States, having its principal place of business located at 15622 Broadway Center Street, Gardena, California 90248.

**RESPONSE:** Paragraph 18 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 18 and therefore denies such allegations.

19. On information and belief, Antigravity is in the business of importing and/or selling within the United States after importation, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 19 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information

sufficient to form a belief as to the allegations of Paragraph 19 and therefore denies such allegations.

**c) [WITHDRAWN]**

20. [WITHDRAWN]

**RESPONSE:** Paragraph 20 of the Complaint has been withdrawn, thus no response is required.

21. [WITHDRAWN]

**RESPONSE:** Paragraph 21 of the Complaint , thus no response is required.

**d) [WITHDRAWN]**

22. [WITHDRAWN]

**RESPONSE:** Paragraph 22 of the Complaint has been withdrawn, thus no response is required.

23. [WITHDRAWN]

**RESPONSE:** Paragraph 23 of the Complaint has been withdrawn, thus no response is required.

**e) Gooloo Technologies LLC & Shenzen Gooloo E-Commerce Co. Ltd.**

24. On information and belief, Respondent Gooloo Technologies LLC ("Gooloo") isa Chinese corporation that is organized and existing under the laws of China and has a principal place of business located at 303 Room Bantian Business Center Bantian Wuhe Road, Longgang Dist., Shenzhen China 51800. Gooloo is believed to be affiliated with Repsondent Shenzhen Gooloo E- Commerce Co., Ltd. ("Shenzhen Gooloo").

**RESPONSE:** Paragraph 24 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 24 and therefore denies such allegations.

25. On information and belief, Gooloo is in the business of manufacturing jump starters in China. Gooloo and Shenzhen Gooloo sell, offer for sale, import, and/or have imported into the United States, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 25 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 25 and therefore denies such allegations.

**f) [WITHDRAWN]**

26. [WITHDRAWN]

**RESPONSE:** Paragraph 26 of the Complaint has been withdrawn, thus no response is required.

27. [WITHDRAWN]

**RESPONSE:** Paragraph 27 of the Complaint has been withdrawn, thus no response is required.

**g) Horizon Tool, Inc.**

28. On information and belief, Respondent Horizon Tool, Inc. ("Horizon Tool") is a company organized and existing under the laws of the United States, having its principal place of business located at 7918 Industrial Village Road, Greensboro, North Carolina 27409. Horizon Tool is believed to be affiliated with AllStart LLC and Cal-Van & Horizon Tool Inc.

**RESPONSE:** Paragraph 28 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 28 and therefore denies such allegations.

29. On information and belief, Horizon Tool is in the business of importing and/or selling within the United States after importation, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 29 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 29 and therefore denies such allegations.

**h) [WITHDRAWN]**

30. [WITHDRAWN]

**RESPONSE:** Paragraph 30 of the Complaint has been withdrawn, thus no response is required.

31. [WITHDRAWN]

**RESPONSE:** Paragraph 31 of the Complaint has been withdrawn, thus no response is required.

**i) [WITHDRAWN]**

32. [WITHDRAWN]

**RESPONSE:** Paragraph 32 of the Complaint has been withdrawn, thus no response is required.

33. [WITHDRAWN]

**RESPONSE:** Paragraph 33 of the Complaint has been withdrawn, thus no response is required.

**j) Nekteck, Inc.**

34. On information and belief, Nekteck, Inc. ("Nekteck") is a company organized and existing under the laws of the United States, having its principal place of business located at 421 S Brookhurst Street, Suite 127, Anaheim, California 92804.

**RESPONSE:** Paragraph 34 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 34 and therefore denies such allegations.

35. On information and belief, Nekteck is in the business of importing and/or selling within the United States after importation, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 35 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 35 and therefore denies such allegations.

### k) PowerMax Battery (U.S.A.), Inc.

36. On information and belief, PowerMax Battery (U.S.A.), Inc. ("PowerMax") is a company organized and existing under the laws of the United States, having its principal place of business located at 1520 S Grove Avenue, Ontario, California 91761.

**RESPONSE:** Paragraph 36 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 36 and therefore denies such allegations.

37. On information and belief, PowerMax is in the business of importing and/or selling within the United States after importation, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 37 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 37 and therefore denies such allegations.

### l) Prime Global Products, Inc.

38. On information and belief, Prime Global Products, Inc. ("Prime Global Products") is a company organized and existing under the laws of the United States, having its principal place of business located at 2220 Airport Industrial Drive, Suite 100, Ball Ground, Georgia 30107.

**RESPONSE:** Paragraph 38 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 38 and therefore denies such allegations.

39. On information and belief, Prime Global Products is in the business of manufacturing jump starters in China. Prime Global Products sells, offers for sale, imports, and/or has imported into the United States, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 39 of the Complaint is not directed at Respondent, thus no response is

required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 39 and therefore denies such allegations.

**m) Shenzhen Carku Technology Co., Ltd.**

40. On information and belief, Respondent Shenzhen Carku Technology Co., Ltd. ("Carku") is a Chinese corporation that is organized and existing under the laws of China and has a principal place of business located at Building A, Qixing Creative Workshop (Dalang), Lianrun Road, Gaofeng Community, Dalang Street, Longhua New District, China. Carku is believed to be affiliated with MigOwatt Group LLC.

**RESPONSE:** Paragraph 40 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 40 and therefore denies such allegations.

41. On information and belief, Carku is in the business of manufacturing jump starters in China. Carku sells, offers for sale, imports, and/or has imported into the United States, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 41 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 41 and therefore denies such allegations.

**n) [WITHDRAWN]**

42. [WITHDRAWN]

**RESPONSE:** Paragraph 42 has been withdrawn, thus no response is required.

43. [WITHDRAWN]

**RESPONSE:** Paragraph 43 of the Complaint has been withdrawn, thus no response is required.

### o) Shenzhen Take Tools Co., Ltd.

44. On information and belief, Respondent Shenzhen Take Tools Co., Ltd. ("Shenzhen Take Tools") is a Chinese corporation that is organized and existing under the laws of China and has a principal place of business located at No. B714, Niulanqian Building, Minzhi Road, Longhua District, Shenzhen, Guangdong, China 518000.

**RESPONSE:** Paragraph 44 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 44 and therefore denies such allegations.

45. On information and belief, Shenzhen Take Tools is in the business of manufacturing jump starters in China. Shenzhen Take Tools sells, offers for sale, imports, and/or has imported into the United States, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 45 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 45 and therefore denies such allegations.

### p) [WITHDRAWN]

46. [WITHDRAWN]

**RESPONSE:** Paragraph 46 of the Complaint has been withdrawn, thus no response is required.

47. [WITHDRAWN]

**RESPONSE:** Paragraph 47 of the Complaint has been withdrawn, thus no response is required.

### q) Walmart Inc.

48. On information and belief, Walmart Inc. ("Walmart") is a company organized and existing under the laws of the United States, having its principal place of business located at 702 S.W. 8th Street, Bentonville, Arkansas 72716. Walmart is believed to be affiliated with Wal-Mart Stores, Inc.; Sam's West, Inc (d/b/a Sam's Club); and Sam's East, Inc. (d/b/a Sam's Club).

**RESPONSE:** Paragraph 48 of the Complaint is not directed at Respondent, thus no response is

required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 48 and therefore denies such allegations.

49. On information and belief, Walmart is in the business of importing and/or selling within the United States after importation, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 49 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 49 and therefore denies such allegations.

**r) 70mai Co., Ltd.**

50. On information and belief, 70mai Co., Ltd. ("70mai") is a company organized and existing under the laws of the United States, having its principal place of business located at Room 2220, Building 2, No. 588, Zixing Road, Minhang District, Shanghai, China.

**RESPONSE:** Paragraph 50 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 50 and therefore denies such allegations.

51. On information and belief, 70mai is in the business of manufacturing jump starters in China. 70mai sells, offers for sale, imports, and/or has imported into the United States, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 51 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 51 and therefore denies such allegations.

### 2. Boltpower Respondents

#### a) Anker Innovations Ltd. (HK)

52. On information and belief, Respondent Anker Innovations Ltd. (HK), ("Anker Innovations") is a Hong Kong company organized and existing under the laws of the Hong Kong and has a principal place of business located at Room 1318-19 Hollywood Commercial Center, 610 Nathan Road, Mongkok Kowloon, Hong Kong. Anker Innovations is believed to be affiliated with Anker Technology Co., Ltd. and Anker Technology (UK) Ltd.

**RESPONSE:** Paragraph 52 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 52 and therefore denies such allegations.

53. On information and belief, Anker Innovations is in the business of importing and/or selling within the United States after importation, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 53 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 53 and therefore denies such allegations.

#### b) Arteck Electronic Co., Ltd.

54. On information and belief, Respondent Arteck Electronic Co., Ltd. ("Arteck Electronic") is a Chinese corporation that is organized and existing under the laws of China and has a principal place of business located at No. 1104-51, Tower B, Jinfengcheng Building, Shennan East Road No. 501, Shenzhen, Guangdong, China 518100.

**RESPONSE:** Paragraph 54 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 54 and therefore denies such allegations.

55. On information and belief, Arteck Electronic is in the business of manufacturing

jump starters in China. Arteck Electronic sells, offers for sale, imports, and/or has imported into the United States, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 55 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 55 and therefore denies such allegations.

**c) Best Parts, Inc.**

56. On information and belief, Respondent Best Parts, Inc. ("Best Parts") is a company organized and existing under the laws of the United States, having its principal place of business located at 123 S Front Street, Memphis, Tennessee 38103-3607.

**RESPONSE:** Paragraph 56 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 56 and therefore denies such allegations.

57. On information and belief, Best Parts is in the business of importing and/or selling within the United States after importation, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 57 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 57 and therefore denies such allegations.

**d) [WITHDRAWN]**

58. [WITHDRAWN]

**RESPONSE:** Paragraph 58 of the Complaint has been withdrawn, thus no response is required.

59. [WITHDRAWN]

**RESPONSE:** Paragraph 59 of the Complaint has been withdrawn, thus no response is required.



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### e) Deltran USA, LLC

60. On information and belief, Respondent Deltran USA, LLC ("Deltran") is a company organized and existing under the laws of the United States, having its principal place of business located at 801 International Speedway Blvd., DeLand, Florida 32724.

**RESPONSE:** Paragraph 60 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 60 and therefore denies such allegations.

61. On information and belief, Deltran is in the business of importing and/or selling within the United States after importation, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 61 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 61 and therefore denies such allegations.

### f) FlyLink Tech Co., Ltd.

62. On information and belief, Respondent FlyLink Tech Co., Ltd. ("FlyLink Tech") is a Chinese corporation that is organized and existing under the laws of China and has a principal place of business located at 2 Floor, 9 Building, Hengling Ind. Park Min Zhi Street, Bao'an District, Shenzhen China.

**RESPONSE:** Paragraph 62 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 62 and therefore denies such allegations.

63. On information and belief, FlyLink Tech is in the business of manufacturing jump starters in China. FlyLink Tech sells, offers for sale, imports, and/or has imported into the United States, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 63 of the Complaint is not directed at Respondent, thus no response is

required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 63 and therefore denies such allegations.

### g) [WITHDRAWN]

64. [WITHDRAWN]

**RESPONSE:** Paragraph 64 of the Complaint has been withdrawn, thus no response is required.

65. [WITHDRAWN]

**RESPONSE:** Paragraph 65 of the Complaint has been withdrawn, thus no response is required.

### h) Guangdong Boltpower Energy Co., Ltd.

66. On information and belief, Respondent Guangdong Boltpower Energy Co., Ltd. ("Boltpower") is a Chinese corporation that is organized and existing under the laws of China and has a principal place of business located at 3-6 Floor KelunTe Building No. 5 Ganli Road, Longgang District, Shenzhen City, Guangdong, China. Boltpower is believed to be affiliated with Dongguan Boltpower Co., Ltd. and Hunan Boltpower New Energy Co., Ltd.

**RESPONSE:** Paragraph 66 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 66 and therefore denies such allegations.

67. On information and belief, Boltpower is in the business of manufacturing jump starters in China. Boltpower sells, offers for sale, imports, and/or has imported into the United States, inter alia, jump starters that infringe one or more claims of the Asserted Patents and Asserted Trademarks.

**RESPONSE:** Paragraph 67 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 67 and therefore denies such allegations.

**i) [WITHDRAWN]**

68. [WITHDRAWN]

**RESPONSE:** Paragraph 68 of the Complaint has been withdrawn, thus no response is required.

69. [WITHDRAWN]

**RESPONSE:** Paragraph 69 of the Complaint has been withdrawn, thus no response is required.

**j) [WITHDRAWN]**

70. [WITHDRAWN]

**RESPONSE:** Paragraph 70 of the Complaint has been withdrawn, thus no response is required.

71. [WITHDRAWN]

**RESPONSE:** Paragraph 71 of the Complaint has been withdrawn, thus no response is required.

**k) K-Tool International**

72. On information and belief, K-Tool International ("K-Tool") is a company organized and existing under the laws of the United States, having its principal place of business located at 45255 Five Mile Road Plymouth, Michigan 48170.

**RESPONSE:** Paragraph 72 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 72 and therefore denies such allegations.

73. On information and belief, K-Tool is in the business of importing and/or selling within the United States after importation, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 73 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 73 and therefore denies such allegations.

### l) Lowe's Home Centers, LLC

74. On information and belief, Lowe's Home Centers, LLC ("Lowe's") is a company organized and existing under the laws of the United States, having its principal place of business located at 1000 Lowe's Blvd. Mooresville, North Carolina.

**RESPONSE:** Paragraph 74 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 74 and therefore denies such allegations.

75. On information and belief, Lowe's is in the business of importing and/or selling within the United States after importation, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 75 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 75 and therefore denies such allegations.

### m) Matco Tools Corporation

76. On information and belief, Matco Tools Corporation ("Matco") is a company organized and existing under the laws of the United States, having its principal place of business located at 4403 Allen Road Stow, Ohio 44224.

**RESPONSE:** Paragraph 76 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 76 and therefore denies such allegations.

77. On information and belief, Matco is in the business of importing and/or selling within the United States after importation, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 77 of the Complaint is not directed at Respondent, thus no response is



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required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 77 and therefore denies such allegations.

**n) MonoPrice, Inc.**

78. On information and belief, Mono Price, Inc. ("MonoPrice") is a company organized and existing under the laws of the United States, having its principal place of business located at 1 Pointe Drive, 4th Floor Brea, California 92821.

**RESPONSE:** Paragraph 78 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 78 and therefore denies such allegations.

79. On information and belief, MonoPrice is in the business of importing and/or selling within the United States after importation, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 79 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 79 and therefore denies such allegations.

**o) National Automotive Parts Association, LLC (d/b/a/ NAPA)**

80. On information and belief, National Automotive Parts Association, LLC ("NAPA") (d/b/a/ NAPA) is a company organized and existing under the laws of the United States, having its principal place of business located at 2085 Marietta Blvd Northwest Atlanta, GA 30318. NAPA is believed to be affiliated with Genuine Parts Company, a company organized and existing under the Laws of the United States, having its principal place of business located at 2999 Wildwood Parkway, Atlanta, Georgia 30339.

**RESPONSE:** Paragraph 80 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 80 and therefore denies such

allegations.

81. On information and belief, NAPA is in the business of importing and/or selling within the United States after importation, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 81 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 81 and therefore denies such allegations.

### p) O'Reilly Respondents

82. On information and belief, O'Reilly Automotive, Inc. ("O'Reilly") is a company organized and existing under the laws of the United States, having its principal place of business located at 233 South Patterson Avenue Springfield, Missouri 65802. O'Reilly is affiliated with three direct or indirect subsidiaries, Respondent Ozark Purchasing, LLC, a Missouri limited liability company having its principal place of business located at 223 South Patterson Springfield, Missouri 65802; Respondent O'Reilly Automotive Stores, Inc., a Missouri corporation having its principal place of business located at 233 South Patterson Springfield, Missouri 65802; and Respondent O'Reilly Auto Enterprises, LLC, a Delaware limited liability company having its principal place of business located at 233 South Patterson Springfield, Missouri 65802 (collectively, the "O'Reilly Respondents").

**RESPONSE:** Paragraph 82 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 82 and therefore denies such allegations.

83. On information and belief, the O'Reilly Respondents are in the business of importing and/or selling within the United States after importation, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 83 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 83 and therefore denies such allegations.

**q) [WITHDRAWN]**

84. [WITHDRAWN]

**RESPONSE:** Paragraph 84 of the Complaint has been withdrawn, thus no response is required.

85. [WITHDRAWN]

**RESPONSE:** Paragraph 85 of the Complaint has been withdrawn, thus no response is required.

**r) Schumacher Power Technology Ltd. & Schumacher Electric Corp.**

86. On information and belief, Respondent Schumacher Power Technology Ltd. ("Schumacher") is a Chinese corporation that is organized and existing under the laws of China and has a principal place of business located at No. 30, Century Road, Binhai County, Yancheng, Jiangsu, China, 215127. Schumacher is believed to be affiliated with Schumacher Electric Corp.

**RESPONSE:** Paragraph 86 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 86 and therefore denies such allegations.

87. On information and belief, Schumacher is in the business of manufacturing jump starters in China. Schumacher sells, offers for sale, imports, and/or has imported into the United States, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 87 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 87 and therefore denies such allegations.

87a) On information and belief, Respondent Schumacher Electric Corp. ("Schumacher") is a company organized and existing under the laws of the United States, having its principal place of business located at 801 E Business Center Drive Mount Prospect, Illinois 60056.

**RESPONSE:** Paragraph 87a of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information

sufficient to form a belief as to the allegations of Paragraph 87a and therefore denies such allegations

87b) On information and belief, Schumacher is in the business of manufacturing jump starters in China. Schumacher sells, offers for sale, imports, and/or has imported into the United States, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 87b of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 87b and therefore denies such allegations

**s) [WITHDRAWN]**

88. [WITHDRAWN]

**RESPONSE:** Paragraph 88 of the Complaint has been withdrawn, thus no response is required.

89. [WITHDRAWN]

**RESPONSE:** Paragraph 89 of the Complaint has been withdrawn, thus no response is required.

**t) Shenzhen Dingjiang Technology Co., Ltd. LLLC (d/b/a/ Shenzhen Topdon Technology Co., Ltd. and Topdon Technology Co., Ltd.)**

90. On information and belief, Respondent Shenzhen Dingjiang Technology Co., Ltd. LLLC (d/b/a/ Shenzhen Topdon Technology Co., Ltd. and Topdon Technology Co., Ltd.) ("Shenzhen Dingjiang Technology") is a Chinese corporation that is organized and existing under the laws of China and has a principal place of business located at Unit 2005 20/F, No.3040 Xinghai Avenue, Qianhai Shimao Tower, Qianhai Shenzhen-Hong Kong Cooperation Zone, Shenzhen, P.R. China.

**RESPONSE:** Paragraph 90 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 90 and therefore denies such allegations.

91. On information and belief, Shenzhen Dingjiang Technology is in the business of

manufacturing jump starters in China. Shenzhen Dingjiang Technology sells, offers for sale, imports, and/or has imported into the United States, inter alia, jump starters that infringe one or more claims of the Asserted Patents and Asserted Trademarks.

**RESPONSE:** Paragraph 91 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 91 and therefore denies such allegations.

**u) [WITHDRAWN]**

92. [WITHDRAWN]

**RESPONSE:** Paragraph 92 of the Complaint has been withdrawn, thus no response is required.

93. [WITHDRAWN]

**RESPONSE:** Paragraph 93 of the Complaint has been withdrawn, thus no response is required.

**v) [WITHDRAWN]**

94. [WITHDRAWN]

**RESPONSE:** Paragraph 94 of the Complaint has been withdrawn, thus no response is required.

95. [WITHDRAWN]

**RESPONSE:** Paragraph 95 of the Complaint has been withdrawn, thus no response is required.

**w) Shenzhen Mediatek Tong Technology Co., Ltd.**

96. On information and belief, Respondent Shenzhen Mediatek Tong Technology Co., Ltd. ("Shenzhen Mediatek") is a Chinese corporation that is organized and existing under the laws of China and has a principal place of business located at Room 3A-E, Qianyu Tong Building, Qingji Road, Longhua Street, Longhua New District, Shenzhen, China.

**RESPONSE:** Paragraph 96 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 96 and therefore denies such allegations.

97. On information and belief, Shenzhen Mediatek is in the business of manufacturing jump starters in China. Shenzhen Mediatek sells, offers for sale, imports, and/or has imported into the United States, inter alia, jump starters that infringe one or more claims of the Asserted Patents and Asserted Trademarks.

**RESPONSE:** Paragraph 97 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 97 and therefore denies such allegations.

**x) [WITHDRAWN]**

98. [WITHDRAWN]

**RESPONSE:** Paragraph 98 of the Complaint has been withdrawn, thus no response is required.

99. [WITHDRAWN]

**RESPONSE:** Paragraph 99 of the Complaint has been withdrawn, thus no response is required.

**y) Shenzhen Valuelink E-Commerce Co., Ltd.**

100. On information and belief, Respondent Shenzhen Valuelink E-Commerce Co., Ltd. ("Shenzhen Valuelink") is a Chinese corporation that is organized and existing under the laws of China and has a principal place of business located at 2nd Two-way ChangJiangPu, Heao Community, HengGang Street Office, Longgang District, Shenzhen, China 518000.

**RESPONSE:** Paragraph 100 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 100 and therefore denies such allegations.

101. On information and belief, Shenzhen Valuelink is in the business of manufacturing jump starters in China. Shenzhen Valuelink sells, offers for sale, imports, and/or has imported into the United States, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 101 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information

sufficient to form a belief as to the allegations of Paragraph 101 and therefore denies such allegations.

**z) [WITHDRAWN]**

102. [WITHDRAWN]

**RESPONSE:** Paragraph 102 of the Complaint has been withdrawn, thus no response is required.

103. [WITHDRAWN]

**RESPONSE:** Paragraph 103 of the Complaint has been withdrawn, thus no response is required.

**aa) Tii Trading Inc.**

104. On information and belief, Tii Trading Inc. ("Tii Trading") is a company organized and existing under the laws of the United States, having its principal place of business located at 13200 Brooks Drive, Suite F, Baldwin Park, California 91706.

**RESPONSE:** Paragraph 104 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 104 and therefore denies such allegations.

105. On information and belief, Tii Trading is in the business of importing and/or selling within the United States after importation, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 105 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 105 and therefore denies such allegations.

**bb) Zhejiang Quingyou Electronic Commerce Co., Ltd.**

106. On information and belief, Zhejiang Quingyou Electronic Commerce Co., Ltd. ("Zhejiang Quingyou Electronic") is a company organized and existing under the laws of the United States, having its principal place of business located at Room 266-270, Building 7, No. 253, Tinglan Street, Qiaosi Street, Yuhang District, Hangzhou, Zhejiang, China.

**RESPONSE:** Paragraph 106 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 106 and therefore denies such allegations.

107. On information and belief, Zhejiang Quingyou Electronic is in the business of manufacturing jump starters in China. Zhejiang Quingyou Electronic sells, offers for sale, imports, and/or has imported into the United States, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 107 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 107 and therefore denies such allegations.

**3. Smartech Respondents**

**a) Smartech Products, Inc.**

108. On information and belief, Smartech Products, Inc. ("Smartech") is a company organized and existing under the laws of the United States, having its principal place of business located at 8700 Larkin Road, Suite B, Savage, Maryland 20763.

**RESPONSE:** Paragraph 108 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 108 and therefore denies such allegations.

109. On information and belief, Smartech is in the business of importing and/or selling within the United States after importation, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 109 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 109 and therefore denies such allegations.

### 4. Weego Respondents

#### a) Shenzhen Jieruijia Technology Co., Ltd.

110. On information and belief, Respondent Shenzhen Jieruijia Technology Co., Ltd. ("Shenzhen Jieruijia") is a Chinese corporation that is organized and existing under the laws of China and has a principal place of business located at No. 8 Mu Dun Road, No. 1 Industrial Zone, Lou Cun Community, Gong Ming, Guagn Ming District, Shenzhen City, China.

**RESPONSE:** Paragraph 110 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 110 and therefore denies such allegations.

111. On information and belief, Shenzhen Jieruijia is in the business of manufacturing jump starters in China. Shenzhen Jieruijia sells, offers for sale, imports, and/or has imported into the United States, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 111 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 111 and therefore denies such allegations.

#### b) Paris Corporation

112. On information and belief, Paris Corporation ("Paris Corporation") is a company organized and existing under the laws of the United States, having its principal place of business located at 800 Highland Drive Westhampton, New Jersey 08060.

**RESPONSE:** Paragraph 112 of the Complaint is not directed at Respondent, thus no response is

required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 112 and therefore denies such allegations.

113. On information and belief, Paris Corporation is in the business of importing and/or selling within the United States after importation, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 113 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 113 and therefore denies such allegations.

### 5. Winplus Respondents

#### a) [WITHDRAWN]

114. [WITHDRAWN]

**RESPONSE:** Paragraph 114 of the Complaint has been withdrawn, thus no response is required.

115. [WITHDRAWN]

**RESPONSE:** Paragraph 115 of the Complaint has been withdrawn, thus no response is required.

#### b) Winplus North America, Inc.

116. On information and belief, Winplus North America, Inc. ("Winplus North America") is a company organized and existing under the laws of the United States, having its principal place of business located at 2975 Red Hill Ave, Suite 100, Costa Mesa, California 92626. Winplus North America is affiliated with one sister entity, ADC Solutions Auto, LLC d/b/a/ Type-S and one direct subsidiary, Winplus NA, LLC, both having their principal place of business located at 2975 Red Hill Ave, Suite 100, Costa Mesa, California 92626 (collectively, the "Winplus entities").

**RESPONSE:** Paragraph 116 of the Complaint is not directed at Respondent, thus no response is

required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 116 and therefore denies such allegations.

117. On information and belief, Winplus North America and the Winplus entities are in the business of importing and/or selling within the United States after importation, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 117 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 117 and therefore denies such allegations.

### 6. Great Neck Respondents

#### a) AutoZone, Inc.

118. On information and belief, Respondent AutoZone, Inc. ("AutoZone") is a company organized and existing under the laws of the United States, having its principal place of business located at 123 South Front Street, Memphis, Tennessee 38103.

**RESPONSE:** Paragraph 118 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 118 and therefore denies such allegations.

119. On information and belief, AutoZone is in the business of importing and/or selling within the United States after importation, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 119 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 119 and therefore denies such allegations.



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### b) Great Neck Saw Manufacturers, Inc.

120. [WITHDRAWN]

**RESPONSE:** Paragraph 120 of the Complaint has been withdrawn, thus no response is required.

121. Great Neck Saw Manufacturers, Inc., ("Great Neck") is a company organized and existing under the laws of the United States, having its principal place of business located at 165 East 2nd Street, Mineola, New York 11501.

**RESPONSE:** Paragraph 121 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 121 and therefore denies such allegations.

122. On information and belief, Great Neck sells, offers for sale, imports, and/or has imported into the United States, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 122 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 122 and therefore denies such allegations.

## 7. ThiEye Respondents

### a) [WITHDRAWN]

123. [WITHDRAWN]

**RESPONSE:** Paragraph 123 of the Complaint has been withdrawn, thus no response is required.

124. [WITHDRAWN]

**RESPONSE:** Paragraph 124 of the Complaint has been withdrawn, thus no response is



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required.

**b) ThiEye Technologies Co., Ltd.**

125. On information and belief, Respondent ThiEye Technologies Co., Ltd. ("ThiEye Technologies") is a Chinese corporation that is organized and existing under the laws of China and has a principal place of business located at Room 405, 4th Floor, Building B, Bantian International Center, Longgang District, China.

**RESPONSE:** Paragraph 125 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 125 and therefore denies such allegations.

126. On information and belief, ThiEye Technologies is in the business of manufacturing jump starters in China. ThiEye Technologies sells, offers for sale, imports, and/or has imported into the United States, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 126 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 126 and therefore denies such allegations.

**8. Energen/ Performance Tool Respondents**

**a) Best Buy Co., Inc.**

127. On information and belief, Respondent Best Buy Co., Inc. ("Best Buy") is a company organized and existing under the laws of the United States, having its principal place of business located at 7601 Penn Avenue, South Richfield, Minnesota 552423.

**RESPONSE:** Paragraph 127 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 127 and therefore denies such allegations.



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128. On information and belief, Best Buy is in the business of importing and/or selling within the United States after importation, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 128 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 128 and therefore denies such allegations.

**b) [WITHDRAWN]**

129. [WITHDRAWN]

**RESPONSE:** Paragraph 129 of the Complaint has been withdrawn, thus no response is required.

130. [WITHDRAWN]

**RESPONSE:** Paragraph 130 of the Complaint has been withdrawn, thus no response is required.

**c) Energen, Inc.**

131. On information and belief, Respondent Energen, Inc. ("Energen") is a company organized and existing under the laws of the United States, having its principal place of business located at 17008 Evergreen Place Unit B, City of Industry, California 91745.

**RESPONSE:** Paragraph 131 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 131 and therefore denies such allegations.

132. On information and belief, Energen is in the business of importing and/or selling within the United States after importation, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 132 of the Complaint is not directed at Respondent, thus no response is



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required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 132 and therefore denies such allegations.

**d) [WITHDRAWN]**

133. [WITHDRAWN]

**RESPONSE:** Paragraph 133 of the Complaint has been withdrawn, thus no response is required.

134. [WITHDRAWN]

**RESPONSE:** Paragraph 134 of the Complaint has been withdrawn, thus no response is required.

**9. Halo Respondents**

**a) Halo2Cloud, LLC**

134a) On information and belief, Respondent Halo2Cloud, LLC ("Halo2Cloud") is a company organized and existing under the laws of the United States, having its principal place of business located at 6 Central Row, Hartford, Connecticut 06103.

**RESPONSE:** Respondent admits that Halo2Cloud, LLC is organized and existing under the laws of the United States and maintains its principal place of business at 6 Central Row, Hartford, Connecticut 06103.

134b) On information and belief, Halo2Cloud is in the business of importing and/or selling within the United States after importation, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Respondent admits that, among its many products, it offers portable jump starters for sale within the United States. Respondent specifically denies that any products imported or sold by Respondent infringe any valid or enforceable claim of the Asserted Patents.

**b) QVC, Inc.**

134c) On information and belief, QVC, Inc. ("QVC") is a company organized and existing under the laws of the United States, having its principal place of business located at 250 Dove Court Santa Paula, California 93060.

**RESPONSE:** Paragraph 134c of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 134c and therefore denies such allegations.

134d) On information and belief, QVC is in the business of importing and/or selling within the United States after importation, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 134d of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 134d and therefore denies such allegations.

**c) ZAGG Inc.**

134e) On information and belief, ZAGG Inc ("Zagg") is a company organized and existing under the laws of the United States, having its principal place of business located at 910 West Legacy Center Way, Suite 500, Midvale, Utah 84047.

**RESPONSE:** Respondent admits that ZAGG Inc is a company organized an existing under the laws of the United States, having its principal place of business located at 910 West Legacy Center Way, Suite 500, Midvale, Utah 84047. Respondent denies any remaining allegations of Paragraph 134e.

134f) On information and belief, ZAGG is in the business of importing and/or selling within the United States after importation, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Respondent admits that ZAGG Inc is in the business of importing and selling

within the United States after importation certain jump starters that are alleged to infringe one or more claims of the Asserted Patents. Respondent specifically denies that any products imported or sold by Respondent infringe any valid or enforceable claim of the Asserted Patents. Respondent denies any remaining allegations of Paragraph 134f.

**10. Clore Respondents**

134g) On information and belief, Respondent Clore Automotive, LLC ("Clore Automotive") is a company organized and existing under the laws of the United States, having its principal place of business located at 8735 Rosehill Suite 220, Lenexa, Kansas 66215.

**RESPONSE:** Paragraph 134g of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 134g and therefore denies such allegations.

134h) On information and belief, Clore Automotive is in the business of importing and/or selling within the United States after importation, inter alia, jump starters that infringe one or more claims of the Asserted Patents.

**RESPONSE:** Paragraph 134h of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 134h and therefore denies such allegations.

## III. THE PRODUCTS AT ISSUE

135. The products at issue are portable battery jump starter packs that allow users to safely jump start cars, boats, motorcycles, and more without connecting to another vehicle. The Accused Products and components thereof in this matter include safety features claimed by Complainant's Asserted Patents that prevent injury to the user and damage to the battery being jump started.

**RESPONSE:** Respondent admits that the products at issue are portable battery jump starter packs that are compatible with a variety of vehicles and do not require connection to a secondary

vehicle to function. Respondent further admits that the Accused Products and associated components include safety features intended to prevent injury to the user and damage to the battery being charged. Respondent denies any remaining allegations in Paragraph 135.

136. Since the early days of automobiles, the prevalent method to recharge a dead car battery has been through the use of "jumper cables," where two cables are run from a live battery in a running vehicle to a dead battery of a second vehicle. The many problems associated with jumper cables are well known, including the fact that a second car with a live battery is needed to perform a jump start, and the danger of sparking and short circuits, especially when the cables from the live battery to the dead battery are misconnected (referred to as "reverse polarity") or not fully connected.

**RESPONSE:** Respondent admits that, prior to the advent of portable battery jump starting technology, "jumper cables" were utilized to transfer charge from one battery to another. To the extent Paragraph 136 contains legal conclusions, no response is required. Respondent denies all remaining allegations of Paragraph 136.

137. Numerous efforts to improve the jump-starting process have been undertaken over the years, most of which have had significant deficiencies such as lack of portability or failure to solve safety problems and did not achieve significant popularity.

**RESPONSE:** To the extent Paragraph 137 contains legal conclusions, no response is required. Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 137 and therefore denies such allegations.

138. The advent of lithium-ion batteries has permitted the introduction of compact jump starters that do not require the use of a second vehicle, providing consumer convenience as well as certain safety advantages over prior jump-starting devices.

**RESPONSE:** Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 138 and therefore denies such allegations.

**A.** Complainant's Jump Starters

139. NOCO has successfully developed innovative automobile battery products in the United States for over 100 years. In 2014, NOCO introduced the Boost® lithium jump starter, which incorporates the patented safety features described herein. A photograph of one model of NOCO's Boost® jumping a dead battery is shown below, and a video demonstrating how the

Boost® operates can be found at https://www.youtube.com/watch?v=QULcgAZUs0Y

[image omitted]

Fig. 1- NOCO Boost® Pro™ (GB150)- 3,000A Jump Starter

**RESPONSE:** Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 139 and its corresponding footnotes and therefore denies such allegations.

140. NOCO currently offers a range of products for the charging, jump-starting, and storage of vehicle batteries. The products at issue here include the entire line of NOCO Boost® jump starters, namely, the Boost® Sport™, Boost® Plus™, Boost® XL™, Boost® HD™, Boost® Pro™, and Boost® Max™. *See* Ex. 8.

**RESPONSE:** Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 140 and its corresponding footnotes and therefore denies such allegations.

141. The NOCO Boost® jump starters are ultra-portable, lightweight, and compact. They outperform traditional lead-acid battery booster packs at a fraction of the size and weight. The Boost® jump starters provide users a safe and easy-to-use car battery jump starter pack without the worry of incorrect connections or sparks. Boost® jump starters safely connect to any 12-volt vehicle battery due to NOCO's mistake-proof design featuring spark-proof technology and reverse polarity protection. All Boost® jump starters also feature a 2.1A USB output port to power any USB device, and an LED flashlight with 7 light modes, including SOS and Emergency Strobe. *See* Ex. 8. NOCO offers six Boost® models, which provide a range from 500A to 20,000A for a wide variety of vehicle batteries and applications.

**RESPONSE:** Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 141 and any exhibits referenced therein and therefore denies such allegations.

142. Since its introduction, the Boost® has become known for its safety, ease of use, and reliability, among other features. As a result, the Boost® has enjoyed tremendous popularity, becoming one of the, if not the, market-leading compact lithium jump starters in the United States.

**RESPONSE:** Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 142 and therefore denies such allegations.

### B. Respondents' Jump Starters

143. On information and belief, the Accused Products include portable battery jump starters that are manufactured in China and then imported into the United States. These products incorporate the patented technology claimed in the Asserted Patents. Examples of infringing jump starter models offered by three of the Respondents are shown below:

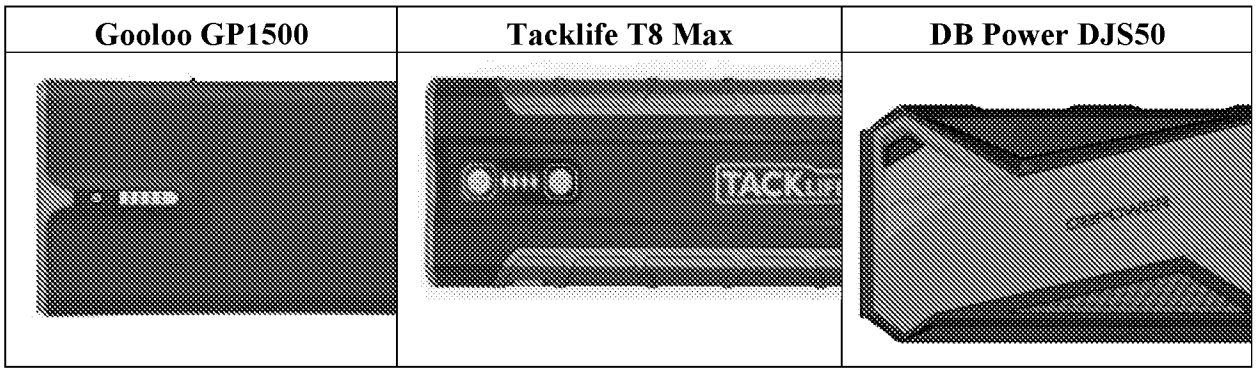



Fig. 2- Examples of Accused Products

**RESPONSE:** Paragraph 143 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 143 and therefore denies such allegations. Respondent specifically denies that any products imported or sold by Respondent infringe any valid or enforceable claim of the Asserted Patents.

144. It is often difficult to determine the source of the Accused Products, as the Chinese manufacturers of these products frequently distribute them through several entities, even when the products are made in the same facility. There have also been instances of the Chinese manufacturers changing their names or using trading companies to ship the products to the United States. For these reasons, there are many instances in which neither the shipping documents nor the product packaging indicate the manufacturer of the product.

**RESPONSE:** Paragraph 144 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 144 and therefore denies such allegations. Respondent specifically denies that it engages in the activities described in Paragraph 144 and further denies that any products imported or sold by Respondent infringe any valid or enforceable claim of the Asserted Patents.

145. Respondents target customers in the United States through their own websites and also sell the accused jump starters via online marketplaces, including Amazon. Numerous Respondents' Accused Products are also sold in brick-and-mortar retail locations in the United States and/or on the websites of these retailers.

**RESPONSE:** Paragraph 145 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 145 and therefore denies such allegations. Respondent specifically denies that any products imported or sold by Respondent infringe any valid or enforceable claim of the Asserted Patents.

## IV. THE ASSERTED PATENTS

146. The Asserted Patents generally relate to portable battery jump starters and safety features contained therein. These jump starters can be used to jump start the batteries of many vehicles including cars, trucks, boats, and motorcycles.

**RESPONSE:** Respondent admits that the Asserted Patents purport to generally relate to jump starters and safety features. Respondent denies the remaining allegations of Paragraph 146.

147. The identification, ownership, non-technical description, foreign counterparts, and licensees for each Asserted Patent are identified below.

**RESPONSE:** Paragraph 147 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 147 and therefore denies such allegations.

### A. U.S. Patent No. 9,007,015

#### 1. Identification of the Patent and Ownership

148. The '015 Patent, titled "Portable Vehicle Battery Jump Start Apparatus with Safety Protection" issued on April 15, 2015, naming Jonathan L. Nook, William K. Nook, James R. Stanfield, and Derek M. Underhill as the inventors. Ex. 1 (Certified copy of '015 Patent) at 1. The '015 Patent is based on U.S. Patent Application No. 14/325,938 filed on July 8, 2014. *Id.* The '015

Patent is a continuation of Application No. PCT/US2014/045343, filed on July 3, 2014. The '015 Patent will expire on July 3, 2034.

**RESPONSE:** Respondent lacks knowledge or information sufficient to form a belief as to NOCO's alleged ownership of the '015 Patent and therefore denies such allegations. Respondent admits that the '015 Patent appears, on its face, to be titled "Portable Vehicle Battery Jump Start Apparatus with Safety Protection." Respondent admits that Paragraph 148 references Exhibit 1, which appears, on its face, to be a copy of the '015 patent. Respondent admits that the '015 Patent appears, on its face, to include certain "Related U.S. Application Data." Respondent denies that the claims of the '015 Patent are valid and enforceable. To the extent Paragraph 148 contains legal conclusions, no response is required. To the extent a response is required, Respondent lacks knowledge or information to form a belief as to the remaining allegations of Paragraph 148 and therefore denies such allegations.

149. This Complaint is accompanied by a certified copy of the prosecution history for the '015 Patent and the references cited therein. *See* Appx. A1 and A2.

**RESPONSE:** Respondent admits that NOCO has included what appears to be a certified copy of the prosecution history of the '015 Patent and the references cited therein. Such document speaks for itself. The remaining allegations of Paragraph 149 are not directed to Respondent and therefore no response is required. To the extent a response is required, Respondent lacks knowledge or information to form a belief as to the remaining allegations of Paragraph 149 and therefore denies such allegations.

150. NOCO owns by assignment all rights, title, and interest in the '015 Patent. *See* Ex. 6.

**RESPONSE:** Respondent lacks knowledge or information sufficient to form a belief as to NOCO's alleged ownership by assignment of all rights, title, and interest in the '732 Patent and therefore denies such allegations.

### 2. Non-Technical Description of the Patent

151. The '015 Patent relates to an improved portable jump starter incorporating a rechargeable lithium-ion battery and a microcontroller. The '015 Patent describes a novel apparatus that incorporates a power switch actuated by a microcontroller such that power will be delivered from the lithium-ion power pack to the output port only when the battery is connected to the output port and only when the battery is connected with the proper polarity of positive and negative terminals. This solves the problem of sparking or potential damage to the battery and/or bodily injury when the jumper terminals or clamps of the cables were inadvertently brought in contact with each other, or when positive and negative terminals were connected to the opposite polarity terminals in the vehicle to be jumped.

**RESPONSE:** Respondent admits that the allegations of Paragraph 151 are intended to be "non-technical." Respondent specifically denies that the '015 Patent describes a "novel apparatus," and denies the suggestion that the '015 Patent "solves" a problem that had not already been solved by others. To the extent Paragraph 151 contains legal conclusions, no response is required. To the extent a response is required, denied.

152. The '015 Patent has 23 claims, 1 of which is an independent claim. Complainant is asserting claims 1, 4, 11, 14, 18, 19 and 21.

**RESPONSE:** The allegations of Paragraph 152 are not directed to Respondent and therefore no response is required. To the extent a response is required, denied.

### 3. Foreign Counterparts of the Patent

153. The following is a list of current foreign patents and foreign applications that are presently understood to correspond or otherwise relate to the '015 Patent:

- CA2,916,782 (Canada)
- GB2527858 (United Kingdom)
- DE10204114997B4 (Germany)
- (Australia) Patent Application (Approved) No. 20201223
- (Germany) Patent Application No. 102014020005.1
- (Germany) Patent Application No. 102014020004.3

**RESPONSE:** Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 153 and therefore denies such allegations.

154. NOCO owns all right, title, and interest in and to each of these foreign patents and applications, there are no other foreign patents corresponding to the '015 Patent, and there are no other pending, rejected, or abandoned foreign patent applications corresponding to the '015 Patent.

**RESPONSE:** Respondent lacks knowledge or information sufficient to form a belief as to NOCO's alleged ownership of all rights, title, and interest in the '015 Patent and therefore denies such allegations of Paragraph 154.

**4. Licensees to the Patent**

155. All licensees to the '015 Patent are identified in Confidential Ex. 5C. There are no other licensees relating to the '015 Patent.

**RESPONSE:** Respondent admits that Confidential Exhibit 5C appears, on its face, to be licensees of the '015 Patent. Respondent lacks knowledge or information sufficient to form a belief as to the remaining allegations of Paragraph 155 and therefore denies such allegations.

**B. U.S. Patent No. 10,604,024**

**1. Identification of the Patent and Ownership**

156. The '024 Patent, titled "Portable Vehicle Battery Jump Start Apparatus with Safety Protection" issued on March 31, 2020 naming Jonathan L. Nook, William K. Nook, James R. Stanfield, and Derek M. Underhill as the inventors. Ex. 2 (Certified copy of '024 Patent) at 1. The '024 Patent is based on U.S. Patent Application No. 15/691,884 filed on Aug. 31, 2017. *Id.* The '024 Patent is a continuation of Application No. 14/619,655, filed February 11, 2015, now U.S. Patent No. 9,770,992, which claims priority to PCT/US2014/045434, filed July 3, 2014. The '024 Patent will expire on July 3, 2034.

**RESPONSE:** Respondent lacks knowledge or information sufficient to form a belief as to NOCO's alleged ownership of the '024 Patent and therefore denies such allegations. Respondent admits that the '024 Patent appears, on its face, to be titled "Portable Vehicle Battery Jump Start Apparatus with Safety Protection." Respondent admits that Paragraph 156 references Exhibit 2, which appears, on its face, to be a copy of the '024 patent. Respondent admits that the '024

Patent appears, on its face, to include certain "Related U.S. Application Data." Respondent denies that the claims of the '024 Patent are valid and enforceable. To the extent Paragraph 156 contains legal conclusions, no response is required. To the extent a response is required, Respondent lacks knowledge or information to form a belief as to the remaining allegations of Paragraph 156 and therefore denies such allegations.

157. This Complaint is accompanied by a certified copy of the prosecution history for the '024 Patent and the references cited therein. *See* Appx. B1 and B2.

**RESPONSE:** Respondent admits that the Complaint is accompanied by what appears to be certified copies of the prosecution history for the '024 Patent and the references cited therein. The remaining allegations of Paragraph 157 are not directed at Respondent and therefore no response is required. To the extent a response is required, denied.

158. NOCO owns by assignment all rights, title, and interest in the '024 Patent. See Ex. 7.

**RESPONSE:** Respondent lacks knowledge or information sufficient to form a belief as to NOCO's alleged ownership of all rights, title, and interest in the '024 Patent and therefore denies such allegations.

**2. Non-Technical Description of the Patent**

159. The '024 Patent relates to an improved portable jump starter incorporating a rechargeable lithium-ion battery and a microcontroller. The '024 Patent is a continuation of the '015 Patent but claims inventive features not claimed in that patent, including: the device being turned on when the microcontroller receives *simultaneous* signals from the sensors indicating that the device's battery clamps are connected to the vehicle battery proper polarity; and the device being *turned off* when the microcontroller receives signals from the sensors indicating that the device's battery clamps have become disconnected from the vehicle battery and/or an improper polarity condition.

**RESPONSE:** Respondent admits that the allegations of Paragraph 159 are intended to be "non-technical." Respondent specifically denies that the '024 Patent "claims inventive features." To the extent Paragraph 159 contains legal conclusions, no response is required. To the extent a

response is required, denied.

160. The '024 Patent has 30 claims, 3 of which are independent claims. Complainant is asserting claims 1, 4, 5, 6, 16, 19, 23, 24, 26, 29, 30.

**RESPONSE:** Respondent lacks knowledge and information sufficient to form a belief as to the allegations of Paragraph 160 and therefore denies the same.

### 3. Foreign Counterparts of the Patent

161. *See* Section IV.A.3, *supra*.

**RESPONSE:** The allegations of Paragraph 161 are not directed to Respondent and therefore no response is required. To the extent a response is required, denied.

### 4. Licensees to the Patent

162. All licensees to the '024 Patent are identified in Confidential Ex. 5C. There are no other licensees relating to the '024 Patent.

**RESPONSE:** Respondent lacks knowledge and information sufficient to form a belief as to the allegations of Paragraph 162 and therefore denies the same.

## V. THE ASSERTED TRADEMARKS

### A. U.S. Trademark Reg. No. 4,811,656

163. The federal registration of the ULTRASAFE mark, Reg. No. 4,811,656, issued on September 15, 2015 to NOCO. NOCO has continuously used this mark in commerce since at least August 2014 for its jump starters (Classes 021 023, 026, 036, and 038.). Affidavits have been filed pursuant to Section 8 and 15 of the Lanham Act, 15 U.S.C.§§ 1058 and 1065, and this registration is incontestable. A copy of the Certificate of Registration for the Registered Trademark is attached hereto as Exhibit 3.

**RESPONSE:** Respondent admits that the federal registration for the ULTRASAFE MARK, Reg. No. 4,811,656 appears to have been issued on September 15, 2015 to NOCO. Respondent further admits that NOCO has attached what appears to be, on its face, a Certificate of Registration for the Registered Trademark as Exhibit 3. Respondent lacks knowledge and information sufficient to form a belief as to the remaining allegations of Paragraph 163 and

therefore denies the same.

164. Pursuant to Commission Rule 210.12(d), NOCO will file a certified copy of the prosecution history of the ULTRASAFE trademark for U.S. Trademark Reg. No. 4,811,656, as Appendix C.

**RESPONSE:** Respondent lacks knowledge and information sufficient to form a belief as to the remaining allegations of Paragraph 164 and any corresponding footnotes and therefore denies the same.

### B. U.S. Trademark Reg. No. 4,811,749

165. The federal registration of the SAFELY JUMP START A DEAD BATTERY IN SECONDS mark, Reg. No. 4,811,749, issued on September 15, 2015 to NOCO. NOCO has continuously used this mark in commerce since at least August 2014 for its jump starters (Classes 021, 023, 026, 036, 038, 100, 101, and 102). Affidavits have been filed pursuant to Section 8 and 15 of the Lanham Act, 15 U.S.C. §§ 1058 and 1065, and this registration is incontestable. A copy of the Certificate of Registration for the Registered Trademark is attached hereto as Exhibit 4.

**RESPONSE:** Respondent admits that the federal registration for the SAFELY JUMP START A DEAD BATTERY IN SECONDS mark, Reg. No. 4,811,749 appears to have been issued on September 15, 2015 to NOCO. Respondent further admits that NOCO has attached what appears to be, on its face, a Certificate of Registration for the Registered Trademark as Exhibit 4. Respondent lacks knowledge and information sufficient to form a belief as to the remaining allegations of Paragraph 165 and therefore denies the same.

166. Pursuant to Commission Rule 210.12(d), NOCO will file a certified copy of the prosecution history of the "Safely Jump Start a Dead Battery in Seconds" trademark for U.S. Trademark Reg. No. 4,811,749, as Appendix D.

**RESPONSE:** Respondent lacks knowledge and information sufficient to form a belief as to the remaining allegations of Paragraph 166 and any corresponding footnotes and therefore denies the same.

## VI. UNFAIR ACTS OF THE PROPOSED RESPONDENTS

### A. Infringement of the Asserted Patents

167. On information and belief, Respondents, without authorization, have been and still are infringing each of the Asserted Patents in the United States. Respondents' unlawful and unfair acts include the importation into the United States, sale for importation into the United States, or sale within the United States after importation of the infringing Accused Products. Respondents have violated, and continue to violate, Section 337 of the Tariff Act of 1930 in view of U.S. patent laws. Respondents are not licensed under the Asserted Patents.

**RESPONSE:** To the extent Paragraph 167 contains legal conclusions, no response is required. Respondent specifically denies that the products that it imports or sells infringe, directly or otherwise, literally or under the doctrine of equivalents, any valid and enforceable claim of the Asserted Patents. Respondent lacks knowledge or information sufficient to form a belief as to the remaining allegations of Paragraph 167 and therefore denies such allegations.

168. Specifically, NOCO asserts that the Respondents directly infringe, literally or under the doctrine of equivalents, at least the following independent claims of the Asserted Patents, in violation of 35 U.S.C. §§ 271(a) and Section 337 (a)(1)(B)(i):

| Claim Chart | '015 Patent | '024 Patent |
|---|---|---|
| Claim Chart 01-Carku | 1 | 1, 29, 30 |
| Claim Chart 02- Boltpower | 1 | 1, 29, 30 |
| Claim Chart 03- Smartech | 1 | 1, 29, 30 |
| Claim Chart 04-Weego | 1 | 1, 29, 30 |
| Claim Chart 05-Winplus | 1 | 1, 29, 30 |
| Claim Chart 06- Great Neck | 1 | |
| Claim Chart 07- ThiEye | 1 | 1, 29, 30 |
| Claim Chart 08- Energen/ Performance | 1 | 1, 29, 30 |
| Claim Chart 09- HALO | 1 | 1, 29, 30 |
| Claim Chart 10- Clore | 1 | |

**Table 2.** Asserted Independent Claims Infringed by Proposed Respondents

**RESPONSE:** To the extent Paragraph 168 contains legal conclusions, no response is required. Respondent specifically denies that the products that it imports or sells infringe, directly or otherwise, literally or under the doctrine of equivalents, any valid and enforceable claim of the Asserted Patents. Respondent lacks knowledge or information sufficient to form a belief as to the remaining allegations of Paragraph 168 and therefore denies such allegations.

169. For purposes of assessing infringement, the Accused Products are divided into groups based on suspected manufacturer. The claim charts are designated Claim Chart 01 through Claim Chart 10, and the Accused Products within each design group are set forth on Exhibit 9. The Accused Products within each design group share a common design, at least with respect to the portions relevant to the infringement analysis of the independent claims of the '015 and '024 Patent claims. Each of the Respondents imports, sells for importation, and/or sells within the United States after importation at least one of the Accused Products and therefore directly infringes, literally or under the doctrine of equivalents, one or more of claims 1, 4, 11, 14, 18, 19, 21 of the '015 Patent and/or one or more of claims 1, 4, 5, 6, 16, 19, 23, 24, 26, 29, 30 of the '024 Patent with respect to such Respondent's Accused Products.

**RESPONSE:** Respondent denies that the products that it sells infringe, directly or otherwise, literally or under the doctrine of equivalents any valid and enforceable claim of the Asserted Patents. Respondent lacks knowledge or information sufficient to form a belief as to the remaining allegations of Paragraph 169 and therefore denies such allegations.

### 1. Claim Chart 01- Carku Accused Products

#### a) Carku Design

170. The Accused Products in Claim Chart 01 ("Carku Design") are lithium battery powered jump starters having a cable assembly that includes a relay and two sensors. The first sensor, which is the claimed vehicle battery isolation sensor, is a resistive divider sensor. The second sensor, which is the claimed reverse polarity sensor, is an optocoupler sensor. The Carku Design Accused Products are offered by numerous sellers under multiple brand names. On information and belief, the Carku Design Accused Products are manufactured by at least Respondent Carku. The Tacklife T8 Pro model jump starter is representative of the Carku Design Accused Products.

**RESPONSE:** Paragraph 170 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 170 and therefore denies such allegations.

#### b) Infringement of the '015 Patent

171. On information and belief, select Respondents import, sell for importation, and/or sell within the United States after importation the Carku Design Accused Products, which directly infringe, literally and/or under the doctrine of equivalents, at least independent claim 1 of the '015 Patent. Certain of the Carku Design Accused Products also infringe one or more of dependent

claims 10, 11, 14, 18, 19 and 21 of the '015 Patent. The Carku Design Accused Products satisfy all asserted claim limitations of the '015 Patent at the time of importation into the United States.

**RESPONSE:** Paragraph 171 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 171 and therefore denies such allegations.

172. A claim chart comparing independent claim 1 of the '015 Patent to the representative Carku Design Accused Product, and including photographs and drawings where applicable, is attached as Ex. 111.

**RESPONSE:** Paragraph 172 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 172 and therefore denies such allegations.

### c) Infringement of the '024 Patent

173. On information and belief, select Respondents import, sell for importation, and/or sell within the United States after importation the Carku Design Accused Products, which directly infringe, literally and/or under the doctrine of equivalents, at least independent claims 1, 29 and 30 of the '024 Patent. Certain of the Carku Design Accused Products also infringe one or more of dependent claims 4, 5, 6, 16, 19, 23, 24, and 26 of the '024 Patent. The Carku Design Accused Products satisfy all asserted claim limitations of the '024 Patent at the time of importation into the United States.

**RESPONSE:** Paragraph 173 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 173 and therefore denies such allegations.

174. A claim chart comparing independent claims 1, 29, and 30 of the '024 Patent to the representative Carku Design Accused Product, and including photographs and drawings where applicable, is attached as Ex. 111.

**RESPONSE:** Paragraph 174 of the Complaint is not directed at Respondent, thus no response is

required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 174 and therefore denies such allegations.

### 2. Claim Chart 02- Boltpower Accused Products

#### a) Boltpower Design

175. The Accused Products in Claim Chart 02 ("Boltpower Design") are lithium battery powered jump starters that includes a relay and two sensors. The Boltpower Design Accused Products are offered by numerous sellers under multiple brand names. The BEATIT D11, Lemsir V1, and BEATIT D10 Pro model jump starters are representative of the three designs of Accused Products manufactured by Boltpower.

**RESPONSE:** Paragraph 175 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 175 and therefore denies such allegations.

#### b) Infringement of the '015 Patent

176. On information and belief, select Respondents import, sell for importation, and/or sell within the United States after importation the Boltpower Design Accused Products, which directly infringe, literally and/or under the doctrine of equivalents, at least independent claim 1 of the '015 Patent. Certain of the Boltpower Design Accused Products also infringe one or more of dependent claims 10, 11, 14, 18, 19 and 21 of the '015 Patent. The Boltpower Design Accused Products satisfy all asserted claim limitations of the '015 Patent at the time of importation into the United States.

**RESPONSE:** Paragraph 176 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 176 and therefore denies such allegations.

177. A claim chart comparing independent claim 1 of the '015 Patent to the representative Boltpower Design Accused Products, and including photographs and drawings where applicable, is attached as Ex. 112.



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**RESPONSE:** Paragraph 177 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 177 and therefore denies such allegations.

#### c) Infringement of the '024 Patent

178. On information and belief, select Respondents import, sell for importation, and/or sell within the United States after importation the Boltpower Design Accused Products, which directly infringe, literally and/or under the doctrine of equivalents, at least independent claims 1, 29 and 30 of the '024 Patent. Certain of the Boltpower Design Accused Products also infringe one or more of dependent claims 4, 5, 6, 16, 19, 23, 24, and 26 of the '024 Patent. The Boltpower Design Accused Products satisfy all asserted claim limitations of the '024 Patent at the time of importation into the United States.

**RESPONSE:** Paragraph 178 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 178 and therefore denies such allegations.

179. A claim chart comparing independent claims 1, 29, and 30 of the '024 Patent to the representative Boltpower Design Accused Products, and including photographs and drawings where applicable, is attached as Ex. 112.

**RESPONSE:** Paragraph 179 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 179 and therefore denies such allegations.

### 3. Claim Chart 03- Smartech Accused Products

#### a) Smartech Design

180. The Accused Products in Claim Chart 03 ("Smartech Design") are lithium battery powered jump starters offered under the SMARTECH brand and have a cable assembly that includes a relay and two sensors. The first sensor, which is the claimed vehicle battery isolation sensor, is a resistive divider sensor. The second sensor, which is the claimed reverse polarity



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sensor, is an operational amplifier sensor. The SMARTECH JS-10000 model jump starter is representative of the Smartech Design Accused Products.

**RESPONSE:** Paragraph 180 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 180 and therefore denies such allegations.

### b) Infringement of the '015 Patent

181. On information and belief, select Respondents, including Respondent Smartech, import, sell for importation, and/or sell within the United States after importation the Design 05 Accused Products, which directly infringe, literally and/or under the doctrine of equivalents, at least independent claim 1 of the '015 Patent. Certain of the Smartech Design Accused Products also infringe one or more of dependent claims 10, 11, 14, 18, 19 and 21 of the '015 Patent. The Smartech Design Accused Products satisfy all asserted claim limitations of the '015 Patent at the time of importation into the United States.

**RESPONSE:** Paragraph 181 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 181 and therefore denies such allegations.

182. A claim chart comparing independent claim 1 of the '015 Patent to the representative Smartech Design Accused Product, and including photographs and drawings where applicable, is attached as Ex. 113.

**RESPONSE:** Paragraph 182 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 182 and therefore denies such allegations.

### c) Infringement of the '024 Patent

183. On information and belief, select Respondents, including Respondent Smartech, import, sell for importation, and/or sell within the United States after importation the Smartech Design Accused Products, which directly infringe, literally and/or under the doctrine of



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equivalents, at least independent claims 1, 29 and 30 of the '024 Patent. Certain of the Smartech Design Accused Products also infringe one or more of dependent claims 4, 5, 6, 16, 19, 23, 24, and 26 of the '024 Patent. The Smartech Design Accused Products satisfy all asserted claim limitations of the '024 Patent at the time of importation into the United States.

**RESPONSE:** Paragraph 183 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 183 and therefore denies such allegations.

184. A claim chart comparing independent claims 1, 29, and 30 of the '024 Patent to the representative Smartech Design Accused Product, and including photographs and drawings where applicable, is attached as Ex. 113.

**RESPONSE:** Paragraph 184 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 184 and therefore denies such allegations.

### 4. Claim Chart 04- Weego Accused Products

#### a) Weego Design

185. The Accused Products in Claim Chart 04 ("Weego Design") are lithium battery powered jump starters offered under the WEEGO brand and have a cable assembly that includes a power switch with multiple transistors, and two sensors. The first sensor, which is the claimed vehicle battery isolation sensor, is a resistive divider sensor. The second sensor, which is the claimed reverse polarity sensor, is an optocoupler sensor. The WEEGO 22S model jump starter is representative of the Weego Design Accused Products.

**RESPONSE:** Paragraph 185 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 185 and therefore denies such allegations.



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### b) Infringement of the '015 Patent

186. On information and belief, select Respondents, including Respondent Carku, import, sell for importation, and/or sell within the United States after importation the Weego Design Accused Products, which directly infringe, literally and/or under the doctrine of equivalents, at least independent claim 1 of the '015 Patent. Certain of the Weego Design Accused Products also infringe one or more of dependent claims 4, 10, 11, 14, 18, 19 and 21 of the '015 Patent. The Weego Design Accused Products satisfy all asserted claim limitations of the '015 Patent at the time of importation into the United States.

**RESPONSE:** Paragraph 186 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 186 and therefore denies such allegations.

187. A claim chart comparing independent claim 1 of the '015 Patent to the representative Weego Design Accused Product, and including photographs and drawings where applicable, is attached as Ex. 114.

**RESPONSE:** Paragraph 187 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 187 and therefore denies such allegations.

### c) Infringement of the '024 Patent

188. On information and belief, select Respondents import, sell for importation, and/or sell within the United States after importation the Weego Design Accused Products, which directly infringe, literally and/or under the doctrine of equivalents, at least independent claims 1, 29 and 30 of the '024 Patent. Certain of the Weego Design Accused Products also infringe one or more of dependent claims 4, 5, 6, 16, 19, 23, 24, and 26 of the '024 Patent. The Weego Design Accused Products satisfy all asserted claim limitations of the '024 Patent at the time of importation into the United States.

**RESPONSE:** Paragraph 188 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 188 and therefore denies such



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allegations.

189. A claim chart comparing independent claims 1, 29, and 30 of the '024 Patent to the representative Weego Design Accused Product, and including photographs and drawings where applicable, is attached as Ex. 114.

**RESPONSE:** Paragraph 189 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 189 and therefore denies such allegations.

### 5. Claim Chart 05- Winplus Accused Products

#### a) Winplus Design

190. The Accused Products in Claim Chart 05 ("Winplus Design") are lithium battery powered jump starters offered under the WINPLUS and TYPE-S brands and have a cable assembly that includes a power switch with multiple transistors, and two sensors. The first sensor, which is the claimed vehicle battery isolation sensor, is a resistive divider sensor. The second sensor, which is the claimed reverse polarity sensor, is also a resistive divider sensor. On information and belief, the WINPLUS and TYPE S brand jump starters are manufactured by Shenzhen Winplus. The Type S–AC56388-BLK model jump starter is representative of the Winplus Design Accused Products.

**RESPONSE:** Paragraph 190 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 190 and therefore denies such allegations.

#### b) Infringement of the '015 Patent

191. On information and belief, select Respondents, including Respondent Winplus, import, sell for importation, and/or sell within the United States after importation the Winplus Design Accused Products, which directly infringe, literally and/or under the doctrine of equivalents, at least independent claim 1 of the '015 Patent. Certain of the Winplus Design Accused Products also infringe one or more of dependent claims 4, 10, 11, 14, 18, 19 and 21 of the '015 Patent. The Winplus Design Accused Products satisfy all asserted claim limitations of the '015 Patent at the time of importation into the United States.

**RESPONSE:** Paragraph 191 of the Complaint is not directed at Respondent, thus no response is

required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 191 and therefore denies such allegations.

192. A claim chart comparing independent claim 1 of the '015 Patent to the representative Winplus Design Accused Product, and including photographs and drawings where applicable, is attached as Ex. 115.

**RESPONSE:** Paragraph 192 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 192 and therefore denies such allegations.

**c) Infringement of the '024 Patent**

193. On information and belief, select Respondents import, sell for importation, and/or sell within the United States after importation the Winplus Design Accused Products, which directly infringe, literally and/or under the doctrine of equivalents, at least independent claims 1, 29 and 30 of the '024 Patent. Certain of the Winplus Design Accused Products also infringe one or more of dependent claims 4, 5, 6, 16, 19, 23, 24, and 26 of the '024 Patent. The Winplus Design Accused Products satisfy all asserted claim limitations of the '024 Patent at the time of importation into the United States.

**RESPONSE:** Paragraph 193 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 193 and therefore denies such allegations.

194. A claim chart comparing independent claims 1, 29, and 30 of the '024 Patent to the representative Winplus Design Accused Product, and including photographs and drawings where applicable, is attached as Ex. 115.

**RESPONSE:** Paragraph 194 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 194 and therefore denies such



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allegations.

### 6. Claim Chart 06- Great Neck Accused Products

#### a) Great Neck Design

195. The Accused Products in Claim Chart 06 ("Great Neck Design") are lithium battery powered jump starters having a SMART CLAMP branded cable assembly. The cable assembly includes a power switch with multiple transistors, and two sensors. The first sensor, which is the claimed vehicle battery isolation sensor, includes a resistive divider sensor and transistor. The second sensor, which is the claimed reverse polarity sensor, is a resistive divider sensor. The Great Neck Accused Products are offered under at least the OEM Tools brand. The OEMTOOLS 24474 model jump starter is representative of the Great Neck Accused Products.

**RESPONSE:** Paragraph 195 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 195 and therefore denies such allegations.

#### b) Infringement of the '015 Patent

196. On information and belief, select Respondents, including OEM Tools, import, sell for importation, and/or sell within the United States after importation the Great Neck Accused Products, which directly infringe, literally and/or under the doctrine of equivalents, at least independent claim 1 of the '015 Patent. Certain of the Great Neck Accused Products alsoinfringe one or more of dependent claims 4, 10, 11, 14, 18, 19 and 21 of the '015 Patent. The Great Neck Accused Products satisfy all asserted claim limitations of the '015 Patent at the time of importation into the United States.

**RESPONSE:** Paragraph 196 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 196 and therefore denies such allegations.

197. A claim chart comparing independent claim 1 of the '015 Patent to the representative Great Neck Accused Product, and including photographs and drawings where applicable, is attached as Ex. 116.

**RESPONSE:** Paragraph 197 of the Complaint is not directed at Respondent, thus no response is

required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 197 and therefore denies such allegations.

### 7. Claim Chart 07- ThiEye Accused Products

#### a) ThiEye Design

198. The Accused Products in Claim Chart 07 ("ThiEye Design") are lithium battery powered jump starters having a SMART CABLE branded cable assembly. The cable assembly includes a power switch with multiple transistors, and two sensors. The first sensor, which is the claimed vehicle battery isolation sensor, is a resistive divider sensor. The second sensor, which is the claimed reverse polarity sensor, is also a resistive sensor. The ThiEye Design Accused Products manufactured by Respondent ThiEye are offered under multiple brands, namely BUTURE, Finnemge, and UTRAI. The BUTURE BR500 model jump starter is representative of the ThiEye Design Accused Products.

**RESPONSE:** Paragraph 198 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 198 and therefore denies such allegations.

#### b) Infringement of the '015 Patent

199. On information and belief, select Respondents import, sell for importation, and/or sell within the United States after importation the ThiEye Design Accused Products, which directly infringe, literally and/or under the doctrine of equivalents, at least independent claim 1 of the '015 Patent. Certain of the ThiEye Design Accused Products also infringe one or more of dependent claims 4, 10, 11, 14, 18, 19 and 21 of the '015 Patent. The ThiEye Design Accused Products satisfy all asserted claim limitations of the '015 Patent at the time of importation into the United States.

**RESPONSE:** Paragraph 199 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 199 and therefore denies such allegations.

200. A claim chart comparing independent claim 1 of the '015 Patent to the representative ThiEye Design Accused Product, and including photographs and drawings where

applicable, is attached as Ex. 117.

**RESPONSE:** Paragraph 200 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 200 and therefore denies such allegations.

### c) Infringement of the '024 Patent

201. On information and belief, select Respondents import, sell for importation, and/or sell within the United States after importation the ThiEye Design Accused Products, which directly infringe, literally and/or under the doctrine of equivalents, at least independent claims 1, 29 and 30 of the '024 Patent. Certain of the ThiEye Design Accused Products also infringe one or more of dependent claims 4, 5, 6, 16, 19, 23, 24, and 26 of the '024 Patent. The ThiEye Design Accused Products satisfy all asserted claim limitations of the '024 Patent at the time of importation into the United States.

**RESPONSE:** Paragraph 201 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 201 and therefore denies such allegations.

202. A claim chart comparing independent claims 1, 29, and 30 of the '024 Patent to the representative ThiEye Design Accused Product, and including photographs and drawings where applicable, is attached as Ex. 117.

**RESPONSE:** Paragraph 202 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 202 and therefore denies such allegations.

## 8. Claim Chart 08- Energen/Performance Tool Accused Products

### a) Energen/Performance Tool Design

203. The Accused Products in Claim Chart 08 ("Energen/ Performance Tool Design") are lithium battery powered jump starters having a cable assembly labeled as "SMART BOOSTER

CABLE". The cable assembly includes a power switch with multiple transistors, and two sensors. The first sensor, which is the claimed vehicle battery isolation sensor, is a resistive sensor. The second sensor, which is the claimed reverse polarity sensor, is a resistive divider sensor. The Energen/Performance Tool Accused Products are offered under multiple brands, including Energen and Performance Tool. The ENERGEN AL12 model jump starter is representative of the Design 11 Accused Products.

**RESPONSE:** Paragraph 203 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 203 and therefore denies such allegations.

**b) Infringement of the '015 Patent**

204. On information and belief, select Respondents import, sell for importation, and/or sell within the United States after importation the Energen/Performance Tool Accused Products, which directly infringe, literally and/or under the doctrine of equivalents, at least independent claim 1 of the '015 Patent. Certain of the Energen/Performance Tool Accused Products also infringe one or more of dependent claims 4, 10, 11, 14, 18, 19 and 21 of the '015 Patent. The Energen/Performance Tool Accused Products satisfy all asserted claim limitations of the '015 Patent at the time of importation into the United States.

**RESPONSE:** Paragraph 204 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 204 and therefore denies such allegations.

205. A claim chart comparing independent claim 1 of the '015 Patent to the representative Design 11 Accused Product, and including photographs and drawings where applicable, is attached as Ex. 118.

**RESPONSE:** Paragraph 205 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 205 and therefore denies such allegations.

### c) Infringement of the '024 Patent

206. On information and belief, select Respondents import, sell for importation, and/or sell within the United States after importation the Energen/Performance Tool Accused Products, which directly infringe, literally and/or under the doctrine of equivalents, at least independent claims 1, 29 and 30 of the '024 Patent. Certain of the Energen/Performance Tool Accused Products also infringe one or more of dependent claims 4, 5, 6, 16, 19, 23, 24, and 26 of the '024 Patent. The Energen/Performance Tool Accused Products satisfy all asserted claim limitations of the '024 Patent at the time of importation into the United States.

**RESPONSE:** Paragraph 206 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 206 and therefore denies such allegations.

207. A claim chart comparing independent claims 1, 29, and 30 of the '024 Patent to the representative Energen/Performance Tool Accused Product, and including photographs and drawings where applicable, is attached as Ex. 118.

**RESPONSE:** Paragraph 207 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 207 and therefore denies such allegations.

## 9. Claim Chart 09- HALO Accused Products

### a) HALO Design

208. The Accused Products in Claim Chart 09 ("HALO Design") are lithium battery powered jump starters offered under the HALO BOLT brand, that include a relay and two sensors within the main housing of the jump starter. The first sensor, which is the claimed vehicle battery isolation sensor, is a resistive divider sensor. The second sensor, which is the claimed reverse polarity sensor, is an optocoupler sensor. The HALO BOLT Wireless model jump starter is representative of the HALO Design Accused Products.

**RESPONSE:** Respondent admits that NOCO has, at Claim Chart 09, alleged that certain jump starter products infringe certain claims of the '015 Patent. Respondent specifically denies that the products that it imports and sells within the United States after importation infringe any valid and

enforceable claim of the Asserted Patents. To the extent Paragraph 208 contains legal conclusions, no response is required. Respondent denies all remaining allegations of Paragraph 208.

**b) Infringement of the '015 Patent**

209. On information and belief, select Respondents, including Halo2Cloud, import, sell for importation, and/or sell within the United States after importation the HALO Design Accused Products, which directly infringe, literally and/or under the doctrine of equivalents, at least independent claim 1 of the '015 Patent. Certain of the HALO Design Accused Products also infringe one or more of dependent claims 10, 11, 14, 18, 19 and 21 of the '015 Patent. The HALO Design Accused Products satisfy all asserted claim limitations of the '015 Patent at the time of importation into the United States.

**RESPONSE:** Respondent specifically denies that the products that it sells within the United States after importation infringe any valid and enforceable claim of the Asserted Patents. Further answering, Paragraph 209 states a legal conclusion to which no response is required. To the extent one is required, Respondent denies that the "HALO Design Accused Products' satisfy all asserted claim limitations of the '015 Patent at the time of importation into the United States. Respondent denies the remaining allegations of Paragraph 209.

210. A claim chart comparing independent claim 1 of the '015 Patent to the representative HALO Design Accused Product, and including photographs and drawings where applicable, is attached as Ex. 119.

**RESPONSE:** Respondent admits that NOCO has attached, as Exhibit 119, a claim chart purportedly comparing independent claims relating to the '015 Patent to certain products of Respondent. Respondent specifically denies that any products identified in Exhibit 119 infringe any valid and enforceable claim of the Asserted Patents. Respondent denies the remaining allegations of Paragraph 210.

**c) [WITHDRAWN]**

211. [WITHDRAWN]

**RESPONSE:** Paragraph 211 of the Complaint has been withdrawn, thus no response is required.

212. [WITHDRAWN]

**RESPONSE:** Paragraph 212 of the Complaint has been withdrawn, thus no response is required.

### 10. Claim Chart 10- Clore Accused Products

#### a) Clore Design

213. The Accused Products in Claim Chart 10 ("Clore Design") are lithium battery powered jump starters offered under the Jump-n-Carry brand that have the power switch and two sensors within the main housing of the jump starter. The first sensor, which is the claimed vehicle battery isolation sensor, is a resistive divider sensor. The second sensor, which is the claimed reverse polarity sensor, is optocoupler sensor. The Jump-n-Carry JNC345 model jump starter is representative of the Clore Design Accused Products.

**RESPONSE:** Paragraph 213 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 213 and therefore denies such allegations.

#### b) Infringement of the '015 Patent

214. On information and belief, select Respondents, including Respondent Clore Automotive, sell for importation, and/or sell within the United States after importation the Clore Design Accused Products, which directly infringe, literally and/or under the doctrine of equivalents, at least independent claim 1 of the '015 Patent. Certain of the Clore Design Accused Products also infringe one or more of dependent claims 4, 10, 14, 18, 19 and 21 of the '015 Patent. The Clore Design Accused Products satisfy all asserted claim limitations of the '015 Patent at the time of importation into the United States.

**RESPONSE:** Paragraph 214 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 214 and therefore denies such allegations.

215. A claim chart comparing independent claim 1 of the '015 Patent to the representative Clore Design Accused Product, and including photographs and drawings where applicable, is attached as Ex. 120.

**RESPONSE:** Paragraph 215 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 215 and therefore denies such allegations.

### c) Infringement of the '024 Patent

216. On information and belief, select Respondents, including Respondent Clore Automotive, import, sell for importation, and/or sell within the United States after importation the Clore Design Accused Products, which directly infringe, literally and/or under the doctrine of equivalents, at least independent claims 1, 29 and 30 of the '024 Patent. Certain of the Clore Design Accused Products also infringe one or more of dependent claims 4, 5, 6, 16, 19, 23, 24, and 26 of the '024 Patent. The Clore Design Accused Products satisfy all asserted claim limitations of the '024 Patent at the time of importation into the United States.

**RESPONSE:** Paragraph 216 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 216 and therefore denies such allegations.

217. A claim chart comparing independent claims 1, 29, and 30 of the '024 Patent to the representative Clore Design Accused Product, and including photographs and drawings where applicable, is attached as Ex. 120.

**RESPONSE:** Paragraph 217 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 217 and therefore denies such allegations.

### B. Infringement of the Asserted Trademarks

218. NOCO owns all right, title, and interest in the Asserted Trademarks and has standing to bring an action for trademark infringement under the Lanham Act, 15 U.S.C. § 1051 et seq.

**RESPONSE:** Respondent lacks knowledge or information sufficient to form a belief as to NOCO's alleged ownership of the Asserted Trademarks and therefore denies such allegations. To the extent Paragraph 218 contains legal conclusions, no response is required. To the extent a response is required, Respondent denies Complainant's allegations that the Asserted Trademarks are infringed.

219. The Asserted Trademarks are on the Principal Register and such registration is prima facie evidence of validity, including secondary meaning. 15 U.S.C. § 1057(b). The Asserted Trademarks are used in commerce by NOCO to market, advertise, and sell the Boost® jump starters.

**RESPONSE:** Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 219 and therefore denies the same.

220. As explained below, a number of the Respondents use at least one of the Asserted Trademarks in point-of-sale displays posted on online retail stores with the intention of attracting U.S. consumers. These point-of-sale webpages, which include Respondents' own sites as well as third-party commerce sites including Amazon, contain images superimposed with NOCO's Asserted Trademarks and/or use NOCO's Asserted Trademarks in the descriptions of the Accused Products. The webpages provide means for purchasing the Accused Products. Such displays are likely to cause confusion or mistake, and to deceive potential consumers and the public as to the source, origin, sponsorship or approval of Respondents' Accused Products, or as to the affiliation, connection, or association between Respondents and/or their jump starters and NOCO and/or the Boost(R) jump starters.

**RESPONSE:** Paragraph 220 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 220 and therefore denies such allegations.

221. The exhibits cited below are screenshots of the Accused Products being displayed on a webpage where the product may be purchased. The importation of the Accused Products via these webpages is further described in Section VII.

**RESPONSE:** Paragraph 221 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 221 and therefore denies such allegations.

222. The Asserted Trademarks are valid, owned by NOCO, and these webpages demonstrate a likelihood of confusion at the point-of-sale, and therefore Respondents are in violation of Section 32 of the Lanham Act. 15 U.S.C. § 1114.
The Respondents identified in the table below import into the United States, sell for importation, and/or sell in the United States after importation certain jump starters and components thereof, using point of sale webpages, and/or packaging that infringe the NOCO Trademarks:

| Ultrasafe ('656 TM) | Safely Jump Start a Dead Battery in Seconds ('749 TM) |
|---|---|
| Audew | Autown |
| Autown | Beatit |
| Jumtop | Imazing |
| Sanrock | Jumtop |
| Topdon | Nexpow |
| Trekpow | Sanrock |
| | Trekpow |

**Table 3**. Accused Products Infringing NOCO Asserted Trademarks

[image omitted]
Fig. 3- NOCO Website- Use of the '749 Trademark

[image omitted]
Fig. 4- NOCO Website- Use of the '656 and '749 Trademarks. Ex. 104

**RESPONSE:** Paragraph 222 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 222 and therefore denies such allegations.

**Audew**

223. The Audew brand uses the NOCO "Ultrasafe" and "Safely Jump Start a Dead Battery in Seconds" trademarks on its website and Amazon listing for its jump starters, which infringes NOCO's '656 and '749 Trademarks and are likely to cause confusion at the point-of-sale. *See* Ex. 27 and 50; *see also* Ex. 121 (importation evidence).

**RESPONSE:** Paragraph 223 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 223 and therefore denies such allegations.

**Autown**

224. The Amazon listing for the Autown brand of jump starters includes the phrase "jump starter your dead battery in seconds," and "jump start dead battery fast and safely" which infringes NOCO's '749 Trademark and is likely to cause confusion at the point-of-sale. *See* Ex. 28 and 29. The Autown brand also markets its products using the term "ultra-safe" infringing the '656 Trademark. *See* Ex. 29; *see also* Ex. 52 (importation evidence).

**RESPONSE:** Paragraph 224 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 224 and therefore denies such allegations.

**Beatit**

225. The Beatit brand uses the phrases "Safely Jumper start a dead battery in seconds" and "jump start a dead battery in seconds" on their Amazon listings for its jump starters, both of which infringe NOCO's '749 Trademark and are likely to cause confusion at the point-of -sale. *See* Ex. 30; *see also* Ex. 122 (importation evidence).

**RESPONSE:** Paragraph 225 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 225 and therefore denies such allegations.

**Imazing**

226. The Imazing brand jump starter listing on Amazon uses the phrase "safely jump start a dead battery in seconds" which infringes the NOCO '749 Trademark and is likely to cause confusion at the point-of-sale. *See* Ex. 33; *see also* Ex. 124 (importation evidence).

**RESPONSE:** Paragraph 226 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 226 and therefore denies such allegations.

**Jumtop**

227. The Jumtop brand of jump starters uses the phrases "ULTRA SAFE," "ultra-safe" and "jump start a dead battery in seconds" on its Amazon listings for its jump starters, which infringes both the NOCO '656 and '749 Trademarks and is likely to cause confusion at the point-of-sale. *See* Ex. 34, 35 and 36; *see also* Ex. 72 (importation evidence).

**RESPONSE:** Paragraph 227 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 227 and therefore denies such allegations.

**Nexpow**

228. The Nexpow brand of jump starters uses the phrase "jump start a dead battery in seconds" on its Amazon listing for its jump starters, which infringes the NOCO '749 Trademark and is likely to cause confusion at the point-of-sale. *See* Ex. 37; *see also* Ex. 79 (importation evidence).

**RESPONSE:** Paragraph 228 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 228 and therefore denies such allegations.

**Sanrock**

229. The Sanrock brand of jump starters uses the phrases "safely jump start a dead battery in seconds" and "ultra-safe" in its Amazon listings for its jump starters, which infringes the NOCO '656 and '749 Trademarks and is likely to cause confusion at the point-of-sale. *See* Ex. 38 and 39; *see also* Ex. 86 (importation evidence).

[image omitted]

Fig.5- Image from Sanrock Amazon listing showing infringement of '749 Trademark

**RESPONSE:** Paragraph 229 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 229 and therefore denies such allegations.

**Topdon**

230. The Topdon brand of jump starters uses the phrase "ultra safe" on the packaging of its Volcano jump starters, infringing the NOCO '656 Trademark. *See* Ex. 40; *see also* Ex. 92 (importation evidence).

**RESPONSE:** Paragraph 230 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 230 and therefore denies such allegations.

**Trekpow**

231. The Trekpow brand of jump starters uses the phrases "ultra-safe," "jump start dead battery in seconds," and "safely jump start a dead battery in seconds" in its Amazon listings, which infringes the NOCO '656 and '749 Trademarks and is likely to cause confusion at the point-of-sale. *See* Ex. 41, 42 and 43; *see also* Ex. 95 (importation evidence).

**RESPONSE:** Paragraph 231 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information

sufficient to form a belief as to the allegations of Paragraph 231 and therefore denies such allegations.

## VII. SPECIFIC INSTANCES OF IMPORTATION AND SALE

232. As stated above, on information and belief, a subset of Respondents manufactures and/or have manufactured outside the United States, import into the United States, and/or sell for importation into the United States the Accused Products. Other named Respondents import into the United States and/or sell after importation into the United States the Accused Products. The Accused Products, certain portable battery jump starters and related components, are imported, sold for importation, and/or sold after importation as described below.

**RESPONSE:** Respondent specifically denies that the products that it imports or sells infringe any valid and enforceable claim of the Asserted Patents. To the extent a response is required the remaining allegations of Paragraph 232, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 232 and therefore denies such allegations.

### A. Carku Brands

#### 1. AllStart

233. On information and belief, model numbers Boost (No. 550), Boost Max (No. 560), Boost Ultra (No. 590), and Micro-Boost (No. 540) (collectively, the "AllStart Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name AllStart. *See* Ex. 44C, ¶¶ 5-6.

**RESPONSE:** Paragraph 233 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 233 and therefore denies such allegations.

234. On information and belief, products sold under the brand AllStart are manufactured by and/or imported for sale by Respondents Horizon Tool, Carku, and Boltpower. *See* Ex. 44C, ¶¶ 5-6.

**RESPONSE:** Paragraph 234 of the Complaint is not directed at Respondent, thus no response is

required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 234 and therefore denies such allegations.

235. The AllStart Accused Products are sold after importation into the United States. For example, a receipt from cal-vantools.com showing the purchase of an AllStart Boost (No.550) at an address in the United States is attached as Ex. 46. On information and belief, the AllStart Accused Products are also sold by Walmart, Advance Auto, and Horizon Tool. *See, e.g.,* https://www.walmart.com/ip/AllStart-540-Micro-Boost-Battery-Jump-Starter-500AMP-V6-Engines/635710663.

**RESPONSE:** Paragraph 235 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 235 and therefore denies such allegations.

236. The packaging of the AllStart Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶ 5 (citing Ex. 46).

**RESPONSE:** Paragraph 236 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 236 and therefore denies such allegations.

**2. Antigravity Batteries**

237. On information and belief, model numbers XP-1, XP-10, XP-10-HD, and XP-3 (collectively, the "Antigravity Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Antigravity. *See* Ex. 44C, ¶¶ 9-10.

**RESPONSE:** Paragraph 237 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 237 and therefore denies such allegations.

238. On information and belief, products sold under the brand Antigravity are manufactured by and/or imported for sale by Respondents Antigravity and Carku. *See* Ex. 44C, ¶¶ 9-10.

**RESPONSE:** Paragraph 238 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 238 and therefore denies such allegations.

239. The Antigravity Accused Products are sold after importation into the United States. For example, a receipt from antigravitybatteries.com showing the purchase of an Antigravity XP-3 and XP-10-HD at an address in the United States is attached as Ex. 48. The Antigravity Accused Products are also sold by Respondent Walmart. *See, e.g.,* https://www.walmart.com/ip/Antigravity-Batteries-XP-10-HD-Heavy-Duty-MICRO-START-Jump-Starter-Portable-Power-Supply-Kit/580014186.

**RESPONSE:** Paragraph 239 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 239 and therefore denies such allegations.

240. The packaging of the Antigravity Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶ 10 (citing Ex. 48).

**RESPONSE:** Paragraph 240 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 240 and therefore denies such allegations.

### 3. Audew

241. On information and belief, model numbers Epower-146 (1000A/10800mAh), 500A/13800mAH, 800A/16800mAh, Epower-172 (1500A/17000mAh), and Epower-155 (1500A/2000mAh) (collectively, the "Audew Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Audew. *See* Ex. 44C, ¶¶ 13-14.

**RESPONSE:** Paragraph 241 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 241 and therefore denies such allegations.

242. On information and belief, products sold under the brand Audew are manufactured by and/or imported for sale by Respondent Carku. *See* Ex. 44C, ¶¶ 13-14; Ex. 121.

**RESPONSE:** Paragraph 242 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 242 and therefore denies such allegations.

243. The Audew Accused Products are sold after importation into the United States. For example, a receipt from audew.com showing the purchase of an Audew Epower-146 (1000A/10800mAh) and Epower-172 (1500A/17000mAh) at an address in the United States is attached as Ex. 121. The Audew Accused Products are also sold by Respondent Walmart. *See, e.g.,* https://www.walmart.com/ip/Audew-Jump-Starter-Car-Auto-Battery-Jump-Starter-Portable-2000A-Charger-20000mAh/226026281?findingMethod=wpa.

**RESPONSE:** Paragraph 243 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 243 and therefore denies such allegations.

244. The packaging of the Audew Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶ 11; Ex. 121.

**RESPONSE:** Paragraph 244 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 244 and therefore denies such allegations.

**4. Autogen**

245. On information and belief, model number MJS-P111B (4000A) (the "Autogen Accused Product") is manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Autogen. *See* Ex. 44C, ¶¶ 15-16.

**RESPONSE:** Paragraph 245 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 245 and therefore denies such allegations.

246. On information and belief, products sold under the brand Autogen are manufactured by and/or imported for sale by Respondent Carku. *See* Ex. 44C, ¶¶ 15-16.

**RESPONSE:** Paragraph 246 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 246 and therefore denies such allegations.

247. The Autogen Accused Product is sold after importation into the United States. For example, a receipt from Amazon.com showing the purchase of an Autogen MJS-P111B (4000A) at an address in the United States is attached as Ex. 51.

**RESPONSE:** Paragraph 247 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 247 and therefore denies such allegations.

248. The packaging of the Autogen Accused Product indicates that the product was "Made in China." *See* Ex. 44C, ¶ 15 (citing Ex. 51).

**RESPONSE:** Paragraph 248 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 248 and therefore denies such

allegations.

**5. Freeman**

249. On information and belief, model number P800AJS (the "Freeman Accused Product") is manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Freeman. *See* Ex. 44C, ¶¶ 47-48.

**RESPONSE:** Paragraph 249 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 249 and therefore denies such allegations.

250. On information and belief, products sold under the brand Freeman are manufactured by and/or imported for sale by Respondents Prime Global Products and Carku. *See* Ex. 44C, ¶¶ 47-48.

**RESPONSE:** Paragraph 250 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 250 and therefore denies such allegations.

251. The Freeman Accused Product is sold after importation into the United States. For example, a receipt from Amazon.com showing the purchase of a Freeman P800AJS at an address in the United States is attached as Ex. 66.

**RESPONSE:** Paragraph 251 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 251 and therefore denies such allegations.

252. The packaging of the Freeman Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶ 47 (citing Ex. 66).

**RESPONSE:** Paragraph 252 of the Complaint is not directed at Respondent, thus no response is

required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 252 and therefore denies such allegations.

6. **Gooloo**

253. On information and belief, model numbers GP1500, GP200, GP37-Plus, GP80 (800A), and GT-1500 (collectively, the "Gooloo Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Gooloo. *See* Ex. 44C, ¶¶ 49-51.

**RESPONSE:** Paragraph 253 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 253 and therefore denies such allegations.

254. On information and belief, products sold under the brand Gooloo are manufactured by and/or imported for sale by Respondent Gooloo and Carku. *See* Ex. 44C, ¶¶ 41-42.

**RESPONSE:** Paragraph 254 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 254 and therefore denies such allegations.

255. The Gooloo Accused Products are sold after importation into the United States. For example, receipts from Amazon.com showing the purchase of a Gooloo GP80 (800A), GP200, and GT-1500 at an address in the United States is attached as Ex. 67. The Gooloo Accused Products are also sold by Respondent Walmart. *See, e.g.,* https://www.walmart.com/ip/GOOLOO-800Amp-12-Volt-SuperSafe-Car-Jump-Starter-with-LED-Flashlight-and-USB-for-Up-to-4-5-Liter-Gasoline/801082784

**RESPONSE:** Paragraph 255 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 255 and therefore denies such

allegations.

256. The packaging of the Gooloo Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶¶ 49-50 (citing Ex. 57).

**RESPONSE:** Paragraph 256 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 256 and therefore denies such allegations.

### 7. Grepro

257. On information and belief, model numbers GP-JS-1500A (GP71C) and GP-JS-500A (collectively, the "Grepro Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Grepro. *See* Ex. 44C, ¶¶ 52-53.

**RESPONSE:** Paragraph 257 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 257 and therefore denies such allegations.

258. On information and belief, products sold under the brand Grepro aremanufactured by and/or imported for sale by Respondent Carku. See Ex. 44C, ¶¶ 52-53. The Grepro Accused Products are sold after importation into the United States. For example, a receipt from Amazon.com showing the purchase of a Grepro GP-JS-1500A (GP71C) at an address in the United States is attached as Ex. 131.

**RESPONSE:** Paragraph 258 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 258 and therefore denies such allegations.

259. The packaging of the Grepro Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶ 52 (citing Ex. 68); Ex. 131.

**RESPONSE:** Paragraph 259 of the Complaint is not directed at Respondent, thus no response is

required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 259 and therefore denies such allegations.

8. **iClever**

260. On information and belief, model number IC-JQ21Y (the "iClever Accused Product") is manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name iClever. *See* Ex. 44C, ¶¶ 56-58.

**RESPONSE:** Paragraph 260 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 260 and therefore denies such allegations.

261. On information and belief, products sold under the brand iClever are manufactured by and/or imported for sale by Respondent Carku. *See* Ex. 44C, ¶¶ 56-58.

**RESPONSE:** Paragraph 261 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 261 and therefore denies such allegations.

262. On information and belief, the iClever Accused Product is sold after importation into the United States. *See* Ex. 44C, ¶¶ 56-58 (citing Ex. 70).

**RESPONSE:** Paragraph 262 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 262 and therefore denies such allegations.

263. On information and belief, the iClever Accused Product is manufactured in China. *See* Ex. 44C, ¶¶ 56-58 (citing Ex. 70).

**RESPONSE:** Paragraph 263 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 263 and therefore denies such allegations.

### 9. [WITHDRAWN]

264. [WITHDRAWN]

**RESPONSE:** Paragraph 264 of the Complaint has been withdrawn, thus no response is required.

265. [WITHDRAWN]

**RESPONSE:** Paragraph 265 of the Complaint has been withdrawn, thus no response is required.

266. [WITHDRAWN]

**RESPONSE:** Paragraph 266 of the Complaint has been withdrawn, thus no response is required.

267. [WITHDRAWN]

**RESPONSE:** Paragraph 267 of the Complaint has been withdrawn, thus no response is required.

### 10. Nekteck

268. On information and belief, model numbers NK-JS19800 (2000A/19800mAh), NK-JS12000 (D31) (500A/12000mAh), NK-JS12000 (600A/16800mAh), and D45 (800A/20000mAh) (collectively, the "Nekteck Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Nekteck. *See* Ex. 44C, ¶¶ 76-77.

**RESPONSE:** Paragraph 268 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information

sufficient to form a belief as to the allegations of Paragraph 268 and therefore denies such allegations.

269. On information and belief, products sold under the brand Nekteck are manufactured by and/or imported for sale by Respondent Nekteck. *See* Ex. 44C, ¶¶ 76-77.

**RESPONSE:** Paragraph 269 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 269 and therefore denies such allegations.

270. The Nekteck Accused Products are sold after importation into the United States. For example, a receipt from Amazon.com showing the purchase of a Nekteck NK-JS12000 (D31) (500A/12000mAh) and NK-JS12000 (600A/16800mAh) at an address in the United States is attached as Ex. 132.

**RESPONSE:** Paragraph 270 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 270 and therefore denies such allegations.

271. The packaging of the Nekteck Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶ 76 (citing Ex. 78); Ex. 132.

**RESPONSE:** Paragraph 271 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 271 and therefore denies such allegations.

### 11. PowerMax

272. On information and belief, model numbers PM91004 and PM91006 (collectively, the "PowerMax Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name PowerMax. *See* Ex. 44C, ¶¶ 88-89

**RESPONSE:** Paragraph 272 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 272 and therefore denies such allegations.

273. On information and belief, products sold under the brand PowerMax are manufactured by and/or imported for sale by Respondents PowerMax and Carku. *See* Ex. 44C, ¶¶ 88-89.

**RESPONSE:** Paragraph 273 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 273 and therefore denies such allegations.

274. The PowerMax Accused Products are sold after importation into the United States. For example, a receipt from Home Depot (homedepot.com) showing the purchase of a PowerMax PM91006 at an address in the United States is attached as Ex. 84.

**RESPONSE:** Paragraph 274 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 274 and therefore denies such allegations.

275. On information and belief, the PowerMax Accused Products are manufactured in China. *See* Ex. 44C, ¶ 88 (citing Ex. 84).

**RESPONSE:** Paragraph 275 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 275 and therefore denies such allegations.

### 12. Tacklife

276. On information and belief, model numbers KP120, KP200, T6, T8 (Newer Model),

T8 Max, T8 MAX, and T8 Pro (collectively, the "Tacklife Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Tacklife. *See* Ex. 44C, ¶¶ 103-107.

**RESPONSE:** Paragraph 276 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 276 and therefore denies such allegations.

277. On information and belief, products sold under the brand Tacklife are manufactured by and/or imported for sale by Respondent Shenzhen Take Tools. *See* Ex. 44C, ¶¶ 103-107.

**RESPONSE:** Paragraph 277 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 277 and therefore denies such allegations.

278. The Tacklife Accused Products are sold after importation into the United States. For example, receipts from Amazon.com showing the purchase of a Tacklife T8, T8 (Newer Model), T8 MAX, and T8 Pro at an address in the United States are attached as Ex. 126.

**RESPONSE:** Paragraph 278 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 278 and therefore denies such allegations.

279. The packaging of the Tacklife Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶¶ 103-106; Ex. 126.

**RESPONSE:** Paragraph 279 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 279 and therefore denies such allegations.

### 13. Xiaomi

280. On information and belief, model number Midrive PS02 (11100 mAh 600A) (the "Xiaomi Accused Product") is manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Xiaomi. *See* Ex. 44C, ¶¶ 131-132; Ex. 130C.

**RESPONSE:** Paragraph 280 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 280 and therefore denies such allegations.

281. On information and belief, products sold under the brand Xiaomi are manufactured by and/or imported for sale by Respondents 70mai and Carku. *See* Ex. 44C, ¶¶ 131-133; Ex. 130C.

**RESPONSE:** Paragraph 281 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 281 and therefore denies such allegations.

282. The Xiaomi Accused Product is sold after importation into the United States. For example, a receipt from Amazon.com showing the purchase of a PS02 (11100 mAh 600A) jump starter at an address in the United States is attached as Ex. 129. In addition, Walmart.com and Amazon.com listings indicate the Xiaomi Accused Product is manufactured by and/or imported by Respondent 70mai. *See* Ex. 44C, ¶¶ 131-133 (citing Ex. 102); Ex. 130C.

**RESPONSE:** Paragraph 282 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 282 and therefore denies such allegations.

283. The packaging of the Xiaomi Accused Product identifies "70mai Co., Ltd." and indicates it was "Made in China." *See* Ex. 44C, ¶¶ 131-133 (citing Ex. 102); Ex. 130C (citing Ex. 129).

**RESPONSE:** Paragraph 283 of the Complaint is not directed at Respondent, thus no response is

required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 283 and therefore denies such allegations.

### B. Boltpower Brands

#### 1. Ampeak

284. On information and belief, model number JS1 (the "Ampeak Accused Product")is manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Ampeak. *See* Ex. 44C, ¶¶ 7-8.

**RESPONSE:** Paragraph 284 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 284 and therefore denies such allegations.

285. On information and belief, products sold under the brand Ampeak are manufactured by and/or imported for sale by Respondent Valuelink. *See* Ex. 44C, ¶¶ 5-6.

**RESPONSE:** Paragraph 285 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 285 and therefore denies such allegations.

286. The Ampeak Accused Product is sold after importation into the United States. For example, a receipt from Amazon.com showing the purchase of an Ampeak JS1 at an address in the United States is attached as Ex. 47.

**RESPONSE:** Paragraph 286 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 286 and therefore denies such allegations.



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287. The packaging of the Ampeak Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶ 7 (citing Ex. 47).

**RESPONSE:** Paragraph 287 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 287 and therefore denies such allegations.

**2. Arteck**

288. On information and belief, model numbers A7, D29, JS08, and JS12 (collectively, the "Arteck Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Arteck. *See* Ex. 44C, ¶¶ 11-12.

**RESPONSE:** Paragraph 288 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 288 and therefore denies such allegations.

289. On information and belief, products sold under the brand Arteck are manufactured by and/or imported for sale by Respondents Arteck Electronic and Boltpower. *See* Ex. 44C, ¶¶ 11-12.

**RESPONSE:** Paragraph 289 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 289 and therefore denies such allegations.

290. The Arteck Accused Products are sold after importation into the United States. For example, a receipt from Amazon.com showing the purchase of an Arteck A7 at an address in the United States is attached as Ex. 49.

**RESPONSE:** Paragraph 290 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information

sufficient to form a belief as to the allegations of Paragraph 290 and therefore denies such allegations.

291. The packaging of the Arteck Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶ 11 (citing Ex. 49).

**RESPONSE:** Paragraph 291 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 291 and therefore denies such allegations.

### 3. Autown

292. On information and belief, model numbers RP-PI-01 (1000A), RP-PI02 (500A/10000mAh), RP-PI-03 (800A), and RP-PI-04 (2000A) (collectively, the "Autown Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Autown. *See* Ex. 44C, ¶¶ 17-18.

**RESPONSE:** Paragraph 292 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 292 and therefore denies such allegations.

293. On information and belief, products sold under the brand Autown are manufactured by and/or imported for sale by Respondents Boltpower and Zhejiang Quingyou Electronic. *See* Ex. 44C, ¶¶ 17-18.

**RESPONSE:** Paragraph 293 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 293 and therefore denies such allegations.

294. The Autown Accused Products are sold after importation into the United States. For example, a receipt from Amazon.com showing the purchase of an Autown RP-PI-03 (800A) at an address in the United States is attached as Ex. 52.

**RESPONSE:** Paragraph 294 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 294 and therefore denies such allegations.

295. The packaging of the Autown Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶ 17 (citing Ex. 52).

**RESPONSE:** Paragraph 295 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 295 and therefore denies such allegations.

**4. Battery Tender**

296. On information and belief, model numbers 030-1011-WAL (1000A/8000mAh), 030-1011-WH (1000A/8000mAh), 030-1000-PM (600A/6000mAh), and 030-1010-WH (800A/7200mAh) (collectively, the "Battery Tender Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Battery Tender. *See* Ex. 44C, ¶¶ 19-20.

**RESPONSE:** Paragraph 296 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 296 and therefore denies such allegations.

297. On information and belief, products sold under the brand Battery Tender are manufactured by and/or imported for sale by Respondents Deltran and Boltpower. *See* Ex. 44C, ¶¶ 19-20.

**RESPONSE:** Paragraph 297 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 297 and therefore denies such

allegations.

298. The Battery Tender Accused Products are sold after importation into the United States. For example, a receipt from Amazon.com showing the purchase of a Battery Tender 030-1010-WH (800A/7200mAh) at an address in the United States is attached as Ex. 53.

**RESPONSE:** Paragraph 298 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 298 and therefore denies such allegations.

299. The packaging of the Battery Tender Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶ 19 (citing Ex. 53).

**RESPONSE:** Paragraph 299 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 299 and therefore denies such allegations.

**5. Beatit**

300. On information and belief, model numbers B10 (500A), B10 Pro (800A), B7 (1200A), BP101 (2200A), D11 (800A), G18 (2000A), and G22 (1500A) (collectively, the"Beatit Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Beatit. *See* Ex. 44C, ¶¶ 21-23.

**RESPONSE:** Paragraph 300 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 300 and therefore denies such allegations.

301. On information and belief, products sold under the brand Beatit are manufactured by and/or imported for sale by Respondents Boltpower and Shenzhen Mediatek Tong. *See* Ex. 44C, ¶¶ 21-23.

**RESPONSE:** Paragraph 301 of the Complaint is not directed at Respondent, thus no response is

required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 301 and therefore denies such allegations.

302. The Beatit Accused Products are sold after importation into the United States. For example, receipts from Amazon.com showing the purchase of a Beatit B10, B10 Pro (800A), B7 (1200A), BP101 (2200A), D11 (800A), and G18 (200A) at an address in the United States is attached as Ex. 122.

**RESPONSE:** Paragraph 302 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 302 and therefore denies such allegations.

303. The packaging of the Beatit Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶¶ 21-22; Ex. 122.

**RESPONSE:** Paragraph 303 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 303 and therefore denies such allegations.

### 6. Boltpower

304. On information and belief, model numbers A7P, D28, D29, G33A, and N02 (collectively, the "Boltpower Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Boltpower. *See* Ex. 44C, ¶¶ 24-26.

**RESPONSE:** Paragraph 304 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 304 and therefore denies such allegations.

305. On information and belief, products sold under the brand Boltpower are

manufactured by and/or imported for sale by Respondent Boltpower and Tii Trading. *See* Ex. 44C, ¶¶ 24-26.

**RESPONSE:** Paragraph 305 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 305 and therefore denies such allegations.

306. The Boltpower Accused Products are sold after importation into the United States. For example, a receipt from Amazon.com and eBay.com showing the purchase of a Boltpower A7P, D28, D29, G33A, and N02 at an address in the United States is attached as Ex. 55.

**RESPONSE:** Paragraph 306 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 306 and therefore denies such allegations.

307. The packaging of the Boltpower Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶¶ 24-25 (citing Ex. 55).

**RESPONSE:** Paragraph 307 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 307 and therefore denies such allegations.

### 7. DB Power/Valuelink

308. On information and belief, model numbers DJS50 (800A/18000mAh), DJS80, G15, G16 (2000A/20800mAh), A09, DJS40, DJS50, DJS60, G09D, and N01(collectively, the "DB Power Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name DB Power. *See* Ex. 44C, ¶¶ 31-32.

**RESPONSE:** Paragraph 308 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information

sufficient to form a belief as to the allegations of Paragraph 308 and therefore denies such allegations.

309. On information and belief, products sold under the brand DB Power are manufactured by and/or imported for sale by Respondents Boltpower and Shenzhen Valuelink. *See* Ex. 44C, ¶¶ 31-32.

**RESPONSE:** Paragraph 309 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 309 and therefore denies such allegations.

310. The DB Power Accused Products are sold after importation into the United States. For example, a receipt from Amazon.com showing the purchase of a DB Power DJS50 (800A/1800mAh) and G16 (2000A/20800mAh) at an address in the United States is attached as Ex. 58.

**RESPONSE:** Paragraph 310 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 310 and therefore denies such allegations.

311. The packaging of the DB Power Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶ 31 (citing Ex. 58).

**RESPONSE:** Paragraph 311 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 311 and therefore denies such allegations.

### 8. DieHard

312. On information and belief, model numbers 43448 (8000mAH) and DH110 (400A) (collectively, the "DieHard Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name DieHard. *See* Ex. 44C, ¶¶ 33-34.

**RESPONSE:** Paragraph 312 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 312 and therefore denies such allegations.

313. On information and belief, products sold under the brand Schumacher are manufactured by and/or imported for sale by Respondents Boltpower and Schumacher. *See* Ex. 44C, ¶¶ 33-34.

**RESPONSE:** Paragraph 313 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 313 and therefore denies such allegations.

314. The DieHard Accused Products are sold after importation into the United States. For example, receipts from Amazon.com and menards.com showing the purchase of a Die Hard DH110 and 43448 at an address in the United States are attached as Ex. 59. On information and belief, the DieHard Accused Products are also sold by Walmart. *See, e.g.,* https://www.walmart.com/ip/Diehard-Jumpstart-400amp/126963604?wmlspartner=wlpa&selectedSellerId=5227

**RESPONSE:** Paragraph 314 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 314 and therefore denies such allegations.

315. The packaging of the DieHard Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶ 33 (citing Ex. 59).

**RESPONSE:** Paragraph 315 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 315 and therefore denies such allegations.

### 9. Duralast

316. On information and belief, model numbers DL-2000lI and DL-800L (collectively, the "Duralast Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Duralast. *See* Ex. 44C, ¶¶ 35-36.

**RESPONSE:** Paragraph 316 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 316 and therefore denies such allegations.

317. On information and belief, products sold under the brand Duralast are manufactured by and/or imported for sale by Respondents Boltpower, Schumacher, and Best Parts. *See* Ex. 44C, ¶¶ 21-23

**RESPONSE:** Paragraph 317 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 317 and therefore denies such allegations.

318. The Duralast Accused Products are sold after importation into the United States. For example, a receipt from Autozone.com showing the purchase of a Duralast DL-800L at an address in the United States is attached as Ex. 60.

**RESPONSE:** Paragraph 318 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 318 and therefore denies such allegations.

319. The packaging of the Duralast Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶ 35 (citing Ex. 60).

**RESPONSE:** Paragraph 319 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information

sufficient to form a belief as to the allegations of Paragraph 319 and therefore denies such allegations.

**10. EverStart**

320. On information and belief, model number SL097 (collectively, the "EverStart Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name EverStart. *See* Ex. 44C, ¶¶ 39-40.

**RESPONSE:** Paragraph 320 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 320 and therefore denies such allegations.

321. On information and belief, products sold under the brand EverStart are manufactured by and/or imported for sale by Respondents Boltpower and Schumacher. *See* Ex. 44C, ¶¶ 39-40.

**RESPONSE:** Paragraph 321 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 321 and therefore denies such allegations.

322. The EverStart Accused Products are sold after importation into the United States. For example, a receipt from Walmart.com showing the purchase of an EverStart SL097 at an address in the United States is attached as Ex. 62.

**RESPONSE:** Paragraph 322 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 322 and therefore denies such allegations.

323. The packaging of the EverStart Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶ 39 (citing Ex. 62).

**RESPONSE:** Paragraph 323 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 323 and therefore denies such allegations.

### 11. Fconegy

324. On information and belief, model numbers FC100 and FC200 (collectively, the "Fconegy Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Fconegy. *See* Ex. 44C, ¶¶ 41-42.

**RESPONSE:** Paragraph 324 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 324 and therefore denies such allegations.

325. On information and belief, products sold under the brand Fconegy are manufactured by and/or imported for sale by Respondent Boltpower. *See* Ex. 44C, ¶¶ 41-42; Ex. 31.

**RESPONSE:** Paragraph 325 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 325 and therefore denies such allegations.

326. The Fconegy Accused Products are sold after importation into the United States. For example, a receipt from Amazon.com showing the purchase of a Fconegy FC100 at an address in the United States is attached as Ex. 63.

**RESPONSE:** Paragraph 326 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 326 and therefore denies such allegations.

327. The packaging of the Fconegy Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶ 41 (citing Ex. 63).

**RESPONSE:** Paragraph 327 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 327 and therefore denies such allegations.

### 12. Flylinktech

328. On information and belief, model numbers CF100, CF200, CF300, CF400, and CF600 (collectively, the "Flylinktech Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Flylinktech. *See* Ex. 44C, ¶¶ 43-44.

**RESPONSE:** Paragraph 328 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 328 and therefore denies such allegations.

329. On information and belief, products sold under the brand Flylinktech are manufactured by and/or imported for sale by Respondents Boltpower and Flylink Tech Company. *See* Ex. 44C, ¶¶ 43-44.

**RESPONSE:** Paragraph 329 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 329 and therefore denies such allegations.

330. The Flylinktech Accused Products are sold after importation into the United States. For example, a receipt from Amazon.com showing the purchase of a Flylinktech CF600 at an address in the United States is attached as Ex. 64.

**RESPONSE:** Paragraph 330 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information

sufficient to form a belief as to the allegations of Paragraph 330 and therefore denies such allegations.

331. The packaging of the Flylinktech Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶ 43 (citing Ex. 64).

**RESPONSE:** Paragraph 331 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 331 and therefore denies such allegations.

### 13. Imazing

332. On information and belief, model numbers G26, G27, G29P, IM23, IM25, IM27/G26, IM29/G29, IM31, and J8 (collectively, the "Imazing Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Imazing. *See* Ex. 44C, ¶¶ 59-60.

**RESPONSE:** Paragraph 332 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 332 and therefore denies such allegations.

333. On information and belief, products sold under the brand Imazing are manufactured by and/or imported for sale by Respondent Boltpower. *See* Ex. 44C, ¶¶ 59-60.

**RESPONSE:** Paragraph 333 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 333 and therefore denies such allegations.

334. The Imazing Accused Products are sold after importation into the United States. For example, a receipt from Amazon.com showing the purchase of a Imazing J8 and IM23, and IM31 at an address in the United States is attached as Ex. 124. The Imazing Accused Products are also sold by Respondent Walmart. *See, e.g.,* https://www.walmart.com/ip/Imazing-Portable-Car-

Lithium-Jump-Starter-2500A-Peak-21000mAh-Up-10L-Gas-Diesel-Engine-12V-Auto-Battery-Booster-Power-Pack-Jumper-Cables-QC-3-0-110V-/180839543

**RESPONSE:** Paragraph 334 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 334 and therefore denies such allegations.

335. The packaging of the Imazing Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶ 59; Ex. 124.

**RESPONSE:** Paragraph 335 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 335 and therefore denies such allegations.

### 14. Jumtop

336. On information and belief, model numbers N13, D09, E18, and N12 (collectively, the "Jumtop Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Jumtop. *See* Ex. 44C, ¶¶ 63-64.

**RESPONSE:** Paragraph 336 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 336 and therefore denies such allegations.

337. On information and belief, products sold under the brand Jumtop are manufactured by and/or imported for sale by Respondent Boltpower. *See* Ex. 44C, ¶¶ 63-64.

**RESPONSE:** Paragraph 337 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 337 and therefore denies such

allegations.

338. The Jumtop Accused Products are sold after importation into the United States. For example, a receipt from Amazon.com showing the purchase of a Jumtop N13 at an address in the United States is attached as Ex. 72.

**RESPONSE:** Paragraph 338 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 338 and therefore denies such allegations.

339. The packaging of the Jumtop Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶ 63 (citing Ex. 72).

**RESPONSE:** Paragraph 339 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 339 and therefore denies such allegations.

### 15. KTI (K-Tool International)

340. On information and belief, model numbers KTI-74391, KTI-74392, and KTI-74393 (collectively, the "K-Tool Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name K-Tool. *See* Ex. 44C, ¶¶ 65-66.

**RESPONSE:** Paragraph 340 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 340 and therefore denies such allegations.

341. On information and belief, products sold under the brand K-Tool are manufactured by and/or imported for sale by Respondents K-Tool and Boltpower. *See* Ex. 44C, ¶¶ 65-66.

**RESPONSE:** Paragraph 341 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information

sufficient to form a belief as to the allegations of Paragraph 341 and therefore denies such allegations.

342. The K-Tool Accused Products are sold after importation into the United States. For example, a receipt from Walmart.com showing the purchase of a K-Tool KTI-74392 at an address in the United States is attached as Ex. 73. The K-Tool Accused Products are also sold by Respondent Advance Auto Parts. *See, e.g.,* https://shop.advanceautoparts.com/p/k-tool-international-jump-starter-power-s-kti74392/12009092-P?searchTerm=kti%20jump%20starter

**RESPONSE:** Paragraph 342 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 342 and therefore denies such allegations.

343. The packaging of the K-Tool Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶ 65 (citing Ex. 73).

**RESPONSE:** Paragraph 343 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 343 and therefore denies such allegations.

### 16. Lemsir

344. On information and belief, model numbers L6 (800A/10800mAh), V1 (2000A/21000mAh), V2 (1500A/15600mAh), V3 (2200A/21000mAh), and V8 (800A/12800mAh) (collectively, the "Lemsir Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Lemsir. *See* Ex. 44C, ¶¶ 67-68.

**RESPONSE:** Paragraph 344 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 344 and therefore denies such allegations.

345. On information and belief, products sold under the brand Lemsir are manufactured by and/or imported for sale by Respondents Boltpower and Shenzhen Mediatek Tong. *See* Ex. 44C, ¶¶ 67-68.

**RESPONSE:** Paragraph 345 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 345 and therefore denies such allegations.

346. The Lemsir Accused Products are sold after importation into the United States. For example, a receipt from Amazon.com showing the purchase of a Lemsir V8 (800A/12800mAh) at an address in the United States is attached as Ex. 74.

**RESPONSE:** Paragraph 346 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 346 and therefore denies such allegations.

347. The packaging of the Lemsir Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶ 67 (citing Ex. 74).

**RESPONSE:** Paragraph 347 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 347 and therefore denies such allegations.

### 17. Loftek

348. On information and belief, model numbers Y29 and G21 (collectively, the"Loftek Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Loftek. *See* Ex. 44C, ¶¶ 69-70.

**RESPONSE:** Paragraph 348 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information

sufficient to form a belief as to the allegations of Paragraph 348 and therefore denies such allegations.

349. On information and belief, products sold under the brand Loftek are manufactured by and/or imported for sale by Respondent Boltpower. *See* Ex. 44C, ¶¶ 69-70.

**RESPONSE:** Paragraph 349 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 349 and therefore denies such allegations.

350. The Loftek Accused Products are sold after importation into the United States. For example, a receipt from Amazon.com showing the purchase of a Loftek G21 at an address in the United States is attached as Ex. 75.

**RESPONSE:** Paragraph 350 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 350 and therefore denies such allegations.

351. The packaging of the Loftek Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶ 69 (citing Ex. 75).

**RESPONSE:** Paragraph 351 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 351 and therefore denies such allegations.

**18. Matco Tools**

352. On information and belief, model numbers MICROJUMP, MINIJUMP3, and VERSAPRO3 (collectively, the "Matco Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Matco. *See* Ex. 44C, ¶¶ 71-73.

**RESPONSE:** Paragraph 352 of the Complaint is not directed at Respondent, thus no response is

required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 352 and therefore denies such allegations.

353. On information and belief, products sold under the brand Matco are manufactured by and/or imported for sale by Respondents Matco, Boltpower, Carku, and Horizon Tool. *See* Ex. 44C, ¶¶ 71-73.

**RESPONSE:** Paragraph 353 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 353 and therefore denies such allegations.

354. The Matco Accused Products are sold after importation into the United States. For example, receipts from matcotools.com showing the purchase of a Matco MICROJUMP and VERSAPRO3 at an address in the United States is attached as Ex. 76.

**RESPONSE:** Paragraph 354 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 354 and therefore denies such allegations.

355. The packaging of the Matco Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶¶ 71-72 (citing Ex. 76).

**RESPONSE:** Paragraph 355 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 355 and therefore denies such allegations.

### 19. Nexpow

356. On information and belief, model numbers G7 (2000A) and G7 (1500A) (collectively, the "Nexpow Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the



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United States after importation under the brand name Nexpow. *See* Ex. 44C, ¶¶ 78-79.

**RESPONSE:** Paragraph 356 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 356 and therefore denies such allegations.

357. On information and belief, products sold under the brand Nexpow are manufactured by and/or imported for sale by Respondent Boltpower. *See* Ex. 44C, ¶¶ 78-79.

**RESPONSE:** Paragraph 357 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 357 and therefore denies such allegations.

358. The Nexpow Accused Products are sold after importation into the United States. For example, a receipt from Amazon.com showing the purchase of a Nexpow G17 (1500A) at an address in the United States is attached as Ex. 79.

**RESPONSE:** Paragraph 358 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 358 and therefore denies such allegations.

359. The packaging of the Nexpow Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶¶ 78 (citing Ex. 79).

**RESPONSE:** Paragraph 359 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 359 and therefore denies such allegations.

### 20. PowerCache

360. On information and belief, model numbers 39602 and 39603 (G19) (collectively, the "PowerCache Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name PowerCache. *See* Ex. 44C, ¶¶ 86-87.

**RESPONSE:** Paragraph 360 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 360 and therefore denies such allegations.

361. On information and belief, products sold under the brand PowerCache are manufactured by and/or imported for sale by Respondents Boltpower and MonoPrice. *See* Ex. 44C, ¶¶ 86-87.

**RESPONSE:** Paragraph 361 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 361 and therefore denies such allegations.

362. The PowerCache Accused Products are sold after importation into the United States. For example, a receipt from Monoprice.com showing the purchase of a PowerCache 39603 (G19) at an address in the United States is attached as Ex. 83.

**RESPONSE:** Paragraph 362 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 362 and therefore denies such allegations.

363. The packaging of the PowerCache Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶¶ 86-87 (citing Ex. 83).

**RESPONSE:** Paragraph 363 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information

sufficient to form a belief as to the allegations of Paragraph 363 and therefore denies such allegations.

**21. Roav**

364. On information and belief, model numbers Pro 1000A and Pro 800 (collectively, the "Roav Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Roav. *See* Ex. 44C, ¶¶ 90-91.

**RESPONSE:** Paragraph 364 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 364 and therefore denies such allegations.

365. On information and belief, products sold under the brand Roav are manufactured by and/or imported for sale by Respondents Boltpower and Anker Innovations. *See* Ex.85.

**RESPONSE:** Paragraph 365 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 365 and therefore denies such allegations.

366. The Roav Accused Products are sold after importation into the United States. For example, a receipt from bestbuy.com showing the purchase of a Roav Pro 800 at an address in the United States is attached as Ex. 85. On information and belief, the Roav Accused Products are also sold by Respondents NAPA, Walmart and Best Buy. *See, e.g.,* https://www.bestbuy.com/site/anker-roav-jump-starter-pro-black/6297939.p?skuId=6297939

**RESPONSE:** Paragraph 366 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 366 and therefore denies such allegations.

367. The packaging of the Roav Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶ 90 (citing Ex. 85).

**RESPONSE:** Paragraph 367 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 367 and therefore denies such allegations.

### 22. Sanrock

368. On information and belief, model number G37 (the "Sanrock Accused Product") is manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Sanrock. *See* Ex. 44C, ¶¶ 92-93.

**RESPONSE:** Paragraph 368 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 368 and therefore denies such allegations.

369. On information and belief, products sold under the brand Sanrock are manufactured by and/or imported for sale by Respondent Boltpower. *See* Ex. 44C, ¶¶ 92-93.

**RESPONSE:** Paragraph 369 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 369 and therefore denies such allegations.

370. The Sanrock Accused Product is sold after importation into the United States. For example, a receipt from Amazon.com showing the purchase of a Sanrock G37 at an address in the United States is attached as Ex. 86.

**RESPONSE:** Paragraph 370 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 370 and therefore denies such allegations.

371. The packaging of the Sanrock Accused Product indicates that the product is "Made in China." *See* Ex. 44C, ¶ 92 (citing Ex. 86).

**RESPONSE:** Paragraph 371 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 371 and therefore denies such allegations.

### 23. Schumacher

372. On information and belief, model numbers SL1312 (600A), SL1314 (600A), SL1315 (800A), SL1316 (1000A), SL1317 (1000A), SL1327 (800A), SL 1396 (800A) (collectively, the "Schumacher Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Schumacher. *See* Ex. 44C, ¶¶ 94-98.

**RESPONSE:** Paragraph 372 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 372 and therefore denies such allegations.

373. On information and belief, products sold under the brand Schumacher are manufactured by and/or imported for sale by Respondents Boltpower and Schumacher. *See* Ex. 44C, ¶¶ 94-98.

**RESPONSE:** Paragraph 373 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 373 and therefore denies such allegations.

374. The Schumacher Accused Products are sold after importation into the United States. For example, receipts from batterychargers.com, Walmart.com, Oreillyauto.com, and homedepot.com showing the purchase of a Schumacher SL 1312, SL1315, SL1316, and SL1396 at an address in the United States are attached as Ex. 87. On information and belief, the Schumacher Accused Products are also sold by Respondents AutoZone, Advance Auto, NAPA, and Lowe's. *See, e.g.,* https://www.lowes.com/pd/Schumacher-Electric-1200-Amp-Car-Battery-Jump-Starter-with-Digital-Display/1000569111;

**RESPONSE:** Paragraph 374 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 374 and therefore denies such allegations.

375. The packaging of the Schumacher Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶ 97 (citing Ex. 87).

**RESPONSE:** Paragraph 375 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 375 and therefore denies such allegations.

**24. Tooliom**

376. On information and belief, model number Epower-125 (2000A) (the "Tooliom Accused Product") is manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Tooliom. *See* Ex. 44C, ¶¶ 108-109.

**RESPONSE:** Paragraph 376 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 376 and therefore denies such allegations.

377. On information and belief, products sold under the brand Tooliom are manufactured by and/or imported for sale by Respondents Boltpower and Carku. See Ex. 44C, ¶¶ 108-109.

**RESPONSE:** Paragraph 377 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 377 and therefore denies such allegations.

378. The Tooliom Accused Product is after importation into the United States. For example, a receipt from Amazon.com showing the purchase of a Tooliom Epower-125 (2000A) at an address in the United States is attached as Ex. 91.

**RESPONSE:** Paragraph 378 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 378 and therefore denies such allegations.

379. The packaging of the Tooliom Accused Product indicates that the product is "Made in China." *See* Ex. 44C, ¶ 108 (citing Ex. 91).

**RESPONSE:** Paragraph 379 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 379 and therefore denies such allegations.

### 25. Topdon

380. On information and belief, model numbers VOLCANO1500 and VOLCANO2000 (collectively, the "Topdon Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Topdon. *See* Ex. 44C, ¶¶ 110-111.

**RESPONSE:** Paragraph 380 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 380 and therefore denies such allegations.

381. On information and belief, products sold under the brand Topdon are manufactured by and/or imported for sale by Respondents Boltpower and Shenzhen Dingjiang Technology. *See* Ex. 44C, ¶¶ 110-111.

**RESPONSE:** Paragraph 381 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information

sufficient to form a belief as to the allegations of Paragraph 381 and therefore denies such allegations.

382. The Topdon Accused Products are sold after importation into the United States. For example, a receipt from Amazon.com showing the purchase of a Topdon VOLCANO2000 at an address in the United States is attached as Ex. 92.

**RESPONSE:** Paragraph 382 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 382 and therefore denies such allegations.

383. The packaging of the Topdon Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶ 110 (citing Ex. 92).

**RESPONSE:** Paragraph 383 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 383 and therefore denies such allegations.

### 26. Topvision

384. On information and belief, model number G26 (the "Topvision Accused Product") is manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Topvision. *See* Ex. 44C, ¶¶ 112-113.

**RESPONSE:** Paragraph 384 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 384 and therefore denies such allegations.

385. On information and belief, products sold under the brand Topvision are manufactured by and/or imported for sale by Respondent Boltpower. *See* Ex. 44C, ¶¶ 112-113.

**RESPONSE:** Paragraph 385 of the Complaint is not directed at Respondent, thus no response is

required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 385 and therefore denies such allegations.

386. The Topvision Accused Product is sold after importation into the United States. For example, a receipt from Amazon.com showing the purchase of a Topvision G26 at an address in the United States is attached as Ex. 93.

**RESPONSE:** Paragraph 386 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 386 and therefore denies such allegations.

387. The packaging of the Topvision Accused Product indicates that the products is "Made in China." *See* Ex. 44C, ¶ 112 (citing Ex. 93).

**RESPONSE:** Paragraph 387 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 387 and therefore denies such allegations.

### 27. Trekpow

388. On information and belief, model numbers A18, G22, and TJ2500 (collectively, the "Trekpow Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Trekpow. *See* Ex. 44C, ¶¶ 116-117.

**RESPONSE:** Paragraph 388 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 388 and therefore denies such allegations.

389. On information and belief, products sold under the brand Trekpow are manufactured by and/or imported for sale by Respondent Boltpower. *See* Ex. 44C, ¶¶ 116-117.

**RESPONSE:** Paragraph 389 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 389 and therefore denies such allegations.

390. The Trekpow Accused Products are sold after importation into the United States. For example, a receipt from Amazon.com showing the purchase of a Trekpow G22 at an address in the United States is attached as Ex. 95.

**RESPONSE:** Paragraph 390 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 390 and therefore denies such allegations.

391. The packaging of the Trekpow Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶ 116.

**RESPONSE:** Paragraph 391 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 391 and therefore denies such allegations.

### 28. Vavofo

392. On information and belief, model number G23P (the "Vavofo Accused Product") is manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Vavofo. *See* Ex. 44C, ¶¶ 122-124.

**RESPONSE:** Paragraph 392 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 392 and therefore denies such allegations.

393. On information and belief, products sold under the brand Vavofo are manufactured by and/or imported for sale by Respondent Boltpower. *See* Ex. 44C, ¶¶ 122-124.

**RESPONSE:** Paragraph 393 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 393 and therefore denies such allegations.

394. On information and belief, the Vavofo Accused Product is sold after importation into the United States. For example, a listing from Amazon.com indicating the Vavofo Accused Product is manufactured by Respondent Boltpower is attached as Ex. 98.

**RESPONSE:** Paragraph 394 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 394 and therefore denies such allegations.

395. The Vavofo Accused Product also indicates that the product is "Made in China." *See* Ex. 44C, ¶ 122 (citing Ex. 98).

**RESPONSE:** Paragraph 395 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 395 and therefore denies such allegations.

### 29. Vekkia

396. On information and belief, model numbers THOR-1000 and THOR-3000(collectively, the "Vekkia Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Vekkia. *See* Ex. 44C, ¶¶ 125-126.

**RESPONSE:** Paragraph 396 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 396 and therefore denies such

allegations.

397. On information and belief, products sold under the brand Vekkia are manufactured by and/or imported for sale by Respondent Boltpower. *See* Ex. 44C, ¶¶ 124- 126.

**RESPONSE:** Paragraph 397 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 397 and therefore denies such allegations.

398. The Vekkia Accused Products are sold after importation into the United States. For example, a receipt from Amazon.com showing the purchase of a Vekkia THOR-1000 at an address in the United States is attached as Ex. 128.

**RESPONSE:** Paragraph 398 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 398 and therefore denies such allegations.

399. The packaging of the Vekkia Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶ 125; Ex. 128.

**RESPONSE:** Paragraph 399 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 399 and therefore denies such allegations.

30. **Yaber**

400. On information and belief, model numbers YR100, YR200, YR 600, YR500, YR700, and YR400 (collectively, the "Yaber Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Yaber. *See* Ex. 44C, ¶¶ 134-135.

**RESPONSE:** Paragraph 400 of the Complaint is not directed at Respondent, thus no response is

required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 400 and therefore denies such allegations.

401. On information and belief, products sold under the brand Yaber are manufactured by and/or imported for sale by Respondents Boltpower and ThiEye Technologies. *See* Ex. 44C, ¶¶ 134-135.

**RESPONSE:** Paragraph 401 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 401 and therefore denies such allegations.

402. The Yaber Accused Products are sold after importation into the United States. For example, a receipt from Amazon.com showing the purchase of a Yaber YR400 at an address in the United States is attached as Ex. 103.

**RESPONSE:** Paragraph 402 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 402 and therefore denies such allegations.

403. The packaging of the Yaber Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶ 134 (citing Ex. 103).

**RESPONSE:** Paragraph 403 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 403 and therefore denies such allegations.

### C. Smartech Brands

#### 1. Smartech

404. On information and belief, model numbers JS-10000, JS-15000, JS-15000N, JS-

6000, JS-8000, JS-8000N, and TECH-5000P (collectively, the "Smartech Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Smartech. *See* Ex. 44C, ¶¶ 99-100.

**RESPONSE:** Paragraph 404 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 404 and therefore denies such allegations.

405. On information and belief, products sold under the brand Smartech are manufactured by and/or imported for sale by Respondent Smartech. *See* Ex. 44C, ¶¶ 99-100.

**RESPONSE:** Paragraph 405 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 405 and therefore denies such allegations.

406. The Smartech Accused Products are sold after importation into the United States. For example, a receipt from smartech.com showing the purchase of a Smartech JS-10000, JS-15000, JS-15000N, JS-8000N, and TECH-5000P at an address in the United States is attached as Ex. 88. The Smartech Accused Products are also sold by Respondent Walmart. *See, e.g.,* https://www.walmart.com/ip/Smartech-JS-15000N-15000-mAh-Lithium-Powered-Vehicle-Jump-Starter-and-Power-Bank-Starter-and-Power-Bank/286772303

**RESPONSE:** Paragraph 406 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 406 and therefore denies such allegations.

407. The packaging of the Smartech Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶ 99 (citing Ex. 88).

**RESPONSE:** Paragraph 407 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information

sufficient to form a belief as to the allegations of Paragraph 407 and therefore denies such allegations.

### D. Weego Brands

#### 1. Weego

408. On information and belief, model numbers 22, 44.1, 66.2, 154, 22s (collectively, the "Weego Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Weego. *See* Ex. 44C, ¶¶ 127-128.

**RESPONSE:** Paragraph 408 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 408 and therefore denies such allegations.

409. On information and belief, products sold under the brand Weego are manufactured by and/or imported for sale by Respondents Paris Corporation and Carku. *See* Ex. 44C, ¶¶ 127-128.

**RESPONSE:** Paragraph 409 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 409 and therefore denies such allegations.

410. The Weego Accused Products are sold after importation into the United States. For example, a receipt from myweego.com showing the purchase of a Weego 22s at an address in the United States is attached as Ex. 101. The Weego Accused Products are also sold by Respondent Walmart. *See, e.g.,* https://www.walmart.com/ip/Weego-22s-Jump-Starter-1700-Peak-300- Cranking-Amps-Simple-and-Safe-Lithium-Ion-Water-Resistant-USA-Designed-and-Engineered/337164284

**RESPONSE:** Paragraph 410 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 410 and therefore denies such

allegations.

411. The packaging of the Weego Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶ 127 (citing Ex. 101).

**RESPONSE:** Paragraph 411 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 411 and therefore denies such allegations.

### E. Winplus Brands

#### 1. Type S

412. On information and belief, model numbers AC56388-BLK, AC56789-AM, AC56794-1 (collectively, the "Type S Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Type S. *See* Ex. 44C, ¶¶ 118-119.

**RESPONSE:** Paragraph 412 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 412 and therefore denies such allegations.

413. On information and belief, products sold under the brand Type S are manufactured by and/or imported for sale by Respondents Winplus North America. *See* Ex. 44C, ¶¶ 118-119.

**RESPONSE:** Paragraph 413 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 413 and therefore denies such allegations.

414. The Type S Accused Products are sold after importation into the United States. For example, a receipt from Amazon.com showing the purchase of a Type S AC56388-BLK at an address in the United States is attached as Ex. 96. The Type S Accused Products are also available from Respondent Walmart. *See, e.g.*, https://www.walmart.com/ip/Type-S-Lithium-Jump-Starter-Portable-Power-Bank-w-Built-in-Wireless-Charging/571679308



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**RESPONSE:** Paragraph 414 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 414 and therefore denies such allegations.

415. The packaging of the Type S Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶ 118 (citing Ex. 96).

**RESPONSE:** Paragraph 415 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 415 and therefore denies such allegations.

**2. Winplus**

416. On information and belief, model numbers AC530171-1, AC55717-1, AC55929-6/1, AC55929-60, (collectively, the "Winplus Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Winplus. *See* Ex. 44C, ¶¶ 129-130.

**RESPONSE:** Paragraph 416 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 416 and therefore denies such allegations.

417. On information and belief, products sold under the brand Winplus are manufactured by and/or imported for sale by Respondent Winplus North America. *See* Ex. 44C, ¶¶ 129-130.

**RESPONSE:** Paragraph 417 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 417 and therefore denies such allegations.



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418. The Winplus Accused Products are sold after importation into the United States. For example, a receipt from Amazon.com showing the purchase of a Winplus AC55717-1 at an address in the United States is attached as Ex. 100. On information and belief, the Winplus Accused Products are also sold by Respondents Walmart, Advanced Auto, and AutoZone. *See* http://winplus.com/usa/support/retail-locations/

**RESPONSE:** Paragraph 418 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 418 and therefore denies such allegations.

419. The packaging of the Winplus Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶ 129 (citing Ex. 100).

**RESPONSE:** Paragraph 419 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 419 and therefore denies such allegations.

### F. Great Neck Brands

#### 1. OEM Tools

420. On information and belief, model numbers 24474 (8000mAh), 24475 (12000mAh), and 24476 (18000mAh) (collectively, the "OEM Tools Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name OEM Tools. *See* Ex. 44C, ¶¶ 80-81.

**RESPONSE:** Paragraph 420 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 420 and therefore denies such allegations.

421. On information and belief, products sold under the brand OEM Tools are manufactured by and/or imported for sale by Respondent Great Neck. *See* Ex. 44C, ¶¶ 80-81.

**RESPONSE:** Paragraph 421 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 421 and therefore denies such allegations.

422. The OEM Tools Accused Products are sold after importation into the United States. For example, a receipt from Autozone.com showing the purchase of a OEM Tools 24474 (8000mAh) at an address in the United States is attached as Ex. 80.

**RESPONSE:** Paragraph 422 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 422 and therefore denies such allegations.

423. The packaging of the OEM Tools Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶ 80 (citing Ex. 80).

**RESPONSE:** Paragraph 423 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 423 and therefore denies such allegations.

### G. ThiEye Brands

#### 1. Buture

424. On information and belief, model numbers BR300 and BR500 (collectively, the "Buture Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Buture. *See* Ex. 44C, ¶¶ 27-28.

**RESPONSE:** Paragraph 424 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 424 and therefore denies such

allegations.

425. On information and belief, products sold under the brand Buture are manufactured by and/or imported for sale by Respondent ThiEye Technologies. *See* Ex. 44C, ¶¶ 27-28.

**RESPONSE:** Paragraph 425 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 425 and therefore denies such allegations.

426. The Buture Accused Products are sold after importation into the United States. For example, a receipt from Amazon.com showing the purchase of a Buture BR500 at an address in the United States is attached as Ex. 56.

**RESPONSE:** Paragraph 426 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 426 and therefore denies such allegations.

427. The packaging of the Buture Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶ 27 (citing Ex. 56).

**RESPONSE:** Paragraph 427 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 427 and therefore denies such allegations.

2. **Fnnemge**

428. On information and belief, model number Q9C (the "Fnnemge Accused Product") is manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Fnnemge. *See* Ex. 44C, ¶¶ 45-46.

**RESPONSE:** Paragraph 428 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information

sufficient to form a belief as to the allegations of Paragraph 428 and therefore denies such allegations.

429. On information and belief, products sold under the brand Fnnemge are manufactured by and/or imported for sale by Respondent ThiEye. *See* Ex. 44C, ¶¶ 45-46.

**RESPONSE:** Paragraph 429 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 429 and therefore denies such allegations.

430. The Fnnemge Accused Product is sold after importation into the United States. For example, a receipt from Amazon.com showing the purchase of a Fnnemge Q9C at an address in the United States is attached as Ex. 123.

**RESPONSE:** Paragraph 430 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 430 and therefore denies such allegations.

431. The packaging of the Fnnemge Accused Product indicates that the product is "Made in China." *See* Ex. 44C, ¶¶ 45; Ex. 123.

**RESPONSE:** Paragraph 431 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 431 and therefore denies such allegations.

3. **Utrai**

432. On information and belief, model number Jstar One (the "Utrai AccusedProduct") is manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Utrai. *See* Ex. 44C, ¶¶ 120-121.

**RESPONSE:** Paragraph 432 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 432 and therefore denies such allegations.

433. On information and belief, products sold under the brand Utrai are manufactured by and/or imported for sale by Respondent ThiEye Technologies. See Ex. 44C, ¶¶ 120-121.

**RESPONSE:** Paragraph 433 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 433 and therefore denies such allegations.

434. The Utrai Accused Products are sold after importation into the United States. For example, a receipt from Amazon.com showing the purchase of a Utrai Jstar One at an address in the United States is attached as Ex. 127.

**RESPONSE:** Paragraph 434 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 434 and therefore denies such allegations.

435. The packaging of the Utrai Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶ 120; Ex. 127.

**RESPONSE:** Paragraph 435 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 435 and therefore denies such allegations.

### H. Energen & Performance Tool Brands

#### 1. Energen

436. On information and belief, model numbers AL12 and AL6 (collectively, the "Energen Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Energen. *See* Ex. 44C, ¶¶ 37-38.

**RESPONSE:** Paragraph 436 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 436 and therefore denies such allegations.

437. On information and belief, products sold under the brand Energen are manufactured by and/or imported for sale by Respondent Energen. *See* Ex. 44C, ¶¶ 37-38.

**RESPONSE:** Paragraph 437 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 437 and therefore denies such allegations.

438. The Energen Accused Products are sold after importation into the United States. For example, a receipt from myenergen.com showing the purchase of an Energen AL12 at an address in the United States is attached as Ex. 61. The Energen Accused Products are also sold by Respondents Best Buy and Walmart. *See* https://myenergen.com/resellers/

**RESPONSE:** Paragraph 438 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 438 and therefore denies such allegations.

439. The packaging of the Energen Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶ 37 (citing Ex. 61).

**RESPONSE:** Paragraph 439 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 439 and therefore denies such

allegations.

**2. Performance Tool**

440. On information and belief, model number W16750 (collectively, the "Performance Tool Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Performance Tool. *See* Ex. 44C, ¶¶ 82-83.

**RESPONSE:** Paragraph 440 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 440 and therefore denies such allegations.

441. [WITHDRAWN]

**RESPONSE:** Paragraph 441 of the Complaint has been withdrawn, thus no response is required.

442. The Performance Tool Accused Products are sold after importation into the United States. For example, a receipt from carid.com showing the purchase of a Performance Tool W16750 at an address in the United States is attached as Ex. 81. The Performance Tool Accused Products are also sold by Respondent Walmart. *See, e.g.,* https://www.walmart.com/ip/Performance-Tool-W1665-900-amp-Jump-Starter-Inflator/55558632

**RESPONSE:** Paragraph 442 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 442 and therefore denies such allegations.

443. The packaging of the Performance Tool Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶¶ 82-83 (citing Ex. 81).

**RESPONSE:** Paragraph 443 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 443 and therefore denies such

allegations.

## I. Halo Brands

### 1. HALO

444. On information and belief, model numbers Bolt Wireless, Bolt 57720, Bolt 58830, Bolt Flashlight, and Bolt Wireless (collectively, the "Halo Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Halo. *See* Ex. 44C, ¶¶ 54-55.

**RESPONSE:** Respondent admits that it sells the Halo Accused Products in the United States after importation. Respondent specifically denies that the Halo Accused Products infringe any valid or enforceable claim of the Asserted Patents. The remaining allegations of Paragraph 444 do not appear to be directed at Respondent, thus no response is required.

445. On information and belief, products sold under the brand Halo are manufactured by and/or imported for sale by Respondents Carku and Halo2Cloud. *See* Ex. 44C, ¶¶ 54-55.

**RESPONSE:** Respondent admits that it sells the Halo Accused Products in the United States after importation. Respondent denies that it manufactures any products sold under the Halo brand and further specifically denies that any products imported or sold by Respondent infringe any valid or enforceable claim of the Asserted Patents. The remaining allegations of Paragraph 445 do not appear to be directed at Respondent, thus no response is required.

446. The Halo Accused Products are sold after importation into the United States. For example, a receipt from Zagg.com showing the purchase of a Halo Bolt Wireless at an address in the United States is attached as Ex. 69.

**RESPONSE:** Respondent admits that the Halo Accused Products are sold after importation into the United States. Respondent admits that Exhibit 69 appears to be a receipt for the purchase of a Halo Bolt product. Respondent lacks knowledge or information sufficient to form a belief as to the remaining allegations of Paragraph 446 and therefore denies such allegations.

447. The packaging of the Halo Accused Products indicates that the products are "Made



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in China." *See* Ex. 44C, ¶¶ 54 (citing Ex. 69).

**RESPONSE:** Respondent admits that Exhibit 44C contains an image of packaging for Halo brand products, which on its face displays the text "Made in China." Respondent denies the remaining allegations of Paragraph 447.

### J. Clore Brands

#### 1. Jump-N-Carry

448. On information and belief, model numbers JNC325 and JNC345 (collectively, the "Jump-N-Carry Accused Products") are manufactured outside the United States and sold for importation into the United States, imported into the United States, and/or sold within the United States after importation under the brand name Jump-N-Carry. *See* Ex. 44C, ¶¶ 61-62.

**RESPONSE:** Paragraph 448 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 448 and therefore denies such allegations.

449. On information and belief, products sold under the brand Jump-N-Carry are manufactured by and/or imported for sale by Respondent Clore Automotive. *See* Ex. 44C, ¶¶ 61-62.

**RESPONSE:** Paragraph 449 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 449 and therefore denies such allegations.

450. The Jump-N-Carry Accused Products are sold after importation into the United States. For example, a receipt from Amazon.com showing the purchase of a Jump-N-Carry JNC345 at an address in the United States is attached as Ex. 107.

**RESPONSE:** Paragraph 450 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 450 and therefore denies such



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allegations.

451. The packaging of the Jump-N-Carry Accused Products indicates that the products are "Made in China." *See* Ex. 44C, ¶¶ 61 (citing Ex. 107).

**RESPONSE:** Paragraph 451 of the Complaint is not directed at Respondent, thus no response is required. To the extent a response is required, Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 451 and therefore denies such allegations.

## VIII. HARMONIZED TARIFF SCHEDULE ITEM NUMBERS

452. The Accused Products are classified under at least the following subheadings of the Harmonized Tariff Schedule of the United States: 8504.40 (static converters) 8506.50 (lithium batteries); 8507.10, 8507.60 (lithium-ion electric storage batteries); 8511.40, 8511.50 (starter motors and generators), 8516.60, 8516.71 (ovens, coffee or tea makers); 8539.50.00 (LED lamps). These classifications are exemplary in nature and not intended to restrict the scope of any exclusion order or other remedy ordered by the Commission.

**RESPONSE:** Respondent admits that the Halo Accused Products fall within HTS subheading 8507.60. Respondent lacks knowledge or information to form a belief as to the remaining allegations of Paragraph 452 and therefore denies such allegations.

## IX. DOMESTIC INDUSTRY

453. As required by 19 U.S.C. § 1337(a)(2), a domestic industry, as defined by 19 U.S.C. § 1337(a)(3), exists in the United States with respect to the Asserted Patents. Since its founding in 1914 with the development of battery corrosion preventative products in Cleveland, Ohio, where NOCO remains headquartered to this day, NOCO continues to research, develop, manufacture, and sell innovative battery-related products.

**RESPONSE:** To the extent Paragraph 453 contains legal conclusions, no response is required. To the extent a response is required, Respondent denies that a domestic industry as required by 19 U.S.C. §§ 1337(a)(2) and (3) exists in the United States with respect to the Asserted Patents. Respondent otherwise lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 453 and therefore denies them.



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**A.** Technical Prong

454. NOCO has, and continues to make, significant and substantial investments in plant and equipment, labor and capital, and engineering and research and development with respect to the products that practice one or more claims of the Asserted Patents ("NOCO Domestic Industry Products"), including all six of the NOCO Boost® jump starter models. The NOCO Boost® jump starters practice at least the following claims of the Asserted Patents shown in Table 4:

| Asserted Patent | Exemplary DI Claim(s) | Exemplary DI Product |
|---|---|---|
| 9,007,015 | 1 | GB40 |
| 10,604,024 | 1, 29, 30 | GB40 |

**Table 4.** Asserted Patents Practiced by Domestic Industry Products

**RESPONSE:** Respondent lacks knowledge or information to admit or deny the allegations of Paragraph 454 and therefore denies the allegations.

455. The NOCO Domestic Industry Products all practice the claims of the Asserted Patents in the same manner. Claim charts demonstrating how the representative NOCO Domestic Industry Product practices these claims are attached as Confidential Exhibit 10C. This claim chart provides a basis for the domestic industry relating to both the '015 and '024 Patents.

**RESPONSE:** Respondent admits that claim charts are attached as Confidential Exhibits 10C to the Complaint. To extent Paragraph 455 contains legal conclusions, no response is required. Respondent lacks knowledge or information to admit or deny the allegations of Paragraph 455 and therefore denies the allegations.

456. The Asserted Trademarks appear in NOCO's website marketing materials and product information. *See* Ex. 8 and 104. This use of the Asserted Trademarks in commerce provides a basis for the domestic industry relating to both the '656 and '749 Trademarks.

**RESPONSE:** To the extent Paragraph 456 contains legal conclusions, no response is required. To the extent a response is required, Respondent denies that a domestic industry as required by 19 U.S.C. §§ 1337(a)(2) and (3) exists in the United States with respect to the Asserted Patents and Asserted Trademarks. Respondent otherwise lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 456 and therefore denies them.

**B. Economic Prong**

457. NOCO conducts all of its engineering, research and development, product design, testing, and sample construction in the United States. As such, NOCO has made significant investments in plant and equipment, labor and capital, and substantial investments in engineering, research and development with respect to the Asserted Patents and Asserted Trademarks in the United States, satisfying the requirements of 19 U.S.C. § 337(a)(3)(A)-(C). NOCO has invested, and continued to invest, in the United States millions of dollars per year in activities related to the design, engineering, development, testing, marketing, distribution, customer service, and warranty fulfillment relating to the NOCO Domestic Industry Products.

**RESPONSE:** Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 457 and therefore denies them.

458. NOCO's headquarters in Glenwillow, Ohio houses NOCO's sales and marketing department, and serves as the main distribution center for North America. NOCO conducts product testing, compliance activities, and other technical support the Glenwillow facility. Accompanying this Complaint as Confidential Exhibit 105C is the Declaration of Jeffery Weiner, which provides information about NOCO's investments in connection with the NOCO Domestic Industry Products. Ex. 105C (DI Dec.) at ¶¶16-35.

**RESPONSE:** Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 458 and therefore denies them.

459. NOCO conducts its design, research, and development activities at its facility in Peoria, Arizona. *Id.* at ¶13. NOCO conducts additional product design activities at its facility in Tempe, Arizona. *Id.* at ¶ 14.

**RESPONSE:** Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 459 and therefore denies them.

460. NOCO has also employed significant labor and capital with respect to the NOCO Domestic Industry Products. *See* Ex. 105C at ¶¶ 22-30.

**RESPONSE:** Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 460 and therefore denies them.

461. The first NOCO Boost® jump starter was introduced in 2014, and NOCO has continually improved the product since then. Notably, NOCO's spending on research and development has increased in each of the past three years. Ex. 105C at ¶33. From 2017 to the present, NOCO has paid several million dollars in payroll to engineering and technical personnel in the United States, whose employment pertains to the engineering and technical aspects of the Boost® product line, including the patented subject matter. *Id.* at ¶34. NOCO has also invested in

customer-specific design projects.

**RESPONSE:** Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 461 and therefore denies them.

462. Since 2016 the majority of NOCO's revenue has been derived from sales of its Boost® line of jump starters. *Id.* at ¶15.

**RESPONSE:** Respondent lacks knowledge or information sufficient to form a belief as to the allegations of Paragraph 462 and therefore denies them.

## X. RELATED LITIGATION

463. As of the date of the filing of this complaint, there have been 20 lawsuits involving the '015 Patent in U.S. District Courts. A chart outlining this litigation and its status is included as Ex. 108. The '015 Patent is also involved in two pending Inter Partes Review proceedings pending before the Patent Trial and Appeal Board ("PTAB") of the United States Patent and Trademark Office. One was filed by Carku (IPR2020-00944) on May 14, 2020 and the PTAB has instituted review. The other was filed by Shenzhen Mediatek Tong Technology Co, Ltd. on July 29, 2020; NOCO filed its preliminary response to the petition on December 16, 2020 and the PTAB's decision on whether or not to institute review is expected by March 2021.

**RESPONSE:** Respondent lacks knowledge or information to form a belief as to the allegations of Paragraph 463 and therefore denies such allegations.

464. There has been no litigation involving the '024 Patent.

**RESPONSE:** Respondent lacks knowledge or information to form a belief as to the allegations of Paragraph 464 and therefore denies such allegations.

465. As of the date of filing the complaint, there have been thirteen district court actions involving the Asserted Trademarks. *See* Ex. 109. There have been no proceedings before the PTAB.

**RESPONSE:** Respondent lacks knowledge or information to form a belief as to the allegations of Paragraph 465 and therefore denies such allegations.

466. Other than the litigation specified above, to Complainant's knowledge, the Asserted Patents and Asserted Trademarks are not and have not been the subject of any current or prior litigation.

**RESPONSE:** Respondent lacks knowledge or information to form a belief as to the allegations of Paragraph 466 and therefore denies such allegations.

## XI. GEO

467. A general exclusion order is needed to prevent the circumvention of an order limited to the Proposed Respondents due to the widespread pattern of infringement, as well as the difficulty in identifying the source of the Accused Products. 19 U.S.C. § 1337 (d)(2). This is evidenced by the fact that Accused Products continue to enter the market despite NOCO's aggressive ongoing enforcement measures.

**RESPONSE:** To the extent a response to Complainant's request for relief is required, Respondent denies that Complainant is entitled to any relief whatsoever, including without limitation the requested relief of a general exclusion order.

468. Starting in 2014, NOCO began noticing the appearance of the Accused Products in the marketplace. NOCO responded by filing lawsuits against five foreign entities that were offering infringing jump starters on Amazon.com. Since then, NOCO has filed sixteen additional lawsuits, including suits in Canada, the United Kingdom and Germany. As a result of these efforts, NOCO secured a permanent injunction against two of the foreign entities barring them from selling or offering to sell jump starters that infringe NOCO's '015 patent and entered into a settlement agreement with a third foreign entity providing a substantial payment for past damages and a license for future sales. The remaining suits are pending.

**RESPONSE:** Respondent lacks knowledge or information to form a belief as to the allegations of Paragraph 468 and therefore denies such allegations.

469. Despite these efforts, and successful litigation outcomes, NOCO continues to notice new market entrants selling jump starters with the same features as the NOCO Boost® products. NOCO vigilantly monitors Amazon.com listings and works with Amazon to remove listings for infringing products. NOCO estimates that in the past two years, it has had to file hundreds of takedown notices with Amazon. NOCO also filed a lawsuit against numerous defendants, including named Respondents Shenzhen Valuelink, Shenzhen Mediatek, Gooloo, alleging that these companies, *inter alia*, manipulated Amazon.com algorithms, which determine the product that will receive the "Amazon's Choice" Badge, such that defendants' products would receive the "Amazon's Choice" Badge instead of NOCO. *See The NOCO Company v. Shenzhen Valuelink E-Commerce Co., Ltd., et al.*, N.D. Ohio, No. 1:20-cv-00049-SO, (Jan. 9, 2020).

**RESPONSE:** Respondent lacks knowledge or information to form a belief as to the allegations of Paragraph 469 and therefore denies such allegations.



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470. In pursuit of these enforcement efforts, NOCO has expended significant employee time in addition to legal fees. Through continuous monitoring, NOCO employees identify infringing products or abuse (e.g., manipulation of the Amazon platform) weekly, sometimes daily.

**RESPONSE:** Respondent lacks knowledge or information to form a belief as to the allegations of Paragraph 470 and therefore denies such allegations.

471. In addition to products infringing the Asserted Patents, NOCO regularly sees 1) unauthorized use of NOCO trademarks; 2) unauthorized use of NOCO copyrighted images - in whole, or in part, meaning an entity has slightly modified a NOCO image to use with their product; 3) copying NOCO content with a similar look and stylization. For example, the FCOEnegy website (Ex. 31) uses a photo copied from the NOCO website that includes NOCO- branded jumper cables:

[image omitted]

Fig. 6- Excerpt from FCOEngergy website, Ex. 31

[image omitted]

Fig. 7- Photo from NOCO Website's HD Boost Battery Clamp Listing (Ex. 110)

**RESPONSE:** Respondent lacks knowledge or information to form a belief as to the allegations of Paragraph 471 and therefore denies such allegations.

472. Notably, NOCO has filed no less than 50 claims of infringement through Amazon Brand Registry for the Asserted Trademark ULTRASAFE.

**RESPONSE:** Respondent lacks knowledge or information to form a belief as to the allegations of Paragraph 472 and therefore denies such allegations.

473. In terms of abuse or manipulation of the Amazon marketplace, NOCO has identified the following types of activities by proposed Respondents or other sellers of the Accused Products: 1) manipulating Amazon organic search ranking; 2) depressing legitimate products organic search ranking; 3) fake positive and negative reviews; 4) false product return claims to force a product takedown; 5) altering competitive products' browse nodes; 6) manipulating the Amazon Choice badge; and 7) altering NOCO content.

**RESPONSE:** Respondent lacks knowledge or information to form a belief as to the allegations of Paragraph 473 and therefore denies such allegations.

474. Each instance of infringement or abuse is reported to NOCO's Global HQ, at which point it is either submitted to Amazon Brand Registry or becomes the subject of a lawsuit. For some types of infringement, NOCO has elected to stop using Brand Registry after finding that

Amazon often simply modifies the listing with the infringing content; NOCO is now filing lawsuits in almost every instance. In 2020, NOCO enrolled in the Amazon SVS Program, at a cost of approximately $500,000 to help resolve these issues more efficiently. Registering with the SVS Program was critical as the number of infractions and instance of abuse were too high for the category manager assigned to NOCO to assist in resolution. The abuse by NOCO's competitors has become so prevalent that Amazon has placed the NOCO products into multiple exclusive protection programs.

**RESPONSE:** Respondent lacks knowledge or information to form a belief as to the allegations of Paragraph 474 and therefore denies such allegations.

## XII. REQUESTED RELIEF

475. Proposed Respondents have infringed and will continue to infringe the Asserted Patents and Asserted Trademarks as specified in Section VI above unless the Commission prohibits the importation into and sale within the United States after importation of the Accused Products.

**RESPONSE:** Respondent denies the allegations of Paragraph 475.

476. Accordingly, NOCO respectfully requests that the United States International Trade Commission:

a) Institute an immediate investigation pursuant to Section 337(b)(1) of the Tariff Act of 1930, as amended, 19 U.S.C. § 1337, into Proposed Respondents' violations of Section 337 arising from the sale for importation into the United States, importation, and/or sale within the United States after importation of certain portable battery jump starters and components thereof that infringe the Asserted Patents and/or Asserted Trademarks;

b) Schedule and conduct a hearing, pursuant to 19 U.S.C. § 1337 (c), for purposes of receiving evidence and hearing arguments concerning whether Proposed Respondents have violated Section 337 and, following the hearing, determine that Proposed Respondents have violated Section 337;

c) Issue a permanent general exclusion order, pursuant to 19 U.S.C. § 1337(d)(1), excluding from entry into the United States certain portable battery jump starters and



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components thereof that are imported, sold for importation, or sold after importation that infringe one or more claims of the Asserted Patents and/or Asserted Trademarks, including, without limitation, the specific Accused Products identified in this Complaint and the exhibits hereto; or, in the alternative, issue permanent limited exclusion orders specifically directed to each named Respondent and its subsidiaries, predecessors, affiliates, agents, successors, and assigns, excluding from entry into the United States certain portable battery jump starters and components that infringe one or more claims of the Asserted Patents and/or Asserted Trademarks;

d) Issue permanent orders, pursuant to 19 U.S.C. § 1337(f), directing Proposed Respondents and any of their principals, stockholders, officers, directors, employees, agents, distributors, controlled (whether by stock ownership or otherwise) and majority-owned business entities, successors, and assigns to cease and desist from importing, selling, selling for importation, offering for sale, using, demonstrating, promoting, marketing, and/or advertising in the United States Respondents' portable battery jump starters and components thereof that infringe one or more claims of the Asserted Patents and/or Asserted Trademarks, including, without limitation, the specific Accused Products identified in this Complaint and the exhibits hereto;

e) Impose a bond on importation and sales of infringing products during the 60-day Presidential review period pursuant to 19 U.S.C. § 1337(j); and

f) Grant all such other and further relief as it deems appropriate under the law, based upon the facts complained of herein and as determined by the Investigation.

**RESPONSE:** To the extent a response to Complainant's request for relief is required, Respondent denies that Complainant is entitled to any relief whatsoever, including without limitation the relief



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requested in Paragraph 476 of the Complaint.



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## ADDITIONAL DEFENSES OF HALO AND ZAGG

Halo and ZAGG specifically allege and assert the following defenses in response to the allegations set forth in the Complaint. The inclusion of these additional defenses in this Response is not a concession that Halo or ZAGG bears the burden of proof with respect to any of them. Discovery has only recently begun and, therefore, Halo and ZAGG has not fully collected and reviewed all information that may be relevant to the matters and issues raised herein. Accordingly, pursuant to 19 C.F.R. § 210.14, Halo and ZAGG reserves the right to supplement, modify, and/or amend its defenses, and to take further positions as discovery proceeds in this Investigation.

### FIRST ADDITIONAL DEFENSE

(Failure to State a Claim)

The Complaint fails to state a claim upon which relief may be granted.

### SECOND ADDITIONAL DEFENSE

(No Unfair Act)

No unfair act has occurred in violation of 19 U.S.C. § 1337.

### THIRD ADDITIONAL DEFENSE

(Invalidity)

Upon information and belief, the asserted claims of the '015 Patent are invalid for failing to comply with one or more of the conditions of patentability set forth in the United States patent statute, including 35 U.S.C. §§ 101, 102, 103, and/or 112.

The asserted claims of the '015 Patent are invalid under 35 U.S.C. §§ 102 and/or 103 in view of at least the prior art listed below:

- U.S. Patent Application Publication No. 2013/0154543 ("Richardson")
- Chinese Patent No. 202696190 ("Zhang")

- U.S. Patent No. 9,954,391 ("Lei")
- U.S. Patent No. 5,319,298 ("Wanzong")
- WO Publication No. 2010/129723 to Baxter ("Baxter")
- Richardet: U.S. Patent No. 8,172,603 ("Richardet")
- U.S. Patent No. 6,424,158 ("Klang")
- U.S. Patent Application No. 3004/0130298 ("Krieger")
- U.S. Patent No. 6,803,743 ("George");
- U.S. Patent No. 9,506,446 ("Xinfang"); and
- Chinese Utility Model Patent Publication No. CN 203211234 U

Further, on information and belief, one or more of the asserted claims of the '015 Patent are invalid for lack of written description and/or enablement under 35 U.S.C. § 112 ¶ 1, and for failing to comply with the definiteness requirement of 35 U.S.C. § 112 ¶ 2.

**FOURTH ADDITIONAL DEFENSE**

(Non-infringement)

Respondent has not, and does not, import into the United States, sell for importation, or sell within the United States after importation any article that infringes any valid and enforceable claim of the '015 Patent, literally or under the doctrine of equivalents. Respondent has not otherwise committed any act in violation of 35 U.S.C. § 271 or 19 U.S.C. § 1337. Complainants have failed to show that Respondent's products practice each and every limitation of any asserted claim of the '015 Patent. Respondent's investigation is ongoing. Respondent reserves the right to alter, amend, or supplement this additional defense as this Investigation proceeds.

**FIFTH ADDITIONAL DEFENSE**

(Lack of Domestic Industry)



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To the extent that Respondent determines through discovery and investigation that there is no violation of Section 337 because Complainants have not adequately alleged and cannot prove the existence of a domestic industry, as required by Section 337(a)(2) and defined by Section 337(a)(3), in connection with the Asserted Patents, or that such domestic industry is in the process of being established, Respondent reserves the right to assert the lack of domestic industry as a defense.

**SIXTH ADDITIONAL DEFENSE**

(Equitable Estoppel, Acquiescence, Waiver, Implied License, and/or Unclean Hands)

Complainant acquiesced to Respondent's alleged infringement by filing and dropping a lawsuit, and thereafter remaining silent for a substantial period of time despite possessing knowledge of Respondent's accused products. Additionally, or alternatively, Complainant has engaged in misleading conduct to lead Respondent to reasonably infer that Complainant did not intend to assert the asserted patents against Respondent. For example, Complainant's '015 Patent issued on April 14, 2015, and the Halo Bolt 57220 was publicly launched in Q4 2015. On information and belief, Complainant had knowledge or should have had knowledge of the Halo Bolt 57720 at least as of the end of 2015.

On September 13, 2018, NOCO filed an action for patent infringement against Halo2Cloud, LLC ("Halo") and QVC, Inc. ("QVC") in the United States District Court for the District of Delaware, styled *The NOCO Company, Inc. v. Halo2Cloud, LLC, and QVC, Inc.*, Case No. 18-cv-1423 (D. Del.) ("Delaware Action"). Among other allegations, the Complaint filed in the Delaware Action alleged patent infringement against Halo based on the '015 Patent, and identified the "Infringing Models" to be the "Halo Bolt 72220 Jump Starter" and "Halo Bolt 58330 Jump Starter" (collectively, the "Previously Accused Models"). On December 3, 2018,



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following challenges to the allegations, Complainant filed a Notice of Dismissal Without Prejudice in the Delaware Action. Complainant did not take any actions to attempt to enforce the '015 Patent or any other patent against Halo or ZAGG until the filing of the Complaint in this investigation on January 19, 2021 ("ITC Complaint").

During the time period between the dismissal of the Delaware Action and the filing of the ITC Complaint, Halo and ZAGG relied on Complainant's prior dismissal of the Delaware Action and continued silence to infer that Complainant did not intend to assert the '015 Patent or related patents against Halo and ZAGG. For example, after December 2018, Halo and ZAGG expanded their offerings under the Halo Bolt product line and continued to develop a market for the Halo Bolt products. Complainant's unreasonable delay in reasserting its claims of infringement against Halo for over two years (after initially delaying over two years before filing the Delaware Action) will cause Halo and ZAGG undue prejudice. Many additional facts regarding Complainant's knowledge of the accused jump start products, its acquiescence, and unclean hands are uniquely in the possession of the Complainant, and Halo's and ZAGG's investigation is in the early stages and ongoing.

**SEVENTH ADDITIONAL DEFENSE**

(Prosecution History Estoppel / Disclaimer)

Complainant's patent infringement claims are barred, in whole or in part, based on prosecution history estoppel and/or prosecution disclaimer. Respondent has not infringed, and is not infringing, the asserted claims of the '015 Patent at least due in part to statements, representations, admissions, elections, positions, concessions, and filings made to the U.S. Patent and Trademark Office during prosecution of the application that matured into the '015 Patent and/or during *inter partes review* proceedings related to the '015 Patent, that, in part or

collectively, constitute prosecution history estoppel and/or prosecution disclaimer. In addition, during prosecution of the '015 Patent, the applications narrowed the scope of the claims for reasons related to patentability, thereby surrendering subject matter Complainant now seeks to recover, to the extent it accuses Respondent of infringement under the doctrine of equivalents.

**EIGHTH ADDITIONAL DEFENSE**

(Other Defenses)

Respondent reserves the right to amend its Response to include other additional defenses that it may learn of during the course of the Investigation.



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## REQUEST FOR RELIEF

WHEREFORE, Halo respectfully requests that the Commission:

(a) Determine that Halo does not violate Section 337 of the Tariff Act of 1930, as amended (19 U.S.C. § 1337).

(b) Determine that Halo does not infringe any valid and enforceable claim of the Asserted Patents.

(c) Determine that the claims of the Asserted Patents are invalid and/or unenforceable.

(d) Determine that there is no domestic industry from any of the Asserted Patents.

(e) Determine that, even if an unfair act by Halo is found, the relief sought should be denied because of public interest concerns.

(f) Enter an order terminating the Investigation with prejudice and grant such other relief as the Commission may deem proper.

(g) Deny all relief requested in the Complaint.



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## RESPONSE TO THE NOTICE OF INVESTIGATION

Pursuant to Commission Rule 210.13, Respondent hereby responds to the Notice of Investigation issued by the Commission on March 17, 2021, and published in the Federal Register on March 23, 2021, as follows:

Respondent admits that The NOCO Company ("NOCO" or "Complainant") filed an amended complaint with the U.S. International Trade Commission on February 3, 2021, under section 337 of the Tariff Act of 1930, as amended, as set forth in the Notice of Investigation. Respondent admits that the Notice of Investigation generally summarizes the allegations set forth in the Complaint.

Respondent admits that the Commission has instituted an Investigation as set forth in the Commission's Notice of Investigation. Respondent denies that it has engaged in unfair competition or violated Section 337 of the Tariff Act of 1930, as amended, by importing, selling for importation, or selling within the United States after importation any products that infringe any valid and enforceable intellectual property right at issue in this Investigation. Respondent further denies that any patent claim at issue in this Investigation is valid or enforceable. Respondent further denies that there is a protectable domestic industry, or that it is in the public interest to grant any relief to Complainant. Respondent reserves all rights to assert the defenses set forth in its Response to the Complaint in addition to any defense that may be identified during discovery in this Investigation.

At this stage of the Investigation and without conducting discovery as to identification of the Accused Products, Respondent provides in attached **Confidential Exhibit A** estimates of imports/sales based on an early understanding of the scope of the Accused Products. Respondent



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specifically denies that any of the supplied data refer or relate to any unlawful act under Section 337 or otherwise.

Dated: April 26, 2021

Respectfully submitted,

*/s/ Beau Jackson*

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*Counsel for Respondent*
*Halo2Cloud, LLC and ZAGG Inc*

## VERIFICATION OF RESPONSE

I, Chris Ahern, declare, in accordance with 19 C.F.R. §§ 210.4(c) and 210.13(b), under penalty of perjury, that the following statements are true:

1. I have read the foregoing Response to the Complaint and Notice of Investigation ("Response");

2. The Response is not being presented for any improper purpose, such as to harass or to cause unnecessary delay or needless increase in the cost of the investigation or related proceeding;

3. To the best of my knowledge, information and belief, based on reasonably inquiry, the Response contains claims, defenses, and other legal contentions that are warranted by existing law or by a non-frivolous argument for the extensions, modification, or reversal of existing law or the establishment of new law;

4. The allegations and other factual contentions contained in the Response have evidentiary support or, if specifically so identified, are likely to have evidentiary support after a reasonable opportunity for further investigation or discovery; and

5. The denials of factual contentions contained in the Response are warranted on the evidence or, if specifically so identified, are reasonably based on a lack of information or belief.

I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

Dated: April 26, 2021

| | |
|---|---|
| Signature | Signature |
| Chris Ahern | Chris Ahern |
| Name | Name |
| As CEO of ZAGG Inc, sole member of ZAGG Hampton LLC, sole member of HALO2Cloud, LLC | CEO |
| Title | Title |
| HALO2CLOUD, LLC | ZAGG INC |



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## CERTIFICATE OF SERVICE

I hereby certify that a copy of the foregoing *RESPONSE OF HALO2CLOUD, LLC AND ZAGG INC TO THE SECOND AMENDED COMPLAINT AND NOTICE OF INVESTIGATION* was served to the parties, in the manner indicated below, this the 26th day of April 2021.

| | |
|---|---|
| The Honorable Lisa R. Barton<br>Secretary to the Commission<br>U.S. International Trade Commission<br>500 E Street, SW, Suite 112<br>Washington, DC 20436 | ☒ **VIA ELECTRONIC FILING**<br>[EDIS] |
| The Honorable Clark S. Cheney<br>Administrative Law Judge<br>U.S. International Trade Commission<br>500 E Street, SW<br>Washington, DC 20436 | ☒ **VIA ELECTRONIC MAIL**<br>Cheney337@usitc.gov<br>Patricia.Chow@usitc.gov<br>Benjamin.Rudofsky@usitc.gov |
| Jeffrey Hsu<br>Office of Unfair Import Investigations<br>U.S. International Trade Commission<br>500 E Street, SW., Suite 401<br>Washington, DC 20436 | ☒ **VIA ELECTRONIC MAIL**<br>jeffrey.hsu@usitc.gov |
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| **Respondents AutoZone, Inc. and Best Parts, Inc** | |
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| **Respondents Guangdong Boltpower Energy Co., Ltd. and Best Buy Co., Inc** | |
| P. Andrew Riley | |

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| **Respondents Schumacher Electric Corporation and Schumacher Power Technology Ltd**<br>**Respondents Lowe's Companies, Inc.**<br>**Respondents O'Reilly Automotive, Inc.**<br>**Respondents Walmart Inc.** | |
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|---|---|
| **Respondents Shenzhen Carku Technology Co., Ltd., 70mai Co., Ltd., Antigravity Batteries LLC, Gooloo Technologies LLC, Horizon Tool, Inc., Great Neck Saw Manufacturers, Inc., Matco Tools Corporation, Nekteck, Inc., Paris Corporation, and PowerMax Battery (U.S.A.), Inc** | |
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*/s/ Anna Florian, Paralegal*
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Espacenet

CN103035874A Battery

Applicants: BOSCH GMBH ROBERT,SAMSUNG SDI CO LTD

Inventors: BYUN SANG-WON,HAN MIN-YEOL,YOON HAE-KWON

Classifications:

IPC ***H01M10/04; H01M2/34; H01M4/70;***

CPC **H01M10/0525 (KR); H01M2/043 (EP,KR,US); H01M2/307 (EP,KR,US); H01M2/34 (KR); H01M2/348 (EP,KR,US);** H01M10/0525 (EP,US); H01M2200/103 (KR); Y02E60/10 (EP); Y02T10/70 (KR,US);

Priorities: US201161540692P 2011-09-29; US201213343948A 2012-01-05

Application: CN103035874A·2012-06-08

Publication: CN103035874A·2013-04-10

Published as: CN103035874A;**CN103035874B; EP2575189A1; EP2575189B1; JP2013077546A; JP6249593B2; KR101683214B1; KR20130035163A; US2013084471A1; US8940420B2**

Battery

Abstract

A battery includes an electrode assembly including a first electrode and a second electrode, a first electrode terminal, and a first current collecting member electrically connecting the first electrode terminal and a first electrode uncoated region of the first electrode. The first current collecting member includes a first terminal connection region, a side plate extending downwardly from the first terminal connection region towards the first electrode uncoated region, a first current collecting piece extending from the side plate, the first current collecting piece being in contact with the first electrode uncoated region, and a fuse between the side plate and the first current collecting piece.

(19)中华人民共和国国家知识产权局

(12)发明专利申请

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(43)申请公布日 2013.04.10

(21)申请号 201210188861.8

(22)申请日 2012.06.08

(30)优先权数据
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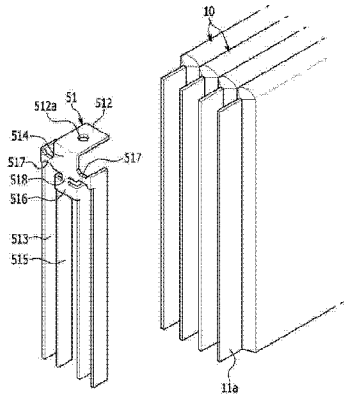
权利要求书 2 页 说明书 9 页 附图 9 页

(54)发明名称

电池

(57)摘要

一种电池，包括：包括第一电极和第二电极的电极组件；第一电极端子；和将所述第一电极端子和所述第一电极的第一电极未涂覆区域电连接的第一集流构件。所述第一集流构件包括：第一端子连接区域；从所述第一端子连接区域朝向所述第一电极未涂覆区域向下延伸的侧板；从所述侧板延伸的第一集流片，所述第一集流片与所述第一电极未涂覆区域接触；和在所述侧板和所述第一集流片之间的熔断体。




CN 103035874 A

1. 一种电池，包括：

包括第一电极和第二电极的电极组件；

第一电极端子；和

将所述第一电极端子和所述第一电极的第一电极未涂覆区域电连接的第一集流构件，所述第一集流构件包括：

第一端子连接区域；

从所述第一端子连接区域朝向所述第一电极未涂覆区域向下延伸的侧板；

从所述侧板延伸的第一集流片，所述第一集流片与所述第一电极未涂覆区域接触；和

在所述侧板和所述第一集流片之间的熔断体。

2. 如权利要求 1 所述的电池，其中所述第一端子连接区域、所述侧板、所述第一集流片和所述熔断体由相同的材料形成。

3. 如权利要求 2 所述的电池，其中所述第一端子连接区域、所述侧板、所述第一集流片和所述熔断体彼此形成整体。

4. 如权利要求 2 所述的电池，其中所述熔断体具有比所述侧板和所述第一集流片的相邻部分小的截面积。

5. 如权利要求 1 所述的电池，其中至少两个第一集流片从所述侧板延伸。

6. 如权利要求 1 所述的电池，所述电极组件包括多个电极组件，所述第一集流片包括对应的多个第一集流片，所述熔断体包括分别在所述侧板与所述多个第一集流片中的两个第一集流片之间的第一熔断体区域和第二熔断体区域。

7. 如权利要求 6 所述的电池，其中所述第一熔断体区域和所述第二熔断体区域在所述侧板和所述两个第一集流片之间横向地延伸。

8. 如权利要求 7 所述的电池，进一步包括从所述侧板竖向地延伸的第三熔断体区域，所述第三熔断体区域在所述侧板和除所述两个第一集流片之外的第一集流片之间。

9. 如权利要求 8 所述的电池，其中所述第三熔断体区域接触在除所述两个第一集流片之外的第一集流片之间横向延伸的连接区域。

10. 如权利要求 7 所述的电池，进一步包括将所述两个第一集流片分别与相邻的第一集流片连接的连接区域。

11. 如权利要求 7 所述的电池，进一步包括：

从所述侧板竖向延伸的连接区域；和

从所述连接区域横向延伸的第三熔断体区域，所述第三熔断体区域在所述连接区域与第三个第一集流片之间。

12. 如权利要求 11 所述的电池，进一步包括：

在与所述第三熔断体区域相反的一侧上从所述连接区域横向延伸的第四熔断体区域，所述第四熔断体区域在所述连接区域和第四个第一集流片之间。

13. 如权利要求 6 所述的电池，其中所述多个第一集流片为两个集流片。

14. 如权利要求 5 所述的电池，其中所述熔断体包括在每个集流片和所述侧板之间的电路径中的熔断体区域。

15. 如权利要求 1 所述的电池，进一步包括连接到所述第一电极端子的短路构件。

16. 如权利要求 1 所述的电池，其中所述第一集流片被焊接到所述第一电极未涂覆区



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域。

17. 如权利要求 1 所述的电池，进一步包括由电绝缘材料制成并且至少部分围绕所述熔断体的阻断构件。

18. 如权利要求 17 所述的电池，其中所述阻断构件包括在所述熔断体的与所述第一电极未涂覆区域相反的一侧上的基部区域，以及在所述第一端子连接区域和所述第一集流片之间的突出部。

19. 如权利要求 1 所述的电池，进一步包括：

第二电极端子；

将所述第二电极端子和所述第二电极的第二电极未涂覆区域电连接的第二集流构件；和

在所述电极组件的横向侧上并且被电连接到所述第二电极的安全构件。

20. 如权利要求 19 所述的电池，其中每个安全构件包括：

导电板；

将所述导电板和所述电极组件分开的绝缘区域；和

将所述导电板与所述第二电极电连接的电极连接区域，其中所述电极连接区域被焊接到所述第二电极。



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# 电池

## 技术领域

[0001] 所描述的技术大体上涉及一种电池，更具体地涉及一种包括具有改进结构的集流构件的可再充电电池。

## 背景技术

[0002] 与不能被再充电的一次电池不同，可再充电电池能被再充电和放电。小容量可再充电电池被用于诸如移动电话、膝上电脑和便携式摄像机等的小型可携式电子设备，而大容量可再充电电池被用作用于混合动力车辆等的马达驱动电源。

[0003] 近来，已经开发出使用具有高能量密度的非水电解质的高输出可再充电电池。大容量电池模块可包括多个串联连接的高输出可再充电电池。这种可再充电电池可具有圆柱形形状、有角形状等。大容量电池模块可被用于要求大量电力的应用，例如驱动诸如电动车辆等设备的马达。

[0004] 当过电流在具有由诸如金属等材料制成的壳体的可再充电电池内流动时，可再充电电池的温度增加并且可能着火。此外，当由于可再充电电池内的电解质因过电流分解而使可再充电电池的内部压力增加时，可再充电电池可能爆炸。

[0005] 在该背景部分中公开的上述信息仅用于增强对所描述的技术的背景的理解，并且因此其可能包含不构成在本国对本领域普通技术人员已知的现有技术的信息。

## 发明内容

[0006] 所描述的技术努力提供一种具有改进的稳定性的可再充电电池。

[0007] 实施例致力于一种电池，包括：包括第一电极和第二电极的电极组件；第一电极端子；和将所述第一电极端子和所述第一电极的第一电极未涂覆区域电连接的第一集流构件。所述第一集流构件可包括：第一端子连接区域；从所述第一端子连接区域朝向所述第一电极未涂覆区域向下延伸的侧板；从所述侧板延伸的第一集流片，所述第一集流片与所述第一电极未涂覆区域接触；和在所述侧板和所述第一集流片之间的熔断体。

[0008] 所述第一端子连接区域、所述侧板、所述第一集流片和所述熔断体可由相同的材料形成。

[0009] 所述第一端子连接区域、所述侧板、所述第一集流片和所述熔断体可彼此形成整体。

[0010] 所述熔断体可具有比所述侧板和所述第一集流片的相邻部分的截面积小的截面积。

[0011] 至少两个第一集流片可从所述侧板延伸。

[0012] 所述电极组件可包括多个电极组件，所述第一集流片可包括对应的多个第一集流片。所述熔断体可包括分别在所述侧板与所述多个第一集流片中的两个第一集流片之间的第一熔断体区域和第二熔断体区域。

[0013] 所述第一熔断体区域和所述第二熔断体区域可在所述侧板和所述两个第一集流



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片之间横向地延伸。

[0014] 所述电池可进一步包括从所述侧板竖直地延伸的第三熔断体区域，所述第三熔断体区域在所述侧板和除所述两个第一集流片之外的第一集流片之间。

[0015] 所述第三熔断体区域可接触在除所述两个第一集流片之外的第一集流片之间横向延伸的连接区域。

[0016] 所述电池可包括将所述两个第一集流片分别与相邻的第一集流片连接的连接区域。

[0017] 所述电池可包括：从所述侧板竖直延伸的连接区域；和从所述连接区域横向延伸的第三熔断体区域，所述第三熔断体区域在所述连接区域与第三个第一集流片之间。

[0018] 所述电池可包括：在与所述第三熔断体区域相反的一侧上从所述连接区域横向延伸的第四熔断体区域，所述第四熔断体区域在所述连接区域和第四个第一集流片之间。

[0019] 所述熔断体可包括在每个集流片和所述侧板之间的电路径中的熔断体区域。

[0020] 所述多个第一集流片可为两个集流片。

[0021] 所述电池可包括连接到所述第一电极端子的短路构件。

[0022] 所述第一集流片可被焊接到所述第一电极未涂覆区域。

[0023] 阻断构件可由电绝缘材料制成并且至少部分地围绕所述熔断体。

[0024] 所述阻断构件可包括在所述熔断体的与所述第一电极未涂覆区域相反的一侧上的基部区域，以及在所述第一端子连接区域和所述第一集流片之间的突出部。

[0025] 所述电池可包括：第二电极端子；将所述第二电极端子和所述第二电极的第二电极未涂覆区域电连接的第二集流构件；和在所述电极组件的横向侧上并且被电连接到所述第二电极的安全构件。

[0026] 每个安全构件可包括：导电板；将所述导电板和所述电极组件分开的绝缘区域；和将所述导电板与所述第二电极电连接的电极连接区域，其中所述电极连接区域被焊接到所述第二电极。

## 附图说明

[0027] 通过参照附图详细描述各示例性实施例，各特征对于本领域普通技术人员将变得明显，其中：

[0028] 图 1 描绘出根据第一实施例的可再充电电池的透视图。

[0029] 图 2 描绘出沿图 1 的线 II-II 截取的剖视图。

[0030] 图 3 描绘出根据第一实施例的可再充电电池的局部分解透视图。

[0031] 图 4 描绘出根据第二实施例的可再充电电池的剖视图。

[0032] 图 5 描绘出根据第二实施例的可再充电电池的集流构件的透视图。

[0033] 图 6 描绘出根据第三实施例的可再充电电池的集流构件的透视图。

[0034] 图 7 描绘出根据第四实施例的可再充电电池的集流构件的透视图。

[0035] 图 8 描绘出根据第五实施例的可再充电电池的剖视图。

[0036] 图 9 描绘出根据第六实施例的可再充电电池的局部分解透视图。

[0037] 图 10 描绘出示出根据第六实施例的可再充电电池的构造的示意图。



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## 具体实施方式

[0038] 现在将参照附图详细描述各示例性实施例，使得各示例性实施例能够易于被本领域技术人员执行。本领域技术人员将认识到，所描述的各实施例可以以各种不同的方式被修改，均不脱离本发明精神或范围。相似的附图标记在整个说明书中指代相似的元件。

[0039] 图 1 描绘出根据第一实施例的可再充电电池的透视图。图 2 描绘出沿图 1 的线 II-II 截取的剖视图。

[0040] 参见图 1 和图 2，根据第一示例性实施例的可再充电电池 101 可包括：通过卷绕正电极 11 和负电极 12 以及介于它们之间的隔板 13 而形成的电极组件 10；将电极组件 10 容纳在其中的壳体 30；和联接到壳体 30 的开口的盖组件 20。

[0041] 在第一示例性实施例中，例如，可再充电电池 101 为方形的锂离子可再充电电池。然而，本实施例不限于此，本实施例可应用于各种类型的电池，例如锂聚合物电池、圆柱形电池等。

[0042] 正电极 11 和负电极 12 可分别包括形成为涂覆有活性物质的薄金属箔的集电体的涂覆区域和没有涂覆活性物质的未涂覆区域 11a 和 12a。

[0043] 正电极未涂覆区域 11a 可沿正电极 11 的长度方向形成在正电极 11 的一个横向端处，负电极未涂覆区域 12a 可沿负电极 12 的长度方向形成在负电极 12 的另一个横向端处。正电极 11 和负电极 12 可与作为绝缘体且介于它们之间的隔板 13 一起被卷绕。

[0044] 然而，各实施例不限于此。例如，电极组件 10 可具有这样的结构：被配置为多个片的正电极和负电极被交替堆叠，而隔板介于它们之间。

[0045] 壳体 30 可具有基本长方体形状，并且在其一侧可具有开口。盖组件 20 可包括覆盖壳体 30 的开口的盖板 25、从盖板 25 向外伸出并且与正电极 11 电连接的正电极端子 21、从盖板 25 向外伸出并且与负电极 12 电连接的负电极端子 22 以及带有形成为在预定内部压力下破裂的凹痕的排气构件 27。

[0046] 盖板 25 可被形成为薄板，并且可包括形成在其一侧处的电解质注入孔。用于密封电解质注入孔的密封塞 23 可被固定地安装在盖板 25 上。

[0047] 正电极端子 21 可以以贯穿的方式被安装在盖板 25 上。位于上侧的第一垫圈 24 和位于盖板 25 和正电极端子 21 之间的下方第二垫圈 26 将盖板 25 与正电极端子 21 绝缘。

[0048] 正电极端子 21 可具有圆柱形状。螺母 29 可被安装在正电极端子 21 上以在上侧支撑正电极端子 21。螺纹可形成在正电极端子 21 的外周上，以允许螺母 29 被紧固到正电极端子 21。

[0049] 正电极端子 21 可以经由集流构件 51 与正电极未涂覆区域 11a 电连接。支撑正电极端子 21 的端子法兰和集流构件 51 形成在正电极端子 21 的下端。

[0050] 负电极端子 22 可以以贯穿的方式被安装在盖板 25 上。位于上侧的第一垫圈 24 和位于盖板 25 和负电极端子 22 之间的下方第二垫圈 26 将盖板 25 与负电极端子 22 绝缘。

[0051] 负电极端子 22 可具有圆柱形状。螺母 29 可被安装在负电极端子 22 上以在上侧支撑负电极端子 22。螺纹可形成在负电极端子 22 的外周上，以允许螺母 29 被紧固到负电极端子 22。

[0052] 负电极端子 22 经由集流构件 52 与负电极未涂覆区域 12a 电连接。支撑负电极端子 22 的端子法兰和集流构件 52 可以形成在负电极端子 22 的下端。



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[0053] 图 3 描绘出根据第一实施例的可再充电电池的局部分解透视图。

[0054] 集流构件 51 可包括端子连接区域 512、被形成为从端子连接区域 512 弯曲的侧板 514、固定到正电极未涂覆区域 11a 的集流片 513 和 515 以及形成在侧板 514 与集流片 513 和 515 之间并且具有与周围区域相比小的截面积的熔断体区域 517 和 518，端子连接区域 512、侧板 514、集流片 513 和 515 以及熔断体区域 517 和 518 由相同材料形成且彼此形成整体。

[0055] 除了熔断体区域 517 和 518 之外，安装在负电极端子 22 处的集流构件 52 被配置为具有与集流构件 51 的结构相同的结构，因此其说明将不再重复。

[0056] 端子连接区域 512 可具有四边形板状形状，并且可包括形成在其中心处的孔 512a，正电极端子 21 插入该孔 512a 中。端子连接区域 512 可通过焊接被连接到正电极端子 21 的下部。侧板 514 可以以直角从端子连接区域 512 朝向壳体 30 的底部弯曲，从而被设置为与壳体 30 的侧面平行。

[0057] 两个集流片 513 可被连接到侧板 514 的两个横向端。集流片 513 可具有长四边形板的形状，并且可通过焊接被连接到正电极未涂覆区域 11a（即，与正电极未涂覆区域 11a 接触）。

[0058] 具有比其它部分小的截面积的熔断体区域 517 可形成在集流片 513 和侧板 514 之间。根据本实施例，熔断体区域 517 被形成为具有比周围区域小的宽度。因此，当过电流流过集流构件 51 时，熔断体区域 517 可被熔化以切断集流片 513 和侧板 514 之间的电连接。然而，本实施例不意味着限于此。例如，实现熔断体具有比周围区域小的截面积的任何方式可被使用，例如熔断体区域 517 可具有比周围区域小的厚度。

[0059] 连接区域 516 形成在侧板 514 的下部，并且具有比其它部分小的截面积的熔断体区域 518 形成在连接区域 516 和侧板 514 之间且与连接区域 516 接触。集流片 515 形成在连接区域 516 的两个横向端处并且通过焊接被连接到正电极未涂覆区域 11a。

[0060] 当熔断体区域 518 具有比周围区域小的宽度并且过电流流过集流构件 51 时，熔断体区域 518 被熔化以切断侧板 514 和连接区域 516 之间的电连接。

[0061] 以此方式，根据本实施例，因为多个熔断体区域 517 形成为被连接到侧板 514，因此当过电流流动时，与相应的集流片 513 的电连接能够被切断。此外，因为熔断体区域 518 形成在侧板 514 和连接区域 516 之间，侧板 514 和连接区域 516 之间的电连接能够被切断。另外，电极组件和集流片的数量不限于此，也可以分别为一个或多个。

[0062] 当多个电极组件 10 被插入地安装并且在壳体 30 内彼此并联连接时，如果各个电极组件没有被阻断，则高容量电流将持续在电极组件 10 之间流动，导致危险的状况。在此情况下，持续的电流流动将增加壳体 30 内的内部压力，从而可能导致爆炸或着火。

[0063] 然而，根据本实施例，当连接到侧板 514 的集流片 513 和 515 被分别阻断时，存储在电极组件 10 中的电流量被分散，从而增强了稳定性。

[0064] 图 4 描绘出根据第二实施例的可再充电电池的剖视图。图 5 描绘出根据第二实施例的可再充电电池的集流构件的透视图。

[0065] 除了集流构件 61 的结构之外，根据第二实施例的可再充电电池 102 被配置为具有与上述第一实施例的结构相同的结构，因此对相同结构的说明将不再重复。

[0066] 参见图 4 和图 5，根据第二实施例的可再充电电池 102 可包括电极组件 10、正电极



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端子 21、负电极端子 22、将正电极端子 21 与电极组件 10 电连接的集流构件 61 以及将负电极端子 22 与电极组件 10 电连接的集流构件 62。

[0067] 集流构件 61 可包括被固定到正电极端子 21 的端子连接区域 612、被形成为从端子连接区域 612 弯曲的侧板 614、连接到侧板 614 的下部的两个连接区域 616 以及连接到连接区域 616 的两个横向端并且被附接到正电极未涂覆区域 11a 的集流片 615。具有比周围区域小的截面积的熔断体区域 617 可形成在侧板 614 与连接区域 616 之间。

[0068] 除了熔断体区域 617 之外，集流构件 62 可被配置为具有与集流构件 61 的结构相同的结构，因此其描述将不再重复。

[0069] 端子连接区域 612 可具有四边形板状形状，并且可包括在其中心处的孔 612a，正电极端子 21 插入该孔 612a 中。端子连接区域 612 可通过焊接被连接到正电极端子 21 的下部。侧板 614 可以以直角从端子连接区域 612 朝向壳体 30 的底部弯曲，从而被设置为与壳体 30 的侧面平行。

[0070] 两个连接区域 616 可以被分开地连接到侧板 614 的下端部。具有比其它部分小的截面积的熔断体区域 617 可形成在连接区域 616 与侧板 614 之间。集流片 615 可形成在每个连接区域 616 的两个横向端处，并且通过焊接被连接到正电极未涂覆区域 11a。

[0071] 根据本实施例，熔断体区域 617 具有比周围区域小的宽度。因此，当过电流流过集流构件 61 时，熔断体区域 617 可被熔化，以切断连接区域 616 与侧板 614 之间的电连接。然而，本实施例并不意味着限于此，例如，熔断体区域 617 可具有比周围区域小的厚度。

[0072] 当多个电极组件 10 被插入地安装并且在壳体 30 内并联连接时，如果各个电极组件不被阻断，则高容量电流将持续在电极组件 10 之间且在电极组件 10 中流动，这可导致危险的状况。在此情况下，持续的电流流动将增加壳体 30 内的内部压力，从而可导致爆炸或着火。

[0073] 然而，根据本实施例，当连接到侧板 614 的连接区域 616 被分别阻断时，存储在电极组件 10 中的电流量被分散，从而增强稳定性。

[0074] 阻断构件 67 可被插入地安装在熔断体区域 617 的每一个上。阻断构件 67 可由诸如聚合物等具有电绝缘特性的材料制成。阻断构件 67 可包括在熔断体区域 617 的与正电极未涂覆区域相反的一侧上的基部区域 671、从基部区域 671 的两个横向端伸出并在端子连接区域 612 和集流片 615 之间的突出部 672 和在突出部 672 的前端并且向内伸出的止挡突出部 673。突出部 672 被插入形成在熔断体区域 617 上的凹进中，而止挡突出部 673 接触熔断体区域 617，从而支撑阻断构件 67。

[0075] 基部区域 671 可定位在壳体 30 和集流构件 61 之间，以将集流构件 61 和壳体 30 绝缘。当熔断体区域 617 被熔化时，突出部 672 支撑使得熔化的部分被分开。因此，在熔断体区域 617 被熔化之后，能够防止分开的部分恢复接触。

[0076] 当熔断体区域 617 被熔化时，如果分开的部分足够接近，可能在分开的部分处引发火星等，并且可再充电电池 102 可能着火。然而，根据本实施例，因为阻断构件 67 被安装，熔断体区域 617 的分开的部分之间的间隙可被稳定地保持。

[0077] 图 6 描绘了根据第三实施例的可再充电电池的集流构件的透视图。

[0078] 参见图 6，除了集流构件的结构之外，根据第三实施例的可再充电电池被配置为具有与第一实施例的结构相同的结构，因此对相同结构的说明将不再重复。



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[0079] 根据第三实施例的集流构件64可包括固定到正电极端子21的端子连接区域642、被形成为从端子连接区域642弯曲的侧板644、连接到侧板644的两个横向端的两个连接区域646以及形成在连接区域646的下部并且被附接到正电极未涂覆区域11a的集流片643。具有比周围区域小的截面积的熔断体区域647可形成在侧板644和连接区域646之间。

[0080] 端子连接区域642可具有四边形板状形状，并且可包括在其中心处的孔642a，正电极端子21插入孔642a中。端子连接区域642可通过焊接被连接到正电极端子21的下部。侧板644可以以直角从端子连接区域642朝向壳体30的底部弯曲，从而被设置为与壳体30的侧面平行。

[0081] 连接区域646可与侧板644的两个横向端连接。集流片643可形成在连接区域646的下部，并且被附接到正电极未涂覆区域11a。分支区域648可从连接区域646的横向端伸出。集流片645可被连接到分支区域648。

[0082] 每一个具有比其它部分小的截面积的熔断体区域647可被形成在连接区域646和侧板644之间。根据本实施例，熔断体区域647具有比周围区域小的宽度。因此，当过电流流过集流构件64时，熔断体区域647可被熔化以切断连接区域646与侧板644之间的电连接。然而，本实施例并不意味着限于此，例如，熔断体区域647可具有比周围区域小的厚度。

[0083] 当多个电极组件10被插入地安装并且在壳体30内并联连接时，如果各个电极组件不被阻断，则高容量电流可持续在多个电极组件10之间并在多个电极组件10中流动，这可导致危险的状况。在此情况下，持续的电流流动将增加壳体30内的内部压力，从而可能导致爆炸或着火。

[0084] 然而，根据本实施例，当连接到侧板644的连接区域646被分别阻断时，存储在电极组件10中的电流量被分散，从而增强稳定性。

[0085] 图7描绘了根据第四实施例的可再充电电池的集流构件的透视图。

[0086] 参见图7，除了电极组件的数量之外，根据第四实施例的可再充电电池被配置为具有与第一实施例的结构相同的结构，因此对相同结构的说明将不再重复。

[0087] 根据第四实施例的可再充电电池的集流构件65可包括固定到正电极端子21的端子连接区域652、被形成为从端子连接区域652弯曲的侧板654、连接到侧板654的两个横向端的集流片655以及在侧板654和集流片655之间的熔断体区域657。

[0088] 端子连接区域652可具有四边形板状形状，并且可包括在其中心处的孔652a，正电极端子21插入孔652a中。端子连接区域652可通过焊接被连接到正电极端子21的下部。侧板654可以以直角从端子连接区域652朝向壳体30的底部弯曲，从而被设置为与壳体30的侧面平行。

[0089] 具有比其它部分小的截面积的熔断体区域657可被形成在侧板654的两个横向端处。根据本实施例，熔断体区域657被形成为具有比周围区域小的宽度。因此，当过电流流过集流构件65时，熔断体区域657可被熔化以切断集流片655与侧板654之间的电连接。然而，本实施例并不意味着限于此，例如，熔断体区域657可被形成为具有比周围区域小的厚度。

[0090] 集流片655可形成在每个熔断体区域657的一个横向端处，并且通过焊接被连接到正电极未涂覆区域11a。

[0091] 当两个电极组件10被插入地安装并且在壳体30内并联连接时，如果各个电极组



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件不被阻断，则高容量电流可持续在电极组件 10 之间流动，这可导致危险的状况。在此情况下，持续的电流流动将增加壳体 30 内的内部压力，从而可能导致爆炸或着火。

[0092] 然而，根据本实施例，当连接到侧板 654 的集流片 655 被分别阻断时，存储在电极组件 10 中的电流量被分散，从而增强稳定性。

[0093] 图 8 描绘了根据第五实施例的可再充电电池的剖视图。

[0094] 参见图 8，根据第五示例性实施例的可再充电电池 103 可包括：通过卷绕正电极 11 和负电极 12 以及介于它们之间的隔板 13 而形成的电极组件 10；将电极组件 10 容纳在其中的壳体 30；和联接到壳体 30 的开口的盖组件 120。电极组件 10 被配置为具有与上述第一实施例的结构相同的结构。

[0095] 壳体 30 可具有基本长方体形状，并且在其一侧具有开口。盖组件 120 可包括覆盖壳体 30 的开口的盖板 125、从盖板 125 向外伸出并且与正电极 11 电连接的正电极端子 121 以及从盖板 125 向外伸出并且与负电极 12 电连接的负电极端子 122。

[0096] 正电极端子 121 可经由集流构件 51 与正电极未涂覆区域 11a 电连接。集流构件 51 可被配置为具有与根据第一实施例的集流构件的结构相同的结构。

[0097] 在正电极端子 121 和盖板 125 之间，垫圈 143 可被插入地定位在正电极端子 121 贯穿的孔中。下绝缘构件 147 可被安装在盖板 125 下方，以将正电极端子 121 和集流构件 51 的插入下绝缘构件 147 中的部分与盖板 125 的绝缘。

[0098] 短路接线片 131 可被电连接到正电极端子 121，例如短路接线片 131 被安装在盖板 125 上。上绝缘构件 137 可安装在短路接线片 131 和盖板 125 之间以将短路接线片 131 和盖板 125 电绝缘。短路接线片 131 可经由螺母 129 与正电极端子 121 电连接。上绝缘构件 137 可被安装以覆盖短路接线片 131 的横向端，并且可在与形成在盖板 125 上的短路孔 135 对应的部分处具有孔。

[0099] 负电极端子 122 可贯穿盖板 125。盖板 125 和负电极端子 122 之间的连接板 141 将负电极端子 122 和盖板 125 电连接。因此，盖板 125 和壳体 30 带负电。在负电极端子 122 和盖板 125 之间，垫圈 142 可被插入地定位在负电极端子 122 贯穿的孔中。

[0100] 盖组件 120 可包括能够将正电极 11 和负电极 12 短路的短路构件 134。短路孔 135 可形成在盖板 125 中，并且短路构件 134 可被设置在短路孔 135 处位于上绝缘构件 137 与盖板 125 之间。短路构件 134 可被配置为反转板，包括形成在其边缘处并且被固定到盖板 125 的边缘部分 134a 和形成在边缘部分 134a 的内侧呈弧形形状凸出的弧形部分 134b。

[0101] 以此方式，短路构件 134 被连接到与负电极 12 电连接的盖板 125。当可再充电电池 103 的内部压力增加时，短路构件 134 变形以被连接到与正电极 11 电连接的短路接线片 131。

[0102] 当短路构件 134 被电连接到短路接线片 131 时，大电流瞬时流过集流构件 51。此时，熔断体区域 517 和 518 被熔化以切断正电极端子 121 和电极组件 10 之间的电连接以及电极组件 10 之间的电连接。

[0103] 以此方式，通过应用短路构件 134 和包括多个熔断体区域 517、518 的集流构件，当可再充电电池 103 的内部压力增加时能够容易地中断（或切断）电流，由此进一步增加稳定性。

[0104] 图 9 描绘出第六实施例的可再充电电池的局部分解透视图。图 10 描绘出示出根



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据第六实施例的可再充电电池的构造的示意图。

[0105] 参见图 9 和图 10，根据第六实施例的可再充电电池 104 被配置为具有与第一实施例的结构相同的结构，因此相同结构的说明将不再重复。

[0106] 集流构件 66 可通过焊接被连接到正电极未涂覆区域 11a。集流构件 68 可通过焊接被连接到负电极未涂覆区域 12a。

[0107] 集流构件 66 将正电极 11 与正电极端子 21 电连接。集流构件 68 将负电极 12 与负电极端子 22 电连接。

[0108] 集流构件 66 可包括固定到正电极端子 21 的端子连接区域 662、从端子连接区域 662 弯曲的侧板 664、固定到正电极未涂覆区域 11a 的集流片 663 以及在侧板 664 和集流片 663 之间并且具有比周围区域小的截面积的熔断体区域 667。

[0109] 除了熔断体区域 667 和 668 之外，安装在负电极端子 22 处的集流构件 68 被配置为具有与集流构件 66 的结构相同的结构，因此对其的描述将不再重复。

[0110] 端子连接区域 662 可具有四边形板状形状，并且可包括在其中心处的孔 662a，正电极端子 21 插入孔 662a 中。端子连接区域 662 可通过焊接被连接到正电极端子 21 的下部。侧板 664 可以以直角从端子连接区域 662 朝向壳体 30 的底部弯曲，从而被设置为与壳体 30 的侧面平行。

[0111] 两个集流片 663 可被连接到侧板 664 的两个横向端处。具有比其它部分小的截面积的熔断体区域 667 可被形成在集流片 663 和侧板 664 之间。

[0112] 根据本实施例，熔断体区域 667 被形成为具有比周围区域小的宽度。因此，当过电流流过集流构件 66 时，熔断体区域 667 可被熔化以切断集流片 663 与侧板 664 之间的电连接。然而，本实施例并不意味着限于此，例如，熔断体区域 667 可被形成为具有比周围区域小的厚度。

[0113] 连接区域 666 可形成在侧板 664 的下部，并且集流片 665 可形成在连接区域 666 的两个横向端处，并且通过焊接被连接到正电极未涂覆区域 11a。具有比其它部分小的截面积的熔断体区域 668 可被形成在连接区域 666 和集流片 665 之间。

[0114] 熔断体区域 668 被形成为具有比周围区域小的宽度。因此，当过电流流过集流构件 66 时，熔断体区域 668 被熔化，以切断连接区域 666 和集流片 665 之间的电连接。

[0115] 以此方式，根据本实施例，因为多个熔断体区域 667 形成为与侧板 664 连接，当过电流流动时，与各个集流片 663 的电连接能够被切断。另外，因为多个熔断体区域 668 形成为与连接区域 666 连接，当过电流流动时，与各个集流片 665 的电连接能够被切断。

[0116] 与负电极 12 电连接的安全构件 70 可分别被安装在电极组件 10 中设置在两个横向侧处的电极组件 10 上。安全构件 70 可通过焊接被连接到电极组件 10 中设置在两个横向侧处的电极组件 10 的负电极未涂覆区域 12a。安全构件 70 可包括金属板 71 和附接到金属板 71 的绝缘膜 73。

[0117] 与负电极未涂覆区域 12a 电连接的电极连接区域 72 被连接到金属板 71 的一个横向端。金属板 71 通过焊接在电极连接区域 72 处与负电极未涂覆区域 12a 连接，并且由与负电极未涂覆区域 12a 的材料相同的材料制成，从而易于被焊接到负电极未涂覆区域 12a。根据本实施例的金属板 71 由例如铜(Cu)或铜合金制成。

[0118] 绝缘膜 73 可安装在金属板 71 的与电极组件 10 的平坦前表面相对的部分上。绝



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缘膜 73 用于防止电极组件 10 和金属板 71 电连接。绝缘膜 73 可由不与电解质反应的材料制成，例如聚合物材料。

[0119] 电极连接区域 72 在被设置为与负电极未涂覆区域 12a 平行的状态下可通过焊接被固定到负电极未涂覆区域 12a。因此，电极连接区域 72 用于防止负电极未涂覆区域 12a 由于外部冲击或震动而摇晃。

[0120] 当集流构件 68 通过焊接被连接到负电极未涂覆区域 12a 时，如果负电极未涂覆区域 12a 由于外部冲击或震动而摇晃，则负电极未涂覆区域 12a 与集流构件 68 之间的接触恶化。然而，在本实施例中，因为电极连接区域 72 支撑负电极未涂覆区域 12a，由于外部冲击或震动等导致的负电极未涂覆区域 12a 与集流构件 68 之间的接触恶化可被减小或防止。

[0121] 如图 10 所示，当例如钉子、螺丝锥等导电外物 80 穿透到可再充电电池 104 中时，如果正电极 11 和负电极 12 经由导电外物 80 短路，则大量的热将在可再充电电池 104 中产生，这可导致可再充电电池爆炸或着火。然而，在本实施例中，因为安全构件 70 被安装，安全构件 70 和正电极 11 短路，从而释放带电流。当与负电极 12 电连接的金属板 71 与正电极 11 短路时，与正电极 11 和负电极 12 短路的情况相比产生非常小量的热。

[0122] 以此方式，根据本实施例，当外物从外部穿透潜在地导致短路时，电流被释放以减小或消除着火的可能，因此增强了可再充电电池 104 的稳定性。

[0123] 此外，当短路发生因此过电流流动时，形成在集流构件 66 处的熔断体区域 667 和 668 被熔化以切断正电极端子 21 和电极组件 10 之间的电连接以及电极组件之间的电连接。因此，可再充电电池 104 的稳定性能够被进一步增强。根据实施例，当过电流流动时，电极组件被电切断，因此改进了可再充电电池的稳定性。

[0124] 在这里已经公开了各示例实施例，尽管采用了特定术语，但这些术语仅以一般和描述的意义被使用和理解而不是为了限制的目的。在一些情况下，对于本领域普通技术人员明显的是，在递交本申请时，除非特别指出之外，结合特定实施例描述的特征、特点和 / 或元件可单独使用或可与结合其它实施例描述的特征、特点和 / 或元件组合使用。因此，本领域技术人员将理解，不脱离所附权利要求中所提出的本发明的精神和范围的情况下可以进行各种形式上和细节上的改变。



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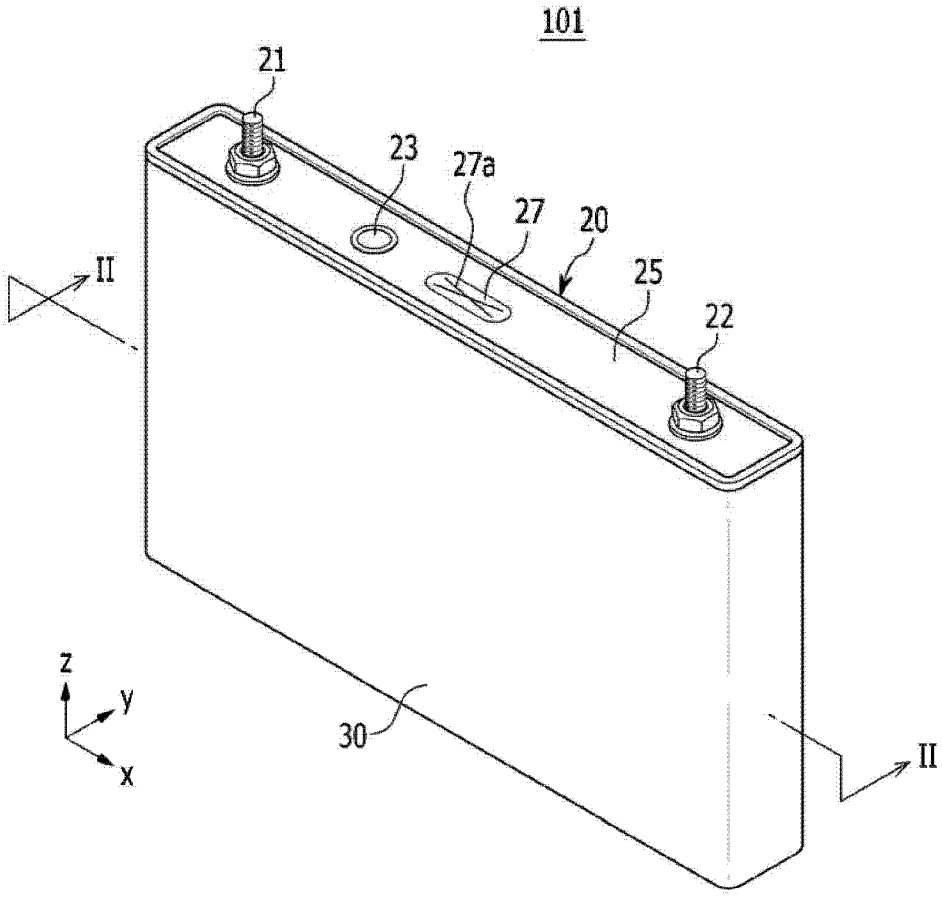



图 1



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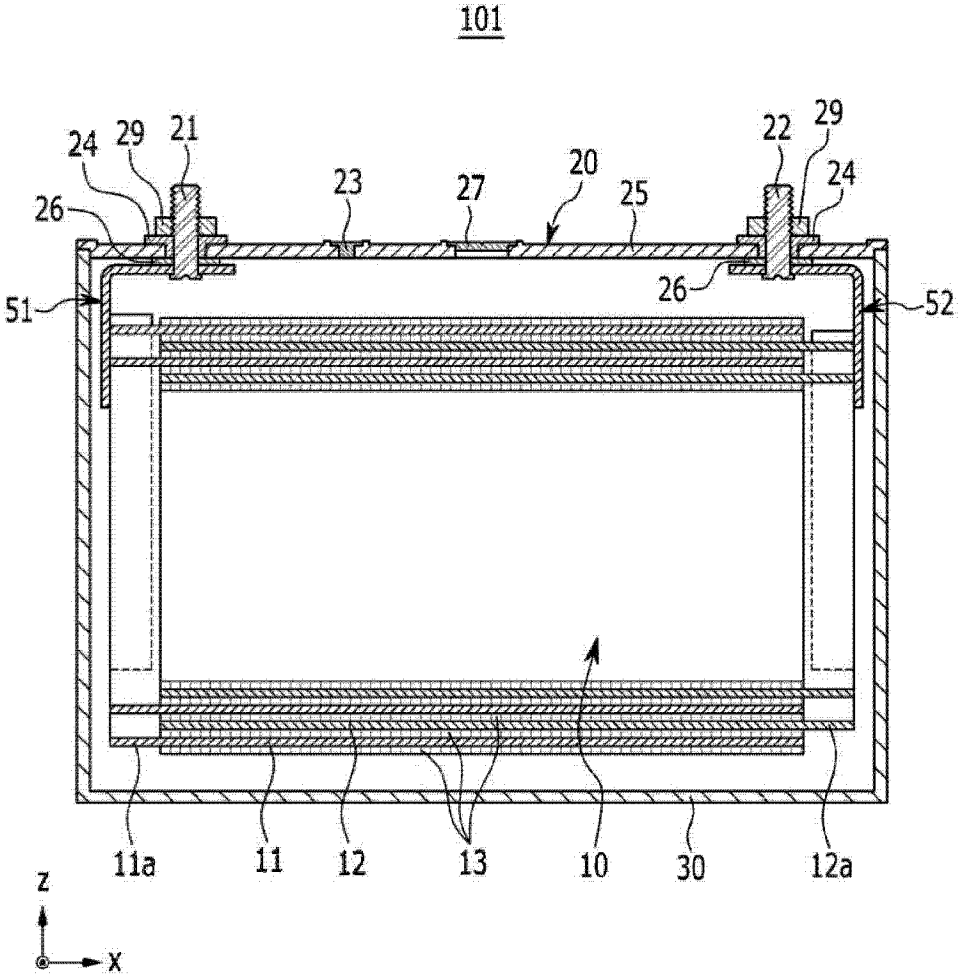



图 2



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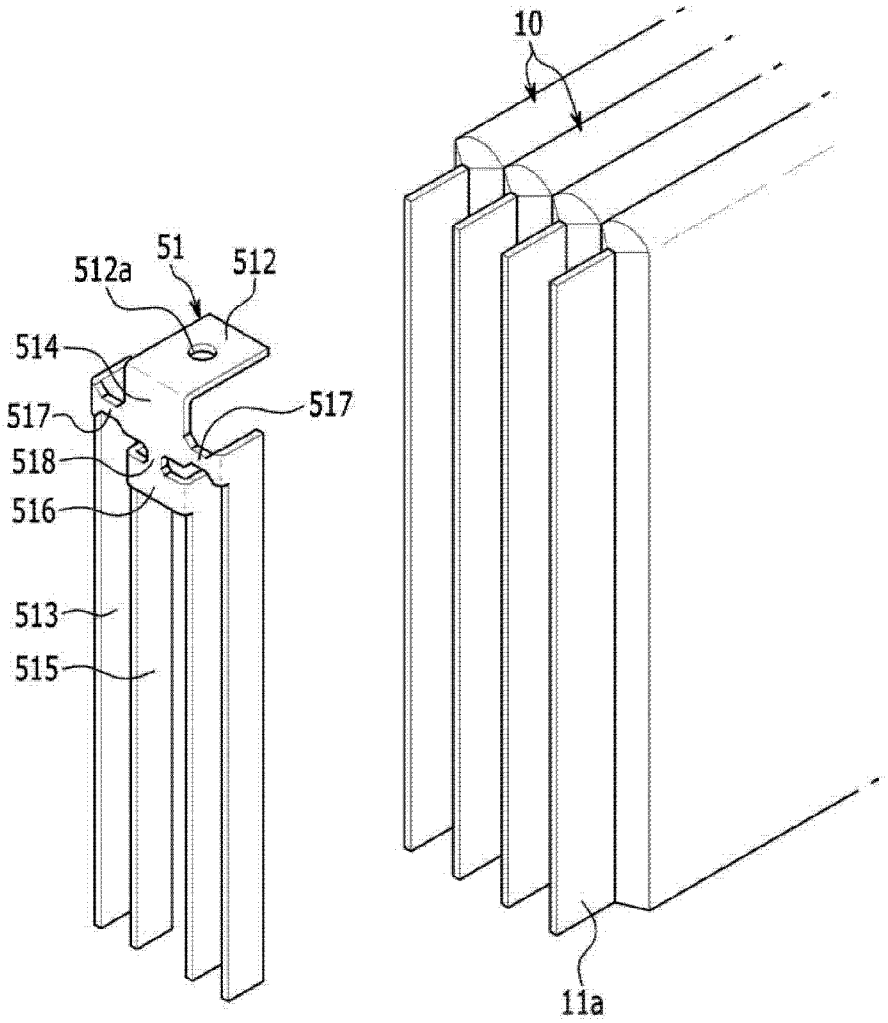



图 3



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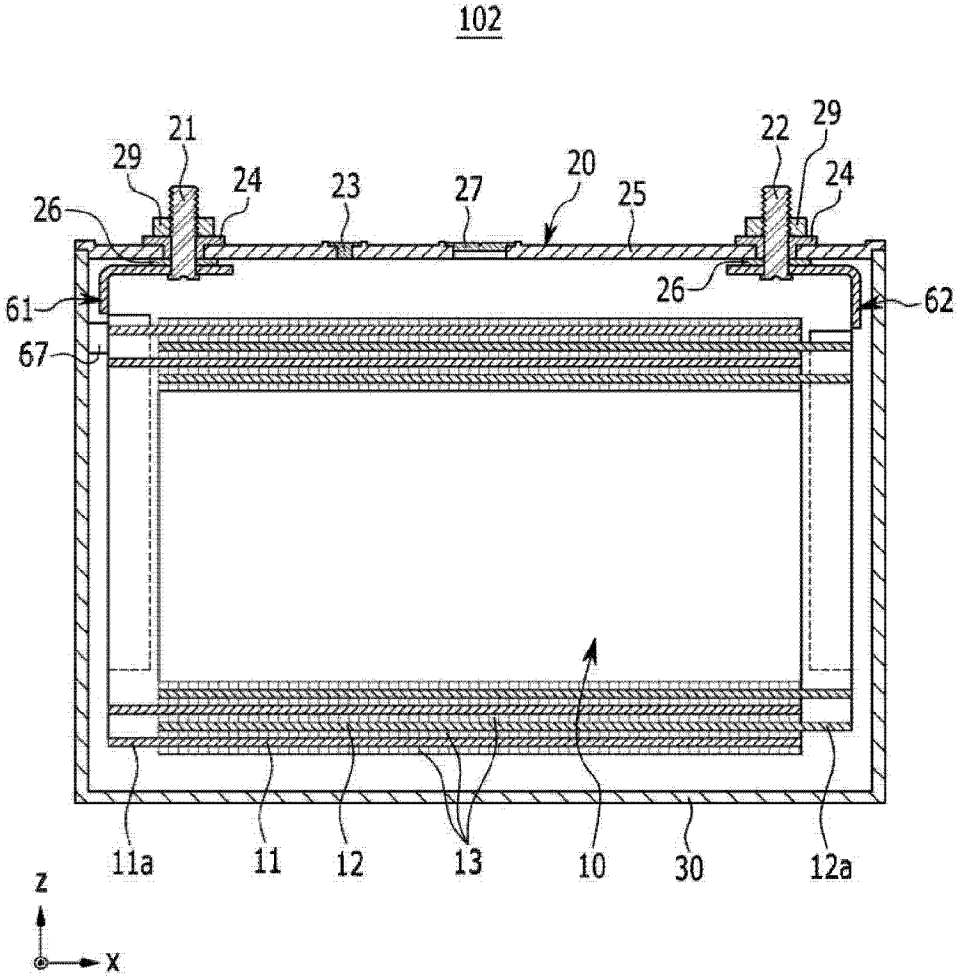



图 4



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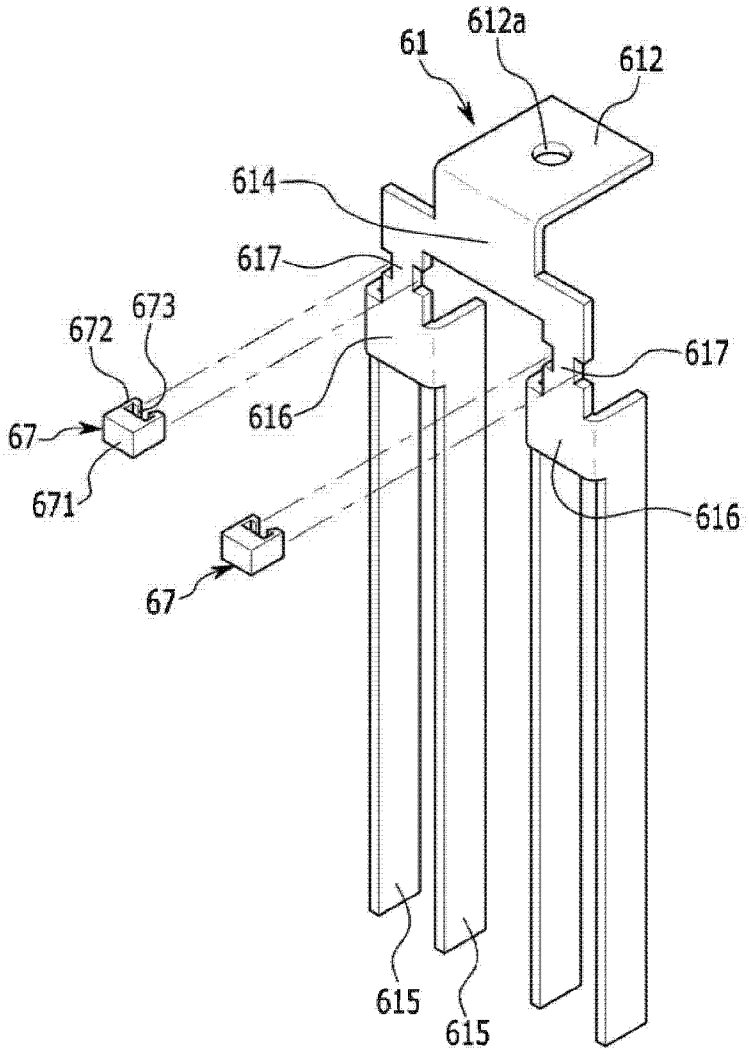



图 5



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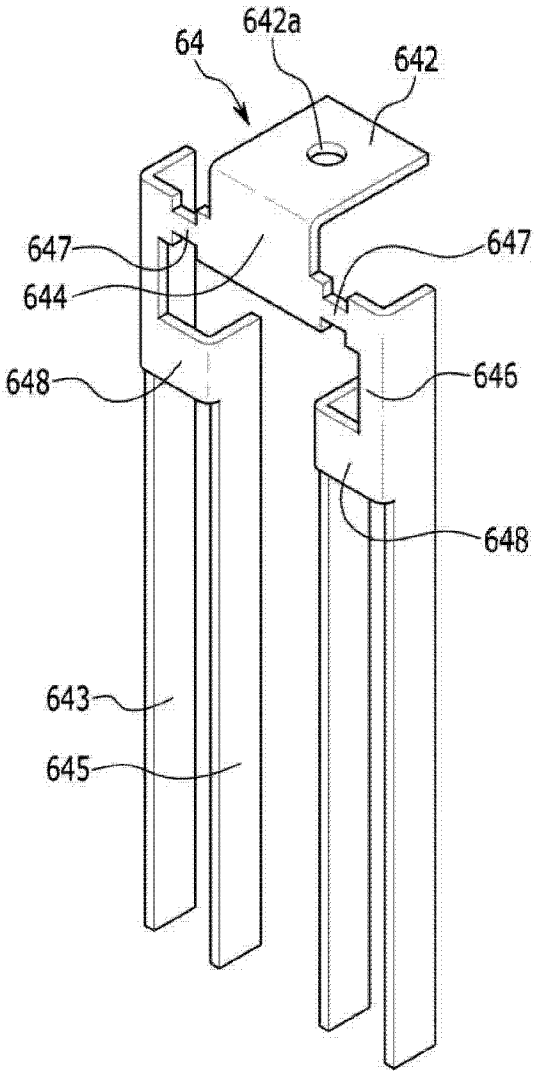



图 6

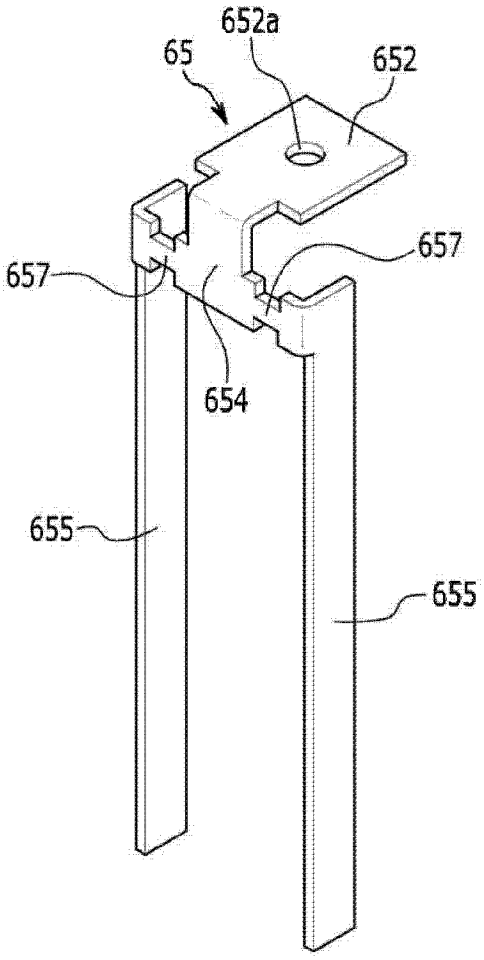



图 7



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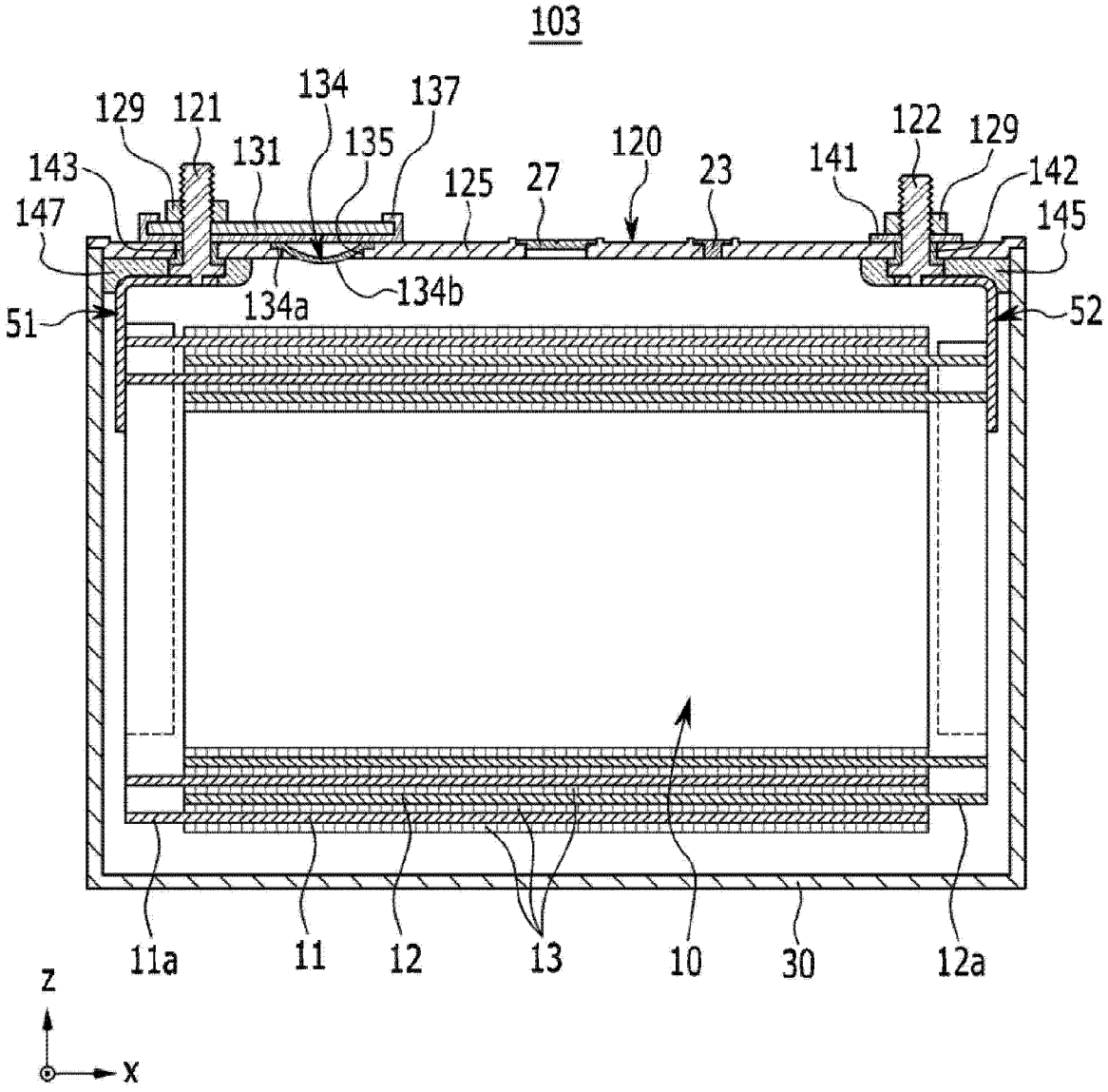



图 8



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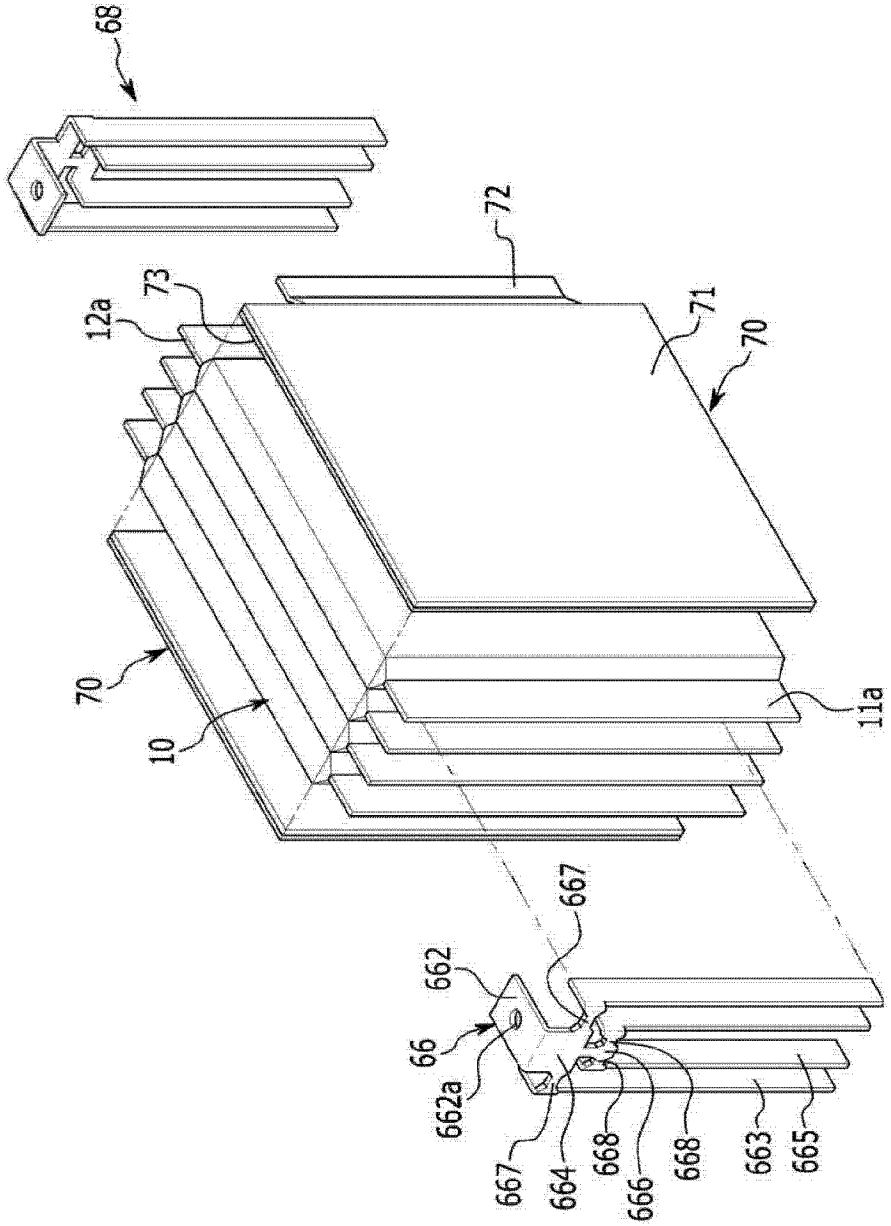



图 9



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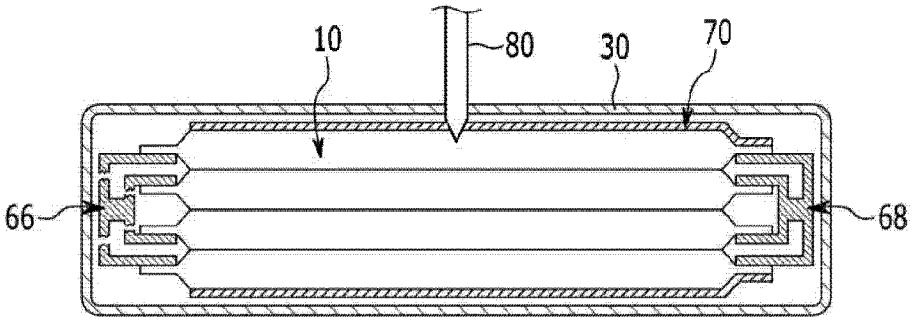



图 10



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Espacenet

DE102010062708A1 Mobiles Startgerät

Applicants: BOSCH GMBH ROBERT [DE]

Inventors: ZELLER ARMIN [DE]

Classifications:

IPC ***B60R16/03; F02N11/08; F02N11/12; F02N11/14; H02H3/18;***

CPC **H02J7/345 (EP,US)**; **H02J9/002 (EP,US)**; F02N11/0866 (EP,US); F02N11/12 (EP,US); H02J2310/46 (EP);

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Application: DE102010062708A1 2010-12-09

Publication: DE102010062708A1 2012-06-14

Published as: **CN103228905A**; **CN103228905B**; DE102010062708A1;**DE102010062708B4**; **US2013320764A1**; **WO2012076475A2**; **WO2012076475A3**

Mobiles Startgerät

ABSTRACT DE102010062708A1

A mobile energy supply device (1) for an electric starter for starting an internal combustion engine has an internal battery (2); and at least one capacitor (14) which can be connected in parallel to the internal battery (2).

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Ein mobiles Energieversorgungsgerät (1) für einen Elektrostarter zum Starten eines Verbrennungsmotors hat eine interne Batterie (2); und wenigstens eine Kondensator (14), der parallel zu der internen Batterie (2) anschließbar ist.

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(10) **DE 10 2010 062 708 A1** 2012.06.14

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(56) Für die Beurteilung der Patentfähigkeit in Betracht gezogene Druckschriften:

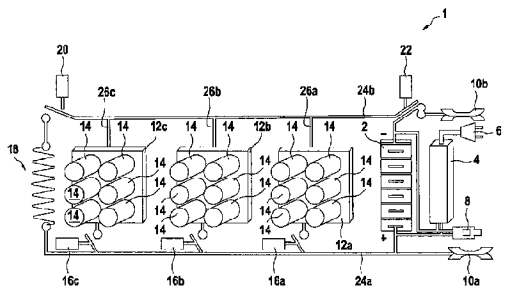
| | | |
|---|---|---|
| **DE** | **199 58 998** | **C2** |
| **DE** | **10 2005 018 620** | **B4** |
| **DE** | **103 04 557** | **A1** |
| **DE** | **10 2008 014 346** | **A1** |
| **DE** | **20 2006 015 805** | **U1** |

Prüfungsantrag gemäß § 44 PatG ist gestellt.

**Die folgenden Angaben sind den vom Anmelder eingereichten Unterlagen entnommen**

(54) Bezeichnung: **Mobiles Startgerät**

(57) Zusammenfassung: Ein mobiles Energieversorgungsgerät (1) für einen Elektrostarter zum Starten eines Verbrennungsmotors hat eine interne Batterie (2); und wenigstens eine Kondensator (14), der parallel zu der internen Batterie (2) anschließbar ist.




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## Beschreibung

**[0001]** Die Erfindung betrifft ein mobiles Startgerät für Verbrennungsmotoren, insbesondere mobiles Energieversorgungsgerät für einen Elektrostarter, der zum Starten eines Verbrennungsmotors eines Kraftfahrzeugs vorgesehen ist, und ein Verfahren des Betreibens eines Elektrostarters zum Starten eines Verbrennungsmotors.

### Stand der Technik

**[0002]** Im Stand der Technik sind mobile Energieversorgungsgeräte für Fahrzeuge bekannt, die eine interne Batterie in einem tragbaren Gehäuse enthalten. An dem Gehäuse sind Kabel vorgesehen, um die Batterie elektrisch mit der Starterbatterie eines Verbrennungsmotors in einem Kraftfahrzeug zu verbinden.

**[0003]** Um die zum Starten des Verbrennungsmotors notwendige elektrische Leistung bereitstellen zu können, muss eine relativ große Batterie mit ca. 20–40 Ah verwendet werden. Dies hat zur Folge, dass die bekannten Energieversorgungsgeräte ein relativ hohes Gewicht von ca. 10 bis 20 kg haben. Die maximale Startleistung ist durch die Größe der verbauten Batterie definiert und somit nicht regelbar.

### Offenbarung der Erfindung

**[0004]** Eine Aufgabe der Erfindung ist es, ein mobiles Energieversorgungsgerät für einen Elektrostarter zum Starten eines Verbrennungsmotors zur Verfügung zu stellen, das geeignet ist, die notwendige Startleistung entsprechend der Größe des Fahrzeugmotors bereitzustellen und dabei ein geringes Gewicht aufweist.

**[0005]** Diese Aufgabe wird erfindungsgemäß durch ein Energieversorgungsgerät gelöst, das eine Batterie und wenigstens einen parallel zu der Batterie anschließbaren Kondensator aufweist.

**[0006]** Die Erfindung umfasst auch ein Verfahren zum Betreiben eines Elektrostarters, der zum Starten eines Verbrennungsmotors vorgesehen ist, wobei das Verfahren die Schritte umfasst:
Parallelschalten wenigstens eines Kondensators mit einer internen Batterie, um den Kondensator durch die interne Batterie aufzuladen und
elektrisches Verbinden des Kondensators und der internen Batterie mit dem Fahrzeug, um den Elektrostarter mit Strom aus der internen Batterie und dem Kondensator zu betreiben.

**[0007]** Durch einen parallel zur internen Batterie angeschlossenen Kondensator kann. die in der Regel nur für kurze Zeit benötigte hohe elektrische Startleistung, die während des Startvorgangs zum Antreiben des Elektrostarters notwendig ist, auf die interne Batterie und den Kondensator aufgeteilt werden. So kann die notwendige elektrische Startleistung von einer kleineren internen Batterie zur Verfügung gestellt werden.

**[0008]** Da der Kondensator bzw. die Kondensatoren ein deutlich geringeres Gewicht als eine Batterie aufweist, kann die notwendige Startleistung so von einem deutlich kleineren Energieversorgungsgerät bereitgestellt werden, das ein merklich geringeres Gewicht als herkömmliche Energieversorgungsgeräte aufweist.

**[0009]** In einem erfindungsgemäßen Energieversorgungsgerät wird der wenigstens eine Kondensator parallel zur internen Batterie angeschlossen und durch diese geladen, nachdem das Energieversorgungsgerät mit dem Fahrzeug bzw. der Starterbatterie des Fahrzeugs verbunden worden ist. Die zum Betreiben des Elektrostarters notwendige Energie wird dann gleichzeitig von der internen Batterie und dem Kondensator zur Verfügung gestellt. In der Schaltung der internen Batterie und dem Kondensator kann ein Widerstand oder Strombegrenzungselektronik vorgesehen sein, um den Ladestrom des Kondensators zu begrenzen und eine Beschädigung des Kondensators und/oder der internen Batterie und/oder des Elektrostarters durch einen zu großen Ladestrom zu vermeiden.

**[0010]** In einer Ausführungsform ist der bzw. sind die Kondensatoren als Mehrschichtkondensatoren bzw. Ultra-Cap-Kondensatoren ausgebildet. Derartige Kondensatoren weisen eine besonders hohe Leistungsdichte auf und sind daher besonders geeignet, um bei geringem Volumen und geringem Gewicht die notwendige elektrische Startleistung zur Verfügung zu stellen. Mit derartigen Kondensatoren. kann daher ein besonders leichtes und kompaktes mobiles Energieversorgungsgerät realisiert werden.

**[0011]** In einer Ausführungsform weist das Energieversorgungsgerät mehrere Kondensatoren auf. Gruppen von Kondensatoren sind in mehreren Blöcken angeordnet, wobei die Blöcke selektiv parallel zur internen Batterie anschließbar sind. Durch selektives Zuschalten der Blöcke kann die zur Verfügung gestellte elektrische Startleistung in mehreren Stufen gezielt eingestellt werden. Dies ermöglicht es, mit dem gleichen Energieversorgungsgerät sowohl kleine (Benzin-)Motoren mit einem geringen Startstrombedarf als auch große (Diesel-)Motoren mit einem sehr hohen Startstrombedarf sicher und zerstörungsfrei zu starten. Bei einer zu geringen Startleistung könnte der Motor nicht erfolgreich gestartet werden. Eine zu hohe Startleistung könnte eine Zerstörung des Elektrostarters zur Folge haben.

**[0012]** In einer Ausführungsform ist ein Ladegerät zum Laden der internen Batterie in das Energiever-



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sorgungsgerät integriert. Dies ermöglicht ein autonomes Laden der internen Batterie, ohne dass hierzu ein externes Ladegerät erforderlich ist.

**[0013]** Die Bedienbarkeit des Energieversorgungsgeräts wird vereinfacht und die Zuverlässigkeit erhöht, da das Laden unabhängig von einem zusätzlichen Ladegerät erfolgen kann. In einer Ausführungsform kann das in das Energieversorgungsgerät integrierte Ladegerät auch zum Laden der Starterbatterie des Fahrzeugs verwendet werden. Auf ein zusätzliches Ladegerät zum Laden der Fahrzeugbatterie kann so verzichtet werden.

**[0014]** In einer Ausführungsform ist in das Energieversorgungsgerät ein Verpolschutz integriert, der den Stromfluss unterbricht und/oder ein optisches und/oder ein akustisches Warnsignal ausgibt, wenn das Energieversorgungsgerät "falsch", d. h., mit vertauschten Polen an die Elektrik des Fahrzeugs angeschlossen wird.

**[0015]** Eine Beschädigung des Energieversorgungsgeräts und/oder der Fahrzeugelektronik durch eine falsch gepolte Stromversorgung wird so zuverlässig vermieden. Durch die optische bzw. akustische Anzeige wird der Bediener auf seinen Fehler hingewiesen und kann ihn beseitigen. Die Bedienbarkeit des Energieversorgungsgeräts wird somit vereinfacht.

**[0016]** In einer Ausführungsform ist das Energieversorgungsgerät mit einer elektronischen Schaltung ausgestattet, die das Laden der internen Batterie und des Kondensators, den Startvorgang, inklusive des Zu- bzw. Abschaltens von Kondensatoren bzw. Gruppen von Kondensatoren und die Steuerung von Anzeige- und/oder Warnelementen steuert. Eine solche elektronische Schaltung ermöglicht einen zuverlässigen und sicheren Betrieb des Energieversorgungsgeräts, da der Betrieb fortlaufend überwacht wird und Bedienfehler weitestgehend ausgeschlossen bzw. korrigiert werden können.

**[0017]** Insbesondere kann eine Beschädigung der internen Batterie durch Über- oder Tiefentladen und eine Überlastung aufgrund eines zu hohen Startstromes zuverlässig vermieden werden, da die elektronische Schaltung die Kondensatoren bzw. Kondensatorblöcke so zuschaltet, dass zuverlässig der von dem jeweiligen Elektrostarter benötigte Startstrom zur Verfügung gestellt wird.

**[0018]** In einer Ausführungsform weist das Energieversorgungsgerät wenigstens einen Widerstand auf, der parallel zu dem Kondensator bzw. zu den Kondensatoren schaltbar ist, um den/die Kondensator(en) zu entladen. So können die Kondensatoren nach dem Abschluss des Startvorgangs über den Widerstand zuverlässig und vollständig entladen werden, so dass Gefahren, die von geladenen Kondensatoren ausgehen, wie z. B. Kriechströme, Lichtbögen oder Funkenschlag bei geöffnetem oder beschädigtem Gerät, zuverlässig vermieden werden. Die Sicherheit des Energieversorgungsgeräts wird dadurch erhöht.

**[0019]** In einer Ausführungsform weist das Energieversorgungsgerät eine Anzeigevorrichtung auf, welche den Zustand des Energieversorgungsgeräts und insbesondere den Ladezustand der internen Batterie und/oder des Kondensators anzeigt.

**[0020]** Die Anzeigevorrichtung kann eine oder mehrere LEDs enthalten, die den jeweiligen Betriebszustand des Energieversorgungsgeräts anzeigen. Die. Betriebszustände können beispielsweise durch verschiedene Farbkombinationen angezeigt werden. So kann z. B. eine blaue LED anzeigen, ob das Gerät ein- oder ausgeschaltet ist. Der Ladezustand der internen Batterie kann z. B. durch eine oder mehrere LEDs in den Farben grün, gelb und rot angezeigt werden. Ebenso kann die ausgewählte Startleistung, d. h. die Anzahl der parallel zu der internen Batterie geschalteten Kondensatoren, durch eine oder mehrere LEDs in einer oder verschiedenen Farben angezeigt werden.

**[0021]** Weitere Anzeigen können die Verbindung des Ladegeräts mit einer externen Stromversorgung, eine Verpolung der Anschlüsse, einen Defekt der internen Batterie und/oder der Starterbatterie des Fahrzeugs und/oder die Startbereitschaft des Energieversorgungsgeräts anzeigen.

**[0022]** Die Erfindung wird im Folgenden unter Bezugnahme auf die beigefügte Figur näher erläutert.

**[0023]** Die Figur zeigt ein schematisches Schaltbild eines Ausführungsbeispiels eines erfindungsgemäßen Energieversorgungsgeräts **1**.

**[0024]** Das Energieversorgungsgerät **1** weist eine interne Batterie **2** auf, welche mit einer Steuerelektronik **4** verbunden ist, die Steuerelektronik **4** weist z. B. eine Ladeschaltung auf und ist über einen ersten Stecker **6** mit einer externen Stromversorgung, insbesondere einer herkömmlichen 110–230 V Steckdose, verbindbar, um die interne Batterie **2** zu laden. Die interne Batterie **2** ist ferner elektrisch mit einem zweiten elektrischen Stecker **8** verbunden, der es ermöglicht, die interne Batterie **2** elektrisch mit einer Niederversorgungsspannung, insbesondere einem 12 V Bordnetz eines Kraftfahrzeugs zu verbinden.

**[0025]** Die interne Batterie **2** des in der Figur gezeigten Ausführungsbeispiels weist mehrere Zellen auf und ist bspw. ein herkömmlicher Bleiakku, wie er in der Kraftfahrzeugtechnik bekannt ist.



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**[0026]** Der in der Figur unten dargestellte Pluspol der internen Batterie **2** ist über eine (Plus-)Stromversorgungsleitung **24a** mit einer ersten (Plus-)Polklemme **10a** verbunden. Die (Plus-)Stromversorgungsleitung **24a** verbindet den Pluspol der internen Batterie **2** auch mit einer Anzahl von Schaltern **16a**, **16b**, **16c**, welche im geschlossenen Zustand die (Plus-)Stromversorgungsleitung **24a** jeweils mit einem dem jeweiligen Schalter **16a**, **16b**, **16c** zugeordneten Kondensatorblock **12a**, **12b**, **12c** elektrisch verbinden, und im geöffneten Zustand den jeweiligen Kondensatorblock **12a**, **12b**, **12c** elektrisch von der (Plus-)Stromversorgungsleitung **24a** trennen.

**[0027]** Jeder der Kondensatorblöcke **12a**, **12b**, **12c** weist in dem in der Figur gezeigten Ausführungsbeispiel sechs schematisch dargestellte Kondensatoren **14** auf. Die in den Kondensatorblöcken **12a**, **12b**, **12c** angeordneten Kondensatoren **14** können jeweils die gleiche Kapazität oder unterschiedliche Kapazitäten aufweisen. Auch können die einzelnen Kondensatorblöcke **12a**, **12b**, **12c** anders als in dem in der Figur gezeigten Ausführungsbeispiel jeweils mit einer unterschiedlichen Anzahl an Kondensatoren **14** ausgestattet sein, um eine flexible Wahl der von dem Energieversorgungsgerät **1** zur Verfügung gestellten Startleistung über einen großen Bereich zu ermöglichen. Beispielsweise kann die Kapazität der einzelnen Kondensatorblöcke **12a**, **12b**, **12c** so ausgebildet sein, dass ein Kondensatorblock **12a**, **12b**, **12c** jeweils die doppelte Kapazität des vorangehenden Kondensatorblocks **12a**, **12b**, **12c** aufweist.

**[0028]** Die Kondensatorblöcke **12a**, **12b**, **12c** sind über eine zweite (Minus-)Stromversorgungsleitung **24b** und einen Hauptschalter **22** elektrisch mit dem zweiten (Minus-)Pol der internen Batterie **2** und einer zweiten (Minus-)Polklemme **10b** verbindbar.

**[0029]** Durch einen Kurzschlussschalter **20** ist die erste (Plus-)Stromversorgungsleitung **24a** über einen Widerstand **18** elektrisch mit der zweiten (Minus-) Stromversorgungsleitung **24b** verbindbar, um bei geschlossenen Schaltern **16a**, **16b**, **16c** ein Entladen der Kondensatoren **14** in den Kondensatorblöcken **12a**, **12b**, **12c** zu ermöglichen.

**[0030]** Um das in der Figur gezeigte Energieversorgungsgerät **1** für den Betrieb vorzubereiten, wird es über den ersten elektrischen Stecker **6** oder den zweiten elektrischen Stecker **8** mit einer externen Stromquelle verbunden, um die interne Batterie **2** aufzuladen. Das Aufladen der internen Batterie **2** wird durch eine Steuerelektronik **4** überwacht und gesteuert.

**[0031]** Für einen Startvorgang wird das Energieversorgungsgerät **1** mit geladener interner Batterie **2** an das Fahrzeug bzw. die Starterbatterie des Fahrzeugs angeschlossen. Insbesondere wird das Energieversorgungsgerät **1** mit Hilfe der Polklemmen **10a**, **10b** elektrisch mit dem Elektrostarter, der zum Starten eines Verbrennungsmotors ausgebildet ist, verbunden.

**[0032]** Durch Schließen des Hauptschalters **22** und wenigstens eines der Schalter **16a**, **16b**, **16c** wird wenigstens einer der Kondensatorblöcke **12a**, **12b**, **12c** mit der internen Batterie **2** verbunden, so dass die Kondensatoren **14** in den mit der internen Batterie **2** verbundenen Kondensatorblöcken **12a**, **12b**, **12c** mit Strom aus der internen Batterie **2** geladen werden. In den Zuleitungen **26a**, **26b**, **26c** zu den Kondensatorblöcken **12a**, **12b**, **12c** können weitere, in der Figur nicht gezeigte Strombegrenzer, z. B. in der Form von Widerständen, vorgesehen sein, um den Ladestrom zu begrenzen.

**[0033]** Während des Startvorgangs fließt gleichzeitig Strom aus der internen Batterie **2** und den Kondensatoren **14** der zugeschalteten Kondensatorblöcke **12a**, **12b**, **12c** durch den Elektrostarter und treibt diesen an, um den Verbrennungsmotor zu starten. Dadurch, dass neben dem Strom aus der internen Batterie **2** auch Strom aus den Kondensatoren der zugeschalteten Kondensatorblöcke **12a**, **12b**, **12c** zur Verfügung steht, kann der zum Starten des Verbrennungsmotors notwendige Startstrom mit einer kleinen und leichten internen Batterie **2** zur Verfügung gestellt werden.

**[0034]** Es kann auch nur die interne Batterie **2** mit dem Fahrzeug bzw. der Starterbatterie des Fahrzeugs verbunden werden, wenn die Startkraft bei einem kleinen Verbrennungsmotor für das Fahrzeug bzw. den Elektrostarter ausreicht.

**[0035]** Nach dem Abschluss des Startvorgang, oder wenn nach dem Laden der Kondensatoren **14** kein Startvorgang durchgeführt wird, werden die Kondensatoren **14** durch Schließen des Kurzschlussschalters **20** über den Widerstand **18** entladen, um die Gefahr, die von den geladenen Kondensatoren **14** ausgehen kann, zu beseitigen. Dies geschieht nur, wenn das Energieversorgungsgerät **1** ausgeschaltet wird und nachdem die Polklemmen **10a**, **10b** von der Starterbatterie abgeklemmt worden sind.

**[0036]** Die Stromversorgungskabel **24a**, **24b** weisen vorzugsweise einen Querschnitt von wenigstens 20 $mm^2$ auf, um den notwendigen Startstrom möglichst verlustfrei bereitstellen zu können und eine thermische Erwärmung der Stromversorgungskabel **24a**, **24b** während des Startvorgangs zu vermeiden.

**[0037]** Durch das Parallelschalten der Kondensatoren **14** in den Kondensatorblöcken **12a**, **12b**, **12c** mit der internen Batterie **2** werden die Kondensatoren **14** auf das gleiche Spannungsniveau wie die interne Batterie **2** geladen.



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**[0038]** Während des Startvorgangs unterstützen die Kondensatoren **14** die internen Batterie **2**, indem sie den hohen Strombedarf bereitstellen, der notwendig ist, um das Losbrechmoment des Elektrostarters zu überwinden. Die Kondensatoren **14**, die vorzugsweise als Mehrschicht- oder Ultra-Cap-Kondensatoren ausgebildet sind, können die gespeicherte Ladung in kurzer Zeit in Form eines sehr hohen Stromes abgeben.

**[0039]** Durch das kaskadierbare Zuschalten der Kondensatorblöcke **12a**, **12b**, **12c** kann die Startleistung geregelt und eingestellt werden, da jeder Kondensatorblock **12a**, **12b**, **12c** eine bestimmte, durch die Größe (Kapazität) und Anzahl der Kondensatoren **14** vorgegebene Strommenge speichern kann und sich die in den parallel geschalteten Kondensatorblöcken **12a**, **12b**, **12c** gespeicherte Energiemenge sowie der während des Startvorgangs verfügbare Strom summieren.

### Patentansprüche

1. Mobiles Energieversorgungsgerät (**1**) für einen Elektrostarter zum Starten eines Verbrennungsmotors mit
einer Batterie (**2**); und
wenigstens einem parallel zu der Batterie (**2**) anschließbaren Kondensator (**14**).

2. Mobiles Energieversorgungsgerät (**1**) nach Anspruch 1, wobei wenigstens ein Kondensator als Mehrschichtkondensator bzw. Ultra-Cap-Kondensator ausgebildet ist.

3. Mobiles Energieversorgungsgerät (**1**) nach einem der vorangehenden Ansprüche, wobei das Energieversorgungsgerät (**1**) mehrere Kondensatoren (**14**) aufweist, die in mehreren Kondensatorblöcken (**12a**, **12b**, **12c**) angeordnet sind.

4. Mobiles Energieversorgungsgerät (**1**) nach Anspruch 3, wobei die einzelnen Kondensatorblöcke (**12a**, **12b**, **12c**) gezielt zu- und abschaltbar sind.

5. Mobile Energieversorgung nach einem der vorangehenden Ansprüche, wobei das Energieversorgungsgerät (**1**) ein Ladegerät (**4**) aufweist, das zum Laden der Batterie (**2**) ausgebildet ist.

6. Mobiles Energieversorgungsgerät (**1**) nach einem der vorangehenden Ansprüche, das zusätzlich einen Widerstand (**18**) aufweist, der derart mit den Kondensatoren (**14**) verbindbar ist, dass die Kondensatoren (**14**) über den Widerstand (**18**) entladen werden.

7. Mobiles Energieversorgungsgerät (**1**) nach einem der vorangehenden Ansprüche, das zusätzlich einen Verpolschutz (**4**) aufweist, der derart ausgebildet ist, dass er einen Stromfluss unterbricht und/oder ein akustisches/optisches Warnsignal ausgibt, wenn das mobile Energieversorgungsgerät (**1**) in falscher Polung mit dem Elektrostarter verbunden ist.

8. Mobiles Energieversorgungsgerät (**1**) nach einem der vorangehenden Ansprüche, welches eine elektronische Steuerschaltung (**4**) aufweist, die ausgebildet ist, den Betrieb des Energieversorgungsgeräts (**1**) zu steuern und zu überwachen.

9. Verfahren des Betreibens eines Elektrostarters zum Starten eines Verbrennungsmotors mit den Schritten:
Verbinden der Batterie (**2**) mit dem Elektrostarter;
Verbinden wenigstens eines Kondensators (**14**) mit einer Batterie (**2**), um den Kondensator (**14**) aufzuladen;
Verbinden des Kondensators (**14**) und der Batterie (**2**) mit dem Elektrostarter um den Elektrostarter zum Starten des Verbrennungsmotors anzutreiben.

10. Verfahren nach Anspruch 9, welches zusätzlich den Schritt aufweist, den Kondensator (**14**) nach dem Starten des Verbrennungsmotors über einen Widerstand (**18**) zu entladen.

Es folgt ein Blatt Zeichnungen



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**Anhängende Zeichnungen**

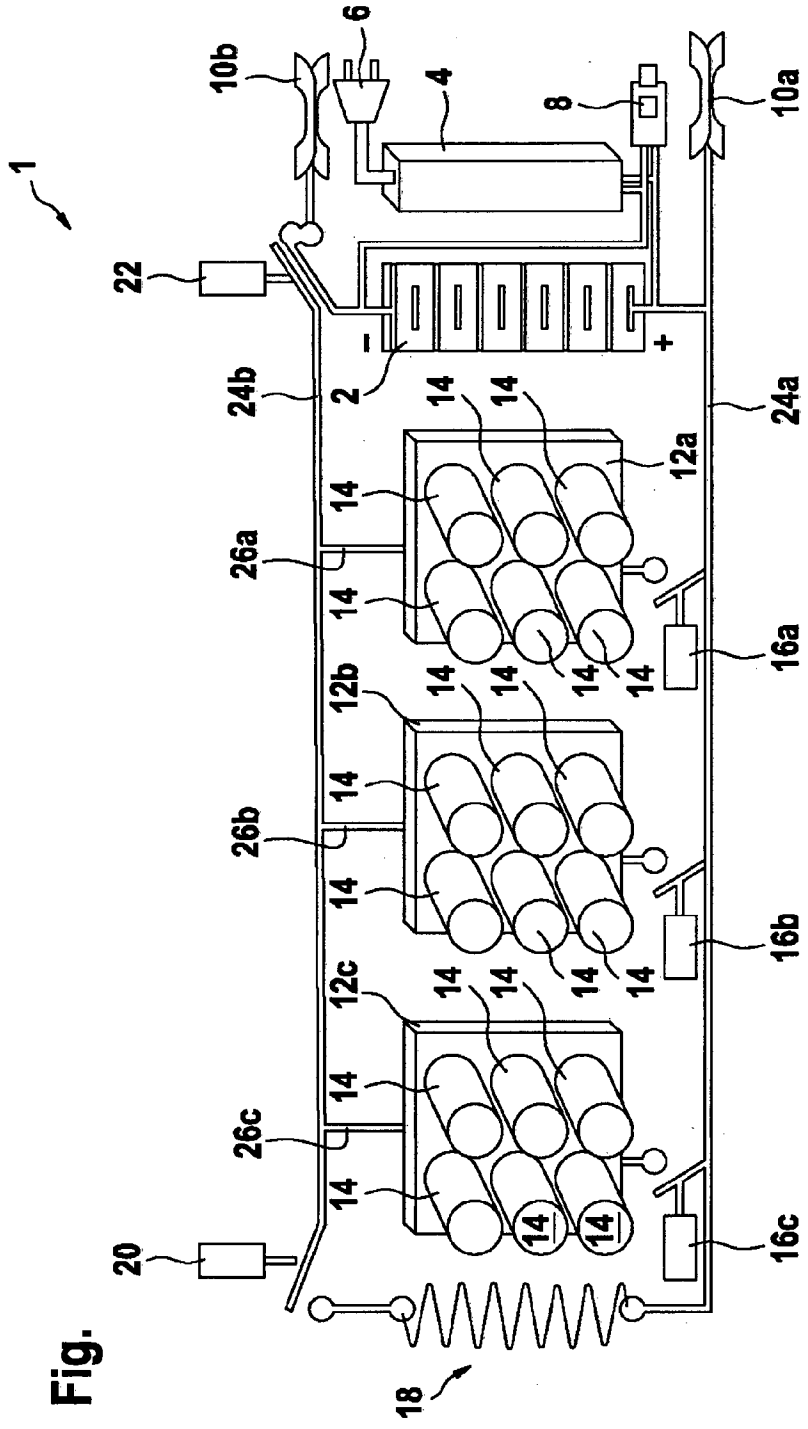



Fig.



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FAIRCHILD SEMICONDUCTOR®

March 2008

# LM78XX/LM78XXA
# 3-Terminal 1A Positive Voltage Regulator

## Features

- Output Current up to 1A
- Output Voltages of 5, 6, 8, 9, 10, 12, 15, 18, 24
- Thermal Overload Protection
- Short Circuit Protection
- Output Transistor Safe Operating Area Protection

## General Description

The LM78XX series of three terminal positive regulators are available in the TO-220 package and with several fixed output voltages, making them useful in a wide range of applications. Each type employs internal current limiting, thermal shut down and safe operating area protection, making it essentially indestructible. If adequate heat sinking is provided, they can deliver over 1A output current. Although designed primarily as fixed voltage regulators, these devices can be used with external components to obtain adjustable voltages and currents.

## Ordering Information

| Product Number | Output Voltage Tolerance | Package | Operating Temperature |
|---|---|---|---|
| LM7805CT | ±4% | TO-220 | -40°C to +125°C |
| LM7806CT | | | |
| LM7808CT | | | |
| LM7809CT | | | |
| LM7810CT | | | |
| LM7812CT | | | |
| LM7815CT | | | |
| LM7818CT | | | |
| LM7824CT | | | |
| LM7805ACT | ±2% | | 0°C to +125°C |
| LM7806ACT | | | |
| LM7808ACT | | | |
| LM7809ACT | | | |
| LM7810ACT | | | |
| LM7812ACT | | | |
| LM7815ACT | | | |
| LM7818ACT | | | |
| LM7824ACT | | | |

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## Block Diagram

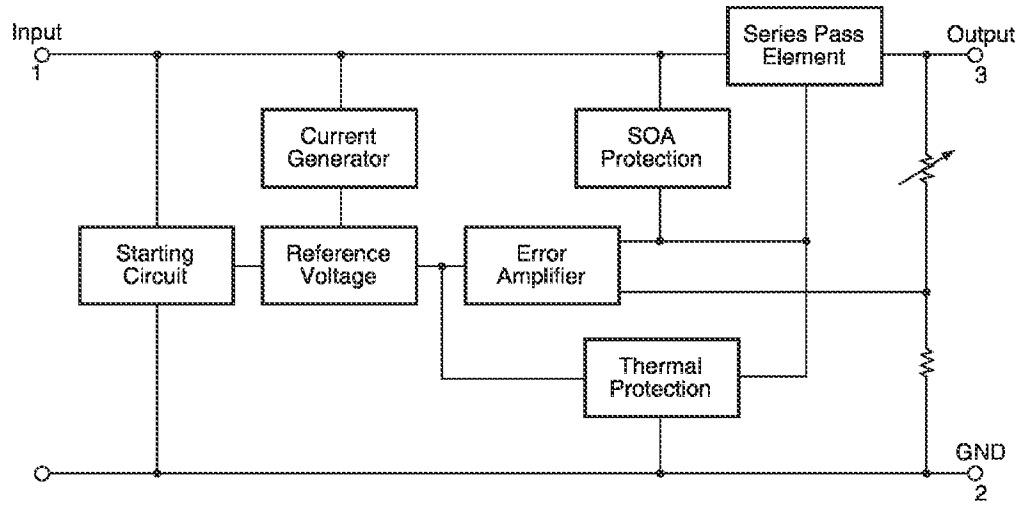



**Figure 1.**

## Pin Assignment

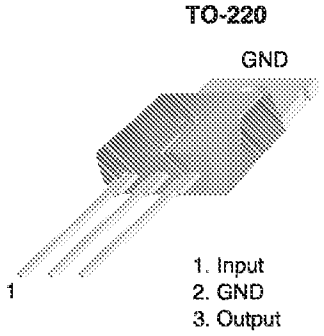



**Figure 2.**

## Absolute Maximum Ratings

Absolute maximum ratings are those values beyond which damage to the device may occur. The datasheet specifications should be met, without exception, to ensure that the system design is reliable over its power supply, temperature, and output/input loading variables. Fairchild does not recommend operation outside datasheet specifications.

| Symbol | Parameter | | Value | Unit |
|---|---|---|---|---|
| $V_I$ | Input Voltage | $V_O$ = 5V to 18V | 35 | V |
| | | $V_O$ = 24V | 40 | V |
| $R_{\theta JC}$ | Thermal Resistance Junction-Cases (TO-220) | | 5 | °C/W |
| $R_{\theta JA}$ | Thermal Resistance Junction-Air (TO-220) | | 65 | °C/W |
| $T_{OPR}$ | Operating Temperature Range | LM78xx | -40 to +125 | °C |
| | | LM78xxA | 0 to +125 | |
| $T_{STG}$ | Storage Temperature Range | | -65 to +150 | °C |

## Electrical Characteristics (LM7805)

Refer to the test circuits. -40°C < $T_J$ < 125°C, $I_O$ = 500mA, $V_I$ = 10V, $C_I$ = 0.1µF, unless otherwise specified.

| Symbol | Parameter | Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $T_J$ = +25°C | | 4.8 | 5.0 | 5.2 | V |
| | | 5mA ≤ $I_O$ ≤ 1A, $P_O$ ≤ 15W, $V_I$ = 7V to 20V | | 4.75 | 5.0 | 5.25 | |
| Regline | Line Regulation(1) | $T_J$ = +25°C | $V_O$ = 7V to 25V | – | 4.0 | 100 | mV |
| | | | $V_I$ = 8V to 12V | – | 1.6 | 50.0 | |
| Regload | Load Regulation(1) | $T_J$ = +25°C | $I_O$ = 5mA to 1.5A | – | 9.0 | 100 | mV |
| | | | $I_O$ = 250mA to 750mA | – | 4.0 | 50.0 | |
| $I_Q$ | Quiescent Current | $T_J$ = +25°C | | – | 5.0 | 8.0 | mA |
| $\Delta I_Q$ | Quiescent Current Change | $I_O$ = 5mA to 1A | | – | 0.03 | 0.5 | mA |
| | | $V_I$ = 7V to 25V | | – | 0.3 | 1.3 | |
| $\Delta V_O/\Delta T$ | Output Voltage Drift(2) | $I_O$ = 5mA | | – | -0.8 | – | mV/°C |
| $V_N$ | Output Noise Voltage | f = 10Hz to 100kHz, $T_A$ = +25°C | | – | 42.0 | – | µV/$V_O$ |
| RR | Ripple Rejection(2) | f = 120Hz, $V_O$ = 8V to 18V | | 62.0 | 73.0 | – | dB |
| $V_{DROP}$ | Dropout Voltage | $I_O$ = 1A, $T_J$ = +25°C | | – | 2.0 | – | V |
| $r_O$ | Output Resistance(2) | f = 1kHz | | – | 15.0 | – | mΩ |
| $I_{SC}$ | Short Circuit Current | $V_I$ = 35V, $T_A$ = +25°C | | – | 230 | – | mA |
| $I_{PK}$ | Peak Current(2) | $T_J$ = +25°C | | – | 2.2 | – | A |

**Notes:**

1. Load and line regulation are specified at constant junction temperature. Changes in $V_O$ due to heating effects must be taken into account separately. Pulse testing with low duty is used.
2. These parameters, although guaranteed, are not 100% tested in production.

## Electrical Characteristics (LM7806) (Continued)

Refer to the test circuits. -40°C < $T_J$ < 125°C, $I_O$ = 500mA, $V_I$ = 11V, $C_I$ = 0.33µF, $C_O$ = 0.1µF, unless otherwise specified.

| Symbol | Parameter | Conditions | | Min | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $T_J$ = +25°C | | 5.75 | 6.0 | 6.25 | V |
| | | 5mA ≤ $I_O$ ≤ 1A, $P_O$ ≤ 15W, $V_I$ = 8.0V to 21V | | 5.7 | 6.0 | 6.3 | |
| Regline | Line Regulation[3] | $T_J$ = +25°C | $V_I$ = 8V to 25V | -- | 5.0 | 120 | mV |
| | | | $V_I$ = 9V to 13V | -- | 1.5 | 60.0 | |
| Regload | Load Regulation[3] | $T_J$ = +25°C | $I_O$ = 5mA to 1.5A | -- | 9.0 | 120 | mV |
| | | | $I_O$ = 250mA to 750mA | -- | 3.0 | 60.0 | |
| $I_Q$ | Quiescent Current | $T_J$ = +25°C | | -- | 5.0 | 8.0 | mA |
| $\Delta I_Q$ | Quiescent Current Change | $I_O$ = 5mA to 1A | | -- | -- | 0.5 | mA |
| | | $V_I$ = 8V to 25V | | -- | -- | 1.3 | |
| $\Delta V_O/\Delta T$ | Output Voltage Drift[4] | $I_O$ = 5mA | | -- | -0.8 | -- | mV/°C |
| $V_N$ | Output Noise Voltage | f = 10Hz to 100kHz, $T_A$ = +25°C | | -- | 45.0 | -- | µV/$V_O$ |
| RR | Ripple Rejection[4] | f = 120Hz, $V_O$ = 8V to 18V | | 62.0 | 73.0 | -- | dB |
| $V_{DROP}$ | Dropout Voltage | $I_O$ = 1A, $T_J$ = +25°C | | -- | 2.0 | -- | V |
| $r_O$ | Output Resistance[4] | f = 1kHz | | -- | 19.0 | -- | mΩ |
| $I_{SC}$ | Short Circuit Current | $V_I$ = 35V, $T_A$ = +25°C | | -- | 250 | -- | mA |
| $I_{PK}$ | Peak Current[4] | $T_J$ = +25°C | | -- | 2.2 | -- | A |

**Notes:**

3. Load and line regulation are specified at constant junction temperature. Changes in $V_O$ due to heating effects must be taken into account separately. Pulse testing with low duty is used.
4. These parameters, although guaranteed, are not 100% tested in production.

## Electrical Characteristics (LM7808) (Continued)

Refer to the test circuits. -40°C < $T_J$ < 125°C, $I_O$ = 500mA, $V_I$ = 14V, $C_I$ = 0.33µF, $C_O$ = 0.1µF, unless otherwise specified.

| Symbol | Parameter | Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $T_J$ = +25°C | | 7.7 | 8.0 | 8.3 | V |
| | | 5mA ≤ $I_O$ ≤ 1A, $P_O$ ≤ 15W, $V_I$ = 10.5V to 23V | | 7.6 | 8.0 | 8.4 | |
| Regline | Line Regulation[5] | $T_J$ = +25°C | $V_I$ = 10.5V to 25V | -- | 5.0 | 160 | mV |
| | | | $V_I$ = 11.5V to 17V | -- | 2.0 | 80.0 | |
| Regload | Load Regulation[5] | $T_J$ = +25°C | $I_O$ = 5mA to 1.5A | -- | 10.0 | 160 | mV |
| | | | $I_O$ = 250mA to 750mA | -- | 5.0 | 80.0 | |
| $I_Q$ | Quiescent Current | $T_J$ = +25°C | | -- | 5.0 | 8.0 | mA |
| $\Delta I_Q$ | Quiescent Current Change | $I_O$ = 5mA to 1A | | -- | 0.05 | 0.5 | mA |
| | | $V_I$ = 10.5V to 25V | | -- | 0.5 | 1.0 | |
| $\Delta V_O/\Delta T$ | Output Voltage Drift[6] | $I_O$ = 5mA | | -- | -0.8 | -- | mV/°C |
| $V_N$ | Output Noise Voltage | f = 10Hz to 100kHz, $T_A$ = +25°C | | -- | 52.0 | -- | µV/$V_O$ |
| RR | Ripple Rejection[6] | f = 120Hz, $V_O$ = 11.5V to 21.5V | | 56.0 | 73.0 | -- | dB |
| $V_{DROP}$ | Dropout Voltage | $I_O$ = 1A, $T_J$ = +25°C | | -- | 2.0 | -- | V |
| $r_O$ | Output Resistance[6] | f = 1kHz | | -- | 17.0 | -- | mΩ |
| $I_{SC}$ | Short Circuit Current | $V_I$ = 35V, $T_A$ = +25°C | | -- | 230 | -- | mA |
| $I_{PK}$ | Peak Current[6] | $T_J$ = +25°C | | -- | 2.2 | -- | A |

**Notes:**

5. Load and line regulation are specified at constant junction temperature. Changes in $V_O$ due to heating effects must be taken into account separately. Pulse testing with low duty is used.
6. These parameters, although guaranteed, are not 100% tested in production.

## Electrical Characteristics (LM7809) (Continued)

Refer to the test circuits. -40°C < $T_J$ < 125°C, $I_O$ = 500mA, $V_I$ = 15V, $C_I$ = 0.33µF, $C_O$ = 0.1µF, unless otherwise specified.

| Symbol | Parameter | Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $T_J$ = +25°C | | 8.65 | 9.0 | 9.35 | V |
| | | 5mA ≤ $I_O$ ≤ 1A, $P_O$ ≤ 15W, $V_I$ = 11.5V to 24V | | 8.6 | 9.0 | 9.4 | |
| Regline | Line Regulation[7] | $T_J$ = +25°C | $V_I$ = 11.5V to 25V | -- | 6.0 | 180 | mV |
| | | | $V_I$ = 12V to 17V | -- | 2.0 | 90.0 | |
| Regload | Load Regulation[7] | $T_J$ = +25°C | $I_O$ = 5mA to 1.5A | -- | 12.0 | 180 | mV |
| | | | $I_O$ = 250mA to 750mA | -- | 4.0 | 90.0 | |
| $I_Q$ | Quiescent Current | $T_J$ = +25°C | | -- | 5.0 | 8.0 | mA |
| $\Delta I_Q$ | Quiescent Current Change | $I_O$ = 5mA to 1A | | -- | -- | 0.5 | mA |
| | | $V_I$ = 11.5V to 26V | | -- | -- | 1.3 | |
| $\Delta V_O/\Delta T$ | Output Voltage Drift[8] | $I_O$ = 5mA | | -- | -1.0 | -- | mV/°C |
| $V_N$ | Output Noise Voltage | f = 10Hz to 100kHz, $T_A$ = +25°C | | -- | 58.0 | -- | µV/$V_O$ |
| RR | Ripple Rejection[8] | f = 120Hz, $V_O$ = 13V to 23V | | 56.0 | 71.0 | -- | dB |
| $V_{DROP}$ | Dropout Voltage | $I_O$ = 1A, $T_J$ = +25°C | | -- | 2.0 | -- | V |
| $r_O$ | Output Resistance[8] | f = 1kHz | | -- | 17.0 | -- | mΩ |
| $I_{SC}$ | Short Circuit Current | $V_I$ = 35V, $T_A$ = +25°C | | -- | 250 | -- | mA |
| $I_{PK}$ | Peak Current[8] | $T_J$ = +25°C | | -- | 2.2 | -- | A |

**Notes:**

7. Load and line regulation are specified at constant junction temperature. Changes in $V_O$ due to heating effects must be taken into account separately. Pulse testing with low duty is used.
8. These parameters, although guaranteed, are not 100% tested in production.

## Electrical Characteristics (LM7810) (Continued)

Refer to the test circuits. -40°C < $T_J$ < 125°C, $I_O$ = 500mA, $V_I$ = 16V, $C_I$ = 0.33µF, $C_O$ = 0.1µF, unless otherwise specified.

| Symbol | Parameter | Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $T_J$ = +25°C | | 9.6 | 10.0 | 10.4 | V |
| | | 5mA ≤ $I_O$ ≤ 1A, $P_O$ ≤ 15W, $V_I$ = 12.5V to 25V | | 9.5 | 10.0 | 10.5 | |
| Regline | Line Regulation[9] | $T_J$ = +25°C | $V_I$ = 12.5V to 25V | -- | 10.0 | 200 | mV |
| | | | $V_I$ = 13V to 25V | -- | 3.0 | 100 | |
| Regload | Load Regulation[9] | $T_J$ = +25°C | $I_O$ = 5mA to 1.5A | -- | 12.0 | 200 | mV |
| | | | $I_O$ = 250mA to 750mA | -- | 4.0 | 400 | |
| $I_Q$ | Quiescent Current | $T_J$ = +25°C | | -- | 5.1 | 8.0 | mA |
| $\Delta I_Q$ | Quiescent Current Change | $I_O$ = 5mA to 1A | | -- | -- | 0.5 | mA |
| | | $V_I$ = 12.5V to 29V | | -- | -- | 1.0 | |
| $\Delta V_O/\Delta T$ | Output Voltage Drift[10] | $I_O$ = 5mA | | -- | -1.0 | -- | mV/°C |
| $V_N$ | Output Noise Voltage | f = 10Hz to 100kHz, $T_A$ = +25°C | | -- | 58.0 | -- | µV/$V_O$ |
| RR | Ripple Rejection[10] | f = 120Hz, $V_O$ = 13V to 23V | | 56.0 | 71.0 | -- | dB |
| $V_{DROP}$ | Dropout Voltage | $I_O$ = 1A, $T_J$ = +25°C | | -- | 2.0 | -- | V |
| $r_O$ | Output Resistance[10] | f = 1kHz | | -- | 17.0 | -- | mΩ |
| $I_{SC}$ | Short Circuit Current | $V_I$ = 35V, $T_A$ = +25°C | | -- | 250 | -- | mA |
| $I_{PK}$ | Peak Current[10] | $T_J$ = +25°C | | -- | 2.2 | -- | A |

**Notes:**

9. Load and line regulation are specified at constant junction temperature. Changes in $V_O$ due to heating effects must be taken into account separately. Pulse testing with low duty is used.
10. These parameters, although guaranteed, are not 100% tested in production.

## Electrical Characteristics (LM7812) (Continued)

Refer to the test circuits. -40°C < $T_J$ < 125°C, $I_O$ = 500mA, $V_I$ = 19V, $C_I$ = 0.33µF, $C_O$ = 0.1µF, unless otherwise specified.

| Symbol | Parameter | Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $T_J$ = +25°C | | 11.5 | 12.0 | 12.5 | V |
| | | 5mA ≤ $I_O$ ≤ 1A, $P_O$ ≤ 15W, $V_I$ = 14.5V to 27V | | 11.4 | 12.0 | 12.6 | |
| Regline | Line Regulation(11) | $T_J$ = +25°C | $V_I$ = 14.5V to 30V | – | 10.0 | 240 | mV |
| | | | $V_I$ = 16V to 22V | – | 3.0 | 120 | |
| Regload | Load Regulation(11) | $T_J$ = +25°C | $I_O$ = 5mA to 1.5A | – | 11.0 | 240 | mV |
| | | | $I_O$ = 250mA to 750mA | – | 5.0 | 120 | |
| $I_Q$ | Quiescent Current | $T_J$ = +25°C | | – | 5.1 | 8.0 | mA |
| $\Delta I_Q$ | Quiescent Current Change | $I_O$ = 5mA to 1A | | – | 0.1 | 0.5 | mA |
| | | $V_I$ = 14.5V to 30V | | – | 0.5 | 1.0 | |
| $\Delta V_O/\Delta T$ | Output Voltage Drift(12) | $I_O$ = 5mA | | – | -1.0 | – | mV/°C |
| $V_N$ | Output Noise Voltage | f = 10Hz to 100kHz, $T_A$ = +25°C | | – | 76.0 | – | µV/$V_O$ |
| RR | Ripple Rejection(12) | f = 120Hz, $V_I$ = 15V to 25V | | 55.0 | 71.0 | – | dB |
| $V_{DROP}$ | Dropout Voltage | $I_O$ = 1A, $T_J$ = +25°C | | – | 2.0 | – | V |
| $r_O$ | Output Resistance(12) | f = 1kHz | | – | 18.0 | – | mΩ |
| $I_{SC}$ | Short Circuit Current | $V_I$ = 35V, $T_A$ = +25°C | | – | 230 | – | mA |
| $I_{PK}$ | Peak Current(12) | $T_J$ = +25°C | | – | 2.2 | – | A |

**Notes:**

11. Load and line regulation are specified at constant junction temperature. Changes in $V_O$ due to heating effects must be taken into account separately. Pulse testing with low duty is used.

12. These parameters, although guaranteed, are not 100% tested in production.

## Electrical Characteristics (LM7815) (Continued)

Refer to the test circuits. -40°C < $T_J$ < 125°C, $I_O$ = 500mA, $V_I$ = 23V, $C_I$ = 0.33µF, $C_O$ = 0.1µF, unless otherwise specified.

| Symbol | Parameter | Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $T_J$ = +25°C | | 14.4 | 15.0 | 15.6 | V |
| | | 5mA ≤ $I_O$ ≤ 1A, $P_O$ ≤ 15W, $V_I$ = 17.5V to 30V | | 14.25 | 15.0 | 15.75 | |
| Regline | Line Regulation(13) | $T_J$ = +25°C | $V_I$ = 17.5V to 30V | -- | 11.0 | 300 | mV |
| | | | $V_I$ = 20V to 26V | -- | 3.0 | 150 | |
| Regload | Load Regulation(13) | $T_J$ = +25°C | $I_O$ = 5mA to 1.5A | -- | 12.0 | 300 | mV |
| | | | $I_O$ = 250mA to 750mA | -- | 4.0 | 150 | |
| $I_Q$ | Quiescent Current | $T_J$ = +25°C | | -- | 5.2 | 8.0 | mA |
| $\Delta I_Q$ | Quiescent Current Change | $I_O$ = 5mA to 1A | | -- | -- | 0.5 | mA |
| | | $V_I$ = 17.5V to 30V | | -- | -- | 1.0 | |
| $\Delta V_O/\Delta T$ | Output Voltage Drift(14) | $I_O$ = 5mA | | -- | -1.0 | -- | mV/°C |
| $V_N$ | Output Noise Voltage | f = 10Hz to 100kHz, $T_A$ = +25°C | | -- | 90.0 | -- | µV/$V_O$ |
| RR | Ripple Rejection(14) | f = 120Hz, $V_I$ = 18.5V to 28.5V | | 54.0 | 70.0 | -- | dB |
| $V_{DROP}$ | Dropout Voltage | $I_O$ = 1A, $T_J$ = +25°C | | -- | 2.0 | -- | V |
| $r_O$ | Output Resistance(14) | f = 1kHz | | -- | 19.0 | -- | mΩ |
| $I_{SC}$ | Short Circuit Current | $V_I$ = 35V, $T_A$ = +25°C | | -- | 250 | -- | mA |
| $I_{PK}$ | Peak Current(14) | $T_J$ = +25°C | | -- | 2.2 | -- | A |

**Notes:**

13. Load and line regulation are specified at constant junction temperature. Changes in $V_O$ due to heating effects must be taken into account separately. Pulse testing with low duty is used.

14. These parameters, although guaranteed, are not 100% tested in production.

## Electrical Characteristics (LM7818) (Continued)

Refer to the test circuits. -40°C < $T_J$ < 125°C, $I_O$ = 500mA, $V_I$ = 27V, $C_I$ = 0.33µF, $C_O$ = 0.1µF, unless otherwise specified.

| Symbol | Parameter | Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $T_J$ = +25°C | | 17.3 | 18.0 | 18.7 | V |
| | | 5mA ≤ $I_O$ ≤ 1A, $P_O$ ≤ 15W, $V_I$ = 21V to 33V | | 17.1 | 18.0 | 18.9 | |
| Regline | Line Regulation[15] | $T_J$ = +25°C | $V_I$ = 21V to 33V | – | 15.0 | 360 | mV |
| | | | $V_I$ = 24V to 30V | – | 5.0 | 180 | |
| Regload | Load Regulation[15] | $T_J$ = +25°C | $I_O$ = 5mA to 1.5A | – | 15.0 | 360 | mV |
| | | | $I_O$ = 250mA to 750mA | – | 5.0 | 180 | |
| $I_Q$ | Quiescent Current | $T_J$ = +25°C | | – | 5.2 | 8.0 | mA |
| $\Delta I_Q$ | Quiescent Current Change | $I_O$ = 5mA to 1A | | – | – | 0.5 | mA |
| | | $V_I$ = 21V to 33V | | – | – | 1.0 | |
| $\Delta V_O/\Delta T$ | Output Voltage Drift[16] | $I_O$ = 5mA | | – | -1.0 | – | mV/°C |
| $V_N$ | Output Noise Voltage | f = 10Hz to 100kHz, $T_A$ = +25°C | | – | 110 | – | µV/$V_O$ |
| RR | Ripple Rejection[16] | f = 120Hz, $V_I$ = 22V to 32V | | 53.0 | 69.0 | – | dB |
| $V_{DROP}$ | Dropout Voltage | $I_O$ = 1A, $T_J$ = +25°C | | – | 2.0 | – | V |
| $r_O$ | Output Resistance[16] | f = 1kHz | | – | 22.0 | – | mΩ |
| $I_{SC}$ | Short Circuit Current | $V_I$ = 35V, $T_A$ = +25°C | | – | 250 | – | mA |
| $I_{PK}$ | Peak Current[16] | $T_J$ = +25°C | | – | 2.2 | – | A |

**Notes:**

15. Load and line regulation are specified at constant junction temperature. Changes in $V_O$ due to heating effects must be taken into account separately. Pulse testing with low duty is used.

16. These parameters, although guaranteed, are not 100% tested in production.

## Electrical Characteristics (LM7824) (Continued)

Refer to the test circuits. -40°C < $T_J$ < 125°C, $I_O$ = 500mA, $V_I$ = 33V, $C_I$ = 0.33µF, $C_O$ = 0.1µF, unless otherwise specified.

| Symbol | Parameter | Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $T_J$ = +25°C | | 23.0 | 24.0 | 25.0 | V |
| | | 5mA ≤ $I_O$ ≤ 1A, $P_O$ ≤ 15W, $V_I$ = 27V to 38V | | 22.8 | 24.0 | 25.25 | |
| Regline | Line Regulation[17] | $T_J$ = +25°C | $V_I$ = 27V to 38V | -- | 17.0 | 480 | mV |
| | | | $V_I$ = 30V to 36V | -- | 6.0 | 240 | |
| Regload | Load Regulation[17] | $T_J$ = +25°C | $I_O$ = 5mA to 1.5A | -- | 15.0 | 480 | mV |
| | | | $I_O$ = 250mA to 750mA | -- | 5.0 | 240 | |
| $I_Q$ | Quiescent Current | $T_J$ = +25°C | | -- | 5.2 | 8.0 | mA |
| $\Delta I_Q$ | Quiescent Current Change | $I_O$ = 5mA to 1A | | -- | 0.1 | 0.5 | mA |
| | | $V_I$ = 27V to 38V | | -- | 0.5 | 1.0 | |
| $\Delta V_O/\Delta T$ | Output Voltage Drift[18] | $I_O$ = 5mA | | -- | -1.5 | -- | mV/°C |
| $V_N$ | Output Noise Voltage | f = 10Hz to 100kHz, $T_A$ = +25°C | | -- | 60.0 | -- | µV/$V_O$ |
| RR | Ripple Rejection[18] | f = 120Hz, $V_I$ = 28V to 38V | | 50.0 | 67.0 | -- | dB |
| $V_{DROP}$ | Dropout Voltage | $I_O$ = 1A, $T_J$ = +25°C | | -- | 2.0 | -- | V |
| rO | Output Resistance[18] | f = 1kHz | | -- | 28.0 | -- | mΩ |
| $I_{SC}$ | Short Circuit Current | $V_I$ = 35V, $T_A$ = +25°C | | -- | 230 | -- | mA |
| $I_{PK}$ | Peak Current[18] | $T_J$ = +25°C | | -- | 2.2 | -- | A |

**Notes:**

17. Load and line regulation are specified at constant junction temperature. Changes in $V_O$ due to heating effects must be taken into account separately. Pulse testing with low duty is used.

18. These parameters, although guaranteed, are not 100% tested in production.



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## Electrical Characteristics (LM7805A) (Continued)

Refer to the test circuits. 0°C < $T_J$ < 125°C, $I_O$ = 1A, $V_I$ = 10V, $C_I$ = 0.33µF, $C_O$ = 0.1µF, unless otherwise specified.

| Symbol | Parameter | Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $T_J$ = +25°C | | 4.9 | 5.0 | 5.1 | V |
| | | $I_O$ = 5mA to 1A, $P_O \leq$ 15W, $V_I$ = 7.5V to 20V | | 4.8 | 5.0 | 5.2 | |
| Regline | Line Regulation[19] | $V_I$ = 7.5V to 25V, $I_O$ = 500mA | | – | 5.0 | 50.0 | mV |
| | | $V_I$ = 8V to 12V | | – | 3.0 | 50.0 | |
| | | $T_J$ = +25°C | $V_I$ = 7.3V to 20V | – | 5.0 | 50.0 | |
| | | | $V_I$ = 8V to 12V | – | 1.5 | 25.0 | |
| Regload | Load Regulation[19] | $T_J$ = +25°C, $I_O$ = 5mA to 1.5A | | – | 9.0 | 100 | mV |
| | | $I_O$ = 5mA to 1A | | – | 9.0 | 100 | |
| | | $I_O$ = 250mA to 750mA | | – | 4.0 | 50.0 | |
| $I_Q$ | Quiescent Current | $T_J$ = +25°C | | – | 5.0 | 6.0 | mA |
| $\Delta I_Q$ | Quiescent Current Change | $I_O$ = 5mA to 1A | | – | – | 0.5 | mA |
| | | $V_I$ = 8V to 25V, $I_O$ = 500mA | | – | – | 0.8 | |
| | | $V_I$ = 7.5V to 20V, $T_J$ = +25°C | | – | – | 0.8 | |
| $\Delta V_O/\Delta T$ | Output Voltage Drift[20] | $I_O$ = 5mA | | – | -0.8 | – | mV/°C |
| $V_N$ | Output Noise Voltage | f = 10Hz to 100kHz, $T_A$ = +25°C | | – | 10.0 | – | µV/$V_O$ |
| RR | Ripple Rejection[20] | f = 120Hz, $I_O$ = 500mA, $V_I$ = 8V to 18V | | – | 68.0 | – | dB |
| $V_{DROP}$ | Dropout Voltage | $I_O$ = 1A, $T_J$ = +25°C | | – | 2.0 | – | V |
| $r_O$ | Output Resistance[20] | f = 1kHz | | – | 17.0 | – | mΩ |
| $I_{SC}$ | Short Circuit Current | $V_I$ = 35V, $T_A$ = +25°C | | – | 250 | – | mA |
| $I_{PK}$ | Peak Current[20] | $T_J$ = +25°C | | – | 2.2 | – | A |

**Notes:**

19. Load and line regulation are specified at constant junction temperature. Changes in $V_O$ due to heating effects must be taken into account separately. Pulse testing with low duty is used.

20. These parameters, although guaranteed, are not 100% tested in production.

## Electrical Characteristics (LM7806A) (Continued)

Refer to the test circuits. 0°C < $T_J$ < 125°C, $I_O$ = 1A, $V_I$ = 11V, $C_I$ = 0.33µF, $C_O$ = 0.1µF, unless otherwise specified.

| Symbol | Parameter | Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $T_J$ = +25°C | | 5.58 | 6.0 | 6.12 | V |
| | | $I_O$ = 5mA to 1A, $P_O \leq$ 15W, $V_I$ = 8.6V to 21V | | 5.76 | 6.0 | 6.24 | |
| Regline | Line Regulation(21) | $V_I$ = 8.6V to 25V, $I_O$ = 500mA | | – | 5.0 | 60.0 | mV |
| | | $V_I$ = 9V to 13V | | – | 3.0 | 60.0 | |
| | | $T_J$ = +25°C | $V_I$ = 8.3V to 21V | – | 5.0 | 60.0 | |
| | | | $V_I$ = 9V to 13V | – | 1.5 | 30.0 | |
| Regload | Load Regulation(21) | $T_J$ = +25°C, $I_O$ = 5mA to 1.5A | | – | 9.0 | 100 | mV |
| | | $I_O$ = 5mA to 1A | | – | 9.0 | 100 | |
| | | $I_O$ = 250mA to 750mA | | – | 5.0 | 50.0 | |
| $I_Q$ | Quiescent Current | $T_J$ = +25°C | | – | 4.3 | 6.0 | mA |
| $\Delta I_Q$ | Quiescent Current Change | $I_O$ = 5mA to 1A | | – | – | 0.5 | mA |
| | | $V_I$ = 19V to 25V, $I_O$ = 500mA | | – | – | 0.8 | |
| | | $V_I$ = 8.5V to 21V, $T_J$ = +25°C | | – | – | 0.8 | |
| $\Delta V_O/\Delta T$ | Output Voltage Drift(22) | $I_O$ = 5mA | | – | -0.8 | – | mV/°C |
| $V_N$ | Output Noise Voltage | f = 10Hz to 100kHz, $T_A$ = +25°C | | – | 10.0 | – | µV/$V_O$ |
| RR | Ripple Rejection(22) | f = 120Hz, $I_O$ = 500mA, $V_I$ = 9V to 19V | | – | 65.0 | – | dB |
| $V_{DROP}$ | Dropout Voltage | $I_O$ = 1A, $T_J$ = +25°C | | – | 2.0 | – | V |
| $r_O$ | Output Resistance(22) | f = 1kHz | | – | 17.0 | – | mΩ |
| $I_{SC}$ | Short Circuit Current | $V_I$ = 35V, $T_A$ = +25°C | | – | 250 | – | mA |
| $I_{PK}$ | Peak Current(22) | $T_J$ = +25°C | | – | 2.2 | – | A |

**Notes:**

21. Load and line regulation are specified at constant junction temperature. Changes in $V_O$ due to heating effects must be taken into account separately. Pulse testing with low duty is used.

22. These parameters, although guaranteed, are not 100% tested in production.

## Electrical Characteristics (LM7808A) (Continued)

Refer to the test circuits. 0°C < $T_J$ < 125°C, $I_O$ = 1A, $V_I$ = 14V, $C_I$ = 0.33µF, $C_O$ = 0.1µF, unless otherwise specified.

| Symbol | Parameter | Conditions | | Min. | Typ. | Max. | Unit |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $T_J$ = +25°C | | 7.84 | 8.0 | 8.16 | V |
| | | $I_O$ = 5mA to 1A, $P_O \leq$ 15W, $V_I$ = 10.6V to 23V | | 7.7 | 8.0 | 8.3 | |
| Regline | Line Regulation[23] | $V_I$ = 10.6V to 25V, $I_O$ = 500mA | | – | 6.0 | 80.0 | mV |
| | | $V_I$ = 11V to 17V | | – | 3.0 | 80.0 | |
| | | $T_J$ = +25°C | $V_I$ = 10.4V to 23V | – | 6.0 | 80.0 | |
| | | | $V_I$ = 11V to 17V | – | 2.0 | 40.0 | |
| Regload | Load Regulation[23] | $T_J$ = +25°C, $I_O$ = 5mA to 1.5A | | – | 12.0 | 100 | mV |
| | | $I_O$ = 5mA to 1A | | – | 12.0 | 100 | |
| | | $I_O$ = 250mA to 750mA | | – | 5.0 | 50.0 | |
| $I_Q$ | Quiescent Current | $T_J$ = +25°C | | – | 5.0 | 6.0 | mA |
| $\Delta I_Q$ | Quiescent Current Change | $I_O$ = 5mA to 1A | | – | – | 0.5 | mA |
| | | $V_I$ = 11V to 25V, $I_O$ = 500mA | | – | – | 0.8 | |
| | | $V_I$ = 10.6V to 23V, $T_J$ = +25°C | | – | – | 0.8 | |
| $\Delta V_O/\Delta T$ | Output Voltage Drift[24] | $I_O$ = 5mA | | – | -0.8 | – | mV/°C |
| $V_N$ | Output Noise Voltage | f = 10Hz to 100kHz, $T_A$ = +25°C | | – | 10.0 | – | µV/$V_O$ |
| RR | Ripple Rejection[24] | f = 120Hz, $I_O$ = 500mA, $V_I$ = 11.5V to 21.5V | | – | 62.0 | – | dB |
| $V_{DROP}$ | Dropout Voltage | $I_O$ = 1A, $T_J$ = +25°C | | – | 2.0 | – | V |
| $r_O$ | Output Resistance[24] | f = 1kHz | | – | 18.0 | – | mΩ |
| $I_{SC}$ | Short Circuit Current | $V_I$ = 35V, $T_A$ = +25°C | | – | 250 | – | mA |
| $I_{PK}$ | Peak Current[24] | $T_J$ = +25°C | | – | 2.2 | – | A |

**Notes:**

23. Load and line regulation are specified at constant junction temperature. Changes in $V_O$ due to heating effects must be taken into account separately. Pulse testing with low duty is used.

24. These parameters, although guaranteed, are not 100% tested in production.

## Electrical Characteristics (LM7809A) (Continued)

Refer to the test circuits. 0°C < $T_J$ < 125°C, $I_O$ = 1A, $V_I$ = 15V, $C_I$ = 0.33µF, $C_O$ = 0.1µF, unless otherwise specified.

| Symbol | Parameter | Conditions | | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $T_J$ = +25°C | | 8.82 | 9.0 | 9.16 | V |
| | | $I_O$ = 5mA to 1A, $P_O \leq$ 15W, $V_I$ = 11.2V to 24V | | 8.65 | 9.0 | 9.35 | |
| Regline | Line Regulation[25] | $V_I$ = 11.7V to 25V, $I_O$ = 500mA | | – | 6.0 | 90.0 | mV |
| | | $V_I$ = 12.5V to 19V | | – | 4.0 | 45.0 | |
| | | $T_J$ = +25°C | $V_I$ = 11.5V to 24V | – | 6.0 | 90.0 | |
| | | | $V_I$ = 12.5V to 19V | – | 2.0 | 45.0 | |
| Regload | Load Regulation[25] | $T_J$ = +25°C, $I_O$ = 5mA to 1.5A | | – | 12.0 | 100 | mV |
| | | $I_O$ = 5mA to 1A | | – | 12.0 | 100 | |
| | | $I_O$ = 250mA to 750mA | | – | 5.0 | 50.0 | |
| $I_Q$ | Quiescent Current | $T_J$ = +25°C | | – | 5.0 | 6.0 | mA |
| $\Delta I_Q$ | Quiescent Current Change | $I_O$ = 5mA to 1A | | – | – | 0.5 | mA |
| | | $V_I$ = 12V to 25V, $I_O$ = 500mA | | – | – | 0.8 | |
| | | $V_I$ = 11.7V to 25V, $T_J$ = +25°C | | – | – | 0.8 | |
| $\Delta V_O/\Delta T$ | Output Voltage Drift[26] | $I_O$ = 5mA | | – | -1.0 | – | mV/°C |
| $V_N$ | Output Noise Voltage | f = 10Hz to 100kHz, $T_A$ = +25°C | | – | 10.0 | – | µV/$V_O$ |
| RR | Ripple Rejection[26] | f = 120Hz, $I_O$ = 500mA, $V_I$ = 12V to 22V | | – | 62.0 | – | dB |
| $V_{DROP}$ | Dropout Voltage | $I_O$ = 1A, $T_J$ = +25°C | | – | 2.0 | – | V |
| $r_O$ | Output Resistance[26] | f = 1kHz | | – | 17.0 | – | mΩ |
| $I_{SC}$ | Short Circuit Current | $V_I$ = 35V, $T_A$ = +25°C | | – | 250 | – | mA |
| $I_{PK}$ | Peak Current[26] | $T_J$ = +25°C | | – | 2.2 | – | A |

**Notes:**

25. Load and line regulation are specified at constant junction temperature. Changes in $V_O$ due to heating effects must be taken into account separately. Pulse testing with low duty is used.

26. These parameters, although guaranteed, are not 100% tested in production.

## Electrical Characteristics (LM7810A) (Continued)

Refer to the test circuits. 0°C < $T_J$ < 125°C, $I_O$ = 1A, $V_I$ = 16V, $C_I$ = 0.33µF, $C_O$ = 0.1µF, unless otherwise specified.

| Symbol | Parameter | Conditions | | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $T_J$ = +25°C | | 9.8 | 10.0 | 10.2 | V |
| | | $I_O$ = 5mA to 1A, $P_O \leq$ 15W, $V_I$ = 12.8V to 25V | | 9.6 | 10.0 | 10.4 | |
| Regline | Line Regulation[27] | $V_I$ = 12.8V to 26V, $I_O$ = 500mA | | – | 8.0 | 100 | mV |
| | | $V_I$ = 13V to 20V | | – | 4.0 | 50.0 | |
| | | $T_J$ = +25°C | $V_I$ = 12.5V to 25V | – | 8.0 | 100 | |
| | | | $V_I$ = 13V to 20V | – | 3.0 | 50.0 | |
| Regload | Load Regulation[27] | $T_J$ = +25°C, $I_O$ = 5mA to 1.5A | | – | 12.0 | 100 | mV |
| | | $I_O$ = 5mA to 1A | | – | 12.0 | 100 | |
| | | $I_O$ = 250mA to 750mA | | – | 5.0 | 50.0 | |
| $I_Q$ | Quiescent Current | $T_J$ = +25°C | | – | 5.0 | 6.0 | mA |
| $\Delta I_Q$ | Quiescent Current Change | $I_O$ = 5mA to 1A | | – | – | 0.5 | mA |
| | | $V_I$ = 12.8V to 25V, $I_O$ = 500mA | | – | – | 0.8 | |
| | | $V_I$ = 13V to 26V, $T_J$ = +25°C | | – | – | 0.5 | |
| $\Delta V_O/\Delta T$ | Output Voltage Drift[28] | $I_O$ = 5mA | | – | -1.0 | – | mV/°C |
| $V_N$ | Output Noise Voltage | f = 10Hz to 100kHz, $T_A$ = +25°C | | – | 10.0 | – | µV/$V_O$ |
| RR | Ripple Rejection[28] | f = 120Hz, $I_O$ = 500mA, $V_I$ = 14V to 24V | | – | 62.0 | – | dB |
| $V_{DROP}$ | Dropout Voltage | $I_O$ = 1A, $T_J$ = +25°C | | – | 2.0 | – | V |
| $r_O$ | Output Resistance[28] | f = 1kHz | | – | 17.0 | – | mΩ |
| $I_{SC}$ | Short Circuit Current | $V_I$ = 35V, $T_A$ = +25°C | | – | 250 | – | mA |
| $I_{PK}$ | Peak Current[28] | $T_J$ = +25°C | | – | 2.2 | – | A |

**Notes:**

27. Load and line regulation are specified at constant junction temperature. Changes in $V_O$ due to heating effects must be taken into account separately. Pulse testing with low duty is used.

28. These parameters, although guaranteed, are not 100% tested in production.

## Electrical Characteristics (LM7812A) (Continued)

Refer to the test circuits. 0°C < $T_J$ < 125°C, $I_O$ = 1A, $V_I$ = 19V, $C_I$ = 0.33µF, $C_O$ = 0.1µF, unless otherwise specified.

| Symbol | Parameter | Conditions | | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $T_J$ = +25°C | | 11.75 | 12.0 | 12.25 | V |
| | | $I_O$ = 5mA to 1A, $P_O \leq$ 15W, $V_I$ = 14.8V to 27V | | 11.5 | 12.0 | 12.5 | |
| Regline | Line Regulation[29] | $V_I$ = 14.8V to 30V, $I_O$ = 500mA | | – | 10.0 | 120 | mV |
| | | $V_I$ = 16V to 22V | | – | 4.0 | 120 | |
| | | $T_J$ = +25°C | $V_I$ = 14.5V to 27V | – | 10.0 | 120 | |
| | | | $V_I$ = 16V to 22V | – | 3.0 | 60.0 | |
| Regload | Load Regulation[29] | $T_J$ = +25°C, $I_O$ = 5mA to 1.5A | | – | 12.0 | 100 | mV |
| | | $I_O$ = 5mA to 1A | | – | 12.0 | 100 | |
| | | $I_O$ = 250mA to 750mA | | – | 5.0 | 50.0 | |
| $I_Q$ | Quiescent Current | $T_J$ = +25°C | | – | 5.1 | 6.0 | mA |
| $\Delta I_Q$ | Quiescent Current Change | $I_O$ = 5mA to 1A | | – | – | 0.5 | mA |
| | | $V_I$ = 14V to 27V, $I_O$ = 500mA | | – | – | 0.8 | |
| | | $V_I$ = 15V to 30V, $T_J$ = +25°C | | – | – | 0.8 | |
| $\Delta V_O/\Delta T$ | Output Voltage Drift[30] | $I_O$ = 5mA | | – | -1.0 | – | mV/°C |
| $V_N$ | Output Noise Voltage | f = 10Hz to 100kHz, $T_A$ = +25°C | | – | 10.0 | – | µV/$V_O$ |
| RR | Ripple Rejection[30] | f = 120Hz, $I_O$ = 500mA, $V_I$ = 14V to 24V | | – | 60.0 | – | dB |
| $V_{DROP}$ | Dropout Voltage | $I_O$ = 1A, $T_J$ = +25°C | | – | 2.0 | – | V |
| $r_O$ | Output Resistance[30] | f = 1kHz | | – | 18.0 | – | mΩ |
| $I_{SC}$ | Short Circuit Current | $V_I$ = 35V, $T_A$ = +25°C | | – | 250 | – | mA |
| $I_{PK}$ | Peak Current[30] | $T_J$ = +25°C | | – | 2.2 | – | A |

**Note:**

29. Load and line regulation are specified at constant junction temperature. Changes in $V_O$ due to heating effects must be taken into account separately. Pulse testing with low duty is used.

30. These parameters, although guaranteed, are not 100% tested in production.

## Electrical Characteristics (LM7815A) (Continued)

Refer to the test circuits. 0°C < $T_J$ < 125°C, $I_O$ = 1A, $V_I$ = 23V, $C_I$ = 0.33µF, $C_O$ = 0.1µF, unless otherwise specified.

| Symbol | Parameter | Conditions | | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $T_J$ = +25°C | | 14.75 | 15.0 | 15.3 | V |
| | | $I_O$ = 5mA to 1A, $P_O \leq$ 15W, $V_I$ = 17.7V to 30V | | 14.4 | 15.0 | 15.6 | |
| Regline | Line Regulation(31) | $V_I$ = 17.4V to 30V, $I_O$ = 500mA | | – | 10.0 | 150 | mV |
| | | $V_I$ = 20V to 26V | | – | 5.0 | 150 | |
| | | $T_J$ = +25°C | $V_I$ = 17.5V to 30V | – | 11.0 | 150 | |
| | | | $V_I$ = 20V to 26V | – | 3.0 | 75.0 | |
| Regload | Load Regulation(31) | $T_J$ = +25°C, $I_O$ = 5mA to 1.5A | | – | 12.0 | 100 | mV |
| | | $I_O$ = 5mA to 1A | | – | 12.0 | 100 | |
| | | $I_O$ = 250mA to 750mA | | – | 5.0 | 50.0 | |
| $I_Q$ | Quiescent Current | $T_J$ = +25°C | | – | 5.2 | 6.0 | mA |
| $\Delta I_Q$ | Quiescent Current Change | $I_O$ = 5mA to 1A | | – | – | 0.5 | mA |
| | | $V_I$ = 17.5V to 30V, $I_O$ = 500mA | | – | – | 0.8 | |
| | | $V_I$ = 17.5V to 30V, $T_J$ = +25°C | | – | – | 0.8 | |
| $\Delta V_O/\Delta T$ | Output Voltage Drift(32) | $I_O$ = 5mA | | – | -1.0 | – | mV/°C |
| $V_N$ | Output Noise Voltage | f = 10Hz to 100kHz, $T_A$ = +25°C | | – | 10.0 | – | µV/$V_O$ |
| RR | Ripple Rejection(32) | f = 120Hz, $I_O$ = 500mA, $V_I$ = 18.5V to 28.5V | | – | 58.0 | – | dB |
| $V_{DROP}$ | Dropout Voltage | $I_O$ = 1A, $T_J$ = +25°C | | – | 2.0 | – | V |
| $r_O$ | Output Resistance(32) | f = 1kHz | | – | 19.0 | – | mΩ |
| $I_{SC}$ | Short Circuit Current | $V_I$ = 35V, $T_A$ = +25°C | | – | 250 | – | mA |
| $I_{PK}$ | Peak Current(32) | $T_J$ = +25°C | | – | 2.2 | – | A |

**Notes:**

31. Load and line regulation are specified at constant junction temperature. Changes in $V_O$ due to heating effects must be taken into account separately. Pulse testing with low duty is used.

32. These parameters, although guaranteed, are not 100% tested in production.

## Electrical Characteristics (LM7818A) (Continued)

Refer to the test circuits. 0°C < $T_J$ < 125°C, $I_O$ = 1A, $V_I$ = 27V, $C_I$ = 0.33µF, $C_O$ = 0.1µF, unless otherwise specified.

| Symbol | Parameter | Conditions | | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $T_J$ = +25°C | | 17.64 | 18.0 | 18.36 | V |
| | | $I_O$ = 5mA to 1A, $P_O \leq$ 15W, $V_I$ = 21V to 33V | | 17.3 | 18.0 | 18.7 | |
| Regline | Line Regulation(33) | $V_I$ = 21V to 33V, $I_O$ = 500mA | | -- | 15.0 | 180 | mV |
| | | $V_I$ = 21V to 33V | | -- | 5.0 | 180 | |
| | | $T_J$ = +25°C | $V_I$ = 20.6V to 33V | -- | 15.0 | 180 | |
| | | | $V_I$ = 24V to 30V | -- | 5.0 | 90.0 | |
| Regload | Load Regulation(33) | $T_J$ = +25°C, $I_O$ = 5mA to 1.5A | | -- | 15.0 | 100 | mV |
| | | $I_O$ = 5mA to 1A | | -- | 15.0 | 100 | |
| | | $I_O$ = 250mA to 750mA | | -- | 7.0 | 50.0 | |
| $I_Q$ | Quiescent Current | $T_J$ = +25°C | | -- | 5.2 | 6.0 | mA |
| $\Delta I_Q$ | Quiescent Current Change | $I_O$ = 5mA to 1A | | -- | -- | 0.5 | mA |
| | | $V_I$ = 12V to 33V, $I_O$ = 500mA | | -- | -- | 0.8 | |
| | | $V_I$ = 12V to 33V, $T_J$ = +25°C | | -- | -- | 0.8 | |
| $\Delta V_O/\Delta T$ | Output Voltage Drift(34) | $I_O$ = 5mA | | -- | -1.0 | -- | mV/°C |
| $V_N$ | Output Noise Voltage | f = 10Hz to 100kHz, $T_A$ = +25°C | | -- | 10.0 | -- | µV/$V_O$ |
| RR | Ripple Rejection(34) | f = 120Hz, $I_O$ = 500mA, $V_I$ = 22V to 32V | | -- | 57.0 | -- | dB |
| $V_{DROP}$ | Dropout Voltage | $I_O$ = 1A, $T_J$ = +25°C | | -- | 2.0 | -- | V |
| $r_O$ | Output Resistance(34) | f = 1kHz | | -- | 19.0 | -- | mΩ |
| $I_{SC}$ | Short Circuit Current | $V_I$ = 35V, $T_A$ = +25°C | | -- | 250 | -- | mA |
| $I_{PK}$ | Peak Current(34) | $T_J$ = +25°C | | -- | 2.2 | -- | A |

**Notes:**

33. Load and line regulation are specified at constant junction temperature. Changes in $V_O$ due to heating effects must be taken into account separately. Pulse testing with low duty is used.

34. These parameters, although guaranteed, are not 100% tested in production.

## Electrical Characteristics (LM7824A) (Continued)

Refer to the test circuits. 0°C < $T_J$ < 125°C, $I_O$ = 1A, $V_I$ = 33V, $C_I$ = 0.33µF, $C_O$ = 0.1µF, unless otherwise specified.

| Symbol | Parameter | Conditions | | Min. | Typ. | Max. | Units |
|---|---|---|---|---|---|---|---|
| $V_O$ | Output Voltage | $T_J$ = +25°C | | 23.5 | 24.0 | 24.5 | V |
| | | $I_O$ = 5mA to 1A, $P_O \leq$ 15W, $V_I$ = 27.3V to 38V | | 23.0 | 24.0 | 25.0 | |
| Regline | Line Regulation[35] | $V_I$ = 27V to 38V, $I_O$ = 500mA | | – | 18.0 | 240 | mV |
| | | $V_I$ = 21V to 33V | | – | 6.0 | 240 | |
| | | $T_J$ = +25°C | $V_I$ = 26.7V to 38V | – | 18.0 | 240 | |
| | | | $V_I$ = 30V to 36V | – | 6.0 | 120 | |
| Regload | Load Regulation[35] | $T_J$ = +25°C, $I_O$ = 5mA to 1.5A | | – | 15.0 | 100 | mV |
| | | $I_O$ = 5mA to 1A | | – | 15.0 | 100 | |
| | | $I_O$ = 250mA to 750mA | | – | 7.0 | 50.0 | |
| $I_Q$ | Quiescent Current | $T_J$ = +25°C | | – | 5.2 | 6.0 | mA |
| $\Delta I_Q$ | Quiescent Current Change | $I_O$ = 5mA to 1A | | – | – | 0.5 | mA |
| | | $V_I$ = 27.3V to 38V, $I_O$ = 500mA | | – | – | 0.8 | |
| | | $V_I$ = 27.3V to 38V, $T_J$ = +25°C | | – | – | 0.8 | |
| $\Delta V_O/\Delta T$ | Output Voltage Drift[36] | $I_O$ = 5mA | | – | -1.5 | – | mV/°C |
| $V_N$ | Output Noise Voltage | f = 10Hz to 100kHz, $T_A$ = +25°C | | – | 10.0 | – | µV/$V_O$ |
| RR | Ripple Rejection[36] | f = 120Hz, $I_O$ = 500mA, $V_I$ = 28V to 38V | | – | 54.0 | – | dB |
| $V_{DROP}$ | Dropout Voltage | $I_O$ = 1A, $T_J$ = +25°C | | – | 2.0 | – | V |
| $r_O$ | Output Resistance[36] | f = 1kHz | | – | 20.0 | – | mΩ |
| $I_{SC}$ | Short Circuit Current | $V_I$ = 35V, $T_A$ = +25°C | | – | 250 | – | mA |
| $I_{PK}$ | Peak Current[36] | $T_J$ = +25°C | | – | 2.2 | – | A |

**Notes:**

35. Load and line regulation are specified at constant junction temperature. Changes in $V_O$ due to heating effects must be taken into account separately. Pulse testing with low duty is used.

36. These parameters, although guaranteed, are not 100% tested in production.

## Typical Performance Characteristics

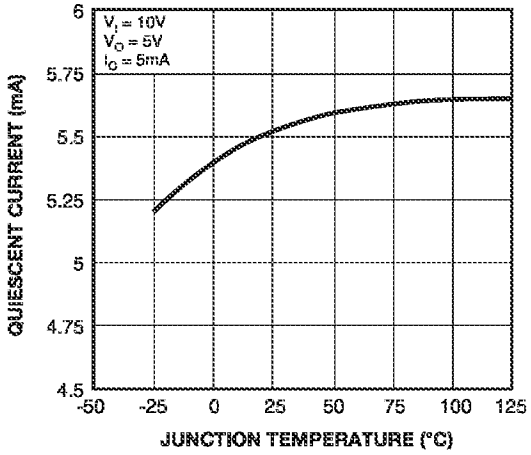



Figure 3. Quiescent Current

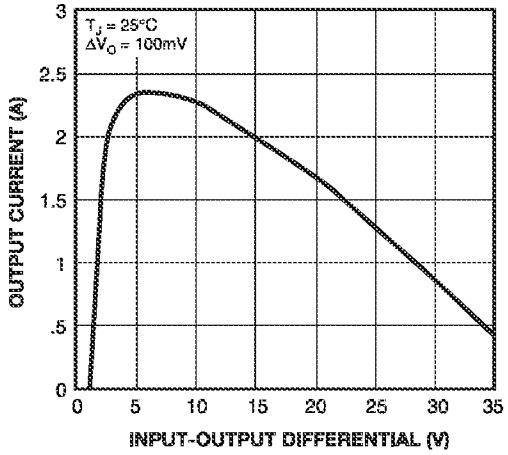



Figure 4. Peak Output Current

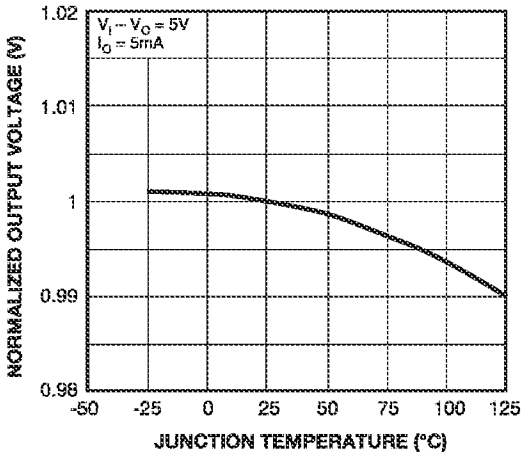



Figure 5. Output Voltage

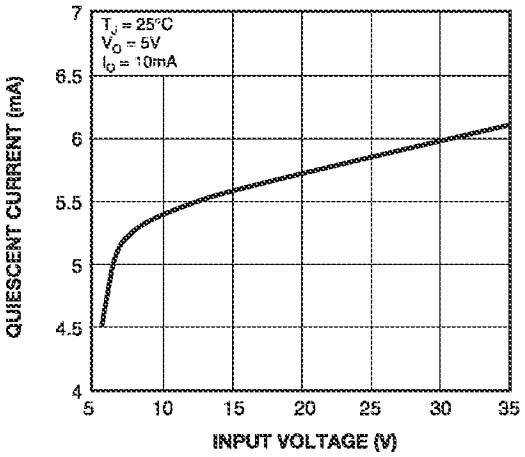



Figure 6. Quiescent Current









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## Typical Applications

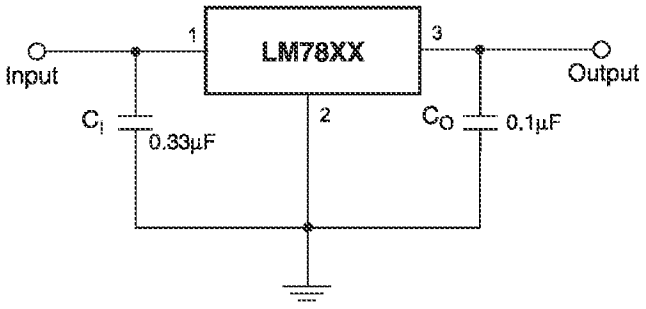



**Figure 7. DC Parameters**

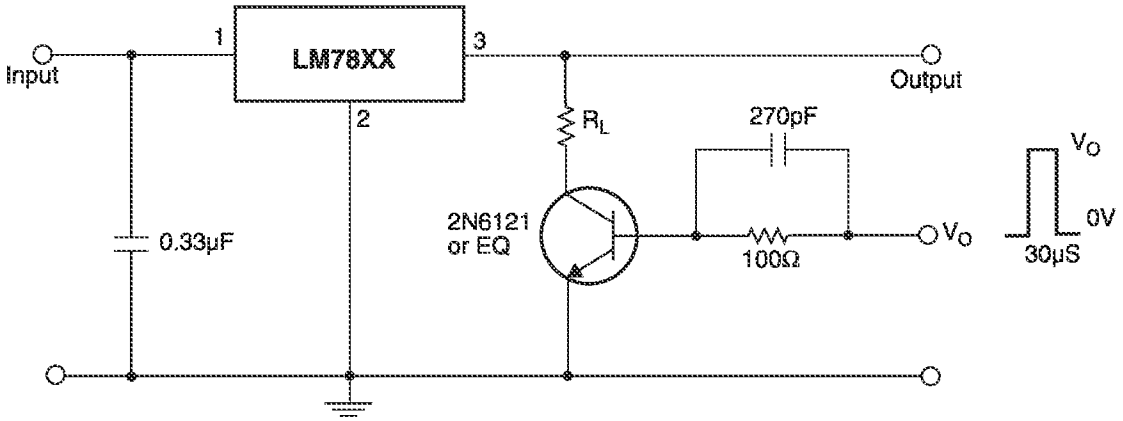



**Figure 8. Load Regulation**

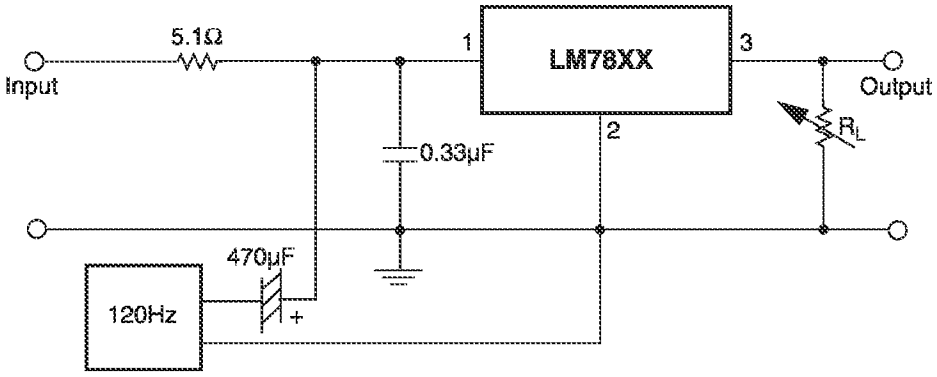



**Figure 9. Ripple Rejection**

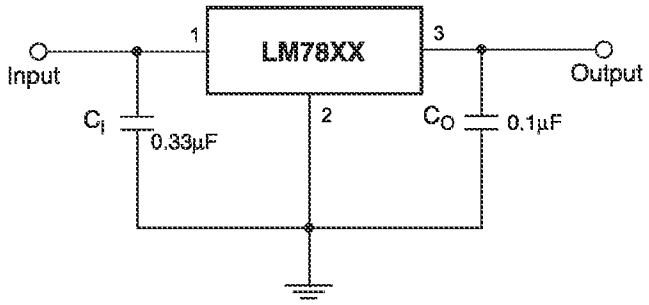
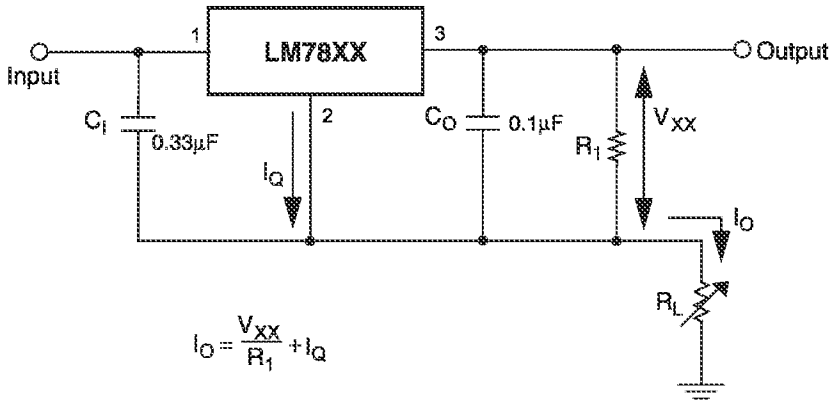



**Figure 10. Fixed Output Regulator**




**Notes**:

1. To specify an output voltage, substitute voltage value for "XX." A common ground is required between the input and the output voltage. The input voltage must remain typically 2.0V above the output voltage even during the low point on the input ripple voltage.
2. $C_I$ is required if regulator is located an appreciable distance from power supply filter.
3. $C_O$ improves stability and transient response.

**Figure 11.**

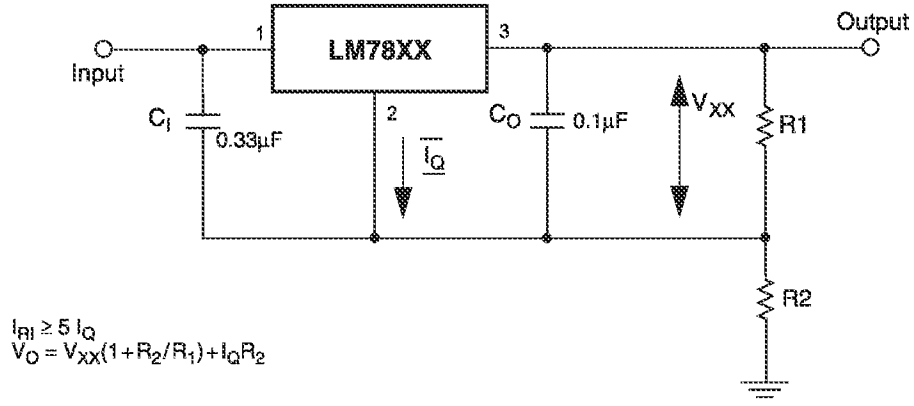



**Figure 12. Circuit for Increasing Output Voltage**

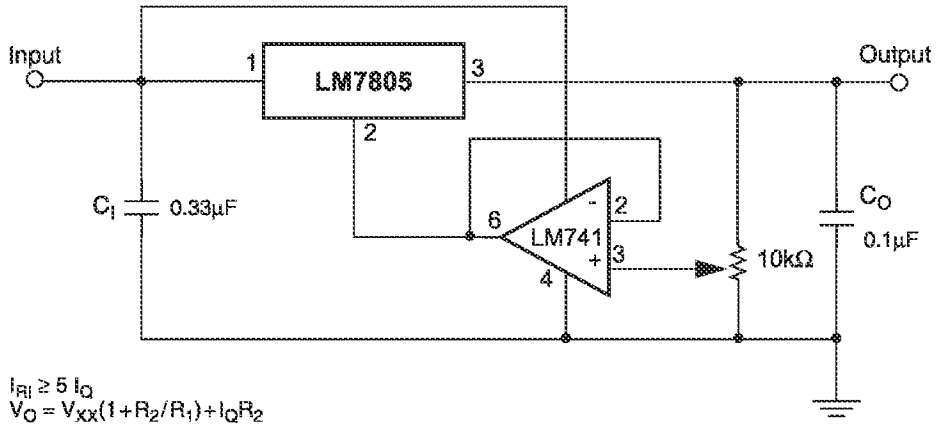



**Figure 13. Adjustable Output Regulator (7V to 30V)**

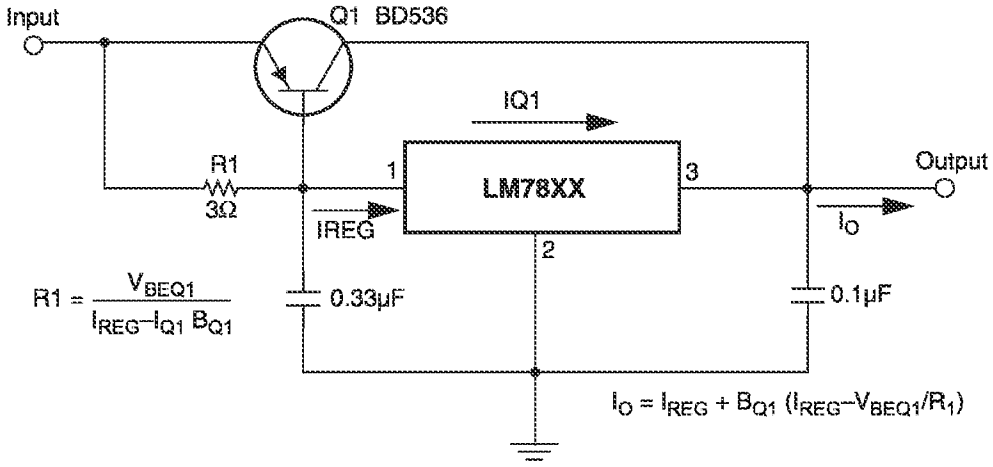



**Figure 14. High Current Voltage Regulator**

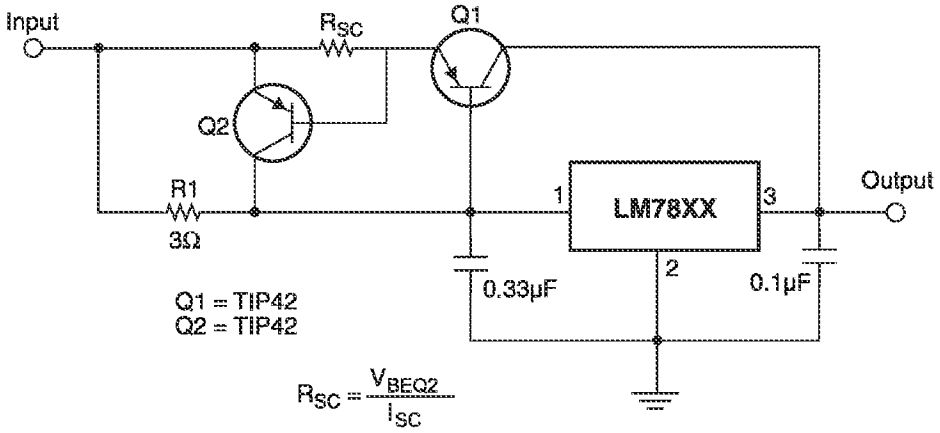



**Figure 15. High Output Current with Short Circuit Protection**

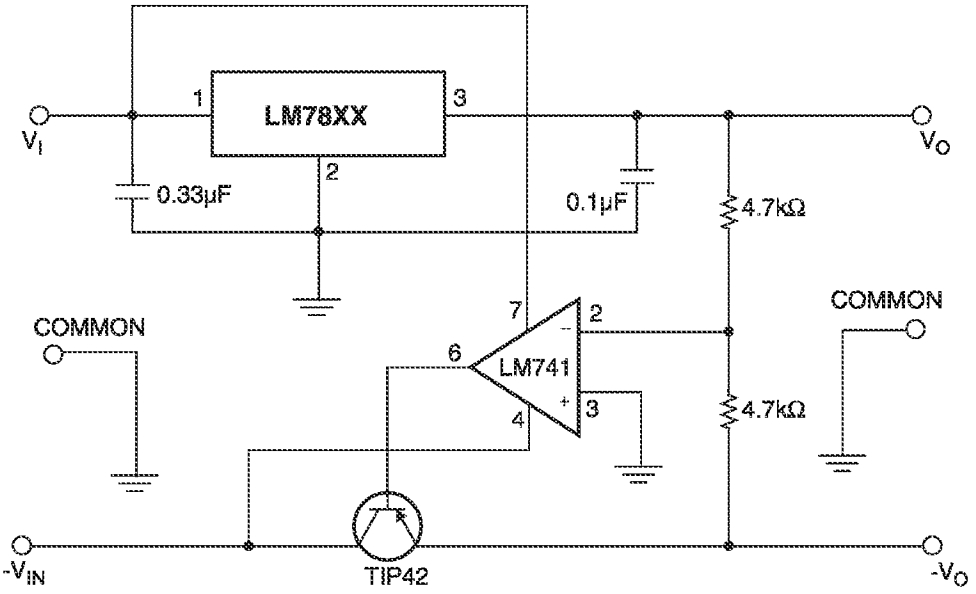



**Figure 16. Tracking Voltage Regulator**

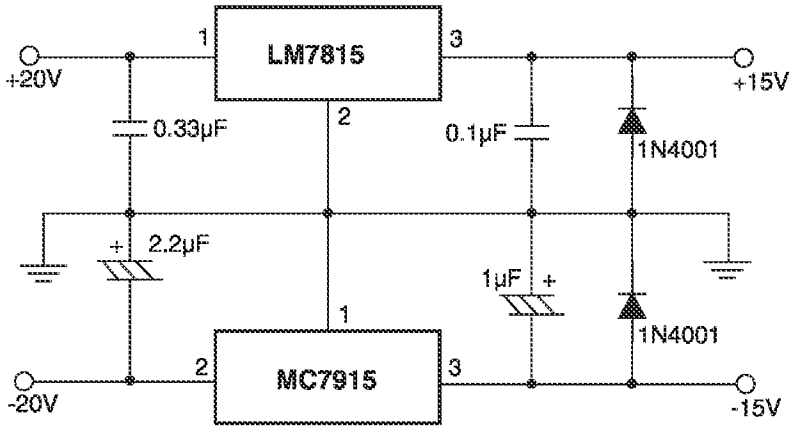



**Figure 17. Split Power Supply (±15V – 1A)**

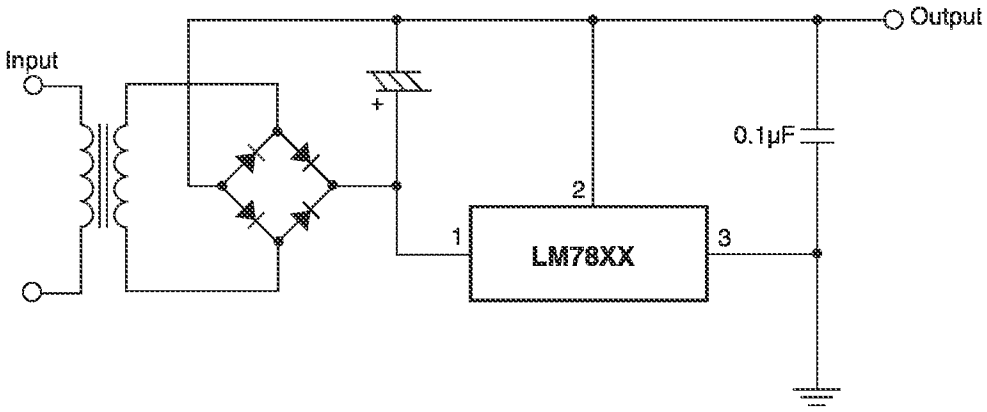



**Figure 18. Negative Output Voltage Circuit**

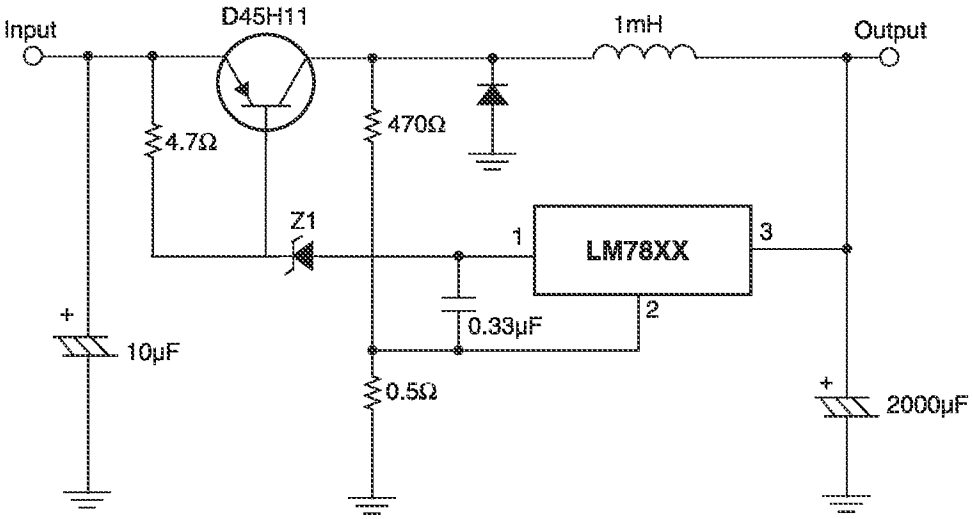
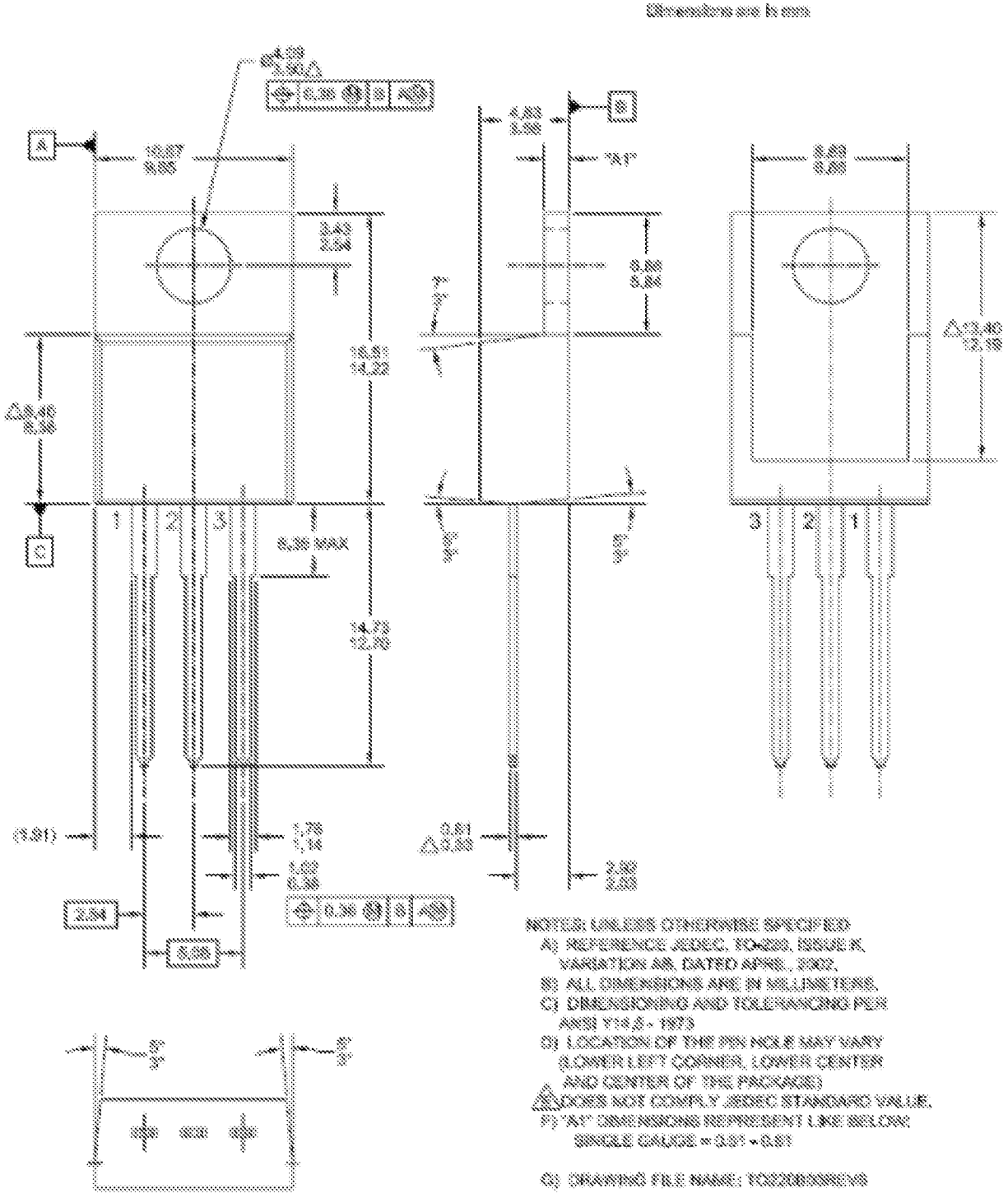



**Figure 19. Switching Regulator**

## Mechanical Dimensions

Dimensions in millimeters

### TO-220



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Rev. I19



ADC EX1002
IPR2025-00885

Espacenet

CN102414923A LIQUID LEAKAGE PROPAGATION RESTRAINING STRUCTURE FOR ELECTRICITY STORAGE DEVICE AND BUS BAR MODULE

Applicants: TOYOTA MOTOR CO LTD,YAZAKI CORP

Inventors: HIKOHITO YAMAZAKI,MANABU TSUSHIMA,SHIGENORI WATANABE,SHUICHI NAGATA,TAKAO SHOJI,TOMOHIRO IKEDA

Classifications:

IPC ***H01M10/42; H01M10/48; H01M2/20; H01M2/32; H01R11/28; H01R4/18; H01R4/30;***

CPC **H01M10/482 (EP,US); H01M50/502 (EP,US); H01M50/571 (EP,US)**; H01M10/4228 (EP,US); H01R4/023 (EP,US); H01R4/187 (EP,US); H01R4/20 (EP,US); Y02E60/10 (EP);

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Publication: CN102414923A·2012-04-11

Published as: CN102414923A;**DE112010001711T5; JP2010257686A; JP5144582B2; US2012038365A1; WO2010122412A1**

LIQUID LEAKAGE PROPAGATION RESTRAINING STRUCTURE FOR ELECTRICITY STORAGE DEVICE AND BUS BAR MODULE

Abstract

In a liquid leakage propagation restraining structure, a voltage detection terminal that detects the voltage of an electricity storage device is connected to an electrode of the electricity storage device so that a crimp contact surface side of the voltage detection terminal to which an electric cable is crimped faces in the direction opposite the direction to the electrode. Therefore, the structure restrains the electrolytic solution that has leaked out and propagated to the electric cable from entering the interior of the core wire of the electric cable.

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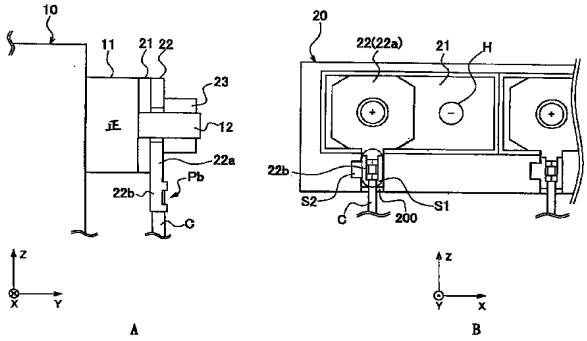
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用于蓄电装置的液体泄漏扩散抑制结构以及母线模块

(57)摘要

在液体泄漏扩散抑制结构中，检测蓄电装置电压的电压检测端子连接到蓄电装置的电极，使得电缆被压接到的电压检测端子的压接接触表面侧朝向与电极相反的方向。因此，该结构抑制已经泄漏并扩散到电缆的电解溶液进入电缆的芯线内部。




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1. 一种用于包含电解溶液的蓄电装置的液体泄漏扩散抑制结构，其特征在于包含：

检测蓄电装置的电压的电压检测端子；以及

电极，其属于蓄电装置，

其中，电压检测端子连接到电极，使得电压检测端子的压接接触部分的压接接触表面侧朝向与蓄电装置的电极相反的方向，其中，电缆压接到压接接触部分。

2. 权利要求 1 的液体泄漏扩散抑制结构，其中，吸附或吸收在电极上泄漏的电解溶液的密封材料被设置在电缆内。

3. 权利要求 1 或 2 的液体泄漏扩散抑制结构，其中，电压检测端子被电气连接到位于蓄电装置的正电极侧的电极。

4. 权利要求 1-3 中任意一项的液体泄漏扩散抑制结构，其进一步包含母线模块，母线模块电气连接组成蓄电装置的多个蓄电元件，

其中，母线模块包含母线，母线电气连接一个蓄电元件的电极与另一个蓄电元件的电极，

其中，检测连接到母线的至少一个蓄电元件的电压的电压检测端子的电缆压接到压接接触部分，

其中，在容纳电缆的布线空间中形成密封材料注入部分和 / 或用于在电极上泄漏的电解溶液的贮槽部分。

5. 权利要求 4 的液体泄漏扩散抑制结构，其中，布线空间在母线模块纵向方向上的宽度为这样的长度：其包含电缆的直径以及设置在电缆的两个相反侧上的空隙。

6. 权利要求 4 或 5 的液体泄漏扩散抑制结构，其中，贮槽部分和 / 或密封材料注入部分被设置在电缆 C 的两个相反侧的至少一个上。

7. 权利要求 4-6 中任意一项的液体泄漏扩散抑制结构，其中，

贮槽部分和 / 或密封材料注入部分为密封材料注入部分；且

密封材料注入部分和布线空间均以密封材料填充。

8. 权利要求 1-7 中任意一项的液体泄漏扩散抑制结构，其中，压接接触部分被密封。

9. 权利要求 8 的液体泄漏扩散抑制结构，其中，压接接触部分通过焊接来密封。

10. 权利要求 1-9 中任意一项的液体泄漏扩散抑制结构，其中，压接接触部分被设置在电极的上方。

11. 一种用于包含电解溶液的蓄电装置的液体泄漏扩散抑制结构，其特征在于包含：

检测蓄电装置的电压的电压检测端子；

属于蓄电装置的电极，

其中，电压检测端子电气连接到电极的正电极侧。

12. 权利要求 11 的液体泄漏扩散抑制结构，其中，在电极上方设置电压检测端子的压接接触部分，电缆压接到该部分。

13. 一种电气连接多个蓄电元件的母线模块，蓄电元件包含电解溶液并组成蓄电组件，所述母线模块的特征在于包含：

母线，其电气连接一个蓄电元件的电极和另一个蓄电元件的电极；

压接接触部分，检测一个或多于一个蓄电元件的电压的电压检测端子的电缆压接到该部分，且该部分被连接到母线；和 / 或



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密封材料注入部分和 / 或用于在电极上泄漏的电解溶液的贮槽部分，其在容纳电缆的布线空间中。

14. 权利要求 13 的母线模块，其中，布线空间在母线模块纵向方向上的宽度为这样的长度 ：其包含电缆的直径以及设置在电缆的两个相反侧上的空隙。

15. 权利要求 13 或 14 的母线模块，其中，贮槽部分和 / 或密封材料注入部分被设置在电缆的两个相反侧的至少一个上。

16. 权利要求 13-15 中任意一项的母线模块，其中，

贮槽部分和 / 或密封材料注入部分为密封材料注入部分 ；且

密封材料注入部分和布线空间均以密封材料填充。

17. 一种用于包含电解溶液的蓄电装置的液体泄漏扩散抑制结构，其特征在于包含检测蓄电装置电压的电压检测端子的压接接触部分，

其中，压接接触部分被密封。

18. 权利要求 17 的液体泄漏扩散抑制结构，其中，压接接触部分通过焊接来密封。



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# 用于蓄电装置的液体泄漏扩散抑制结构以及母线模块

## 技术领域

[0001] 本发明涉及用于蓄电装置的电解溶液的液体泄漏扩散抑制结构，还涉及母线模块，蓄电装置例如为二次电池或类似物。

## 背景技术

[0002] 如日本专利申请公开No.2000-333343(JP-A-2000-333343)所述（图7、图8、图14等），在安装在混合动力车或电动车上的例如二次电池或类似物的电池中，母线模块（电池连接模块）被附着到电池组件的两侧，以便串联连接构成电池组件的多个电单体(electric cell)。母线模块由合成树脂或类似物构成。各个母线模块具有：母线，各个母线电气连接电单体的电极与另一电单体的电极；电压检测端子，各个电压检测端子被设置为用于检测一个或多于一个电单体的电压。电单体的电极、母线以及电压检测端子通过旋拧螺母或类似物固定在一起。各个电压检测端子包含：电气接触部分，其接触母线，以便检测电单体的电压；压接接触部分，用于将在电气接触部分上检测到的电压输出到电池控制器（未示出）的电缆通过压接连接到该部分。

[0003] 图6A为电单体和母线模块之间的连接位置的放大的截面图。如图6A所示，母线21的两个相反端面中的一个被放置为与电单体10的电池电极柱11接触。母线21的两个相反端面中的另一个与电压检测端子22的电气接触部分22a接触。于是，将螺母23紧紧地旋拧到设置在电池电极柱11上的螺纹部分12，使得母线21和电压检测端子22紧紧地旋拧和固定到电池电极柱11。

[0004] 图6B为从安装方向（Y方向）看的母线模块20的视图。在各个电单体10的正电极P和负电极N中，负电极N具有电压检测端子22。母线模块20具有布线空间S，其中，设置有电缆C和电压检测端子22的压接接触部分22b。

[0005] 例如二次电池以及类似物的电池在其中以密封的方式容纳电解溶液。取决于反应机制或温升，发生蠕变现象(creep phenomenon)，且电解溶液有时在电极上泄漏到外部。有时，由于母线模块的电压检测端子或电缆暴露于电解溶液，这导致故障等等，例如，由于电解溶液泄漏（液体泄漏）经由电缆扩散到另一电气部件部分，或是由于电解溶液泄漏在电缆的芯线上移动的，在电池功能中产生的问题。

[0006] 另外，对于电池，针对电解溶液泄漏的对策并不充分。特别地，母线模块的上述电压检测端子22各自具有这样的结构：电压检测端子22的压接接触部分22b（特别地，电缆C的芯线在其上压接以便电气连接电缆C与电气接触部分22a的压接接触表面侧）朝向电池电极柱11侧。在此结构中，当电解溶液从电池电极柱11泄漏、沿着电池电极柱11直接流动并由于重力下行到较低侧时，电解溶液容易进入压接接触部分22b。因此，该结构允许泄漏的电解溶液容易地进入电缆的芯线，这一点是不受欢迎的。除此之外，电池具有允许电解溶液泄漏经由电缆容易地进入另一电气部件部分的结构。

[0007] 除此之外，如前面的日本专利申请公开No.2000-333343(JP-A-2000-333343)所述（图7、图8、图14等），各个电压检测端子被设置在两个电池电极的负电极上。关于容



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纳碱性电解溶液的电池——例如镍金属氢化物蓄电池（Ni-MH 电池）、镍镉蓄电池（Ni-Cd 电池）等——内电解溶液的封装，电解溶液的泄漏通过在正或负电极端子部分的电池槽中布置用橡胶、尼龙（注册商标）或类似物制成的衬垫并向之施加适当的压力来防止。然而，已经知道，碱性电解溶液表现出蠕变现象，其中，电解溶液在金属表面上蠕变，因此使得完全密封非常困难。特别地，已经知道，比起正电极，此现象更可能在负电极上发生。因此，在电压检测端子连接到负电极侧的情况下，在负电极上泄漏的电解溶液扩散到电压检测端子的距离短。因此，在这种情况下，提供了这样的结构：在负电极上泄漏的电解溶液可能被引导到电压检测端子。

[0008] 除此之外，如图 6B 所示，形成布线空间 S（在母线模块 20 上形成的挖剪部分（cutout））以便压接电缆 C，布线空间 S 是在合成树脂制成的母线模块 20 上形成的，电线 C 和电压检测端子 22 的压接接触部分 22b 将被布置在其中。在布线空间 S 中，电线 C 和电压检测端子 22 的压接接触部分 22b 被布置，而不在母线模块 20 的纵向方向留下间隙。因此，在电解溶液在正电极 P 或负电极 N 上泄漏并扩散到邻近电压检测端子的压接接触部分 22b 的情况下，由于布线空间 S 的壁和压接接触部分 22b 或电缆 C 之间没有空隙，电解溶液泄漏不存在逸出电压检测端子 22 的压接接触部分 22b 并在压接接触部分 22b 附近累积的出口，故电解溶液可能进入电缆 C 的芯线，并可能由于毛细管作用而在电缆 C 的芯线内扩散。

[0009] 另外，由于布线空间 S 的壁和压接接触部分 22b 或电缆 C 之间没有间隙，由于缺乏密封材料被充入的空间，用于阻止电解溶液泄漏的密封材料不能充入压接接触部分 22b 的附近。因此，针对液体泄漏的密封不能进行。

## 发明内容

[0010] 本发明涉及用于蓄电装置的液体泄漏扩散抑制结构和母线模块，该结构抑制蓄电装置的电解溶液泄漏沿着电缆流出以及通过毛细管作用在电缆芯线内部扩散。

[0011] 本发明的第一实施形态涉及一种用于包含电解溶液的蓄电装置的液体泄漏扩散抑制结构。液体泄漏扩散抑制结构包含：电压检测端子，其被设置为检测蓄电装置的电压；电极，其属于蓄电装置。电压检测端子连接到电极，使得电压检测端子的压接接触部分的压接接触表面侧朝向与蓄电装置的电极相反的方向，其中，电缆被压接到压接接触部分。

[0012] 在第一实施形态中，吸附或吸收在电极上泄漏的电解溶液的密封材料可被设置在电缆内。

[0013] 在第一实施形态中，电压检测端子可电气连接到位于蓄电装置正电极侧的电极。

[0014] 在第一实施形态中，液体泄漏扩散抑制结构可进一步包含母线模块，其电气连接构成蓄电装置的多个蓄电元件。母线模块可包含：母线，其电气连接一个蓄电元件的电极与另一个蓄电元件的电极。检测连接到母线的至少一个蓄电元件的电压的电压检测端子的电缆可压接到压接接触部分。密封材料注入部分和/或用于在电极上泄漏的电解溶液的贮槽部分可在容纳电缆的布线空间中形成。

[0015] 在第一实施形态中，布线空间在母线模块长度方向上的宽度可为这样的长度：其包含电缆的直径，以及设置在电缆的两个相反侧上的空隙。

[0016] 在第一实施形态中，贮槽部分和/或密封材料注入部分可被设置在电缆的两个相反侧的至少一个上。



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[0017] 在第一实施形态中，贮槽部分和 / 或密封材料注入部分可以为密封材料注入部分。密封材料注入部分和布线空间可均填充密封材料。

[0018] 在第一实施形态中，压接接触部分可被密封。

[0019] 在第一实施形态中，压接接触部分可通过焊接来密封。

[0020] 在第一实施形态中，压接接触部分可设置在电极的上方。

[0021] 本发明的第二实施形态涉及一种用于包含电解溶液的蓄电装置的液体泄漏扩散抑制结构。液体泄漏扩散抑制结构包含：检测蓄电装置的电压的电压检测端子；属于蓄电装置的电极。电压检测端子电气连接到电极的正电极侧。

[0022] 在第二实施形态中，可在电极上方设置电压检测端子的压接接触部分，电缆压接到该部分。

[0023] 本发明的第三实施形态涉及一种电气连接多个蓄电元件的母线模块，蓄电元件包含电解溶液并构成蓄电组件。母线模块包含：母线，其电气连接一个蓄电元件的电极和另一个蓄电元件的电极；压接接触部分，检测一个或多于一个蓄电元件的电压的电压检测端子的电缆压接到该部分，且该部分连接到母线；和 / 或容纳电缆的布线空间中的密封材料注入部分和 / 或用于在电极上泄漏的电解溶液的贮槽部分。

[0024] 在第三实施形态中，布线空间在母线模块长度方向上的宽度可为这样的长度：其包含电缆的直径，以及设置在电缆的两个相反侧上的空隙。

[0025] 在第三实施形态中，贮槽部分和 / 或密封材料注入部分可被设置在电缆的两个相反侧的至少一个上。

[0026] 在第三实施形态中，贮槽部分和 / 或密封材料注入部分可以为密封材料注入部分。密封材料注入部分和布线空间可均填充密封材料。

[0027] 本发明的第四实施形态涉及一种用于包含电解溶液的蓄电装置的液体泄漏扩散抑制结构。液体泄漏扩散抑制结构包含检测蓄电装置电压的电压检测端子的压接接触部分。压接接触部分是密封的。

[0028] 在第四实施形态中，压接接触部分可通过焊接来密封。

[0029] 根据第一实施形态，由于电压检测端子连接到蓄电装置的电极中邻近的一个，使得电缆压接到的电压检测端子的压接接触表面朝向与电极相反的方向，可以抑制在电极上泄漏的电解溶液经由电缆进入电缆的芯线。

[0030] 根据第二实施形态，由于电压检测端子电气连接到位于蓄电装置正电极侧的电极，可以使得由于使用碱性电解溶液的电池——例如镍金属氢化物蓄电池 (Ni-MH 电池 )、镍镉蓄电池 (Ni-Cd 电池 ) 等等——中的负电极蠕变现象产生的来自负电极侧的电解溶液泄漏扩散到电压检测端子的可能性较小。

[0031] 根据第三实施形态，由于在设置母线模块中的电压检测端子的压接接触部分和 / 或电缆的布线空间中设置了贮槽部分 ( 空隙 )，在布线空间的壁和压接接触部分和 / 或电缆之间给出间隙，故而使泄漏的电解溶液扩散到电压检测端子的可能性较小。除此之外，贮槽部分用作密封材料注入空间，密封材料被充入或放入该空间。因此，可以在使用密封材料的情况下采取对电解溶液泄漏的对策。

[0032] 根据第四实施形态，由于电压检测端子的压接接触部分 ( 电缆被压接到该部分 ) 被密封，即使在电解溶液已经到达压接接触部分的情况下，电解溶液进入电缆 ( 电压检测



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线）芯线内部的入口可得到抑制。顺便提及，尽管压接接触部分可通过焊接来密封，这并不是限制性的。例如，可使用黏接以及其他的密封材料。由于这一点，泄漏的电解溶液扩散到其他电气部件部分的可能性较低。

## 附图说明

[0033] 由下面参照附图对优选实施例的介绍，将会明了本发明的前述以及其他目的、特征和优点，在附图中，类似的标号用于表示类似的元件，且其中：

[0034] 图 1 为本发明第一实施例中的蓄电装置的分解透视图；

[0035] 图 2A 为电池电极和母线模块之间的连接位置的放大截面图，用于示出本发明第一实施例中的蓄电装置的母线模块的连接构造；

[0036] 图 2B 为母线模块的前视图，用于示出本发明第一实施例中的蓄电装置的母线模块的连接构造；

[0037] 图 3A 示出了本发明第二实施例中的电压检测端子的焊接连接；

[0038] 图 3B 为本发明第二实施例中的电压检测端子的透视图；

[0039] 图 3C 为电缆的截面图，其示出了本发明第二实施例中的电压检测端子；

[0040] 图 4A 和 4B 用于示出本发明的第一变型；

[0041] 图 5 用于示出本发明的第二变型；

[0042] 图 6A 为电池电极和母线模块之间的连接位置的放大截面图，示出了现有技术的母线模块的连接构造；以及

[0043] 图 6B 为母线模块的前视图，示出了现有技术的母线模块的连接构造。

## 具体实施方式

[0044] 下面将介绍本发明的实施例。

[0045] [ 第一实施例 ] 图 1 为本发明的母线模块和液体泄漏扩散抑制结构所应用的蓄电装置 1 的分解透视图。蓄电装置 1 包含：电池组件（蓄电组件）15，其由多个电单体 10 构成；母线模块 20，其电气连接电单体 10 的正电极 P(+) 和负电极 N(-)，并串联连接整个电池组件 15 的电单体。

[0046] 蓄电装置 1 用作安装在混合动力车或电动车辆上的电源装置，例如：使用碱性电解溶液的二次电池，包括镍金属氢化物蓄电池 (Ni-MH 电池）、镍镉蓄电池 (Ni-Cd 电池）等；锂离子二次电池；电气双层电容器等。各个电单体 10 在其中容纳电解溶液，并具有在电池组件 15 的左右方向 Y 突出的正电极 P 和负电极 N（与电单体 10 的堆叠方向 X 正交的电单体的左右方向 Y）。

[0047] 母线模块 20 为树脂容器，其由合成树脂或类似物构成，并包含多个母线 21。各个母线 21 由金属制成，以便电气连接两个相邻电单体 10 的不同电极，也就是说，两个相邻电单体 10 中的一个的正电极 P 和另一电单体 10 的负电极 N。母线 21 具有插入孔 H，用于设置在各个电单体的各个电极上的电池电极柱 11 的螺纹部分 12。于是，母线模块 20 设置在电池组件 15 的左右侧（两侧表面），以便串联连接整个电池组件 15 的电单体 10。也就是说，被设置的母线模块 20 的数量为 2。当电池电极柱 11 的螺纹部分 12 插入母线 21 的插入孔 H 时，母线模块 20（母线 21）串联连接电池组件 15 的电单体。



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[0048] 除此之外，各个母线 21 具有用于检测一个或多于一个的电单体 10 的电压的电压检测端子 22。各个母线模块 20 具有：保持机构（未示出），其保持电压检测端子 22；布线空间 S1，用于连接到电压检测端子 22（见图 2B）的电缆（电压检测电缆）C。

[0049] 下面将参照图 2A 和图 2B 详细介绍本实施例的母线模块 20、电压检测端子 22 及其结构。

[0050] 如图 2A 和 2B 所示，电压检测端子 22 包含电气接触部分 22a，其电气接触母线 21，以便检测一个或多于一个的电单体 10 的电压；压接接触部分 22b，用于将在电气接触部分 22a 上检测的电压输出到电池控制器（未示出）的电缆 C 通过压接连接到该部分。电缆 C 由用铜或类似物制成的芯线 C1、覆盖芯线 C1 的覆盖元件 C2 构成。电缆 C，特别是暴露的芯线 C1，通过压接连接到压接接触部分 22b，因此电气连接到电压检测端子 22（见图 3C）。

[0051] 母线模块 20 的各个布线空间 S1（在母线模块 20 中形成的挖剪部分）被形成为提供母线模块 20 的布线空间 S1 的壁表面与邻近压接接触部分 22b 的电缆 C 和电压检测端子 22 的压接接触部分 22b 的单元之间的空隙（在图 2B 中，在被包含的电缆 C 和压接接触部分 22b 的单元的两个相反侧）。至少与压接接触部分 22b 邻近的电缆 C 以及压接接触部分 22b 不与母线模块 20 的挖剪部分接触。离开压接接触部分 22b 的电缆 C 由母线模块 20 的保持部分 200 保持。

[0052] 也就是说，不像压接接触部分 22b 和电缆 C 在布线空间 S 中钳紧且不在压接接触部分 22b 和 / 或电缆 C 与母线模块 20 中形成的挖剪部分的壁表面之间形成空隙的相关技术中的母线模块（见图 6A 和图 6B）那样，此实施例的母线模块 20 具有这样的布线空间：其中，可布置电压检测端子 22，且包含母线模块 20 的挖剪部分和邻近压接接触部分 22b 的电缆 C 及电压检测端子 22 的压接接触部分 22b 的单元之间的间隙。

[0053] 除此之外，在压接接触部分 22b 的附近，贮槽部分 S2 被连接到布线空间 S1。也就是说，在 X-Y 平面上取得的合并布线空间 S1 和贮槽部分 S2 的空间（见图 2B）的截面面积大于布线空间 S1 的截面积。这一贮槽部分 S2 具有用于从母线模块 20 的外部充入密封材料的密封材料注入开口（未示出），该材料吸附 / 吸收电解溶液。密封材料可在密封材料注入开口中充入。密封材料在被充入时填充由布线空间 S1 和贮槽部分 S2 构成的空间，并吸附 / 吸收扩散到电压检测端子 22 的压接接触部分 22b 的电解溶液泄漏。顺便提及，密封材料具有对电极溶液进行吸收或类似能力就够了。密封擦料可以为例如吸水聚合物片或粉。

[0054] 如上所述，对于电池——例如二次电池或类似物，密封在电池中的电解溶液有时由于依赖于反应机制或温升发生的蠕变现象在电极上泄漏到电单体外部。如图 1 所示，各个电压检测端子 22 的压接接触部分 22b 和电缆 C 被布置在受到液体泄漏的电池电极柱 11 下方。因此，从电池电极柱 11 泄漏的电解溶液立即沿着电池电极柱 11 流动，并由于重力行进到较低侧，使得电解溶液被引导到电压检测端子 22。也就是说，在电池电极柱 11 在电池组件 15 的左右方向（在 Y 方向上）突出的情况下，母线模块 20 被布置在电池组件 15 的左右侧表面上。因此，在电池组件 15 的左右侧表面上，在电池电极柱 11 以及电压检测端子之间的 Z 方向的位置关系上，电压检测端子 22 被定位在受到液体泄漏的电池电极柱 11 下方。因此，提供了这样的结构：从位于电单体 10 的左右侧表面的任何一个电池电极柱 11 泄漏的电解溶液被容易地引导到邻近电压检测端子 22 的电缆 C 和压接接触部分 22b。

[0055] 因此，在此实施例中，母线模块 20 的电压检测端子 22 通过旋拧到电池电极柱 11



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而与母线 21 连接，使得电压检测端子 22 的压接接触部分 22b——电缆 C 的芯线部分压接于其上以便电气连接电气接触部分 22a——的压接接触表面 Pb 朝向与电池电极柱 11（电极）相反的方向，如图 2A 所示，而不像图 6A 所示的现有技术那样，在图 6A 所示的现有技术中，电压检测端子 22 的压接接触部分 22b 的压接接触表面 Pb 被布置为朝向电池电极柱 11 侧。

[0056] 也就是说，压接接触表面 Pb 为这样的表面：剥去覆盖元件的电缆 C 的芯线通过压接到电压检测端子 22 而被电气连接到该表面。具体地，电压检测端子 22 设置在电池电极柱 11（电极）上，使得安装电缆 C 的芯线的压接接触部分 22b 的一侧朝向与电池电极柱 11 相反的方向（不暴露于电池电极柱一侧）。也就是说，电压检测端子 22 被布置为使得压接接触部分 22b 的远离其压接接触表面 Pb 的相反侧朝向电池电极柱 11 侧。

[0057] 因此，即使在电池电极柱 11 上泄漏的电解溶液立即沿着电池电极柱 11 流动，由于重力向下行进到较低侧，并扩散到电压检测端子 22，由于电解溶液沿着压接接触部分 22b 离开其压接接触表面 Pb 的相反侧的表面扩散，电解溶液泄漏与电缆 C 的芯线的接触可得到避免或抑制。另外，电解溶液泄漏的扩散——其中，电解溶液进入电缆 C 的芯线内部并通过毛细管作用行进——能够得到抑制。

[0058] 除此之外，此实施例中的各个电压检测端子 22 仅仅被布置在连接正电极 P 和负电极 N 的母线的正电极 P 侧部分，并通过旋拧而连接到母线的正电极 P 侧部分。在例如镍金属氢化物蓄电池（Ni-MH 电池）、镍镉蓄电池（Ni-Cd 电池）等的使用碱性电解溶液的电池中，已经知道，电解溶液容易由于蠕变现象从负电极 N 侧泄漏。因此，将电压检测端子 22 连接到正电极 P 侧增大了在负电极 N 上泄漏的电解溶液扩散到电压检测端子 22 的距离。这产生了在负电极 N 侧泄漏的电解溶液不容易被引导到电压检测端子 22 的结构。

[0059] 另外，如图 2B 所示，在用合成树脂构成的各个母线模块 20 中，用于电压检测端子 22 的压接接触部分 22b 和电缆 C 的各个布线空间 S1 被构成为使得在合并了电缆 C 和压接接触部分 22b 的单元与布线空间 S1 的壁表面之间设置间隙。因此，即使在电解溶液在正电极 P 或负电极 N 上泄漏并扩散到电压检测端子 22 的压接接触部分 22b 的情况下，电解溶液的泄漏不会存在于电压检测端子 22 或接近电压检测端子 22，而是在电缆 C 和布线空间 S1 壁之间的空隙中向下扩散。这抑制了电解溶液泄漏进入电缆 C 的芯线并因此通过毛细管作用在芯线内扩散。

[0060] 除此之外，如图 2B 所示，贮槽部分 S2 连接到布线空间 S1。因此，由于布线空间 S1 和贮槽部分 S2，密封材料被充入以便阻塞电解溶液泄漏的密封材料注入空间被固定在布线空间 S1 的壁和所并入的贮槽部分 S2 以及所并入的电缆 C 及压接接触部分 22b 的单元之间。因此，接近压接接触部分 22b 的针对泄漏的密封可被实现。

[0061] ［第二实施例］图 3A 到 3C 示出了第二实施例中的电压检测端子 22。图 3A 示出了电压检测端子 22 的焊接连接。图 3B 为电压检测端子 22 的透视图。图 3C 为电缆的截面图。

[0062] 在此实施例的电压检测端子 22 中，压接接触腿部分 221b（前腿）和另一压接接触腿部分 222b（后腿）完全被焊接剂（在图 3A 中用阴影示出）覆盖和密封，故电解溶液泄漏将不会进入电缆 C 的芯线。也就是说，一般在现有技术中，电缆 C 通过经由压接接触腿部分 221b 和 222b 压接到压接接触部分 22b 而连接，接近电气接触部分 22a 的压接接触腿部分 221b 被焊接（即仅暴露的芯线 C1 电气连接到的部分被焊接）。在此实施例中，进行焊接，



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以便覆盖也包含压接接触腿部分 222b 的整个压接接触部分 22b，使得电解溶液泄漏进入电缆 C 的芯线 C1 内部的入口能够得到抑制。顺便提及，除了焊接剂以外，黏接剂或其他密封材料也可用于对压接接触部分 22b 进行密封。

[0063] 除此之外，如图 3B 所示，还可以使用电压检测端子 220，其中，电缆 C 的暴露的芯线 C1 电气连接到的压接接触部分 22b 具有伞的形状。具体地，代替图 3A 所示电缆 C 通过两个压接接触腿部分 221b 和 222b 以压接方式连接的构造的是，压接接触部分 22b 具有管状孔部 220，其容纳图 3B 和 3C 所示的电缆 C 的未覆盖的芯线 C1 的插入，并具有伞状，孔部 220 的电气接触部分 22a 侧的部分被封闭在其中。因此，电缆 C 可通过压接而不使其芯线 C1 从压接接触部分 22b 暴露来连接，因此使得电解溶液泄漏的从压接接触部分 22b 进入电缆 C 的芯线 C1 内部得到抑制。除此之外，可省略例如焊接或类似的操作的劳动（工作量）。

[0064] 图 3C 示出了电缆 C 的覆盖元件 C2 和芯线 C1 之间的空隙用密封材料 C3 填充的构造。在此构造中，进入芯线 C1 内部的电解溶液泄漏由密封材料 C3 吸附 / 吸收。因此，即使电解溶液泄漏进入电缆 C 的芯线 C1 内部，由于毛细管作用的电解溶液扩散可到抑制。

[0065] ［变型］图 4A、4B 示出了第一实施例的第一变型。在此变型中，由于在布置在电池组件 15 左右侧的任一电极上泄漏的电解溶液由于重力被如上所述地引导到电池组件 15 的较低部分，电压检测端子 22 如各个形成的母线模块 20 所决定的那样地被布置，使得各个电压检测端子 22 的压接接触部分 22 在电池组件 15 的方向 Z 上被定位在邻近电极（电池电极柱 11）上方。由于这种构造，在电解溶液在正电极 P 或负电极 N 的任意一个上泄漏并由于重力引导到较低侧的情况下，电解溶液不会扩散到压接接触部分 22b 或电缆 C，这是由于压接接触部分 22b 被定位在泄漏电极的上方。因此，电解溶液泄漏的扩散可得到抑制。另外，由于压接接触部分 22b 和电缆 C 不接触电解溶液，压接接触部分 22b 和电缆 C 的腐蚀等等能得到抑制。

[0066] 图 5 示出了第二变型，其中，从被布置在母线模块 20 上的电压检测端子 22 延伸的多个电缆 C 一同连接到连接器 300。除此之外，来自电压检测端子 22 的电缆 C 连接到电池控制器（未示出），电压检测端子 22 检测的电压检测信号被输入到电池控制器。在此布置中，连接器 300 被设置为用于连接电池控制器和电缆 C，电缆 C 经由连接器 300 连接到电池控制器。

[0067] 注意，毛细管作用不发生，如果电缆 C 的两个端部之一闭合的话。因此，为了实质上防止电解溶液泄漏在任一电缆 C 的芯线内部行进，各个电缆 C 的两端之一闭合于外部或外部空气，以便防止空气或类似物进入电缆 C 内部。在第二变型中，连接到电池控制器（未示出）的连接器 30 受到对于电缆 C 的密封处理，由此，从任何压接接触部分 22b 行进到电缆 C 内部的芯线的电解溶液由于毛细管作用的扩散受到抑制。

[0068] 实质上，包含电缆 C 的端部的连接器 300 的区域（图 5 中的阴影所示的部分）受到灌注 (potting) 处理，其中，树脂或类似物被封装在布置有电缆 C 的端部的连接器 300 的内部。因此，空气或类似物不会进入任一电缆 C 的内部。

[0069] 尽管参照其示例性实施例对本发明进行了介绍，将会明了，本发明不限于所介绍的实施例或构造。相反，本发明旨在覆盖多种变型和等价布置。另外，尽管所公开发明的多种元件以多种示例性组合和配置示出，包括更多、更少或仅一个元件的其他的构造和配置也在所附权利要求的范围内。



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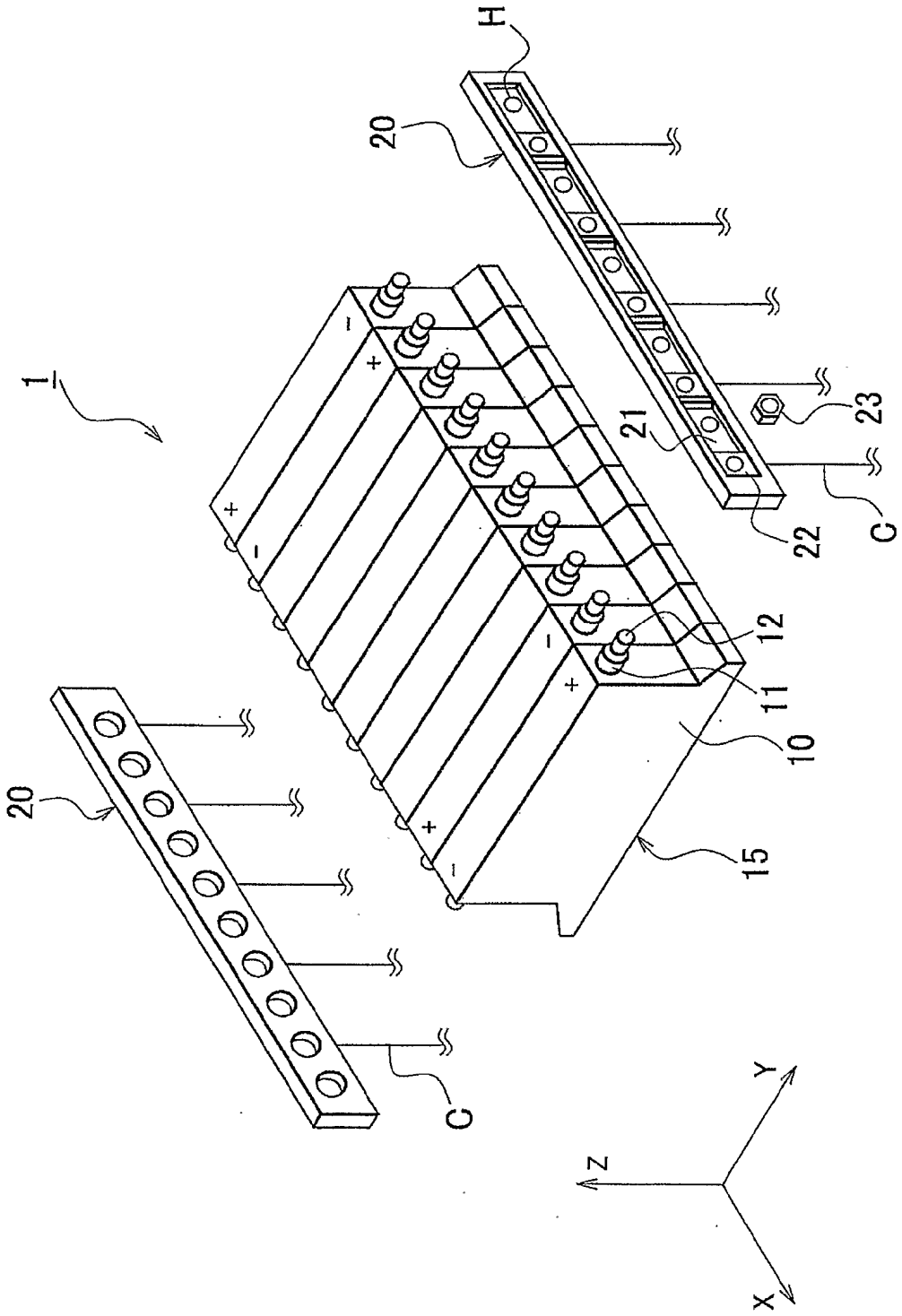



图 1



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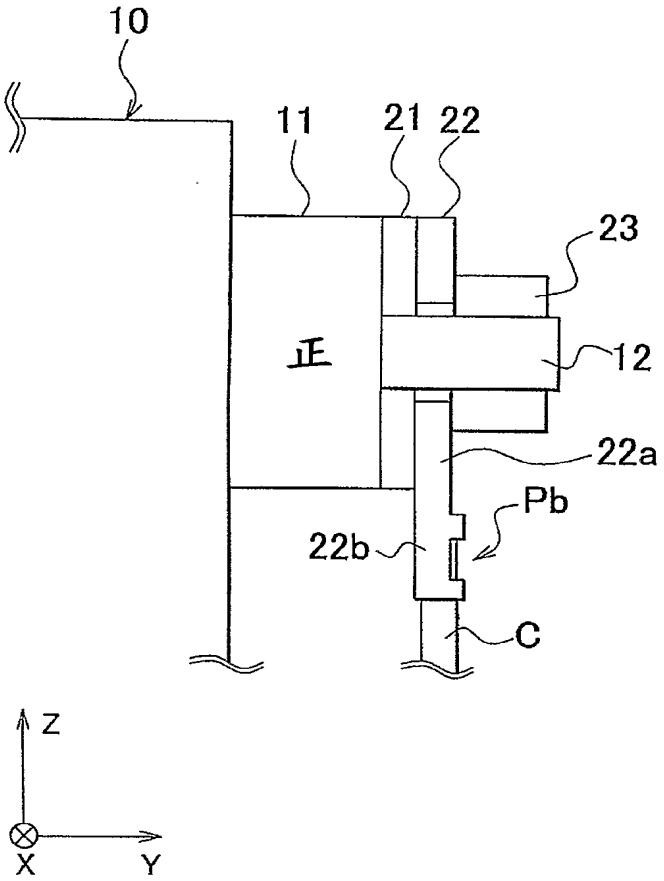



图 2A



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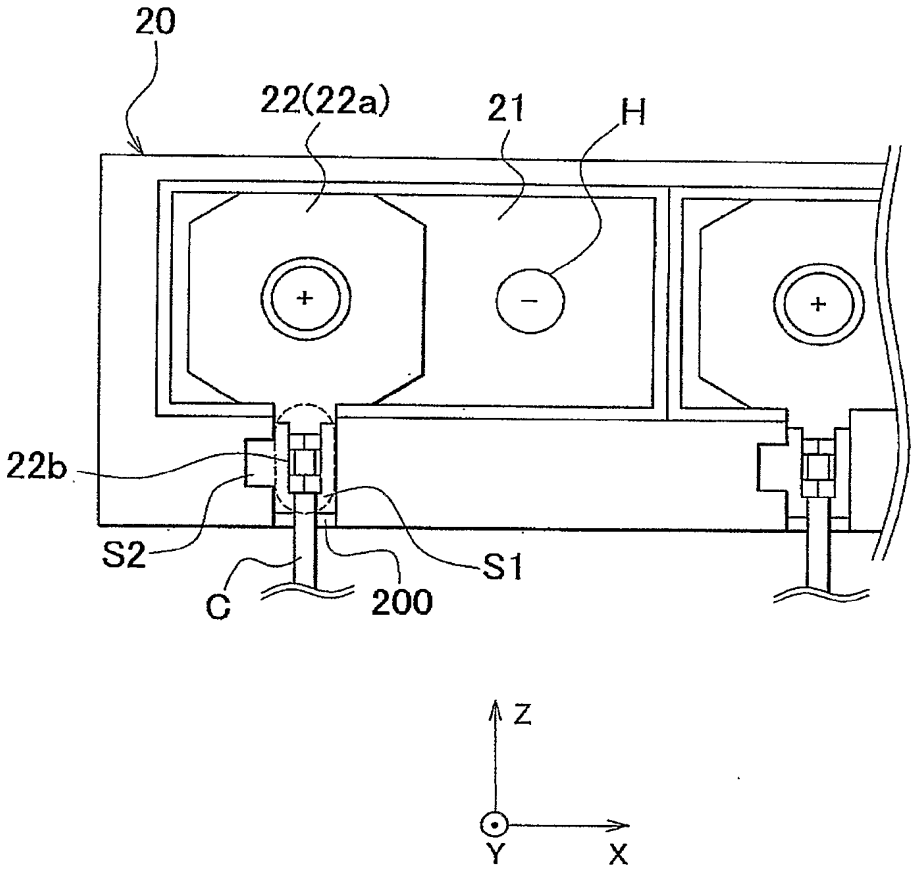



图 2B

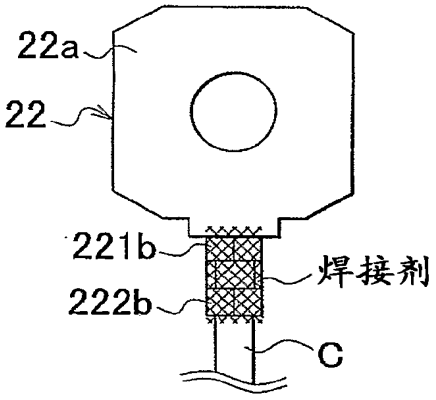



图 3A

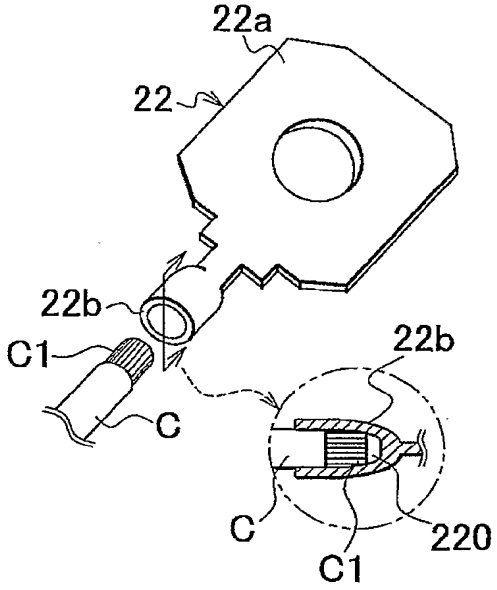



图 3B



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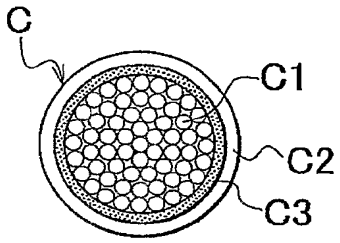



图 3C

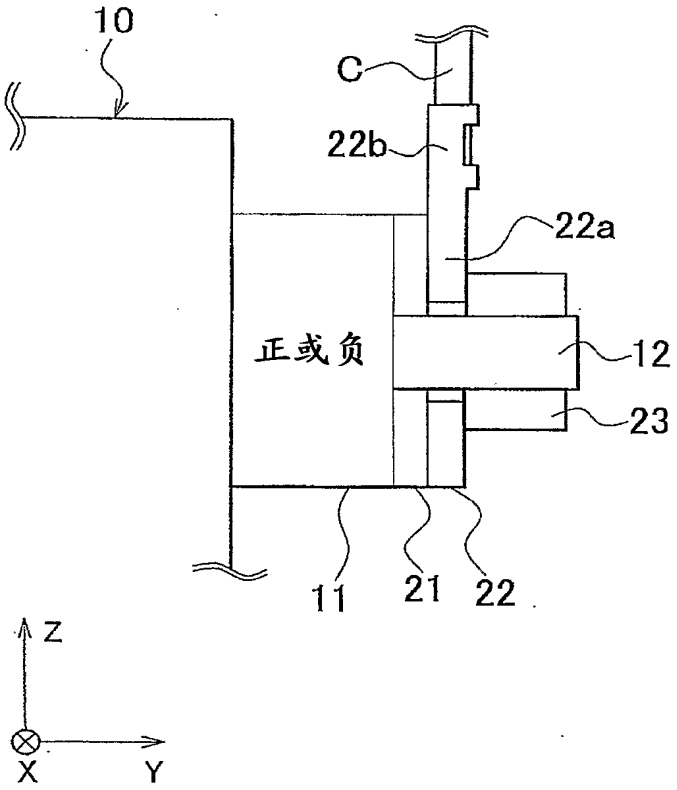



图 4A



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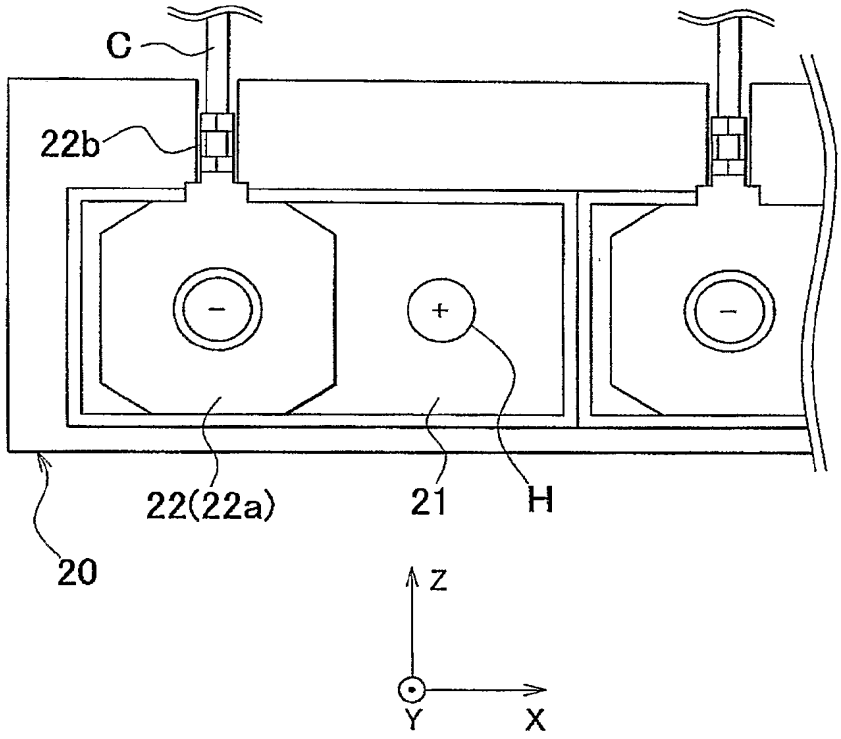



图 4B

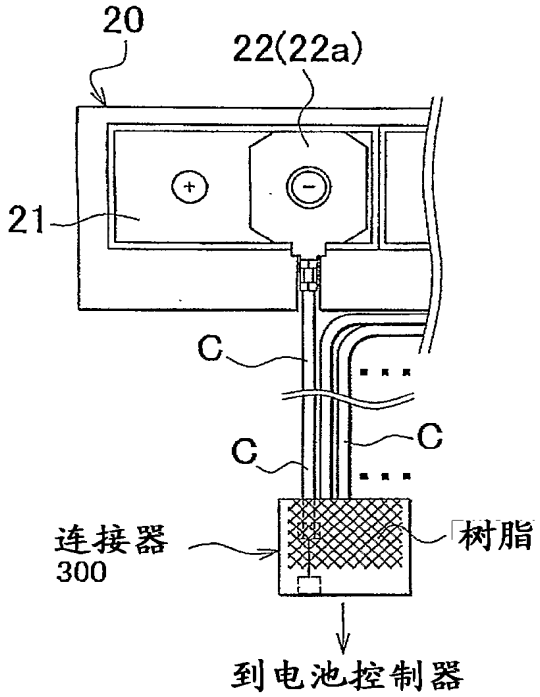
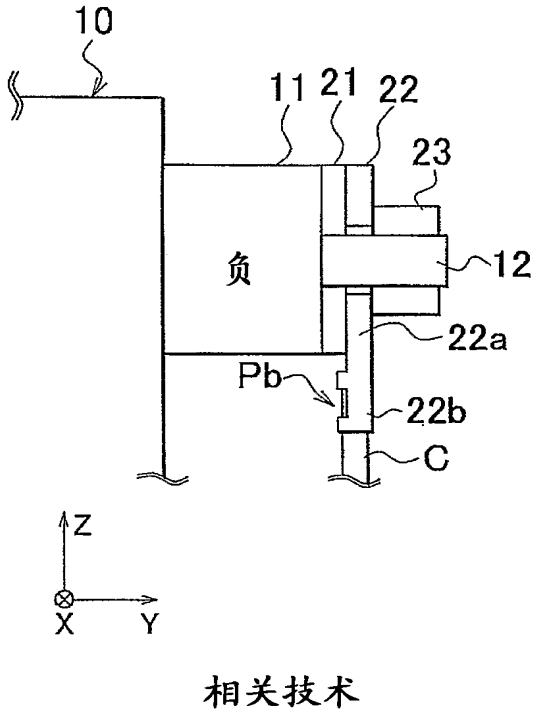



图 5

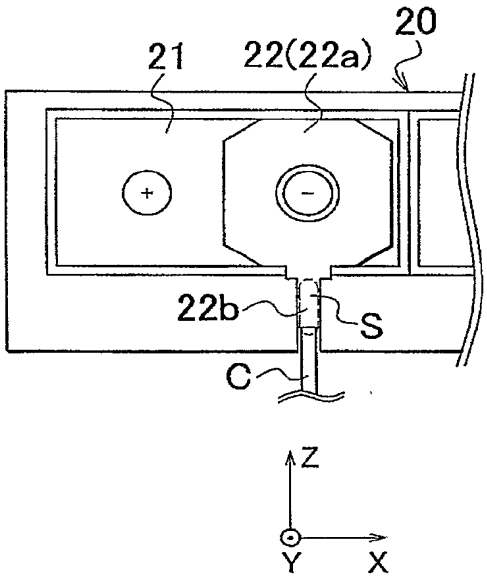



相关技术

图 6A



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相关技术

图 6B



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CN203522157U Heavy current protective device for automobile emergency starting power supply

Applicants: SHENZHEN SBASE ELECTRONICS TECHNOLOGY CO LTD

Inventors: CHEN ZHANGSHENG

Classifications:
IPC ***H02H7/18;***

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Heavy current protective device for automobile emergency starting power supply

Abstract

The utility model provides a heavy current protective device for an automobile emergency starting power supply. The heavy current protective device comprises an MCU one-chip microcomputer unit, a time switch connected to the MCU one-chip microcomputer unit and an on-off switch controlled by the time switch. One end of the on-off switch is connected with an external battery, the other end of the on-off switch is connected with an automobile storage battery, and a timer is arranged in the MCU one-chip microcomputer. After the set time interval, the MCU one-chip microcomputer automatically outputs a control signal to the time switch, and the on-off switch breaks the connection between the external battery and the automobile storage battery. When ignition is completed, the protective device is automatically closed, if igniting motions do not exist, the protective device automatically breaks the connection between the external battery and the automobile storage battery after one-minute time-delay, and damages of the external battery and the automobile storage battery caused by mutual charging for a long time are avoided.

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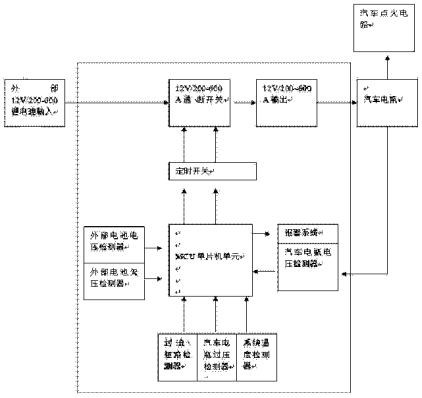
权利要求书1页 说明书3页 附图5页

(54)实用新型名称

一种汽车应急启动电源用的大电流保护装置

(57)摘要

本实用新型提供了一种汽车应急启动电源用的大电流保护装置，包括 MCU 单片机单元，与 MCU 单片机单元连接的定时开关，由定时开关控制的通断开关，通断开关的一端连接外接电池，通断开关的另一端连接汽车电瓶，MCU 单片机内部设置有定时器，设置的时间间隔过后，MCU 单片机自动输出一个控制信号给定时开关，由通断开关断开外接电池与汽车电瓶的连接。点火完成后，本保护装置自动关闭。若无点火动作，本保护装置延时 1 分钟后自动断开外接电池与汽车电瓶的连接，避免长时间相互充电损坏汽车电瓶和外接电池。




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1. 一种汽车应急启动电源用的大电流保护装置，其特征在于：包括 MCU 单片机单元，与 MCU 单片机单元连接的定时开关，由定时开关控制的通断开关，通断开关的一端连接外接电池，通断开关的另一端连接汽车电瓶，MCU 单片机内部设置有定时器，设置的时间间隔过后，MCU 单片机自动输出一个控制信号给定时开关，由通断开关断开外接电池与汽车电瓶的连接。

2. 根据权利要求 1 所述的一种汽车应急启动电源用的大电流保护装置，其特征在于：该装置外接电池输入端采用 EC5 接口，正极和负极接口物理尺寸不一样。

3. 根据权利要求 1 所述的一种汽车应急启动电源用的大电流保护装置，其特征在于：保护装置的输入和输出端连接线的正极和负极用不同颜色线连接。

4. 根据权利要求 1 所述的一种汽车应急启动电源用的大电流保护装置，其特征在于：还包括过流、短路检测器，所述过流、短路检测器与 MCU 单片机单元连接，当点火或短路电流大于该保护装置设定保护值时，MCU 单片机单元输出控制信号，由通断开关断开外接电池与汽车电瓶的连接。

5. 根据权利要求 1 所述的一种汽车应急启动电源用的大电流保护装置，其特征在于：还包括与 MCU 单片机单元连接的外部电池电压检测器和汽车电瓶过压检测器，汽车电瓶过压检测器测量的汽车电瓶的反充电压大于外部电池电压检测器的外接电池电压时，MCU 单片机单元输出控制信号，由通断开关断开外接电池与汽车电瓶的连接。

6. 根据权利要求 1 所述的一种汽车应急启动电源用的大电流保护装置，其特征在于：还包括与 MCU 单片机单元连接的外部电池欠压检测器，当外部电池电压低于限制值时，MCU 单片机单元输出控制信号，由通断开关断开外接电池与汽车电瓶的连接。

7. 根据权利要求 1 所述的一种汽车应急启动电源用的大电流保护装置，其特征在于：还包括与 MCU 单片机单元连接的系统温度检测器，当本保护装置关键器件温升达到本保护装置设定值时，MCU 单片机单元输出控制信号，由通断开关断开外接电池与汽车电瓶的连接。

8. 根据权利要求 1 至 7 任意一项所述的一种汽车应急启动电源用的大电流保护装置，其特征在于：还包括与 MCU 单片机单元连接的报警系统，保护装置出现异常进入保护状态时由报警系统报警警示。

9. 根据权利要求 8 所述的一种汽车应急启动电源用的大电流保护装置，其特征在于：所述报警系统为声音报警或者光闪报警。



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# 一种汽车应急启动电源用的大电流保护装置

## 技术领域

[0001] 本实用新型涉及一种保护装置，尤其涉及汽车应急启动电源用的大电流保护装置。

## 背景技术

[0002] 汽车开始点火，通过外接电池提供辅助电流，输出电流辅助汽车点火。若无点火动作，长时间相互充电损坏汽车电池和外部电池。

## 实用新型内容

[0003] 为了解决现有技术中问题，本实用新型提供了一种汽车应急启动电源用的大电流保护装置。

[0004] 一种汽车应急启动电源用的大电流保护装置，包括 MCU 单片机单元，与 MCU 单片机单元连接的定时开关，由定时开关控制的通断开关，通断开关的一端连接外接电池，通断开关的另一端连接汽车电瓶，MCU 单片机内部设置有定时器，设置的时间间隔过后，MCU 单片机自动输出一个控制信号给定时开关，由通断开关断开外接电池与汽车电瓶的连接。

[0005] 作为本实用新型的进一步改进，该装置外接电池输入端采用 EC5 接口，正极和负极接口物理尺寸不一样。

[0006] 作为本实用新型的进一步改进，保护装置的输入和输出端连接线的正极和负极用不同颜色线连接。

[0007] 作为本实用新型的进一步改进，还包括过流、短路检测器，所述过流、短路检测器与 MCU 单片机单元连接，当点火或短路电流大于该保护装置设定保护值时，MCU 单片机单元输出控制信号，由通断开关断开外接电池与汽车电瓶的连接。

[0008] 作为本实用新型的进一步改进，还包括与 MCU 单片机单元连接的外部电池电压检测器和汽车电瓶过压检测器，汽车电瓶过压检测器测量的汽车电瓶的反充电压大于外部电池电压检测器的外接电池电压时，MCU 单片机单元输出控制信号，由通断开关断开外接电池与汽车电瓶的连接。

[0009] 作为本实用新型的进一步改进，还包括与 MCU 单片机单元连接的外部电池欠压检测器，当外部电池电压低于限制值时，MCU 单片机单元输出控制信号，由通断开关断开外接电池与汽车电瓶的连接。

[0010] 作为本实用新型的进一步改进，还包括与 MCU 单片机单元连接的系统温度检测器，当本保护装置关键器件温升达到本保护装置设定值时，MCU 单片机单元输出控制信号，由通断开关断开外接电池与汽车电瓶的连接。

[0011] 作为本实用新型的进一步改进，还包括与 MCU 单片机单元连接的报警系统，保护装置出现异常进入保护状态时由报警系统报警警示。

[0012] 作为本实用新型的进一步改进，所述报警系统为声音报警或者光闪报警。

[0013] 本实用新型的有益效果是：



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[0014] 将本保护装置与外接电池连接，同时将本保护装置连接于汽车电瓶，此时本保护装置处于工作模式，本保护装置待机指示灯闪烁，此时汽车开始点火，通过外接电池提供辅助电流，输出 200-600A 以上电流辅助汽车点火。点火完成后，本保护装置自动关闭。若无点火动作，本保护装置延时 1 分钟后自动断开外接电池与汽车电瓶的连接，避免长时间相互充电损坏汽车电瓶和外接电池。

## 附图说明

[0015] 图 1 是本实用新型汽车应急点火装置框图（中间框内部分）；

[0016] 图 2 是本实用新型一种实现方式的具体电路图；

[0017] 图 3 是图 2 分成 A、B、C、D 四部分；

[0018] 图 4 至图 7 是图 3 中的 A、B、C、D 四部分的放大图。

## 具体实施方式

[0019] 下面结合附图对本实用新型做进一步说明。

[0020] 一种汽车应急启动电源用的大电流保护装置，包括 MCU 单片机单元，与 MCU 单片机单元连接的定时开关，由定时开关控制的通断开关，通断开关的一端连接外接电池，通断开关的另一端连接汽车电瓶，MCU 单片机内部设置有定时器，设置的时间间隔过后，MCU 单片机自动输出一个控制信号给定时开关，由通断开关断开外接电池与汽车电瓶的连接。

[0021] 该装置外接电池输入端采用 EC5 接口，正极和负极接口物理尺寸不一样。保护装置的输入和输出端连接线的正极和负极用不同颜色线连接。

[0022] 本保护装置外部电池输入端采用 EC5 接口，正极和负极接口物理尺寸不一样，只能一个方向插入，同时在输入和输出端连接线的正极和负极用不同颜色线连接，有效避免反接。

[0023] 汽车电池连接端，当夹子反接时，本保护装置不工作，指示灯不亮。

[0024] 电路实现：本保护装置 BTOUT+ 端接汽车电瓶正极端，当此端接反时，本保护装置单片机 U4 不工作，外部电池与汽车电池之间的连接断开。

[0025] 还包括过流、短路检测器，所述过流、短路检测器与 MCU 单片机单元连接，当点火或短路电流大于该保护装置设定保护值时，MCU 单片机单元输出控制信号，由通断开关断开外接电池与汽车电瓶的连接。

[0026] 当点火或短路电流大于本保护装置设定保护值时，本保护装置自动断开。

[0027] 电路实现：当本保护装置在工作过程电流发生变化时，R23 上的电压将发生变化（注：R23 为串联在大电流放电回路中的电阻），超过限定值，U2B 第 7 脚将输出一个控制信号关断继电器，断开外部电池与汽车电瓶的连接。

[0028] 还包括与 MCU 单片机单元连接的外部电池电压检测器和汽车电瓶过压检测器，汽车电瓶过压检测器测量的汽车电瓶的反充电压大于外部电池电压检测器的外接电池电压时，MCU 单片机单元输出控制信号，由通断开关断开外接电池与汽车电瓶的连接。

[0029] 当汽车启动后，汽车发动机启动，当汽车电瓶的反充电压大于外接电池电压时本保护装置马上关闭，避免汽车发电机向外部电池充电，保护外部电池不受损坏。

[0030] 电路实现：当汽车电池电压或汽车发电机电压高于本保护装置设置电压时，R31



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和 R35 之间的电压将产生变化，此电压变化将传递给单片机，单片机产生一个控制信号，关断外部电池和汽车电池的连接。

[0031] 还包括与 MCU 单片机单元连接的外部电池欠压检测器，当外部电池电压低于限制值时，MCU 单片机单元输出控制信号，由通断开关断开外接电池与汽车电瓶的连接。

[0032] 当外部电池电压低于限制值时本保护装置自动关闭：

[0033] 电路实现：当汽车电池电压或外接电池在点火过程中因放电电压低于本保护装置设置电压时，R31 和 R35 之间的电压将产生变化，此电压变化将传递给单片机，单片机产生一个控制信号，关断外部电池和汽车电池的连接。

[0034] 还包括与 MCU 单片机单元连接的系统温度检测器，当本保护装置关键器件温升达到本保护装置设定值时，MCU 单片机单元输出控制信号，由通断开关断开外接电池与汽车电瓶的连接。

[0035] 当本保护装置关键器件温升达到本保护装置设定值时本保护装置自动关闭，避免损坏本保护装置。

[0036] 本保护装置设置有温度检测电阻 R29，当 R29 变化时 U2 将输出一个控制信号，驱动本保护装置继电器断开外部电池和汽车电池的连接，避免本保护装置持续工作产生高温损坏。

[0037] 还包括与 MCU 单片机单元连接的报警系统，保护装置出现异常进入保护状态时由报警系统报警警示。所述报警系统为声音报警或者光闪报警。

[0038] 当本保护装置处于保护状态时，单片机第 8、9 脚将输出一个高电平，驱动本保护装置内置的扬声器和 LED 产生声音和光闪烁报警。

[0039] 以上内容是结合具体的优选实施方式对本实用新型所作的进一步详细说明，不能认定本实用新型的具体实施只局限于这些说明。对于本实用新型所属技术领域的普通技术人员来说，在不脱离本实用新型构思的前提下，还可以做出若干简单推演或替换，都应当视为属于本实用新型的保护范围。



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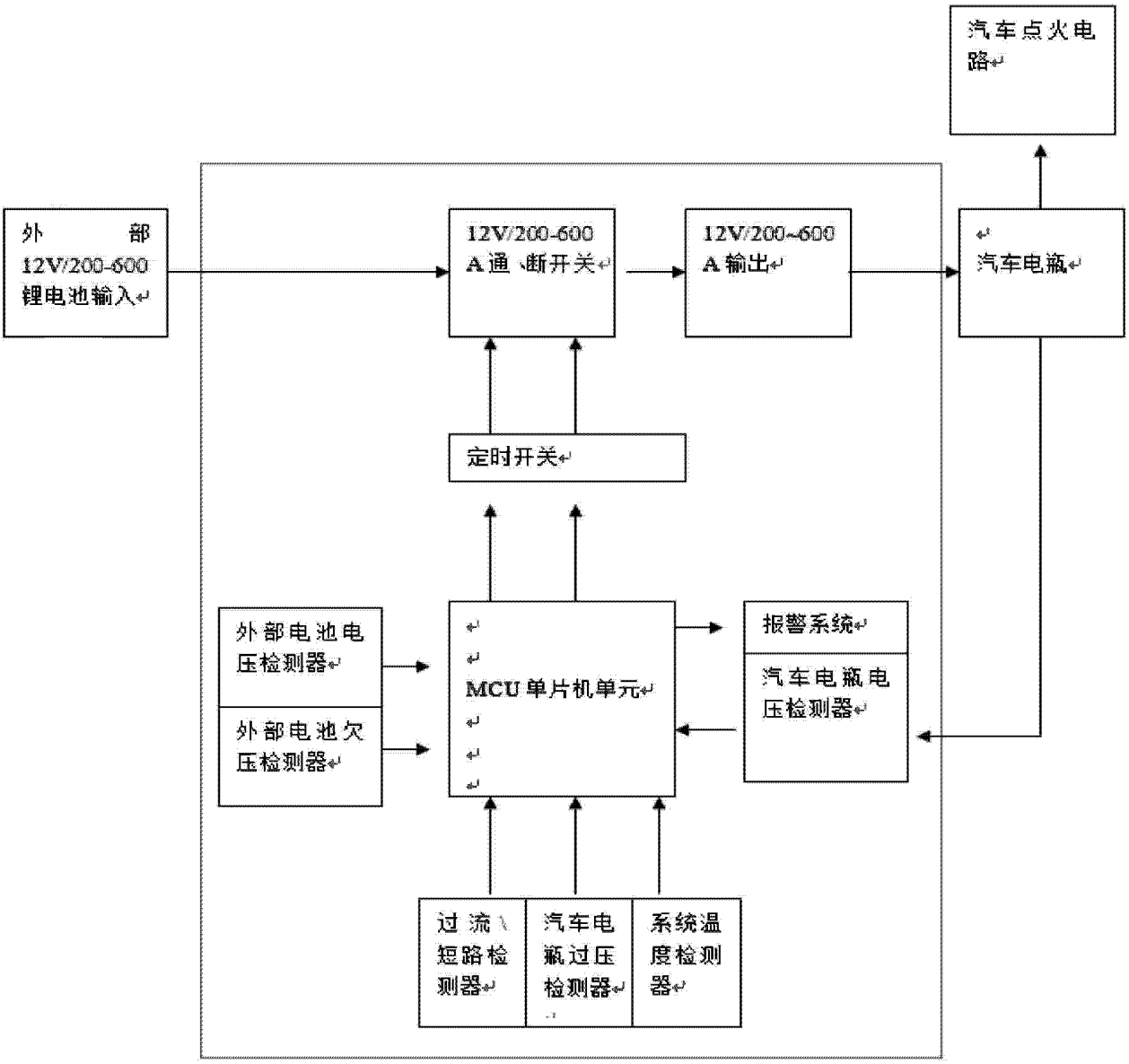



图 1



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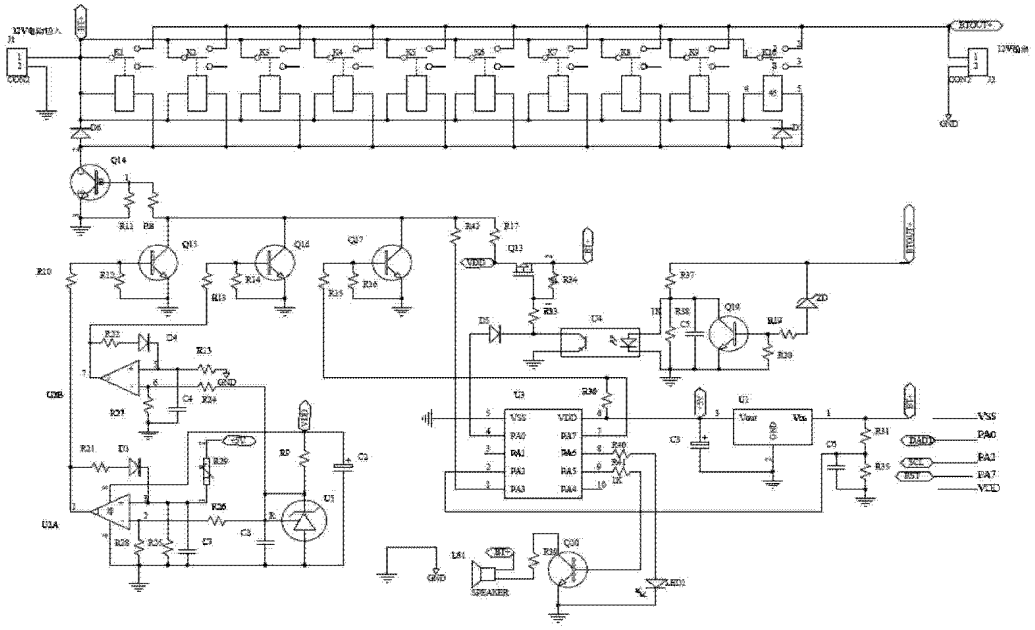


图 2

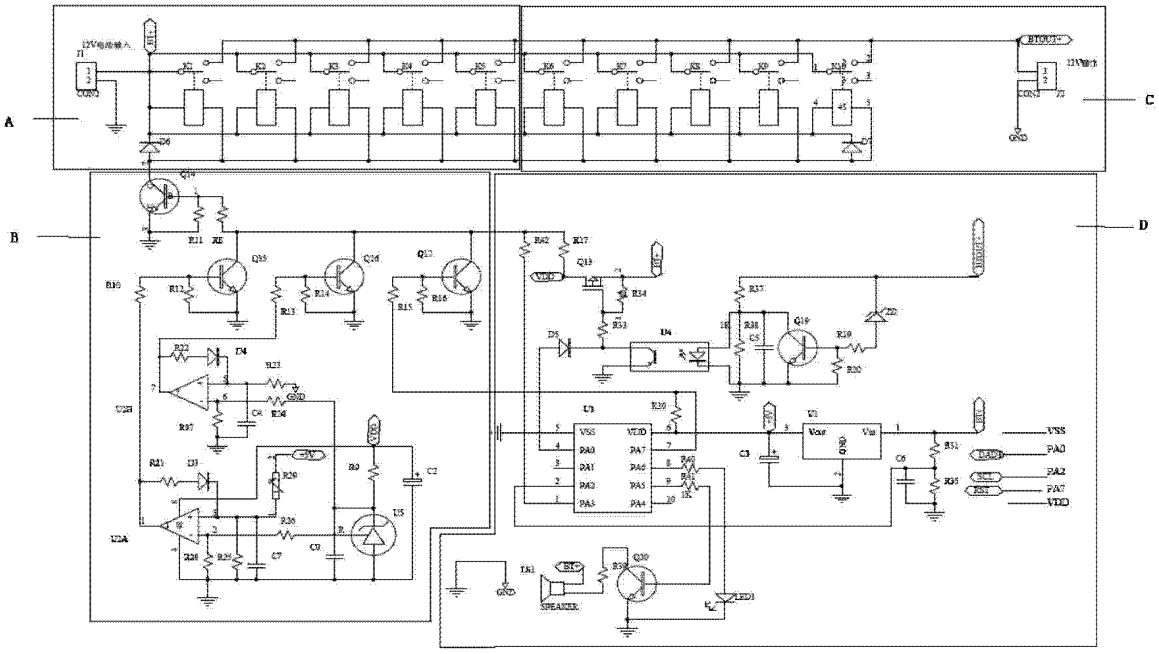


图 3



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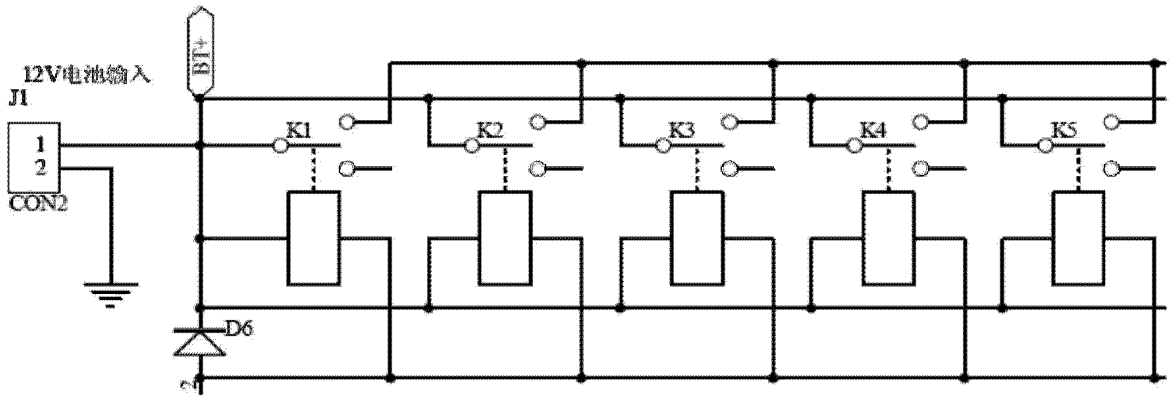



图 4



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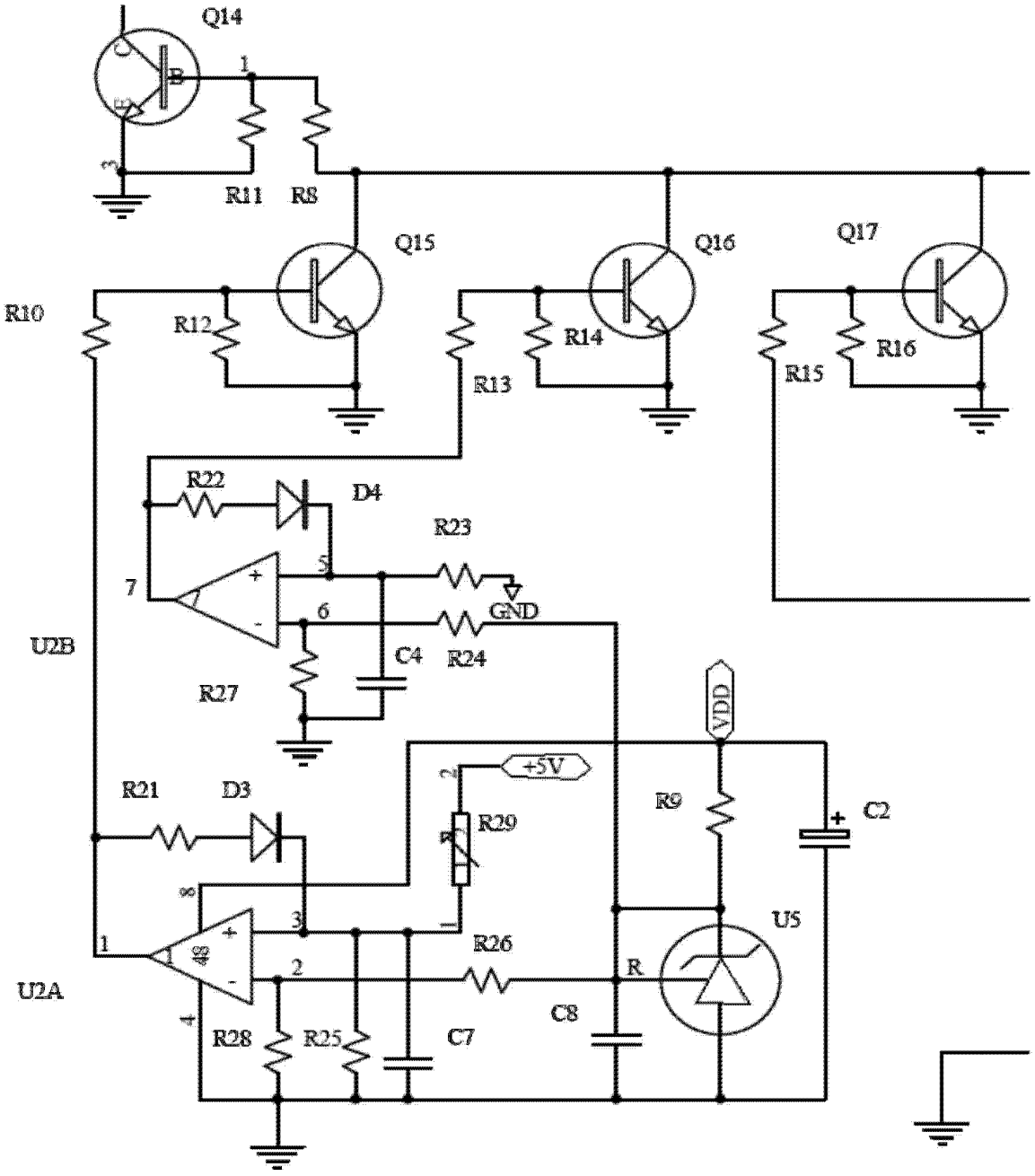



图 5



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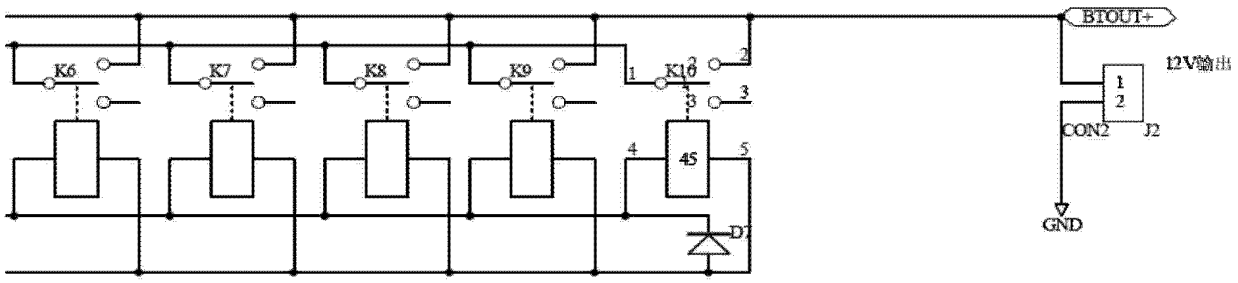



图 6

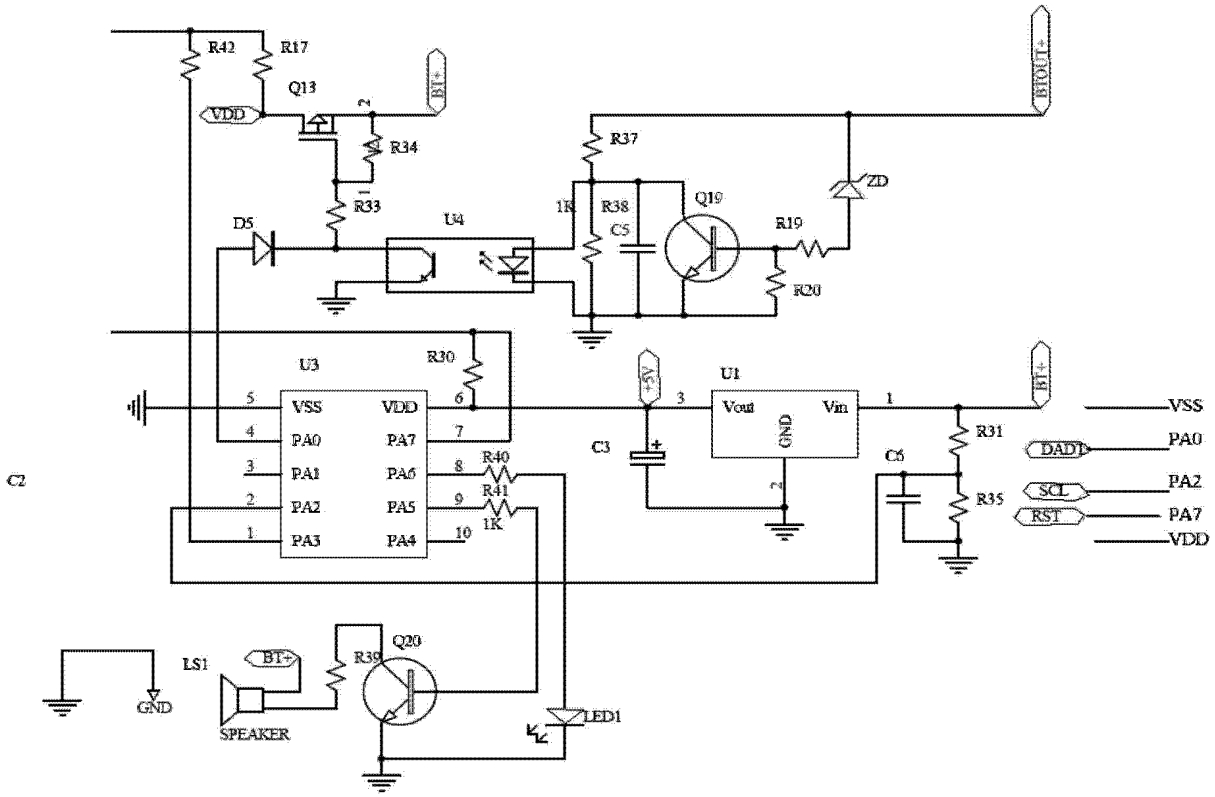



图 7



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Espacenet

CN203211234U Emergency starting device of automobile

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Published as: CN203211234U

Emergency starting device of automobile

Abstract

The utility model relates to a starting device of an automobile, in particular to an emergency starting device of an automobile. The emergency starting device comprises an internal battery, a charge input interface, a display module, a control module, a relay, an input key and output terminals. A main contact of the relay is connected with the internal battery and the output terminals respectively; the control module comprises a microprocessor and an external battery reverse connection detection circuit, and the microprocessor controls on and off of the relay via a relay switching circuit so as to control the internal battery to output currents to the output terminals; the external battery reverse connection detection circuit is used for providing correct or erroneous external battery connection signals. The emergency starting device has the advantages that the internal battery is connected with an external battery by the relay, and the relay is in an off state under conventional conditions or after the automobile is successfully started, so that sparks are prevented when the emergency starting device is connected to the automobile or is disconnected from the automobile; the relay is prevented from being actuated under the control of the microprocessor when the output terminals and the external battery are in wrong polarity connection, so that high currents caused by the wrong polarity connection can be prevented.

**(19) The State Intellectual Property Office (SIPO) of the People's Republic of China**

(12) Utility Model Patent

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**(45) Patent Date:** September 25, 2013

**(21) Appl. No.:** 201320217854. 6

**(22) Filed on:** April 26, 2013

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**(51) Int. Cl.**
***B60R 16/033*** (2006. 01)

**(ESM) An invention patent application was filed on the same day for this invention**

Claims: 1 page, Description 3 pages, Drawings 6 pages

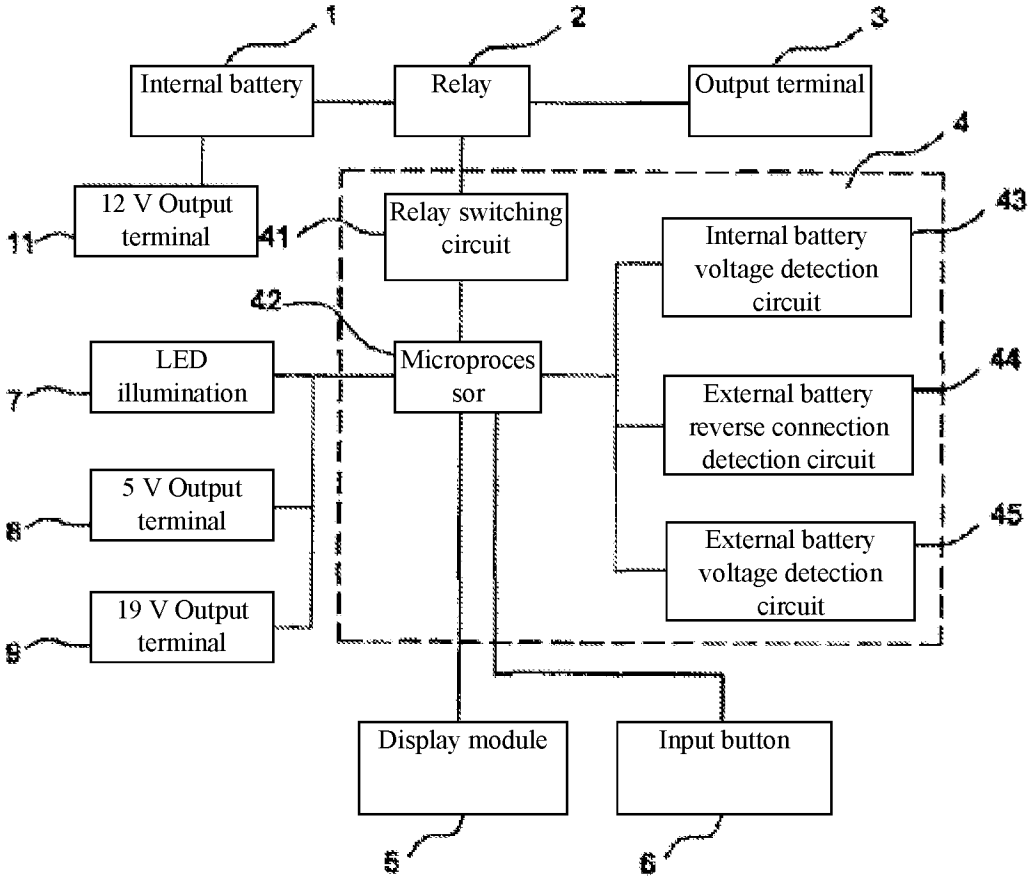
**(54) Title of Utility Model**

Emergency starting device of automobile

**(57) Abstract of Disclosures**

The utility model relates to a starting device of an automobile, in particular to an emergency starting device of an automobile. The emergency starting device comprises an internal battery, a charge input interface, a display module, a control module, a relay, an input button and output terminals, where a main contact of the relay is connected with the internal battery and the output terminals respectively, the control module comprises a microprocessor, the microprocessor controls on and off of the relay via a relay switching circuit so as to control the internal battery to output currents to the output terminals, and further comprises an external battery reverse connection detection circuit for providing correct or erroneous external battery

connection signals. In the emergency starting device of the present invention, the internal battery and an external battery are connected in via the relay, and the relay is in an off state under normal conditions or after the automobile is successfully started, so that sparks are prevented when the emergency starting device is being connected to the automobile or is being disconnected from the automobile; in addition, the relay is prevented from being actuated under the control of the microprocessor when the output terminals and the external battery are connected in a wrong way, so that large currents caused by the wrong connection can be prevented.



# Emergency starting device of automobile

## Technical Field

[0001] The utility model relates to a starting device of an automobile, in particular to an emergency starting device of an automobile.

## Background Art

[0002] Automobiles are an indispensable means of transportation in society and production. Current gasoline fuel vehicles are all equipped with a battery inside the car. The car engine charges the battery through a generator during operation. When the car engine stops running, the battery can supply electric power to the car or can start the car engine. The battery installed inside the car is generally a lead-acid battery. A lead-acid battery typically has a lower battery capacity after a certain number of charge and discharge cycles. After a long period of use, the battery may be dead. In such a case, the car may not start due to over-discharge of the battery or battery failure. A common method to solve such issue is to replace the car battery with an external battery to start the car. The common emergency power source for a car is a lead-acid battery to replace the original car battery. However, this may have a few drawbacks. The lead-acid battery itself is bulky in a relative large size, and has no polarity detection function. When the polarity of the emergency start power source connected is opposite to that of the original car battery, a large current may be generated to cause battery damage or even an explosion. In addition, as for the external lead-acid battery used as an emergency power supply for a car, it does not have a specific structural design to prevent spark generation. As a result, when it is connected, sparks may be generated at the time of connecting or disconnection. Hence, this type of battery has safety risks.

## Summary of Utility Model

[0003] The present utility model provides an automobile emergency starting power source to solve the deficiencies mentioned above. The automobile emergency starting power source provided in the present utility model will not form a connected circuit when the electrodes

of this automobile emergency starting power source is connected in an incorrect way. At the same time, when the automobile emergency starting power source of the present utility model is being connected with or disconnected from the automobile, the spark generation can be effectively prevented, and the safety is improved.

[0004] The present utility model is achieved as follows, an automobile emergency starting device comprises an internal battery, a charge input interface, a display module, a control module, a relay, an input button and output terminals, where a main contact of the relay is connected with the internal battery and the output terminals respectively, the control module comprises a microprocessor, the microprocessor controls on and off of the relay via a relay switching circuit so as to control the internal battery to output currents to the output terminals, the control module further comprises an external battery reverse connection detection circuit for providing correct or erroneous external battery connection signals. The automobile emergency starting device according to the present utility model further includes a 12V output terminal, and the 12V output terminal is connected to the internal battery.

[0005] In order to allow the display module to display the internal battery voltage, the present utility model has the following feature: the control module further includes an internal battery voltage detection circuit, and the internal battery voltage detection circuit is connected to the microprocessor via signals.

[0006] In order to allow the display module to display the external battery voltage, the control module further includes an external battery voltage detection circuit, and the external battery voltage detecting circuit is connected to the microprocessor via signals.

[0007] The automobile emergency starting device of the present utility model further comprises an LED illumination device and an LED illumination drive circuit.

[0008] For convenient use, the automobile emergency starting device of the present utility model further comprises a 5 V voltage output circuit and a 19 V voltage output circuit; the

5 V output circuit is connected to a 5 V output terminal, and the 19V output circuit is connected to a 19 V output terminal.

[0009] The automobile emergency starting device of the present utility model adopts a built-in battery scheme, and at the same time the internal battery and the external battery are connected through a relay. Under a normal condition, the relay is in an off state, while when the device is connected with an external car battery, the device is able to detect the external battery voltage, and the detected voltage is then displayed on an LCD. At this time, the JUMP button in the input buttons is pressed to control the on and off of the relay, so that the emergency start device will not generate sparks when it is being connected. After the car is successfully jump-started, the device will shut down the relay within 2 seconds, so as to disconnect the external battery from the internal battery, accordingly the emergency starting device of the present utility model will not generate sparks when it is being disconnected, and will not has the issue that the car generator reversely charge the preset device. In addition, an external battery reverse connection detection circuit is also provided in the device. Therefore, when the polarity of the connection between an output terminal of the emergency starting device of the present utility model and the external battery is wrong, the microprocessor controls the relay to be in an off state, which can effectively prevent the large current generation caused by such wrong connection.

**Brief Description of Drawings**

[0010] Figure 1 is a schematic view showing the structure of the system of the present utility model.

[0011] Figure 2 is a schematic diagram of the circuit of the control module of the present utility model.

[0012] Figure 3 is a schematic diagram of the circuit of the LED illumination device of the present utility model.

[0013] Figure 4 is a schematic diagram of the circuit of the 5 V output of the present utility model.

[0014] Figure 5 is a schematic diagram of the circuit of the 19 V output of the present utility model.

[0015] Figure 6 is a front view of the present utility model.

[0016] Figure 7 is a bottom view of the present utility model.

[0017] Figure 8 is a right view of the present utility model.

[0018] Figure 9 is a left view of the present utility model.

[0019] In the drawings: 1- internal battery, 2- relay, 3- output terminal, 4- control module, 5- display module, 6- input button, 7- LED illumination device, 8- 5 V output terminal, 9- 19 V output terminal, 10- charge input, 11- 12 V output terminal

**Description of Embodiments**

[0020] The present utility model will be further described in detail below with reference to the accompanying drawings and specific embodiments. However, the present invention is not limited to the following embodiments, and any changes or alternatives made on the basis of the principles of the embodiments of the present utility model fall within the scope of the present utility model.

[0021] In reference to Figures 1 to 9, an automobile emergency starting device comprises an internal battery 1, a charge input 10 interface , a display module 5, a control module 4, a relay 2, an input button 6 and output terminals 2, where a main contact of the relay 2 is connected with the internal battery 1 and the output terminals 3 respectively, the control module 4 comprises a microprocessor 42, the microprocessor 42 controls on and off of the relay 2 via a relay switching circuit 41 so as to control the internal battery 1 to output currents to the output terminals 3, the

control module 4 further comprises an external battery reverse connection detection circuit 44 for providing correct or erroneous external battery connection signals.

[0022] In order to allow the display module 5 to display the internal battery 1 voltage, the present utility model has the following feature: the control module 4 further includes an internal battery voltage detection circuit 43, and the internal battery voltage detection circuit 43 is connected to the microprocessor 42 via signals.

[0023] In order to allow the display module 5 to display the external battery voltage, the control module 4 further includes an external battery voltage detection circuit 45, and the external battery voltage detecting circuit 45 is connected to the microprocessor 42 via signals.

[0024] The automobile emergency starting device of the present utility model further comprises an LED illumination device 7 and an LED illumination drive circuit.

[0025] For convenient use, the automobile emergency starting device of the present utility model further comprises a 5 V voltage output circuit and a 19 V voltage output circuit; the 5 V output circuit is connected to a 5 V output terminal 8, and the 19V output circuit is connected to a 19 V output terminal 9. The automobile emergency starting device of the present utility model also includes a 12V output terminal 11, and the 12V output terminal 11 is connected to the internal battery 1.

[0026] When a car cannot be started due to a failure of the built-in battery of the car, the output terminal 3 of the emergency starting device of the present utility model will be connected with an external battery, that is built-in battery of the car to be jump-started. Under normal conditions, the relay of the device is in the off state. While in the case where the output terminal 3 of the device is connected to the external battery and the polarity connection is incorrect, the external battery reverse connection detection circuit 44 sends a signal to the microprocessor 42, so that the microprocessor 42 controls the relay 2 to retain in the off state. This makes it possible to avoid a large current generation caused by such an incorrect connection. On the other hand, when the connection polarity between the output terminal 3 and the external battery are correct,

the external battery voltage detecting circuit 45 will operates, the microprocessor 42 detects the external battery voltage, and displays the voltage on the LCD. If the external battery voltage is within the normal range, the JUMP button of the input button 6 can be pressed to make the relay 2 in the on state, so that the internal battery 1 outputs current to the car to be started through the output terminal 3. After the car is started for 2 seconds, the microprocessor 42 controls the relay 2 to switch to the off state, and then the output terminal 3 cables can be removed from the car. Since there would be no current in the output terminal 3 after the relay 2 is turned off, no spark is generated when the output cable is removed. After the car has been started and the output terminal 3 is removed, the jump-staring process of the emergency start device of the present utility model is complete.

[0027] The internal battery 1 voltage is displayed on the display module 5 by means of internal battery voltage detection circuit 43 providing a signal to the microprocessor 42 to facilitate monitoring of the battery usage status. The signal is sent to the microprocessor 42 through the external battery voltage detecting circuit 45, and the external battery voltage can be displayed on the display module 5 to facilitate learn the condition of the external battery.

[0028] In order to allow the internal battery 1 to be charged, a charge input 10 interface is further provided on the device. In addition, the device is also provided with an LED illumination device 7 for providing lighting in the case where the light intensity is insufficient. The device is also equipped with a 5 V output terminal 8, a 19 V output terminal 9 and a 12V output terminal 11. Under normal conditions, the present utility model can be used as a general power source for other devices.

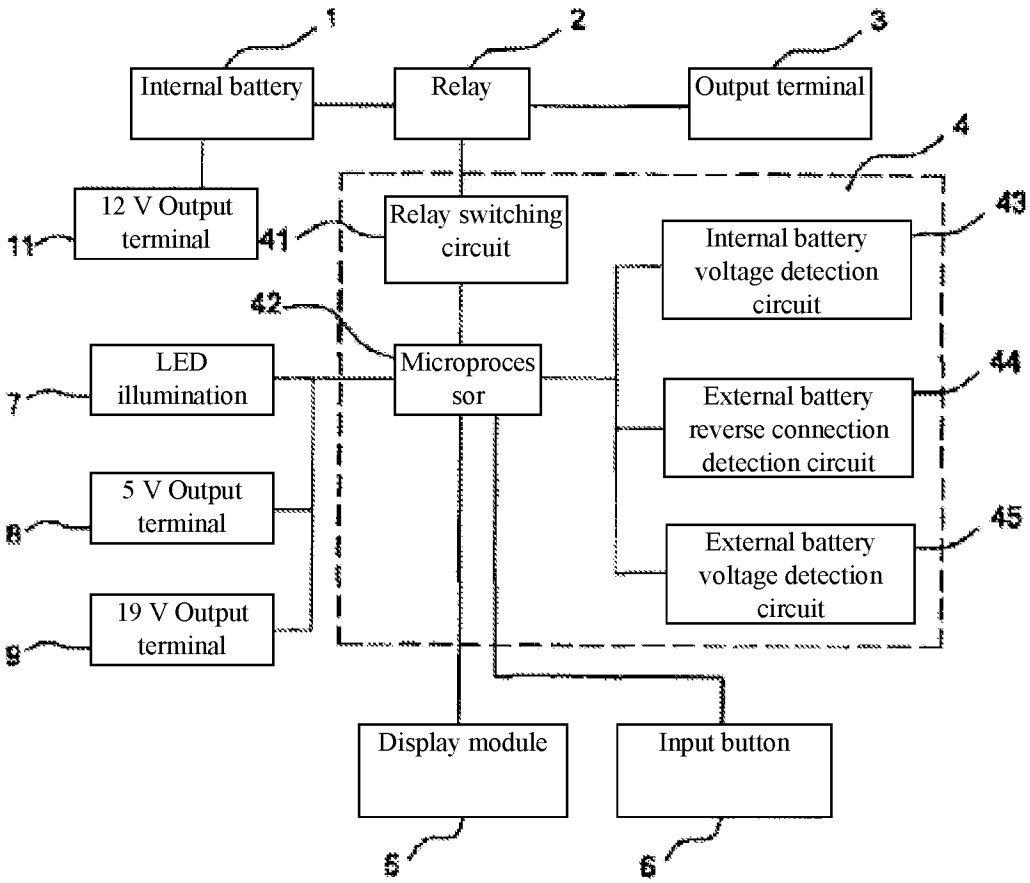

1
2
3
Internal battery
Relay
Output terminal
4
12 V Output terminal
11
41
Relay switching circuit
43
Internal battery voltage detection circuit
42
LED illumination
7
Microprocessor
44
External battery reverse connection detection circuit
5 V Output terminal
8
45
External battery voltage detection circuit
19 V Output terminal
9
Display module
Input button
5
6

Figure 1

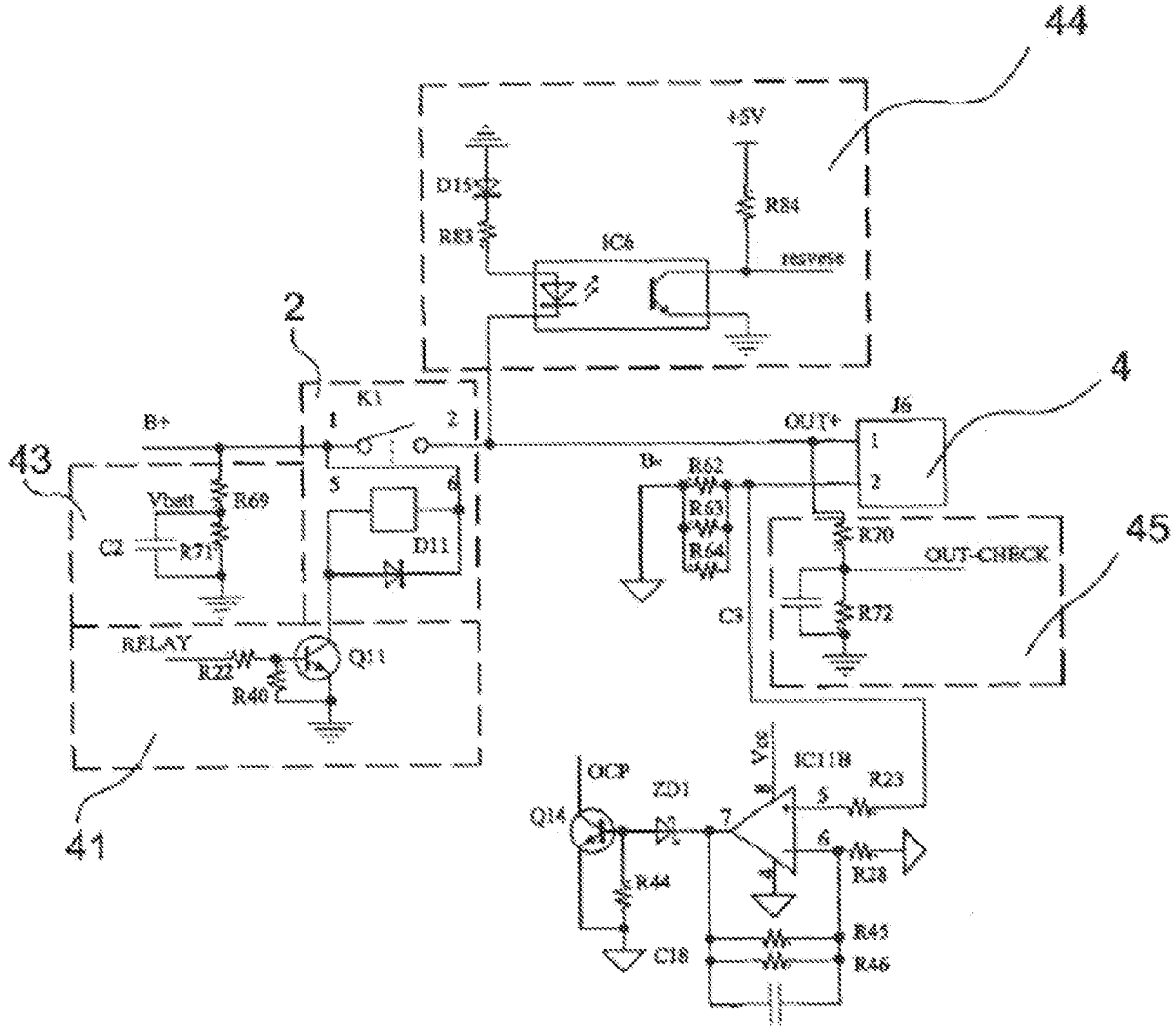

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D15
R84
R83
IC8
2
4
K1
B+
OUT+
J6
43
R69
R62
R63
R64
R70
C2
R71
D11
OUT-CHECK
45
C3
R72
RELAY
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Q14
R44
R45
R46
C18

Figure 2

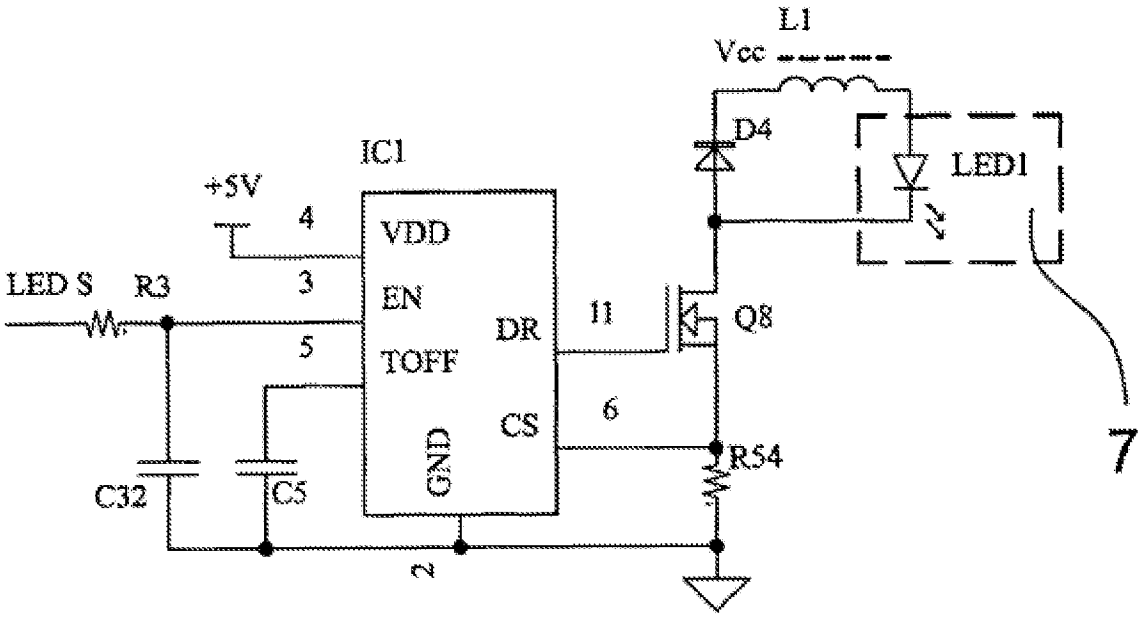

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IC1
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VDD
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C32
C5
GND
R54
2

Figure 3

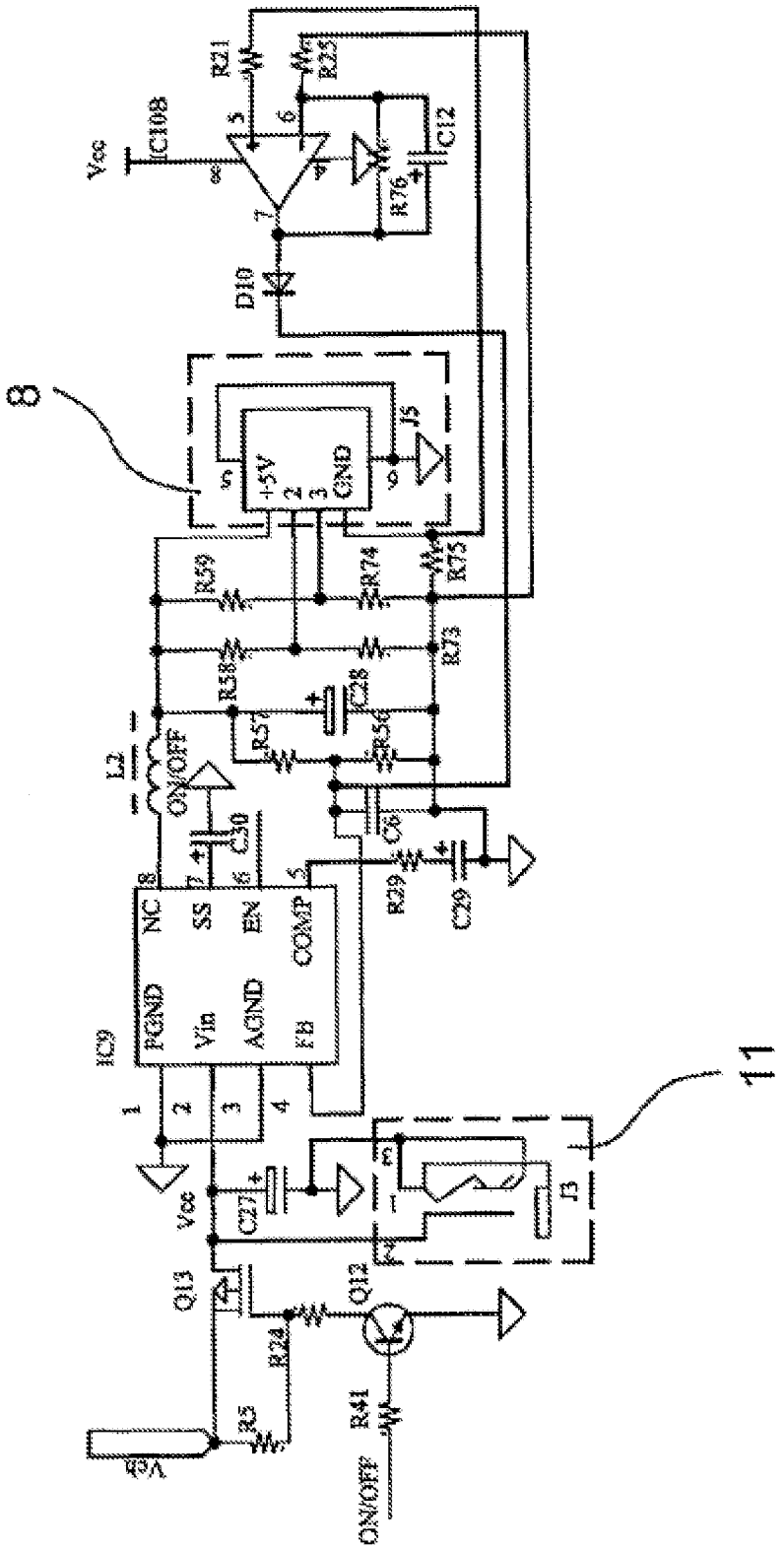

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R73
C28
R57
R56
L2
ON/OFF
C30
C31
R39
C29
IC9
NC
SS
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R3
R41
Vcc
ON/OFF

Figure 4

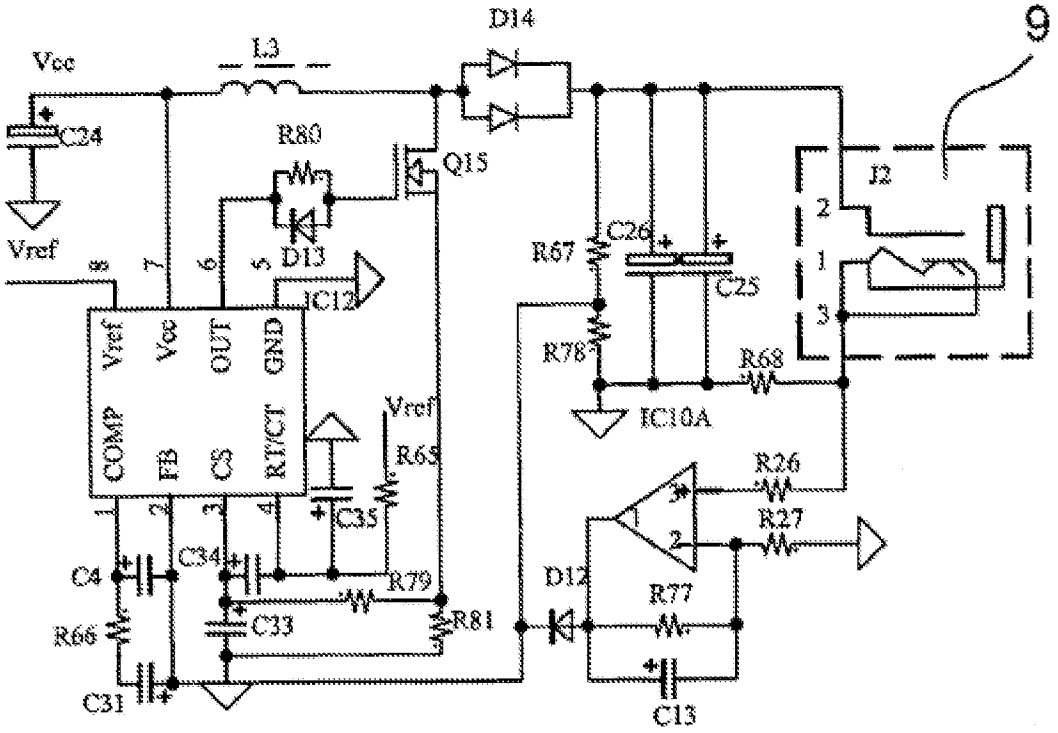



Figure 5

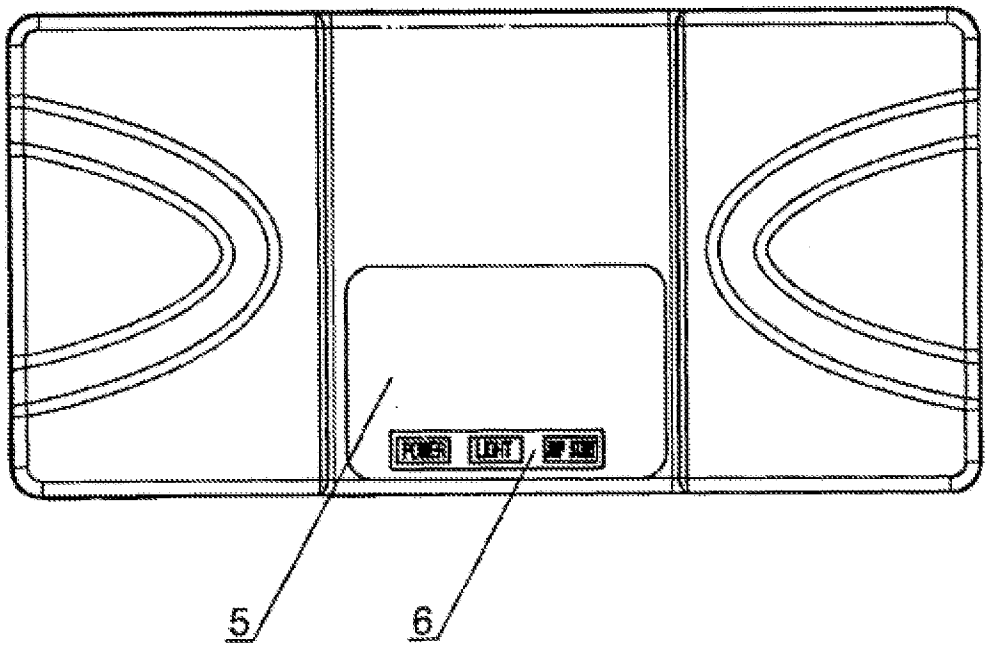



Figure 6

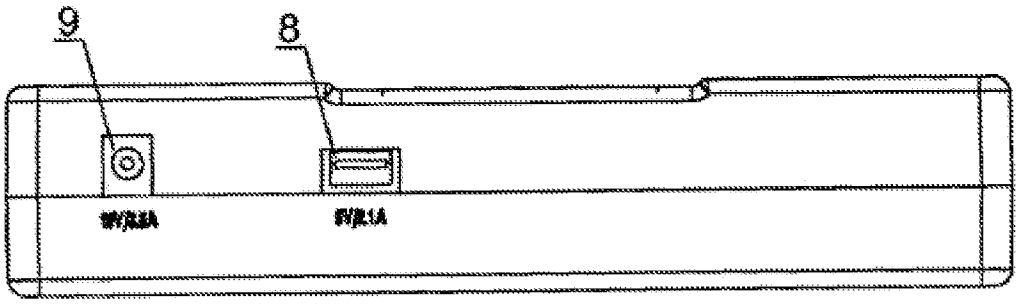



Figure 7

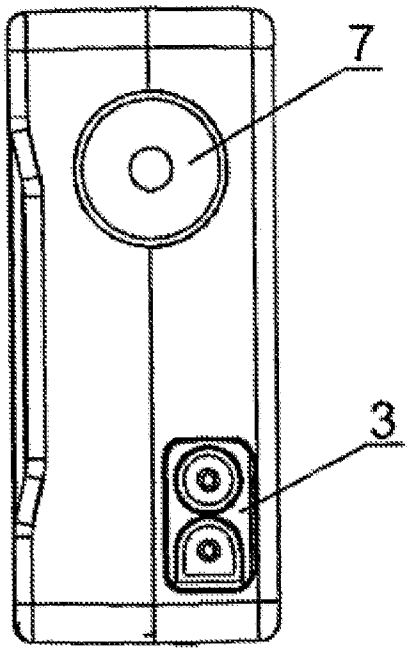



Figure 8

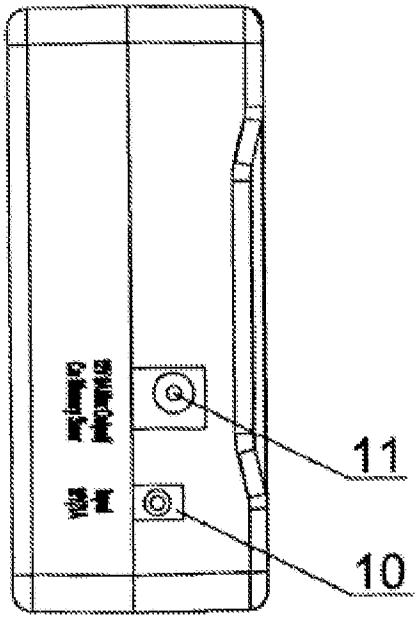



Figure 9

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# DESCRIPTION CN203211234U

*10* Emergency starting device for automobile

[0001]

*14* Technical field

[0002]

*18* The utility model relates to an automobile starting device, in particular to an automobile emergency starting device.

[0003]

*23* Background technique

[0004]

*27* Automobile is an indispensable means of transportation in social production.

*28* Current fuel vehicles are equipped with batteries inside the car. The battery is charged by a generator during the operation of the car engine. When the car engine stops running, the battery can provide electricity for use by the car or start the engine.

*31* The storage battery installed inside the car is generally a lead-acid battery.

*32* After a certain number of charge and discharge cycles of lead-acid batteries, the battery capacity will become lower and lower. After long-term use, the battery may be directly scrapped. When the car is in use, the car may not be able to start due to battery over-discharge or battery failure. The common method is to replace the car battery with a separate battery to start the car. The common emergency starting power source for this kind of car is a lead-acid battery instead of the original car battery. When in use, because the lead-acid battery itself is relatively heavy and bulky, and has no polarity detection function, when the polarity of the connected

emergency starting power source is opposite to the polarity of the original car battery, a large current may be generated to make the battery It may even explode in severe cases. At the same time, such a single lead-acid battery is used as an emergency power supply for the car to start, and there is no spark-proof design when it is connected. It can generate sparks instantly when the emergency power supply is connected or disconnected. There are unsafe factors.

[0005]

46 Utility model content

[0006]

50 The utility model aims at the above-mentioned shortcomings and provides an emergency starting power supply for automobiles.

52 The utility model of the automobile emergency starting power supply will not be energized when the emergency starting power supply is connected to the power supply in the automobile circuit and the polarity of the power supply is reversed.

55 At the same time, the automobile emergency starting power supply of the utility model can effectively prevent electric sparks from being generated when it is connected to or disconnected from the automobile, and the safety is improved.

[0007]

61 The utility model is realized in this way. An automobile emergency starting device includes an internal battery, a charging input interface, a display module, a control module, a relay, an input button and an output terminal, wherein the main contact of the relay is connected to the internal battery and output terminal respectively. Terminal connection; the control module contains a microprocessor, the microprocessor controls the opening and closing of the relay through the relay switch circuit to control the internal battery to output current to the output terminal; the control module also includes an external battery for providing the correct or wrong signal of the external battery wiring Reverse connection detection circuit.

68 The automobile emergency starting device of the present invention also includes a 12V output terminal, and the 12V output terminal is connected to the internal battery.

[0008]

73 In order to enable the display module to display the internal battery voltage, it is characterized in that the control module further includes an internal battery voltage detection circuit, and the internal battery voltage detection circuit is signally connected to the microprocessor.

[0009]

79 In order to enable the display module to display the external battery voltage, the control module also includes



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an external battery voltage detection circuit, and the external battery voltage detection circuit is signally connected to the microprocessor.

[0010]

85 The automobile emergency starting device of the utility model also includes an LED lighting device and an LED lighting drive circuit.

[0011]

90 For convenient use, the automobile emergency starting device of the present invention also includes a 5V voltage output circuit and a 19V voltage output circuit; the 5V output circuit is connected to the 5V output terminal, and the 19V output circuit is connected to the 19V output terminal.

[0012]

96 The car emergency starting device of the utility model adopts a built-in battery solution, and the internal battery and the external battery are connected through a relay. Normally, the relay is in the off state. When the device is connected to the external car battery, the device will detect When the external battery voltage is reached, the voltage will be displayed on the LCD at the same time. At this time, pressing the JUMP button in the input button can control the on and off of the relay, so that the car's emergency starting device does not produce sparks when it is connected.

102 After using this device to start the car successfully, the device will switch off the electrical appliances within 2 seconds, disconnect the external battery from the internal battery, so that the car' s emergency starting device will not produce sparks when it is removed. There will be no reverse charging of the device by the car generator.

106 At the same time, the device is equipped with an external battery reverse connection detection circuit. When the output terminal of the automobile emergency starting device of the present utility model is connected to the external battery in the wrong polarity, the microprocessor controls the relay to not pull in, which can effectively prevent the polarity. Large current caused by wrong connection.

[0013]

113 Description of the drawings

[0014]

117 Figure 1 is a schematic diagram of the system structure of the utility model.

[0015]

121 Figure 2 is the circuit schematic diagram of the control module of the present invention.



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[0016]

125 Figure 3 is a schematic diagram of the circuit of the LED lighting device of the present invention.

[0017]

129 Figure 4 is a schematic diagram of the 5V output circuit of the utility model.

[0018]

133 Figure 5 is a schematic diagram of the 19V output circuit of the utility model.

[0019]

137 Figure 6 is a schematic front view of the utility model.

[0020]

141 Figure 7 is a schematic bottom view of the utility model.

[0021]

145 Figure 8 is a schematic diagram of the right side view of the utility model.

[0022]

149 Figure 9 is a schematic left view of the utility model.

[0023]

153 In the picture: 1-internal battery, 2-relay, 3-output terminal, 4-control module, 5-display module, 6-input button, 7-LED lighting device, 8-5V output terminal, 9-19V output terminal , 10-charging input, 11-12V output terminal.

[0024]

159 Detailed ways

[0025]

163 The following describes the present utility model in further detail with reference to the drawings and specific

embodiments, but the present utility model is not limited to the following embodiments. Any changes or alternatives made on the principle of this embodiment fall into the requirements of the present utility model. Within the scope of protection.

[0026]

170 With reference to Figures 1 to 9, an automobile emergency starting device includes an internal battery 1, a charging input 10 interface, a display module 5, a control module 4, a relay 2, an input button 6 and an output terminal 3, wherein the relay 2 is the main The contact contacts are respectively connected to the internal battery 1 and the output terminal 3; the control module 4 includes a microprocessor 42, which controls the opening and closing of the relay 2 through the relay switch circuit 41 to control the internal battery 1 to the output terminal 3. Output current; the control module 4 also includes an external battery reverse connection detection circuit 44 that is used to provide an external battery connection signal.

[0027]

180 In order to enable the display module 5 to display the voltage of the internal battery 1, it is characterized in that the control module 4 further includes an internal battery voltage detection circuit 43, and the internal battery voltage detection circuit 43 is in signal connection with the microprocessor 42.

[0028]

186 In order to enable the display module 5 to display the external battery voltage, the control module 4 further includes an external battery voltage detection circuit 45, and the external battery voltage detection circuit 45 is signally connected to the microprocessor 42.

[0029]

192 The automobile emergency starting device of the present invention also includes an LED lighting device 7 and an LED lighting drive circuit.

[0030]

197 For ease of use, the automobile emergency starting device of the present invention also includes a 5V voltage output circuit and a 19V voltage output circuit; the 5V output circuit is connected to the 5V output terminal 8 and the 19V output circuit is connected to the 19V output terminal 9.

200 The automobile emergency starting device of the present invention further includes a 12V output terminal 11, and the 12V output terminal 11 is connected to the internal battery 1.

[0031]

205 When the car cannot be started due to the car's own battery, the output terminal 3 of the car emergency



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starting device of the present invention is connected to the external battery, that is, the car's own battery to be started.

208 Normally, the relay is in the off state. If the output terminal 3 is connected to the external battery with wrong polarity, the external battery reverse connection detection circuit 44 provides a signal to the microprocessor 42 so that the microprocessor 42 can control the relay 2 not to suck. It can avoid the large current caused by wrong polarity connection.

212 If the output terminal 3 and the external battery have the correct polarity and the external battery voltage detection circuit 45 works, the microprocessor 42 will detect the external battery voltage and display this voltage on the LCD. If the external battery voltage is within the normal range, then You can press the JUMP button in the input button 6 to turn on the relay 2 so that the internal battery 1 outputs current to the vehicle to be started through the output terminal 3.

217 When the car is started for 2 seconds, the microprocessor 42 will control the relay 2 to disconnect, so as to remove the output terminal 3 wiring.

219 Since there is no current in output terminal 3 after relay 2 is off, no spark will be generated when it is removed.

220 When the car has been started and the output terminal 3 is disconnected, the work of the car emergency starting device of the present invention is completed.

[0032]

225 The internal battery voltage detection circuit 43 provides signals to the microprocessor 42 to display the voltage of the internal battery 1 on the display module 5 to facilitate monitoring of the battery usage status.

227 The signal provided by the external battery voltage detection circuit 45 to the microprocessor 42 can display the external battery voltage on the display module 5 to facilitate the understanding of the external battery condition.

[0033]

233 In order to allow the internal battery 1 to be charged, a charging input 10 interface is provided on the device.

234 At the same time, the device is also provided with an LED lighting device 7 to facilitate lighting when the light intensity is insufficient.

236 The device is also equipped with 5V output terminal 8 and 19V output terminal 9 and 12V output terminal 11, which can be used as a general power supply for other electrical equipment.

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## CLAIMS CN203211234U

1.

13 An emergency starting device for an automobile, comprising an internal battery (1), a charging input (10) interface, a display module (5), a control module (4), a relay (2), an input button (6) and an output terminal (3), It is characterized in that the main contacts of the relay (2) are respectively connected with the internal battery (1) and the output terminal (3); the control module (4) contains a microprocessor (42), and the microprocessor (42) passes The relay switch circuit (41) controls the opening and closing of the relay (2) to control the internal battery (1) to output current to the output terminal (3); the control module (4) also includes the external battery reverse connection for providing the correct or false signal of the external battery wiring Detection circuit (44).

2.

24 The automobile emergency starting device according to claim 1, characterized in that the control module (4) further comprises an internal battery voltage detection circuit (43), the internal battery voltage detection circuit (43) and the microprocessor (42) ) Signal connection.

3.

30 The automobile emergency starting device according to claim 1, characterized in that the control module (4) further comprises an external battery voltage detection circuit (45), the external battery voltage detection circuit (45) and the microprocessor (42) ) Signal connection.

4.

36 The automobile emergency starting device according to claim 1, characterized in that the device also includes an LED lighting device (7) and an LED lighting drive circuit.

5.

41 The automobile emergency starting device according to any one of claims 1 to 4, characterized in that the device further includes a 5V voltage output circuit and a 19V voltage output circuit; the 5V output circuit is connected to the 5V output terminal (8), and the 19V output The circuit is connected to the 19V output terminal (9).

6.

48 The automobile emergency starting device according to any one of claims 1 to 4, characterized in that the device further comprises a 12V output terminal (11), and the 12V output terminal is connected to an internal battery (1).



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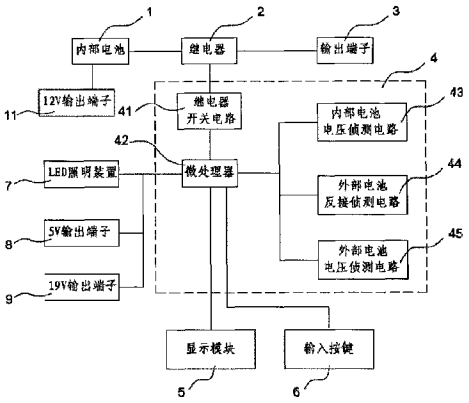
权利要求书1页 说明书3页 附图6页

(54)实用新型名称

一种汽车应急启动装置

(57)摘要

本实用新型涉及一种汽车启动装置，具体涉及一种汽车应急启动装置。本实用新型包括内部电池，充电输入接口，显示模块，控制模块，继电器，输入按键和输出端子，其中所述继电器主触点分别与内部电池和输出端子连接；控制模块中包含微处理器，所述微处理器通过继电器开关电路控制继电器开合用以控制内部电池向输出端子输出电流；还包括用于提供外部电池接线正误信号的外部电池反接侦测电路。本装置内部电池与外部电池通过继电器接入，在通常情况和汽车启动成功后继电器处于关断状态，使本装置在接入与取下时不产生火花。同时输出端子与外部电池相连接的极性接错时，微处理器控制继电器不吸合，可防止极性接错而产生的大电流。




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1. 一种汽车应急启动装置，包括内部电池 (1)，充电输入 (10) 接口，显示模块 (5)，控制模块 (4)，继电器 (2)，输入按键 (6) 和输出端子 (3)，其特征是所述继电器 (2) 主触点分别与内部电池 (1) 和输出端子 (3) 连接；控制模块 (4) 中包含微处理器 (42)，所述微处理器 (42) 通过继电器开关电路 (41) 控制继电器 (2) 开合用以控制内部电池 (1) 向输出端子 (3) 输出电流；控制模块 (4) 中还包括用于提供外部电池接线正误信号的外部电池反接侦测电路 (44)。

2. 根据权利要求 1 所述的汽车应急启动装置，其特征是控制模块 (4) 中还包括内部电池电压侦测电路 (43)，所述内部电池电压侦测电路 (43) 与微处理器 (42) 信号连接。

3. 根据权利要求 1 所述的汽车应急启动装置，其特征是控制模块 (4) 中还包括外部电池电压侦测电路 (45)，所述外部电池电压侦测电路 (45) 与微处理器 (42) 信号连接。

4. 根据权利要求 1 所述的汽车应急启动装置，其特征是所述装置内还包括 LED 照明装置 (7) 和 LED 照明驱动电路。

5. 根据权利要求 1 到 4 任一所述的汽车应急启动装置，其特征是所述装置内还包括 5V 电压输出电路和 19V 电压输出电路；5V 输出电路与 5V 输出端子 (8) 相连接，19V 输出电路与 19V 输出端子 (9) 相连接。

6. 根据权利要求 1 到 4 任一所述的汽车应急启动装置，其特征是所述装置内还包括 12V 输出端子 (11)，所述 12V 输出端了与内部电池 (1) 连接。



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# 一种汽车应急启动装置

## 技术领域

[0001] 本实用新型一种汽车启动装置，具体涉及一种汽车应急启动装置。

## 背景技术

[0002] 汽车是社会生产中不可缺少的一种交通运输工具。目前的燃油汽车都在汽车内部设置蓄电池，汽车发动机在运转过程中通过发电机对蓄电池进行充电，当汽车发动机停止运转时，可以由蓄电池提供电力供应汽车使用或使发动机启动。汽车内部所设置的蓄电池一般为铅酸电池。铅酸电池在经过一定次数的充放电循环后会电池容量越变越低。经过长期使用还可能使电池直接报废。当汽车在使用过程中，可能会由于电池过放电或电池失效而使汽车无法启动。常见的方法是用一个单独的蓄电池替换汽车蓄电池，使汽车启动，常见的这种汽车应急启动电源是铅酸电池代替原汽车蓄电池。在使用的时候，由于铅酸电池自身比较笨重，体积庞大，同时也没有极性检测功能，当接入的应急启动电源极性和原汽车蓄电池极性相反时可能会产生很大的电流使蓄电池损坏，严重时甚至会发生爆炸。同时这样的单独铅酸电池作为汽车启动应急电源，在接入的时候也没有防火花设计，可以在接入或断开应急电源瞬间产生火花，存在不安全因素。

## 实用新型内容

[0003] 本实用新型针对上述不足之处而提供的一种汽车应急启动电源。本实用新型的汽车应急启动电源，当应急启动电源接入汽车电路中电源极性接反时不与通电。同时本实用新型的汽车应急启动电源接入或断开与汽车连接时可有效防止电火花产生，提高了安全性。

[0004] 本实用新型是这样实现的，一种汽车应急启动装置，包括内部电池，充电输入接口，显示模块，控制模块，继电器，输入按键和输出端子，其中所述继电器主触点分别与内部电池和输出端子连接；控制模块中包含微处理器，所述微处理器通过继电器开关电路控制继电器开合用以控制内部电池向输出端子输出电流；控制模块中还包括用于提供外部电池接线正误信号的外部电池反接侦测电路。本实用新型的汽车应急启动装置内还包括 12V 输出端子，所述 12V 输出端子与内部电池连接。

[0005] 为使显示模块可以显示内部电池电压，其特征是控制模块中还包括内部电池电压侦测电路，所述内部电池电压侦测电路与微处理器信号连接。

[0006] 为使显示模块可以显示外部电池电压，控制模块中还包括外部电池电压侦测电路，所述外部电池电压侦测电路与微处理器信号连接。

[0007] 本实用新型的汽车应急启动装置，还包括 LED 照明装置和 LED 照明驱动电路。

[0008] 为方便使用，本实用新型的汽车应急启动装置内还包括 5V 电压输出电路和 19V 电压输出电路；5V 输出电路与 5V 输出端子相连接，19V 输出电路与 19V 输出端子相连接。

[0009] 本实用新型的汽车应急启动装置，采用内置电池方案，同时内部电池与外部电池通过继电器接入，通常情况下继电器处于关断状态，当本装置与外部汽车电池相连接时，本



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装置将侦测到外部电池电压，同时会将此电压显示在 LCD 上，此时，按动输入按键中的 JUMP 按键可以控制继电器的通断，使本汽车应急启动装置在接入时不产生火花。应用本装置成功启动汽车后，本装置将在 2 秒钟之内关断续电器，使外部电池与内部电池断开连接，使本汽车应急启动装置在移开时也不会产生火花，同时也不会产生汽车发电机给本装置反向充电之情形。同时本装置内部设置有外部电池反接侦测电路，当本实用新型的汽车应急启动装置输出端子与外部电池相连接的极性接错时，微处理器控制继电器不吸合，可有效防止极性接错而产生的大电流。

## 附图说明

[0010] 图 1 为本实用新型系统结构示意图。

[0011] 图 2 为本实用新型控制模块电路原理图。

[0012] 图 3 为本实用新型 LED 照明装置电路原理图。

[0013] 图 4 为本实用新型 5V 输出电路原理图。

[0014] 图 5 为本实用新型 19V 输出电路原理图。

[0015] 图 6 为本实用新型的主视示意图。

[0016] 图 7 为本实用新型的仰视示意图。

[0017] 图 8 为本实用新型的右视示意图。

[0018] 图 9 为本实用新型的左视示意图。

[0019] 附图中 :1- 内部电池，2- 继电器，3- 输出端子，4- 控制模块，5- 显示模块，6- 输入按键，7-LED 照明装置，8-5V 输出端子，9-19V 输出端子，10- 充电输入，11-12V 输出端子。

## 具体实施方式

[0020] 下面结合附图和具体实施例对本实用新型作进一步详细说明，但本实用新型并不限于下述实施方式，任何在本实施例原理上所做的改变或替代方案，均落入本实用新型要求保护的范围之中。

[0021] 结合附图 1 到图 9，一种汽车应急启动装置，包括内部电池 1，充电输入 10 接口，显示模块 5，控制模块 4，继电器 2，输入按键 6 和输出端子 3，其中所述继电器 2 主触点触头分别与内部电池 1 和输出端子 3 连接 ；控制模块 4 中包含微处理器 42，所述微处理器 42 通过继电器开关电路 41 控制继电器 2 开合用以控制内部电池 1 向输出端子 3 输出电流 ；控制模块 4 中还包括用于提供外部电池接线正误信号的外部电池反接侦测电路 44。

[0022] 为使显示模块 5 可以显示内部电池 1 电压，其特征是控制模块 4 中还包括内部电池电压侦测电路 43，所述内部电池电压侦测电路 43 与微处理器 42 信号连接。

[0023] 为使显示模块 5 可以显示外部电池电压，控制模块 4 中还包括外部电池电压侦测电路 45，所述外部电池电压侦测电路 45 与微处理器 42 信号连接。

[0024] 本实用新型的汽车应急启动装置，还包括 LED 照明装置 7 和 LED 照明驱动电路。

[0025] 为方便使用，本实用新型的汽车应急启动装置内还包括 5V 电压输出电路和 19V 电压输出电路 ；5V 输出电路与 5V 输出端子 8 相连接，19V 输出电路与 19V 输出端子 9 相连接。本实用新型的汽车应急启动装置内还包括 12V 输出端子 11，所述 12V 输出端子 11 与内部电池 1 连接。



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[0026] 当汽车由于汽车自带电池原因不能启动时，把本实用新型的汽车应急启动装置输出端子 3 与外部电池即待启动汽车自带电池相连接。通常情况下继电器处于关断状态，如果输出端子 3 与外部电池连接时极性有误，通过外部电池反接侦测电路 44 提供信号到微处理器 42，使微处理器 42 控制继电器 2 不能吸合从而可以避免因极性接错而产生的大电流。如果输出端子 3 与外部电池极性正确，外部电池电压侦测电路 45 工作，微处理器 42 会检测出外部电池电压，同时会将此电压显示在 LCD 上，如果外部电池电压在正常范围，则可以按动输入按键 6 中的 JUMP 按键使继电器 2 吸合，以便内部电池 1 通过输出端子 3 向待启动汽车输出电流。当汽车启动 2 秒后，微处理器 42 会控制继电器 2 断开，以便取下输出端子 3 接线。由于继电器 2 断开后输出端子 3 中没有电流，所以在取下时不会产生火花。当汽车已启动且取下输出端子 3 接线后，本实用新型的汽车应急启动装置工作完成。

[0027] 通过内部电池电压侦测电路 43 提供给微处理器 42 信号，可以在显示模块 5 上显示出内部电池 1 电压，以方便对电池使用状态进行监控。通过外部电池电压侦测电路 45 提供给微处理器 42 信号，可以在显示模块 5 上显示出外部电池电压，以方便了解外部电池情况。

[0028] 为了让内部电池 1 可以充电，在本装置上设置有充电输入 10 接口。同时本装置上还设置有 LED 照明装置 7，以方便光线强度不够时用作照明。本装置上还设置了 5V 输出端子 8 和 19V 输出端子 9 以及 12V 输出端子 11，在平时可以当一般电源供其它用电设备使用。



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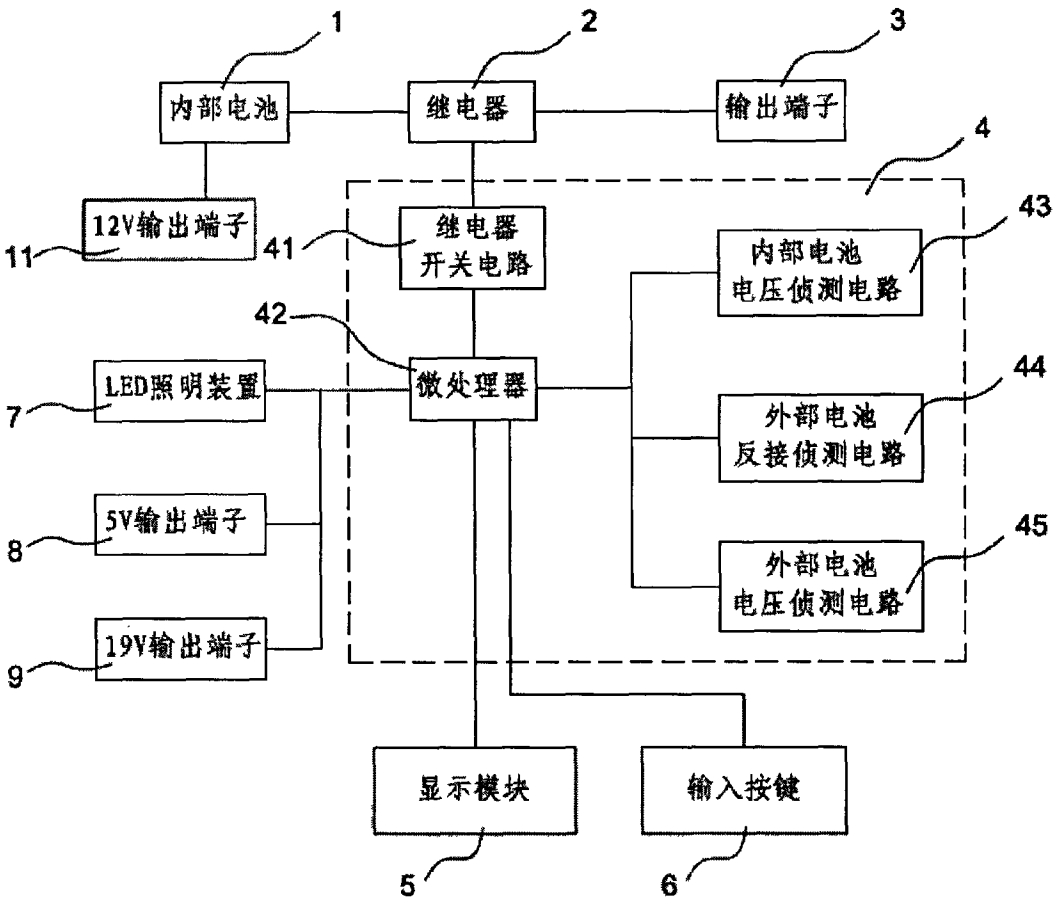



图 1



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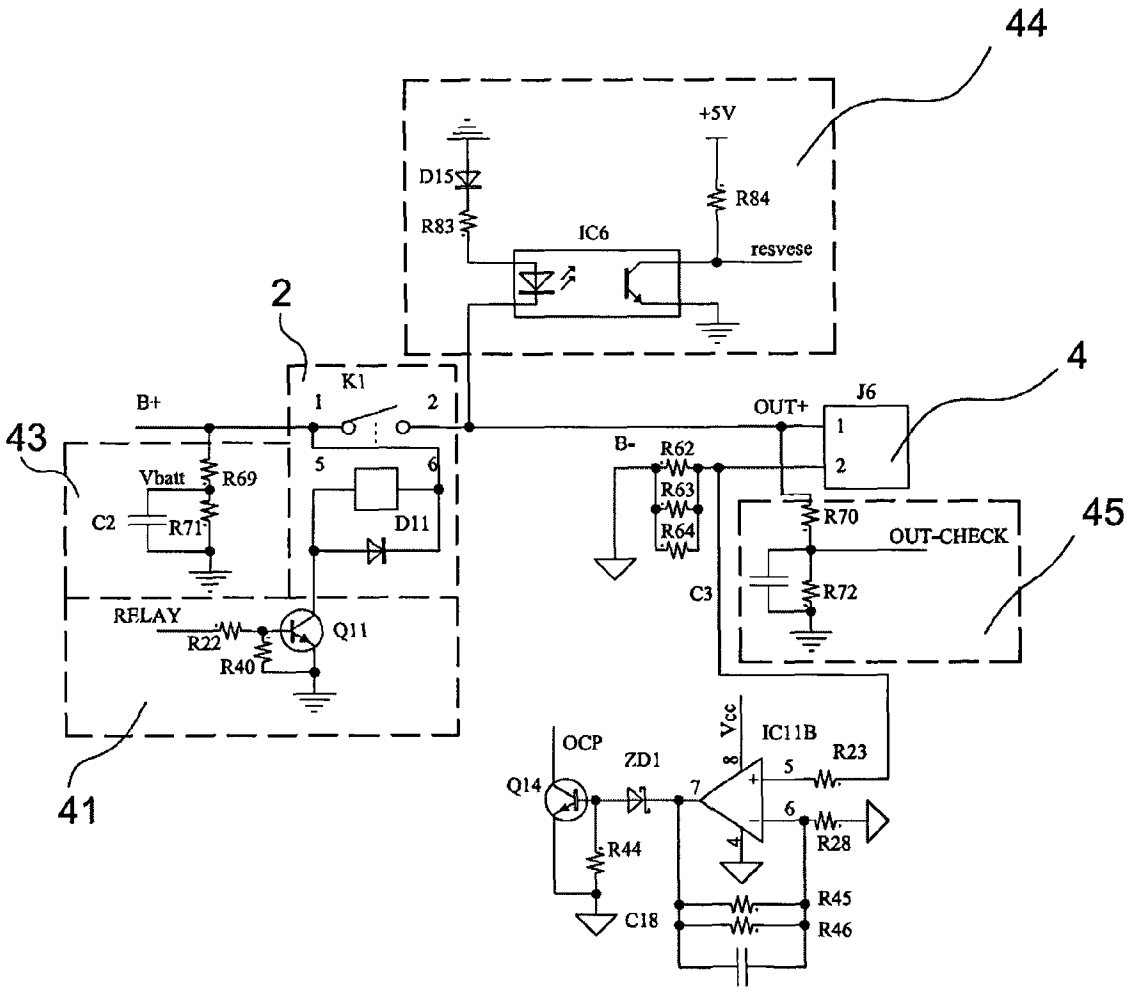



图 2



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IPR2025-00885

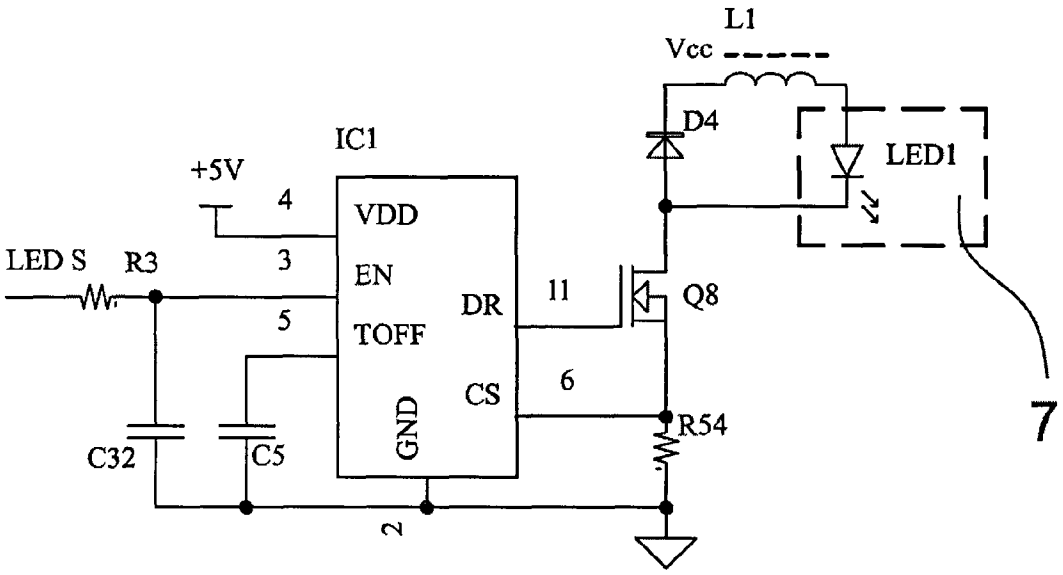



图 3



ADC EX1002
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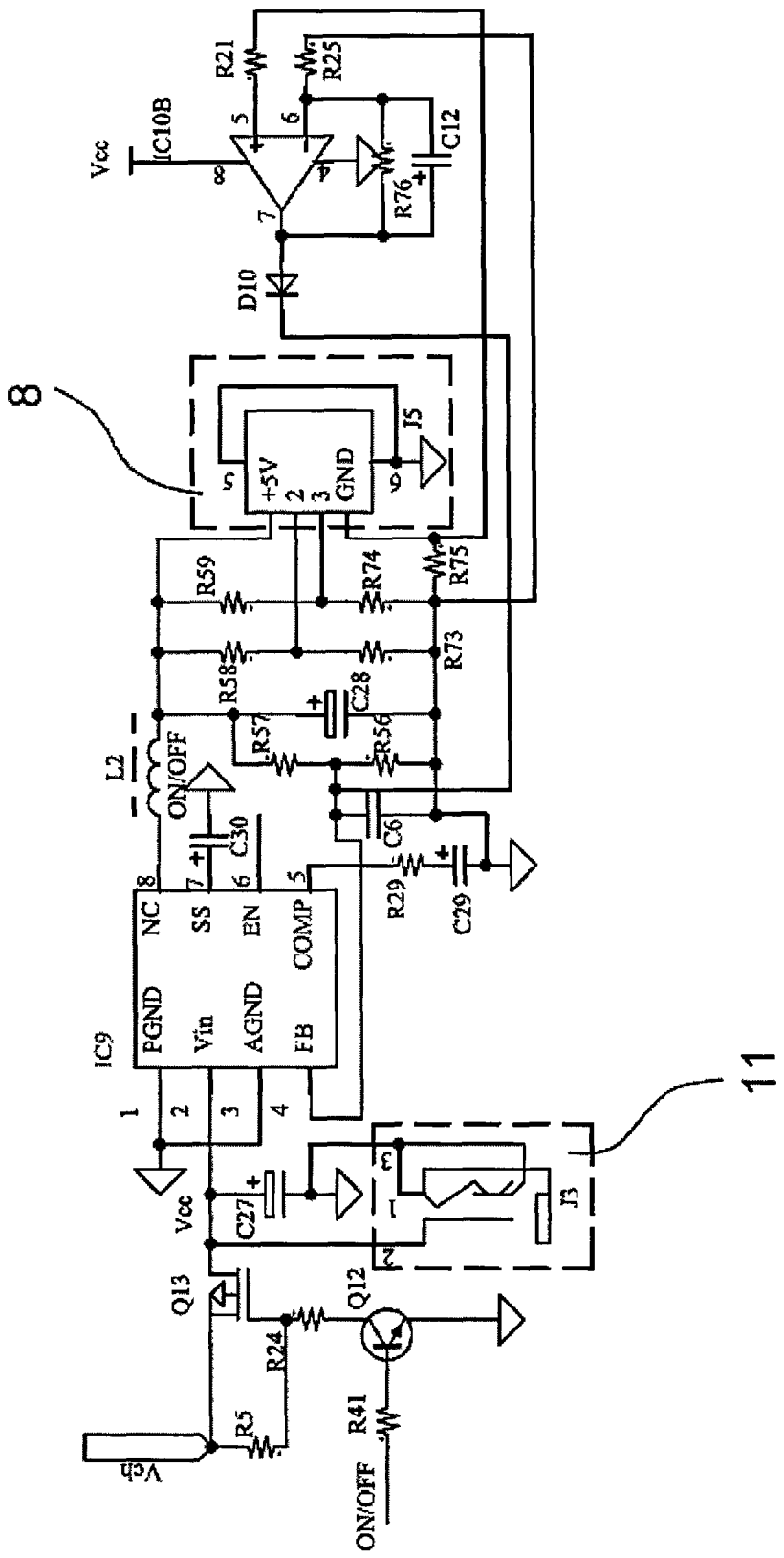



图 4



ADC EX1002
IPR2025-00885

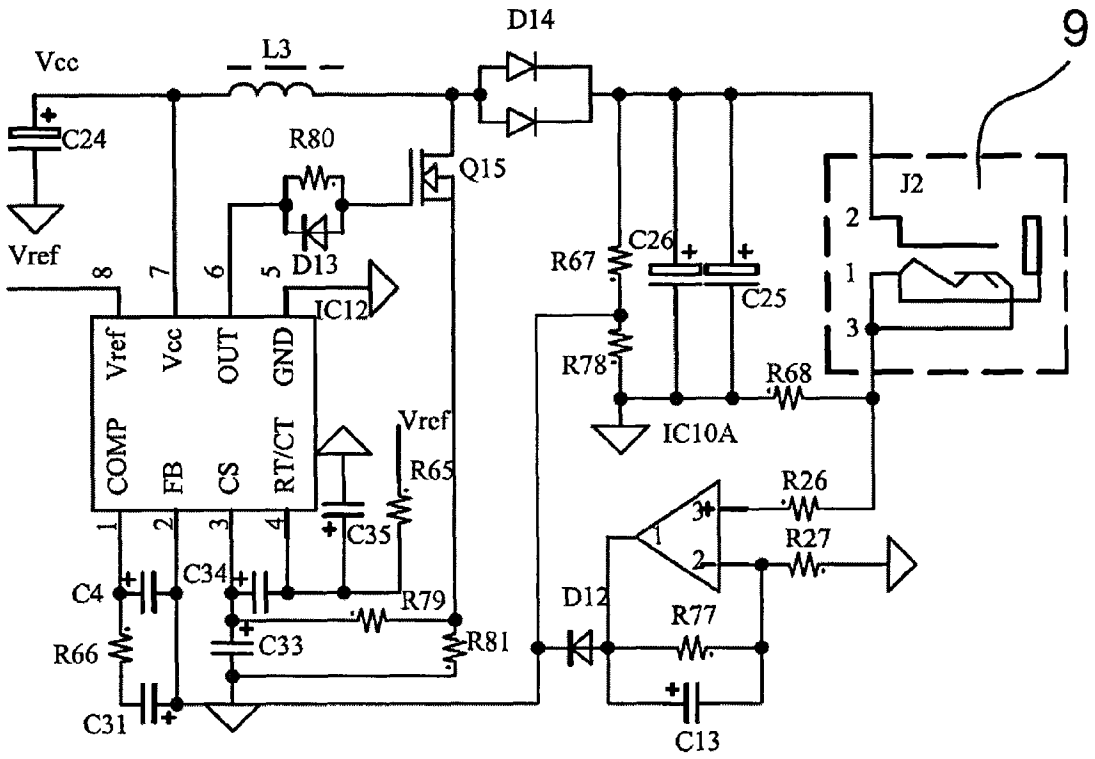



图 5

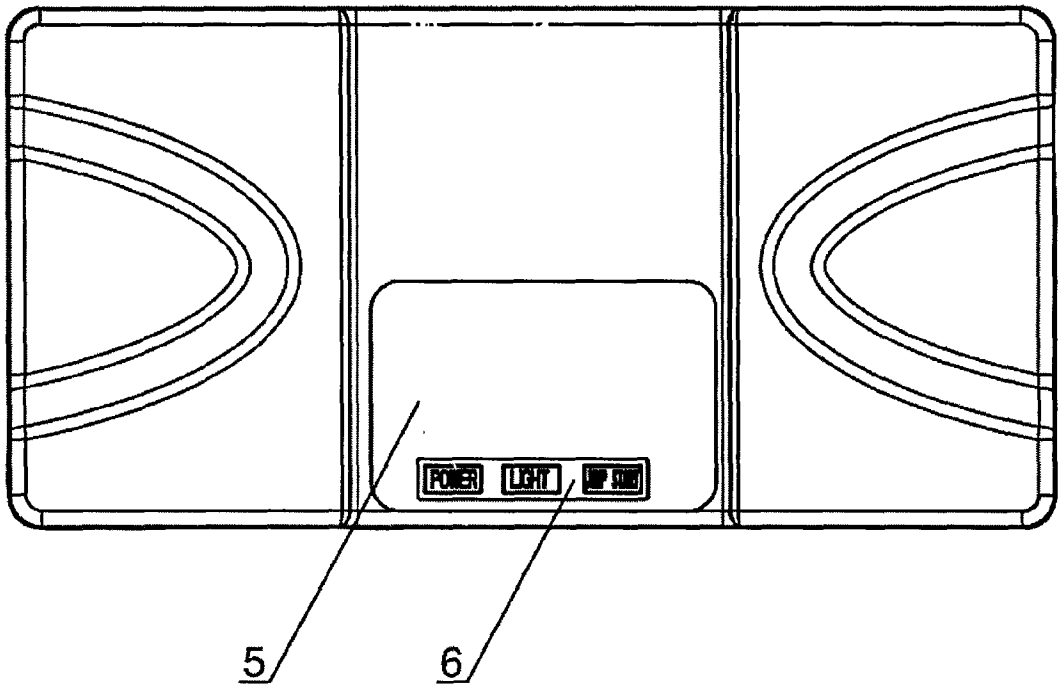



图 6



ADC EX1002
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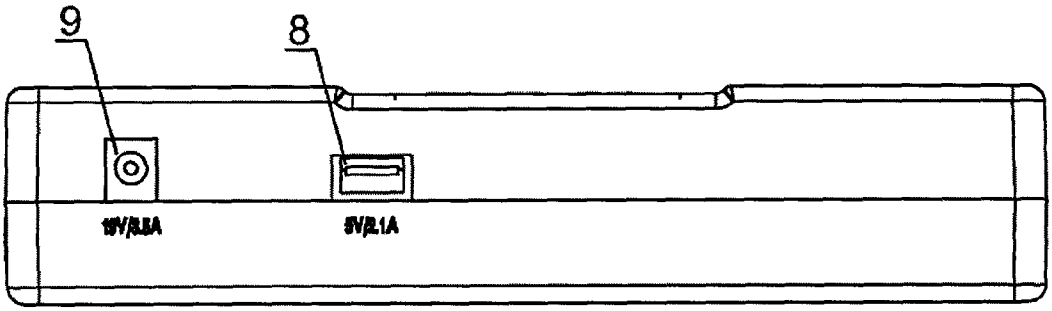



图 7

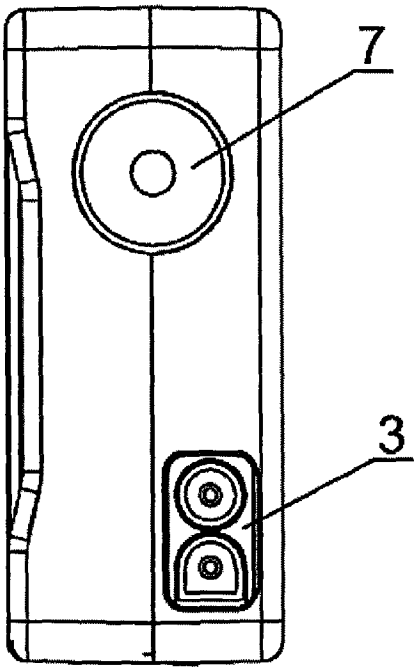



图 8

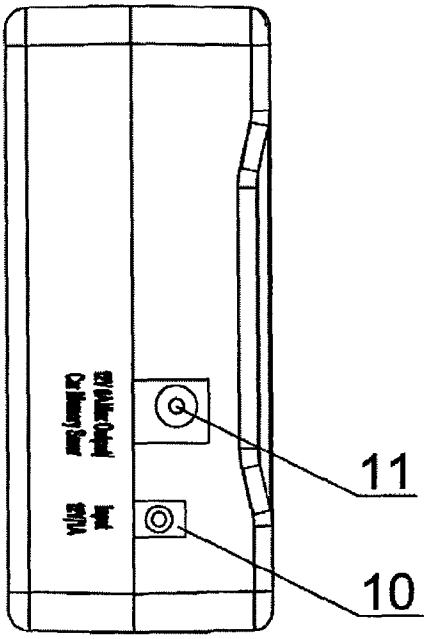



图 9



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# ELECTRONIC PAYMENT RECEIPT

| APPLICATION # | RECEIPT DATE / TIME | ATTORNEY DOCKET # |
|---|---|---|
| 16/819,831 | 05/02/2022 11:36:38 AM ET | 054985-000055-US-02-01 |

## Title of Invention

PORTABLE VEHICLE BATTERY JUMP START APPARATUS WITH SAFETY PROTECTION

## Application Information

| | | | |
|---|---|---|---|
| APPLICATION TYPE | Utility - Nonprovisional Application under 35 USC 111(a) | PATENT # | - |
| CONFIRMATION # | 1630 | FILED BY | Lisa Elliott |
| PATENT CENTER # | 60647347 | AUTHORIZED BY | William Klima |
| CUSTOMER # | 20230 | FILING DATE | 03/16/2020 |
| CORRESPONDENCE ADDRESS | - | FIRST NAMED INVENTOR | Jonathan Lewis NOOK |

## Payment Information

| PAYMENT METHOD | PAYMENT TRANSACTION ID | PAYMENT AUTHORIZED BY |
|---|---|---|
| DA / 220585 | E202252B37003013 | Lisa Elliott |

| FEE CODE | DESCRIPTION | ITEM PRICE($) | QUANTITY | ITEM TOTAL($) |
|---|---|---|---|---|
| 2801 | REQUEST FOR CONTINUED EXAMINATION (RCE) - 1ST REQUEST (SEE 37 CFR 1.114) | 680.00 | 1 | 680.00 |
| | | | TOTAL AMOUNT: | $680.00 |

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| Application | Document | Mailroom Date | Attorney Docket No. |
|---|---|---|---|
| 16819831 | N570 | 05/02/2022 | 054985-000055-US-02-01 |

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UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT APPLICATION INFORMATION RETRIEVAL SYSTEM

# IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:
NOOK et al.
Appl. No.: 16/819,831
Filing Date: March 16, 2020
Exam: DIAO
Art Unit: 2859
Conf.: 1630
Title: **PORTABLE VEHICLE BATTERY JUMP START APPARATUS WITH SAFETY PROTECTION**

## AMENDMENT AND RESPONSE

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22315

Dear Commissioner:

This paper is submitted in response to the Final Office Action dated January 31, 2022, making a response due on or before April 30, 2022. As April 30, 2022 fell on a Saturday, this paper is being submitted by the next available business day, Monday, May 2, 2022.

Accordingly, this paper is timely filed.

**Amendments to the claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

1.-23. (Cancelled)

24. (Previously presented) A jump starter apparatus for boosting or charging a depleted or discharged battery having a positive battery terminal and a negative battery terminal, the apparatus comprising:

a power supply;

a positive battery terminal connector for electrically connecting the jump starter apparatus to the positive battery terminal of the depleted or discharged battery;

a negative battery terminal connector for electrically connecting the jump starter apparatus to the negative battery terminal of the depleted or discharged battery;

a power switch configured to electrically connect the power supply to the depleted or discharged battery when boosting or charging the depleted or discharged battery; and

a control system or circuit electrically connected to and controlling the power switch, the control system or circuit configured to automatically detect both presence and polarity of the depleted or discharged battery when the depleted or discharged battery is electrically connected between the positive and negative battery terminal connectors and the jump starter apparatus becomes operational or is turned-on, and then automatically switching on power from the power supply to the depleted or discharged battery only when the presence of the depleted or discharged battery

connected between the positive and negative terminal connectors is detected and a proper polarity connection between the positive and negative battery terminal connectors and the positive and negative battery terminals of the depleted or discharged battery is detected.

25. (Previously presented) A jump starter apparatus for boosting or charging a depleted or discharged battery having a positive battery terminal and a negative battery terminal, the apparatus comprising:

a power supply;

a positive battery terminal connector for electrically connecting the jump starter apparatus to the positive battery terminal of the depleted or discharged battery;

a negative battery terminal connector for electrically connecting the jump starter apparatus to the negative battery terminal of the depleted or discharged battery;

a power switch configured to electrically connect the power supply to the depleted or discharged battery when boosting or charging the depleted or discharged battery; and

a control system or circuit electrically connected to and controlling the power switch, the control system or circuit configured to automatically detect both presence and polarity of the depleted or discharged battery when connected between the positive and negative battery terminal connectors, the control system or circuit automatically detecting both presence and polarity of the connection between the positive and negative battery terminal connectors and the depleted or discharged battery when the jump starter apparatus becomes operational or is turned-on, and then the control

system or circuit automatically switching on power from the power supply to the depleted or discharged battery only when the following two (2) conditions are achieved, including i) the positive and negative battery terminal connectors are connected to the depleted or discharge battery; and ii) the positive and negative battery terminal connectors are connected to the depleted or discharged battery with correct polarity.

26. (Previously presented) A jump starter apparatus for boosting or charging a depleted or discharged battery having a positive battery terminal and a negative battery terminal, the apparatus comprising:

a power supply;

a positive battery terminal connector for electrically connecting the jump starter apparatus to the positive battery terminal of the depleted or discharged battery;

a negative battery terminal connector for electrically connecting the jump starter apparatus to the negative battery terminal of the depleted or discharged battery;

a power switch configured to electrically connect the power supply to the depleted or discharged battery when boosting or charging the depleted or discharged battery; and

a control system or circuit electrically connected to and controlling the power switch, the control system or circuit comprising both a presence circuit configured to detect presence of the depleted or discharged battery when connected between the positive and negative battery terminal connectors and a polarity circuit configured to detect polarity of the depleted or discharged battery when connected between the positive and negative battery terminal connectors, the control system or circuit

automatically detecting both presence and polarity of the connection between the positive and negative battery terminal connectors and the depleted or discharged battery when the jump starter apparatus becomes operational or is turned on, and then the control system or circuit automatically switching on power from the power supply to the depleted or discharged battery only when the following two (2) conditions are achieved, including i) the positive and negative battery terminal connectors are connected to the depleted or discharge battery; and ii) the positive and negative terminal connectors are connected to the depleted or discharged battery with correct polarity.

27. (Previously presented) A jump starter apparatus for boosting or charging a depleted or discharged battery having a positive battery terminal and a negative battery terminal, the apparatus comprising:

a power supply;

a positive battery terminal connector for electrically connecting the jump starter apparatus to the positive battery terminal of the depleted or discharged battery;

a negative battery terminal connector for electrically connecting the jump starter apparatus to the negative battery terminal of the depleted or discharged battery;

a power switch configured to electrically connect the power supply to the depleted or discharged battery when boosting or charging the depleted or discharged battery; and

a control system or circuit connected to and controlling the power switch, the control system or circuit comprising a presence circuit and a polarity circuit, the

presence circuit comprising a presence sensor configured to detect presence of the depleted or discharged battery when connected between the positive and negative battery terminal connectors, the polarity circuit comprising a polarity sensor configured to automatically detect polarity of the depleted or discharged battery when connected between the positive and negative battery terminal connectors, the control system or circuit automatically detecting both presence and polarity of the connection between the positive and negative battery terminal connectors and the depleted or discharged battery when the jump starter apparatus becomes operational or is turned on, the control system or circuit automatically switching on power from the power supply to the depleted or discharged battery only when the following two (2) conditions are achieved, including i) the positive and negative battery terminal connectors are electrically connected to the depleted or discharge battery; and ii) the positive and negative battery terminal connectors are connected to the depleted or discharged battery with correct polarity.

28. (Cancelled)

29. (Previously presented) The apparatus according to claim 24, further comprising a manual switch to allow a user to manually switch on power from the power supply to the depleted or discharged battery.

30. (Previously presented) The apparatus according to claim 24, further comprising a manual switch to allow a user to manually switch on power from the power supply to the depleted or discharged battery.

31. (Currently amended) The apparatus according to claim 24, further comprising a manual switch to allow a user to override the automatic switching and manually switch on power from the power supply to the depleted or discharged battery.

32. (Previously presented) The apparatus according to claim 31, wherein the manual switch comprises a manual override button.

33. (Previously presented) The apparatus according to claim 32, wherein the manual switch is configured so that a user presses and holds down the manual override button for a predetermined period of time to prevent inadvertent actuation of a manual mode.

34. (Currently amended) The apparatus according to claim 24, further comprising a manual switch for manually switching on power from the power supply to the depleted or discharged battery in the event the control system or circuit is unable to automatically switch on power from the power supply to the depleted or discharged battery.

35. (Previously presented) The apparatus according to claim 29, wherein the manual switch is configured to prevent manual override if the depleted or discharged battery is connected in reverse to the positive and negative battery terminal connectors.

36. (Previously presented) The apparatus according to claim 29, wherein the manual switch is configured to allow a user to jump start a vehicle having either a missing battery, or the depleted or discharged battery of the vehicle having a battery voltage so low that automatic detection of the battery voltage and switching by the control system or circuit is not possible.

37. (Previously presented) The apparatus according to claim 24, wherein the control system or circuit comprises a presence circuit configured to detect presence of the depleted or discharged battery when connected between the positive and negative battery terminal connectors and a polarity circuit configured to detect polarity of the depleted or discharged battery when connected between the positive and negative battery terminal connectors.

38. (Previously presented) The apparatus according to claim 26, wherein the presence circuit comprises a presence sensor and the polarity circuit comprises a polarity sensor.

39. (Previously presented) The apparatus according to claim 26, wherein the presence circuit is a presence sensor and the polarity circuit is a polarity sensor.

40. (Previously presented) The apparatus according to claim 27, wherein the presence circuit comprises a presence sensor and the polarity circuit comprises a polarity sensor.

41. (Previously presented) The apparatus according to claim 27, wherein the presence circuit is a presence sensor and the polarity circuit is a polarity sensor.

42. (Previously presented) The apparatus according to claim 24, wherein the control system or circuit comprises a microcontroller.

43. (Previously presented) The apparatus according to claim 25, wherein the control system or circuit comprises a microcontroller.

44. (Previously presented) The apparatus according to claim 26, wherein the control system or circuit comprises a microcontroller electrically connected to and receiving inputs from the presence circuit and the polarity circuit.

45. (Previously presented) The apparatus according to claim 27, wherein the control system or circuit comprises a microcontroller electrically connected to and receiving inputs from the presence circuit and the polarity circuit.

46. (Previously presented) The apparatus according to claim 24, wherein the control system or circuit comprising a presence circuit or sensor configured to detect presence of the depleted or discharged battery when connected between the positive and negative battery terminal connectors, a polarity circuit or sensor configured to detect polarity of the depleted or discharged battery when connected between the positive and negative battery terminal connectors, and a microcontroller electrically connected to the presence circuit or sensor and the polarity circuit sensor and receiving signals from the presence circuit or sensor and the polarity circuit or sensor.

47. (Previously presented) The apparatus according to claim 42, wherein the control system or circuit is configured so that microcontroller determines when it is safe to turn on the power switch.

48. (Previously presented) The apparatus according to claim 47, wherein the control system or circuit is configured so that microcontroller software of the microcontroller determines when it is safe to turn on the power switch.

49. (Previously presented) The apparatus according to claim 42, wherein the microcontroller is a programmable microcontroller configured to allow updates in functionality and system parameters.

50. (Previously presented) The apparatus according to claim 42, wherein the microcontroller is a programmable microcontroller configured to allow updates in functionality and system parameters, without requiring any change in hardware.

51. (Previously presented) The apparatus according to claim 42, wherein the microcontroller comprises flash memory, and wherein the microcontroller with flash memory is used to control the control system or circuit.

52. (Previously presented) The apparatus according to claim 42, wherein the control system or circuit further comprises a voltage regulator providing regulation of internal operating voltage for the microcontroller and sensors.

53. (Previously presented) The apparatus according to claim 26, wherein the presence circuit comprises a first optically coupled isolator phototransistor and the polarity circuit comprises a second optically coupled isolator phototransistor.

54. (Previously presented) The apparatus according to claim 26, wherein the presence circuit further comprises a first diode connected between the first optically coupled phototransistor and the depleted or discharged battery, and the polarity circuit further comprises a second diode connected between the second optically coupled phototransistor and the depleted or discharged battery.

55. (Previously presented) The apparatus according to claim 24, wherein the power supply is a rechargeable battery.

56. (Previously presented) The apparatus according to claim 55, wherein the rechargeable battery is a lithium ion rechargeable battery.

57. (Previously presented) The apparatus according to claim 56, wherein the lithium ion battery comprises a battery pack of multiple lithium ion batteries.

58. (Previously presented) The apparatus according to claim 24, wherein the power switch is a FET switch.

59. (Previously presented) The apparatus according to claim 58, wherein the FET switch comprises a plurality of FETs in parallel.

60. (Previously presented) The apparatus according to claim 24, wherein the positive battery terminal connector is a positive battery clamp releasably connectable to the positive terminal of the depleted or discharged battery, and wherein the negative battery terminal connector is a negative battery clamp releasably connectable to the negative terminal of the depleted or discharged battery.

61. (Previously presented) The apparatus according to claim 24, further comprising a plurality of power diodes coupled between an output of the jump starting apparatus to the depleted or discharged battery and the power supply to prevent back-charging of the power supply from an electrical system connected to the output.

62. (Previously presented) The apparatus according to claim 24, further comprising a temperature sensor configured to detect temperature of the power supply and to provide a temperature signal to a microcontroller.

63. (Previously presented) The apparatus according to claim 24, further comprising a voltage measurement circuit configured to measure output voltage of the power supply and to provide a voltage measurement signal to the microcontroller.

64. (Previously presented) The apparatus according to claim 24, further comprising a voltage regulator configured to convert output voltage of the power supply to a voltage level appropriate to provide operating power to internal components of the jump starting apparatus.

65. (Previously presented) The apparatus according to claim 26, wherein the polarity circuit is a reverse polarity circuit.

66. (Previously presented) The apparatus according to claim 26, wherein the polarity circuit comprises a reverse polarity sensor.

67. (Previously presented) The apparatus according to claim 24, wherein the positive battery connector and negative battery connector together form a jumper cable device comprising a plug connected to one of the cables and configured to plug into an output port of the battery jump starting apparatus.

68. (Previously presented) The apparatus according to claim 67, wherein an output port and the plug are dimensioned so that the plug fits into the output port only in one specific orientation.

69. (Previously presented) The apparatus according to claim 24, further comprising a USB charging port configured to provide charging power from an external power source to the power supply.

70. (Previously presented) The apparatus according to claim 69, further comprising a USB charging circuit connecting the USB charging port to the power supply.

71. (Previously presented) The apparatus according to claim 70, wherein the USB charging circuit comprises a DC-DC converter.

72. (Previously presented) The apparatus according to claim 71, wherein the DC-DC converter increases the voltage from a USB charger to charge the power supply.

73. (Previously presented) The apparatus according to claim 72, wherein the DC-DC converter is configured to convert 5V potential provided from a USB charger to 12.4VDC.

74. (Previously presented) The apparatus according to claim 70, wherein the DC-DC converter is configured to be turned on and off via a circuit by an output from a microcontroller.

75. (Previously presented) The apparatus according to claim 24, wherein the positive battery terminal connector is configured to directly or indirectly electrically connect the jump starter apparatus to the positive battery terminal of the depleted or discharged battery, and wherein the negative battery terminal connector is configured to directly or indirectly electrically connect the jump starter apparatus to the negative battery terminal of the depleted or discharged battery.

76. (Previously presented) The apparatus according to claim 24, further comprising another switch configured to turn on the jump starter apparatus to become operational.

77. (Previously presented) A jump starter apparatus, comprising:

a power supply;

a positive battery terminal connector;

a negative battery terminal connector;

a power switch configured to electrically connect the power supply to a depleted or discharged battery; and

a control system or circuit electrically connected to and controlling the power switch, the control system or circuit configured to detect both presence of the depleted or discharged battery when connected between the positive and negative battery terminal connectors and proper polarity between the positive and negative battery terminal connectors and the positive and negative battery terminals of the depleted or discharged battery when connected between the positive and negative battery terminal connectors, the control system or circuit is configured to automatically execute the following steps when the jump starting apparatus becomes operational or is turned on, including:

(i) detect the presence of the depleted or discharged battery connected between the positive and negative battery connectors;

(ii) detect the proper polarity of a depleted or discharged battery when connected between the positive and negative battery terminal connectors; and

(iii) switch on power from the power supply to the depleted or discharged battery only when both the presence of the depleted or discharged battery connected between the positive and negative battery terminal connectors

is detected and a proper polarity connection between the positive and negative battery terminal connectors and the positive and negative battery terminals is detected.

## Remarks

Upon entry of the above amendments, claims 24-27 and 29-77 are pending in the present application prior to entry of the above amendments to the claims.

Claims 1-23 and 28 have previously been cancelled without prejudice or disclaimer of the subject matter contained therein.

Claims 31 and 34 are amended above. No new matter has been added.

Applicant, by amending any claims and/or canceling any claims, makes no admission as to the validity of any rejection made by the Examiner against any of these claims. Applicant reserves the right to reassert any of the claims canceled or the original or previous claim scope of any claim amended, during the prosecution of this application, in a continuing application. Further, Applicant acknowledges but does not acquiesce or agree with any Examiner assertion regarding this application and expressly reserves the right to rebut or otherwise address any such assertion.

In view of the following, further and favorable consideration is respectfully requested.

### I. Objection to the claims - beginning on page 2

Please find amendments to the claims filed herein.

In view of the foregoing, it is submitted that claims are no longer objectionable. Accordingly, reconsideration and withdrawal of this objection is respectfully requested.

### II. Rejection under 35 USC § 112(b) (Indefinite): Claims 31-33

The Examiner asserts that claims 31-33 are indefinite.

Please find amendments to the claims filed herein.

In view of the foregoing, it is submitted that claims 31-33 are clear and definite within the meaning of 35 USC § 112(b). Accordingly, reconsideration and withdrawal of this rejection is respectfully requested.

**III. Double Patenting: Claims 24-74 are provisionally rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-10,12-15,19-21,23, and 29-30,32-44,48-51 of copending Application No. 16/450,422 (reference application) - beginning at page 3**

The Examiner states that Claims 24-74 are provisionally rejected on the ground of nonstatutory double patenting as being unpatentable over claims 1-10,12-15,19-21,23, and 29-30,32-44,48-51 of copending Application No. 16/450,422 (reference application).

The Applicant concurrently files a terminal disclaimer over copending application no. 16/450,422.

Accordingly, immediate indication of allowance is respectfully requested.

**IV. Allowable Subject Matter: Claims 24-27 and 29-77 (renumbered 1-53) - beginning at page 3**

The Examiner asserts that Claims 24-27 and 29-77 (renumbered 1-53) would be allowable subjected to a timely filed and approved terminal disclaimer over copending application 16/450,422, now found allowable.

In view of the foregoing, it is submitted that all claims are allowable. Accordingly, immediate indication of allowance is respectfully requested.

## Conclusion

In view of the foregoing, Applicant submits that the application is in condition for immediate allowance. Early notice to that effect is earnestly solicited. The Examiner is invited to contact the undersigned attorney if it is believed that such contact will expedite the prosecution of the application.

In the event this paper is not timely filed, Applicant petitions for an appropriate extension of time. Please charge any fee deficiency or credit any overpayment to Deposit Account No. 22-0585.

Respectfully submitted,

**VORYS, SATER, SEYMOUR and PEASE LLP**

Date: May 2, 2022

/William L. Klima
William L. Klima, Registration No.: 32422
Customer No.: 20230

**VORYS, SATER, SEYMOUR and PEASE LLP**
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|---|---|---|---|---|
| 16/819,831 | 03/16/2020 | Jonathan Lewis NOOK | 054985-000055-US-02-01 | 1630 |

20230 7590 09/29/2022

Vorys, Sater, Seymour and Pease LLP
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|---|---|
| DIAO, M BAYE | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2859 | |

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| Office Action Summary | Application No. 16/819,831 | Applicant(s) NOOK et al. | |
|---|---|---|---|
| | Examiner M'BAYE DIAO | Art Unit 2859 | AIA (FITF) Status Yes |

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- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☑ Responsive to communication(s) filed on 05/02/2022.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☐ This action is **FINAL.** 2b) ☑ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims***

5) ☑ Claim(s) 24-27 and 29-77 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 24-27 and 29-77 is/are rejected.

8) ☐ Claim(s) _____ is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

**Application Papers**

10)☐ The specification is objected to by the Examiner.

11)☑ The drawing(s) filed on 03/16/2020 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

**Certified copies:**

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☑ Notice of References Cited (PTO-892)

2) ☑ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date 05/02/2022.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.



ADC EX1002
IPR2025-00885

## DETAILED ACTION

### *Notice of Pre-AIA or AIA Status*

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

### *Continued Examination Under 37 CFR 1.114*

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 05/02/2022 has been entered.

3. Claims 1-23, 28 are hereby canceled while claims 31 and 34 are currently amended. By this amendment, claims 24-27,29-77 are now pending in the application.

### *Information Disclosure Statement*

4. The information disclosure statements (IDS) submitted on 05/02/2022 was filed after the mailing date of the final rejection on 01/31/2022. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statements are being considered by the examiner.

### *Claim Objections*

5. Claim 30 is objected to because of the following informalities: Claim 30 is a duplicate of claim 29.

6. Claim 54 is objected to due to lack of antecedent basis. In claim 54, the underlined limitations lack antecedent basis, Claim 54 recites: The apparatus according to claim 26, wherein the presence circuit further comprises a first diode connected between the first optically coupled

phototransistor and the depleted or discharged battery, and the polarity circuit further comprises a second diode connected between the second optically coupled phototransistor and the depleted or discharged battery. Note that claim 54 depends from claim 26 and not from claim 53 in which "a first optically coupled phototransistor" and "a second optically coupled phototransistor" were recited.

7. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

8. The following is a quotation of 35 U.S.C. 112(b):

> (b) CONCLUSION.—The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the inventor or a joint inventor regards as the invention.

> The following is a quotation of 35 U.S.C. 112 (pre-AIA), second paragraph:
> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claim 54 is rejected under 35 U.S.C. 112(b) or 35 U.S.C. 112 (pre-AIA), second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the inventor or a joint inventor (or for applications subject to pre-AIA 35 U.S.C. 112, the applicant), regards as the invention.

10. Claim 54 recites the limitation "wherein the presence circuit further comprises a first diode connected between the first optically coupled phototransistor and the depleted or discharged battery, and the polarity circuit further comprises a second diode connected between the second optically coupled phototransistor and the depleted or discharged battery" in lines 2-5. There is insufficient antecedent basis for these underlined limitations in the claim.

***Claim Rejections - 35 USC § 102***

11. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the

statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (a)(2) the claimed invention was described in a patent issued under section 151, or in an application for patent published or deemed published under section 122(b), in which the patent or application, as the case may be, names another inventor and was effectively filed before the effective filing date of the claimed invention.

**13. Claim(s) 24-27, 37-48,58-60,63,65-66,75, and 77 are rejected under 35 U.S.C. 102(a)(2) as being anticipated by Wang et al., (Wang) USPAT 11,104,236.**

14. Regarding claim 24: Wang at least discloses and shows in **Figs. 1-2**: A jump starter apparatus**(as shown in Fig. 1)** for boosting or charging a depleted or discharged battery**(vehicle battery)** having a positive battery terminal**(BT+)** and a negative battery terminal**(BT-)**, the apparatus comprising: a power supply**(7)**; a positive battery terminal **(See claim 13)** for electrically connecting the jump starter apparatus to the positive battery terminal of the depleted or discharged battery**(vehicle battery)**; a negative battery terminal connector**(a negative polarity vehicle battery terminal connector)(see claim 13)** for electrically connecting the jump starter apparatus to the negative battery terminal of the depleted or discharged battery; a power switch**(see switching configuration in Fig. 2 formed by Q3_1,Q3_2,Q3_3, Q4_1,Q4_2,Q4_3)** configured to electrically connect the power supply to the depleted or discharged battery when boosting or charging**(via DC to DC module (1); See Fig. 1)** the depleted or discharged battery**(vehicle battery)**; and a control system or circuit**(microcontroller (2))** electrically connected to and controlling the power switch, the control system or circuit configured **(via load detection module (5) and battery voltage detection module (3); see col. 2, lines 1-59 and col. 4, lines 23-45)** to automatically detect both presence**(via 5)** and polarity**(via reverse polarity**

**sensor)(note-The battery voltage detection module conducts the measurement of the batter voltage, and the automobile start control module conducts the power supply or the power outage for the load module through the microcontroller, wherein the load detection module detects whether the load module is correctly connected; see col. 4, lines 14-22)** of the depleted or discharged battery when the depleted or discharged battery is electrically connected between the positive and negative battery terminal connectors and the jump starter apparatus becomes operational or is turned-on, and then automatically switching on power from the power supply to the depleted or discharged battery only when the presence of the depleted or discharged battery connected between the positive and negative terminal connectors is detected and a proper polarity connection between the positive and negative battery terminal connectors and the positive and negative battery terminals of the depleted or discharged battery is detected(**NOTE- the microcontroller is configured to provide an activating output signal to turn on the power switch to cause the power supply to be connected to the positive and negative polarity vehicle battery connectors in response to the microcontroller receiving input signals simultaneously from the sensors indicating both the presence and connection of the vehicle battery to the positive and negative polarity vehicle battery connectors and proper polarity connection of the positive and negative polarity terminals of the vehicle battery with the positive and negative polarity battery terminal connectors, and the microcontroller is configured to provide a deactivating output signal to turn off the power switch to cause the power supply to be disconnected from the positive and negative polarity vehicle battery connectors in response to the microcontroller receiving input signals from the sensors indicating the absence of the vehicle battery connected to the positive and negative polarity vehicle battery connectors and/or improper polarity**

**connection of the positive and negative polarity terminals of the vehicle battery to the positive and negative polarity vehicle battery connectors; see claim 13; see col. 2, lines 1-59 and col. 4, lines 23-45**).

15. Regarding claim 25, Wang at least discloses and shows in **Figs. 1-2**: A jump starter apparatus for boosting or charging a depleted or discharged battery having a positive battery terminal and a negative battery terminal(**vehicle battery has positive and negative terminals as shown in Fig. 2 as (BT+) and (BT-)**), the apparatus comprising: a power supply(**7**)(**see Fig. 1; see col. 2, line 66-col. 3, line 2**); a positive battery terminal connector for electrically connecting the jump starter apparatus to the positive battery terminal of the depleted or discharged battery(**see claim 13**); a negative battery terminal connector for electrically connecting the jump starter apparatus to the negative battery terminal of the depleted or discharged battery configured to electrically connect the power supply to the depleted or discharged battery when boosting or charging the depleted or discharged battery(**note- the microcontroller is configured to provide an activating output signal to turn on the power switch to cause the power supply to be connected to the positive and negative polarity vehicle battery connectors in response to the microcontroller receiving input signals simultaneously from the sensors indicating both the presence and connection of the vehicle battery to the positive and negative polarity vehicle battery connectors and proper polarity connection of the positive and negative polarity terminals of the vehicle battery with the positive and negative polarity battery terminal connectors; see claim 13**); a power switch(**see switching configuration in Fig. 2 formed by Q3_1,Q3_2,Q3_3, Q4_1,Q4_2,Q4_3**); and a control system or circuit(**2**) electrically connected to and controlling the power switch, the control system or circuit configured to automatically detect both presence and polarity of the depleted or discharged battery when

connected between the positive and negative battery terminal connectors(**note-The battery voltage detection module conducts the measurement of the batter voltage, and the automobile start control module conducts the power supply or the power outage for the load module through the microcontroller, wherein the load detection module detects whether the load module is correctly connected; see col. 4, lines 14-22**), the control system or circuit automatically detecting both presence and polarity of the connection between the positive and negative battery terminal connectors and the depleted or discharged battery when the jump starter apparatus becomes operational or is turned-on, and then the control system or circuit automatically switching on power from the power supply to the depleted or discharged battery only when the following two (2) conditions are achieved, including i) the positive and negative battery terminal connectors are connected to the depleted or discharge battery; and ii) the positive and negative battery terminal connectors are connected to the depleted or discharged battery with correct polarity(**via load detection module (5) and battery voltage detection module (3); see col. 2, lines 1-59 and col. 4, lines 14-45**).

16. The same analysis applies to claims 26-27 since they recite the same limitations as claims 24 and/or 25.

17. Regarding claim 77: Wang at least discloses and shows in **Figs. 1-2:** A jump starter apparatus(**see Figs. 1-2**), comprising: a power supply(**7**); a positive battery terminal connector(**see claim 13**); a negative battery terminal connector(**see claim 13**); a power switch(**see switching configuration in Fig. 2 formed by Q3_1,Q3_2,Q3_3, Q4_1,Q4_2,Q4_3**) configured to electrically connect the power supply(**7**) to a depleted or discharged battery(**vehicle battery**); and a control system or circuit(**2**) electrically connected to and controlling the power switch, the control system or circuit(**2**) configured to detect both presence

of the depleted or discharged battery when connected between the positive and negative battery terminal connectors and proper polarity between the positive and negative battery terminal connectors and the positive and negative battery terminals of the depleted or discharged battery when connected between the positive and negative battery terminal connectors(**via load detection module (5) and battery voltage detection module (3); see col. 2, lines 1-59 and col. 4, lines 14-45**), the control system or circuit(**2**) is configured to automatically execute the following steps when the jump starting apparatus becomes operational or is turned on, including: (i) detect the presence of the depleted or discharged battery connected between the positive and negative battery connectors(**via load detection module (5)**); (ii) detect the proper polarity(**via reverse polarity sensor connected in circuit with the positive and negative polarity of the vehicle battery terminals connectors; see claims 13 and 18**) of a depleted or discharged battery when connected between the positive and negative battery terminal connectors; and (iii) switch on power from the power supply to the depleted or discharged battery only when both the presence of the depleted or discharged battery connected between the positive and negative battery terminal connectors is detected and a proper polarity connection between the positive and negative battery terminal connectors and the positive and negative battery terminals is detected(**the load detection sensor configured to detect a presence of the vehicle battery when connected between the positive and negative polarity vehicle battery terminal connectors; a reverse polarity sensor connected in circuit with the positive and negative polarity vehicle battery terminal connectors, the reverse polarity sensor configured to detect a polarity of the vehicle battery connected between the positive and negative polarity vehicle battery terminal connectors and to provide an output signal indicating that the positive and negative polarity terminals of the vehicle battery are properly connected to the**

**positive and negative polarity vehicle battery connectors; see col. 2, lines 1-59 and col. 4, lines 23-45**).

18. Regarding claim 37, Wang discloses all the claimed invention as set forth and discussed above in claim 24. Wang further discloses, wherein the control system or circuit comprises a presence circuit(**load detection module 5; see claims 13-15**) configured to detect presence of the depleted or discharged battery when connected between the positive and negative battery terminal connectors and a polarity circuit(**note- load detection module also detects reverse polarity of the vehicle battery**) configured to detect polarity of the depleted or discharged battery when connected between the positive and negative battery terminal connectors.

19. Regarding claim 38, Wang discloses all the claimed invention as set forth and discussed above in claim 26. Wang further discloses, wherein the presence circuit(**5**) comprises a presence sensor and the polarity circuit comprises a polarity sensor(**reverse polarity sensor; see claims 13,14,15, and 18**).

20. Regarding claim 39, Wang discloses all the claimed invention as set forth and discussed above in claim 26. Wang further discloses, wherein the presence circuit(**5**) is a presence sensor and the polarity circuit is a polarity sensor(**reverse polarity sensor; see claims 13,14,15, and 18**).

21. Regarding claim 40, Wang discloses all the claimed invention as set forth and discussed above in claim 27. Wang further discloses, wherein the presence circuit(**5**) comprises a presence sensor and the polarity circuit comprises a polarity sensor(**reverse polarity sensor; see claims 13,14,15, and 18**).

22. Regarding claim 41, Wang discloses all the claimed invention as set forth and discussed above in claim 27. Wang further discloses,, wherein the presence circuit(**5**) is a presence sensor

and the polarity circuit is a polarity sensor**(reverse polarity sensor)( see claims 13,14,15, and 18)**.

23. Regarding claim 42, Wang discloses all the claimed invention as set forth and discussed above in claim 24. Wang further discloses, wherein the control system or circuit comprises a microcontroller**(2)**.

24. Regarding claim 43, Wang discloses all the claimed invention as set forth and discussed above in claim 25. Wang further discloses, wherein the control system or circuit comprises a microcontroller**(2).**

25. Regarding claim 44, Wang discloses all the claimed invention as set forth and discussed above in claim 26. Wang further discloses, wherein the control system or circuit comprises a microcontroller**(2)** electrically connected to and receiving inputs from the presence circuit**(5)** and the polarity circuit**(5)(see Fig. 1)**.

26. Regarding claim 45, Wang discloses all the claimed invention as set forth and discussed above in claim 27. Wang further discloses, wherein the control system or circuit comprises a microcontroller**(2)** electrically connected to and receiving inputs from the presence circuit and the polarity circuit**(see Fig. 1)**.

27. Regarding claim 46, Wang discloses all the claimed invention as set forth and discussed above in claim 24. Wang further discloses, wherein the control system or circuit comprising a presence circuit or sensor**(5)** configured to detect presence of the depleted or discharged battery when connected between the positive and negative battery terminal connectors, a polarity circuit or sensor**(also performed by load detection module 5)** configured to detect polarity of the depleted or discharged battery when connected between the positive and negative battery terminal connectors, and a microcontroller**(2)** electrically connected to the presence circuit or

sensor**(5)** and the polarity circuit sensor**(5)** and receiving signals**(see Fig. 1)** from the presence circuit or sensor and the polarity circuit or sensor.

28. Regarding claim 47, Wang discloses all the claimed invention as set forth and discussed above in claim 42. Wang further discloses, wherein the control system or circuit is configured so that the microcontroller**(12)** determines when it is safe to turn on the power switch.

29. Regarding claim 48, Wang discloses all the claimed invention as set forth and discussed above in claim 47. Wang further discloses, wherein the control system or circuit is configured so that microcontroller software of the microcontroller determines when it is safe to turn on the power switch.

30. Regarding claim 60, Wang discloses all the claimed invention as set forth and discussed above in claim 24. Wang further discloses, wherein the positive battery terminal connector is a positive battery clamp releasably connectable to the positive terminal of the depleted or discharged battery**(see Fig. 2; BT+)**, and wherein the negative battery terminal connector**(BT-)** is a negative battery clamp releasably connectable to the negative terminal of the depleted or discharged battery**(see claims 13 and 18 of Wang)**.

31. Regarding claim 63, Wang discloses all the claimed invention as set forth and discussed above in claim 24. Wang further discloses, further comprising a voltage measurement circuit **(3)** configured to measure output voltage of the power supply**(7)** and to provide a voltage measurement signal to the microcontroller**(2)(see col. 4, lines 14-22)**.

32. Regarding claim 65, Wang discloses all the claimed invention as set forth and discussed above in claim 26. Wang further discloses, wherein the polarity circuit is a reverse polarity circuit**(5)** **(reverse polarity sensor; see claims 13,14,15, and 18)**.

33. Regarding claim 66, Wang discloses all the claimed invention as set forth and discussed above in claim 26. Wang further discloses, wherein the polarity circuit comprises a reverse polarity sensor**(5)(see col. 4, lines 14-22)**.

34. Regarding claim 75, Wang discloses all the claimed invention as set forth and discussed above in claim 24. Wang further discloses, wherein the positive battery terminal connector**(BT+)** is configured to directly or indirectly electrically connect the jump starter apparatus to the positive battery terminal of the depleted or discharged battery**(see Fig. 2)**, and wherein the negative battery terminal connector is configured to directly or indirectly electrically connect the jump starter apparatus to the negative battery terminal of the depleted or discharged battery**(B-)(see claims 1,13,18, and 23)**.

35. Regarding claim 58, Wang discloses all the claimed invention as set forth and discussed above in claim 57. Wang further discloses, wherein the power switch is a FET switch**(see switching configuration in Fig. 2 formed by Q3_1,Q3_2,Q3_3, Q4_1,Q4_2,Q4_3 which are N channel FETs).**

36. Regarding claim 59, Wang discloses all the claimed invention as set forth and discussed above in claim 57. Wang further discloses, wherein the FET switch comprises a plurality of FETs in parallel**((Q3_1, Q4_1), (Q3_2, Q4_2) and (Q3_3, Q4_3) are N FETs in parallel; see Fig. 2)**

***Claim Rejections - 35 USC § 103***

37. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

38. The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

39. The factual inquiries for establishing a background for determining obviousness under 35 U.S.C. 103 are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.

3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

40. This application currently names joint inventors. In considering patentability of the claims the examiner presumes that the subject matter of the various claims was commonly owned as of the effective filing date of the claimed invention(s) absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and effective filing dates of each claim that was not commonly owned as of the effective filing date of the later invention in order for the examiner to consider the applicability of 35 U.S.C. 102(b)(2)(C) for any potential 35 U.S.C. 102(a)(2) prior art against the later invention.

41. **Claim(s) 29-36,49-52,62,64,76 are rejected under 35 U.S.C. 103 as being unpatentable over Wang et al., (Wang) USPAT 11,104,236 in view of Richardson et al., (Richardson) US 2009/0174362(Exhibit 1010 on IPR2020-0387).**

42. Regarding claims 29-30, Wang does not expressly teach the limitations of: the apparatus further comprising a manual switch to allow a user to manually switch on power from the power supply to the depleted or discharged battery.

43. However, Richardson discloses factual evidence of, further comprising a manual switch to allow a user to manually switch**(44)(see¶[0013])** on power from the power supply**(22)** to the depleted or discharged battery**(battery of vehicle (28)).**

44. Wang and Richardson are battery jump starters analogous art. Therefore it would have been obvious to one having ordinary skill in the art before the effective filing date of the claimed invention to combine Richardson with Wang by including a manual switch in the apparatus of Wang to allow a user to manually switch on power from the power supply to the depleted or discharged battery the teachings in order to yield the predictable results of enabling a user to select either automatic or manual operation, as per the teachings of Richardson**(see ¶[0013]).**

45. Regarding claim 31, Wang does not expressly teach the limitations of: the apparatus further comprising a manual switch to allow a user to override the automatic switching and manually switch on power from the power supply to the depleted or discharged battery.

46. However, Richardson discloses, further comprising a manual switch **(push button switch 44)** to allow a user to override the automatic switching and manually switch on power from the power supply **(22)** to the depleted or discharged battery **(battery of vehicle 28)(see ¶[0013]).**

47. Wang and Richardson are battery jump starters analogous art. Therefore it would have been obvious to one having ordinary skill in the art before the effective filing date of the claimed invention to incorporate the teachings of Richardson into Wang's apparatus by including a manual switch in the apparatus of Wang to allow a user to override the automatic switching and manually switch on power from the power supply to the depleted or discharged battery, as

recited, in order to yield the predictable results of enabling a user to select either automatic or manual operation, as per the teachings of Richardson**(see ¶[0013]).**

48. Regarding claim 32, Wang in view of Richardson discloses all the claimed invention as set forth and discussed above in claim 31. Richardson further discloses, wherein the manual switch comprises a manual override button**(44)(see ¶[0013])**.

49. Regarding claim 33, Wang in view of Richardson discloses all the claimed invention as set forth and discussed above in claim 32. Richardson further discloses, wherein the manual switch**(44)** is configured so that a user presses and holds down the manual override button for a predetermined period of time to prevent inadvertent actuation of a manual mode**(see ¶[0039])**.

50. Regarding claim 34, Wang does not expressly teach the limitations of, further comprising a manual switch for manually switching on power from the power supply to the depleted or discharged battery in the event the control system or circuit is unable to automatically switch on power from the power supply to the depleted or discharged battery.

51. However, Richardson discloses, further comprising a manual switch**(44)** for manually switching on power from the power supply**(22)** to the depleted or discharged battery**(battery of vehicle 28)** in the event the control system or circuit**(12)** is unable to automatically switch on power from the power supply to the depleted or discharged battery.

52. It would have been obvious to one having ordinary skill in the art before the effective filing date of the claimed invention to incorporate the teachings of Richardson into Wang's device by having the apparatus further comprising a manual switch for manually switching on power from the power supply to the depleted or discharged battery in the event the control system or circuit is unable to automatically switch on power from the power supply to the depleted or discharged battery, as recited, in order to yield the predictable results of enabling a

user to select either automatic or manual operation, as per the teachings of Richardson**(see ¶[0013]).**

53. Regarding claim 35, Wang in view of Richardson discloses all the claimed invention as set forth and discussed above in claim 29. Richardson further discloses, wherein the manual switch**(44)** is configured to prevent manual override if the depleted or discharged battery is connected in reverse to the positive and negative battery terminals **(see ¶[0014]-[0015]).**

54. Regarding claim 36, Wang in view of Richardson discloses all the claimed invention as set forth and discussed above in claim 29. Richardson further discloses, wherein the manual switch**(44)** is configured to allow a user to jump start a vehicle having either a missing battery, or the depleted or discharged battery of the vehicle**(28)** having a battery voltage so low that automatic detection of the battery voltage and switching by the control system or circuit**(12)** is not possible**(see ¶[0026])**.

55. Regarding claims 49-50, Wang discloses all the claimed invention as set forth and discussed above in claim 42. However, Wang fails to expressly disclose, wherein the microcontroller is a programmable microcontroller configured to allow updates in functionality and system parameters(without requiring any change in hardware, as applied to claim 50).

56. Richardson discloses factual evidence of, wherein the microcontroller is a programmable microcontroller configured to allow updates in functionality and system parameters**(¶[0011]).** It would have been obvious to one having ordinary skill in the art before the effective filing date of the claimed invention to incorporate the teachings of Richardson into Wang's device by having the microcontroller being a programmable microcontroller configured to allow updates in functionality and system parameters, in order to yield the predictable results of providing

flexibility to the system without changing the hardware, as per the teachings of Richardson **(see ¶[0011])**.

57. Regarding claims 51, Wang discloses all the claimed invention as set forth and discussed above in claim 42. However, Wang fails to expressly disclose, wherein the microcontroller comprises flash memory, wherein the microcontroller with flash memory is used to control the control system or circuit.

58. Richardson discloses factual evidence of, wherein the microcontroller**(12)** comprises flash memory, and wherein the microcontroller with flash memory is used to control the control system or circuit**(¶[0011])**.

59. It would have been obvious to one having ordinary skill in the art before the effective filing date of the claimed invention to incorporate the teachings of Richardson into Wang's device by having the microcontroller comprises flash memory, and wherein the microcontroller with flash memory is used to control the control system or circuit, as recited in order to provide processing speed and flexibility to the system.

60. Regarding claims 52, Wang discloses all the claimed invention as set forth and discussed above in claim 42. However, Wang fails to expressly disclose, wherein the control system or circuit further comprises a voltage regulator providing regulation of internal operating voltage for the microcontroller and sensors. Richardson discloses factual evidence of, wherein the control system or circuit further comprises a voltage regulator providing regulation of internal operating voltage for the microcontroller**(12)** and sensors**(20,30,32,34,38,40…)(Fig. 2A; LM7805 is a 5V regulator although not labeled)**.

61. It would have been obvious to one having ordinary skill in the art before the effective filing date of the claimed invention to incorporate the teachings of Richardson into Wang's

apparatus by having, wherein the control system or circuit further comprises a voltage regulator providing regulation of internal operating voltage for the microcontroller and sensors, as recited in order to yield the predictable results of providing a suitable voltage to the low power electronics as it is well known that microcontrollers are low input power devices in the order of 5V.

62. However Wang stayed silent regarding the limitations of, Wang further discloses, wherein the positive battery terminal connector is a positive battery clamp releasably connectable to the positive terminal of the depleted or discharged battery**(see Fig. 2; BT+)**, and wherein the negative battery terminal connector**(BT-)** is a negative battery clamp releasably connectable to the negative terminal of the depleted or discharged battery.

63. Regarding claim 62, Wang discloses all the claimed invention as set forth and discussed above in claim 24. However, Wang fails to expressly disclose the limitations of, further comprising a temperature sensor configured to detect temperature of the power supply and to provide a temperature signal to a microcontroller. Richardson discloses factual evidence of, further comprising a temperature sensor**(38)(see Fig. 1; ¶[0013])** configured to detect temperature of the power supply**(22)** and to provide a temperature signal to a microcontroller**(12)**.

64. It would have been obvious to one having ordinary skill in the art before the effective filing date of the claimed invention to incorporate, a temperature sensor configured to detect temperature of the power supply and to provide a temperature signal to a microcontroller, into the apparatus of Wang in order to detect overheating due to excess current draw from the batteries during jump starting, as per the teachings of Richardson **(see ¶[0013]).**

65. Regarding claim 64, Wang discloses all the claimed invention as set forth and discussed above in claim 24. However, Wang fails to expressly disclose the limitations of, further comprising a voltage regulator configured to convert output voltage of the power supply to a voltage level appropriate to provide operating power to internal components of the jump starting apparatus.

66. However, Richardson discloses factual evidence of, further comprising a voltage regulator(**LM7805 is a 5V regulator although not labeled; Fig. 2A**) configured to convert output voltage of the power supply(**22**) to a voltage level appropriate(**low power such as 5V input for the microcontrollers and other internal components**) to provide operating power to internal components of the jump starting apparatus.

67. It would have been obvious to one having ordinary skill in the art before the effective filing date of the claimed invention to incorporate the teachings of Richardson into Wang's apparatus by having the jump starter apparatus further comprising a voltage regulator configured to convert output voltage of the power supply to a voltage level appropriate to provide operating power to internal components of the jump starting apparatus, as recited, in order to provide suitable power to low power electronic components like the microcontroller which is known to be low power device.

68. Regarding claim 76, Wang discloses all the claimed invention as set forth and discussed above in claim 24. Wang does not expressly teach, further comprising another switch configured to turn on the jump starter apparatus to become operational.

69. However Richardson discloses, further comprising another switch configured to turn on the jump starter apparatus to become operational(**see ¶[0014]**). Wang and Richardson are battery jump starters analogous art. Therefore it would have been obvious to one having ordinary skill in

the art before the effective filing date of the claimed invention to incorporate the teachings of Richardson into Wang's apparatus by including another switch configured to turn on the jump starter apparatus to become operational, in order to yield the predictable results of enabling a user to select either automatic or manual operation, as per the teachings of Richardson**(see ¶[0013]).**

70. **Claims 67-68 are rejected under 35 U.S.C. 103 as being unpatentable over Wang et al., (Wang) USPAT 11,104,236 in view of Brown USPAT 8,076,900 and in further view of Waldron US 2011/0068734**

71. Regarding claim 67, Wang discloses all the claimed invention as set forth and discussed above in claim 24. However, Wang does not expressly teach the limitations of, wherein the positive battery connector and negative battery connector together form a jumper cable device comprising a plug connected to one of the cables and configured to plug into an output port of the battery jump starting apparatus.

72. Brown teaches factual evidence of, wherein the positive battery connector**(92)** and negative battery connector**(94)** together form a jumper cable device comprising a plug**(92)(see Figs. 1-2).**

73. The combination of Wang and Brown still fails to expressly teach a plug connected to one of the cables and configured to plug into an output port of the battery jump starting apparatus.

74. Waldron discloses factual evidence of, a plug **(46)** connected to one of the cables**(44)** and configured to plug into an output port of the battery jump starting apparatus**(see ¶[0023]; Fig. 1)**.

75. Wang, Brown and Waldron are battery jump starters analogous art.

76. Therefore it would have been obvious to one having ordinary skill in the art before the effective filing date of the claimed invention to have incorporated the teachings of Brown into the apparatus of Wang by having, wherein the positive battery connector and negative battery connector together form a jumper cable device comprising a plug in order to provide power sup[ply delivery from the jump starter apparatus to the discharged and depleted battery of the vehicle. It would have further been obvious to modify Wang in view of Brown by incorporating the teachings of Waldron of the vehicle to have had a plug connected to one of the cables and configured to plug into an output port of the battery jump starting apparatus of Wang as modified by Brown so as to tethered the cable to one end of the plug. The advantage for doing so is to improve portability and decrease the chance of having the cables entangled with each other and to fit to the compartment of the carrying case, in which some items are form fitting compartments and are thus configured to the shape of the item to be carried, as per the teachings of Waldron **(¶[0012]).**

77. Regarding claim 68, Wang in view of Brown and Waldron discloses all the claimed invention as set forth and discussed above in claim 67. Brown further discloses, wherein an output port**(84)** and the plug**(92)** are dimensioned so that the plug fits into the output port only in one specific orientation**(see Figs. 1-2)**.

78. **Claims 69-74 are rejected under 35 U.S.C. 103 as being unpatentable over Wang et al., (Wang) USPAT 11,104,236 in view of Butler et al., (Butler) USPAT 10,087,904.**

79. Regarding claim 69, Wang discloses all the claimed invention as set forth and discussed above in claim 24. However, Wang does not teach the limitations of, further comprising a USB charging port configured to provide charging power from an external power source to the power supply.

80. Butler discloses factual evidence of, further comprising a USB charging port**(156)** configured to provide charging power**(via SEPIC circuit 302; see Butler; col. 5, lines 8-27** from an external power source**(104 or 148)** to the power supply**(150)(see col. 5, lines 54-col. 6, line 26)**.

81. Wang and Butler are battery booster analogous art. Therefore it would have been obvious to one having ordinary skill in the art before the effective filing date of the claimed invention to incorporate the teachings of Butler into the apparatus of Wang to further comprising a USB charging port configured to provide charging power from an external power source to the power supply, as recited, in order to facilitate charging energy or boosting energy to a vehicle/external battery or to one or more portable electronic devices, as per the teachings of Butler **(col. 5, lines 54-67).**

82. Regarding claim 70, Wang in view of Butler discloses all the claimed invention as set forth and discussed above in claim 69. Butler further discloses, further comprising a USB charging circuit**(see circuit connection of 156->154->150; Fig. 1)** connecting the USB charging port**(156)** to the power supply**(150)**.

83. Regarding claim 71, Wang in view of Butler discloses all the claimed invention as set forth and discussed above in claim 70. Butler further discloses, wherein the USB charging circuit comprises a DC-DC converter**(note-SEPIC 302 is a DC to DC converter; see col. 12, lines 5-35 and col. 13, lines 13-34 & 62-65)**.

84. Regarding claim 72, Wang in view of Butler discloses all the claimed invention as set forth and discussed above in claim 71. Butler further discloses, wherein the DC- DC converter increases the voltage from a USB charger**(156)** to charge the power supply**(150)(col. 5, lines 54-67; col. 12, lines 8-12)** .

85. Regarding claim 73, Wang in view of Butler discloses all the claimed invention as set forth and discussed above in claim 72. Butler further discloses, wherein the DC- DC converter**(SEPIC 302)** is configured to convert 5V potential provided from a USB charger to 12.4VDC. Butler further discloses, a USB port or 12V supply may be provided as DC output terminals **136** on the charger to facilitate the charging of accessories, such as portable electronic devices **152**. Thus, the compact battery charger's **102** internal battery **150** may also be used as a power source for one or more DC accessories. Charging while operating the accessories can extend run time of the compact battery charger **102**, but will also extend recharge time.

86. Butler further discloses that to charge a 12 volt battery (nominal voltage) to 14.4V, the variable input voltage can be a voltage from a predetermined range, such as between 5 VDC to 20 VDC, thereby enabling internal battery **150** recharging functionality via a USB port, which is 5 VDC.

87. Wang in view of Butler discloses the claimed invention except for the limitations of, "wherein the DC- DC converter is configured to convert 5V potential provided from a USB charger to 12.4VDC". It would have been obvious to one having ordinary skill in the art at the time of the invention was made to configure the SEPIC converter of Butler to convert 5V potential provided from a USB charger to 12.4VDC, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

88. Regarding claim 74, Wang in view of Butler discloses all the claimed invention as set forth and discussed above in claim 72. Butler further discloses, wherein the DC- DC converter**(302)** is configured to be turned on and off via a circuit**(duty cycle of semiconductor switches; see Butler col. 12, lines 8-27 and col. 13, lines 17-61)** by an output from a

microcontroller**(128)(see Butler, Fig. 3)(note-The output power may be controlled by software (e.g. via a relay, MOSFET, and/or a silicon-controlled rectifier; see col. 17, lines 38-55)**.

89. **Claim 61 is rejected under 35 U.S.C. 103 as being unpatentable over Wang et al., (Wang) USPAT 11,104,236 in view of Kim USPAT 5,867,007**

90. Regarding claim 61, Wang discloses all the claimed invention as set forth and discussed above in claim 24. However, Wang does not teach the limitations of, further comprising a plurality of power diodes coupled between an output of the jump starting apparatus to the depleted or discharged battery and the power supply to prevent back-charging of the power supply from an electrical system connected to the output.

91. Kim teaches factual evidence of, further comprising a plurality of power diodes**(31)(see Fig. 1)** coupled between an output of the jump starting apparatus to the depleted or discharged battery**(10)** and the power supply**(20)** to prevent back-charging of the power supply from an electrical system connected to the output**(see col. 3, lines 46-55)**.

92. Wang and Kim are battery powered devices analogous art. Therefore it would have been obvious to one having ordinary skill in the art before the effective filing date of the claimed invention to incorporate the teachings of Kim into the jump starter apparatus of Wang further comprising a plurality of power diodes coupled between an output of the jump starting apparatus to the depleted or discharged battery and the power supply to prevent back-charging of the power supply from an electrical system connected to the output, as recited, in order to prevent reverse current flow from the power supply to the battery and thereby improving the safety and protection of the overall charging system.

93. **Claims 53-57 are rejected under 35 U.S.C. 103 as being unpatentable over Wang et al., (Wang) USPAT 11,104,236 in view of Miller US 20170012448.**

94. Regarding claim 53, Wang discloses all the claimed invention as set forth and discussed above in claim 26. However, Wang does not expressly teach the limitations of, "wherein the presence circuit comprises a first optically coupled isolator phototransistor and the polarity circuit comprises a second optically coupled isolator phototransistor".

95. Miller teaches factual evidence of, wherein the presence circuit**(clamp circuit 248; see Fig. 21 optical isolator 290 within the clamp check circuit 248)** comprises a first optically coupled isolator phototransistor**(74)(¶[0085])** and the polarity circuit comprises a second optically coupled isolator phototransistor**(72)(see Fig. 8).**

96. Wang and Miller are battery jump starter analogous art. Therefore it would have been obvious to one having ordinary skill in the art before the effective filing date of the claimed invention to include in the presence circuit of Wang comprises a first optically coupled isolator phototransistor and the polarity circuit comprises a second optically coupled isolator phototransistor, as recited, in order to provide safety to the charging operation.

97. Regarding claim 54, Wang discloses all the claimed invention as set forth and discussed above in claim 26. However, Wang does not expressly teach the limitations of, "wherein the presence circuit further comprises a first diode connected between the first optically coupled phototransistor and the depleted or discharged battery, and the polarity circuit further comprises a second diode connected between the second optically coupled phototransistor and the depleted or discharged battery".

98. Miller teaches factual evidence of, wherein the presence circuit**(clamp check circuit 248; see ¶[0126])** further comprises a first diode**(see Fig. 21)** connected between the first

optically coupled phototransistor(**see phototransistor inside clamp check circuit 248 in Fig. 21**) and the depleted or discharged battery, and the polarity circuit(**reverse current protection circuit 250; see ¶[0126]**) further comprises a second diode connected between the second optically coupled phototransistor and the depleted or discharged battery.

99. Regarding claim 55, Wang discloses all the claimed invention as set forth and discussed above in claim 24. However, Wang stayed silent regarding the limitations of, "wherein the power supply is a rechargeable battery".

100. Miller teaches, wherein the power supply is a rechargeable battery(**rechargeable lithium-ion battery ¶[0016]**).

101. It would have been obvious to one having ordinary skill in the art before the effective filing date of the claimed invention to modify Wang with the teachings of Miller by having, wherein the power supply is a rechargeable battery, in order to ensure availability of a source of uninterruptible power.

102. Regarding claim 56, Wang in view of Miller discloses all the claimed invention as set forth and discussed above in claim 55. Miller further discloses, wherein the rechargeable battery(**127**) is a lithium ion rechargeable battery(**see Miller; ¶[0016]**).

103. Regarding claim 57, Wang in view of Miller discloses all the claimed invention as set forth and discussed above in claim 56. Miller further discloses, wherein the lithium ion battery comprises a battery pack of multiple lithium ion batteries(**Fig. 14; internal battery 127 comprises a plurality of individual batteries cells connected in series; see ¶[0016],[0102]**).

***Citation of Prior Art***

104. For a list of related prior art references not mentioned above but disclose related apparatus or method, see Form PTO-892.

***Conclusion***

105. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M'BAYE DIAO whose telephone number is (571)272-6127. The examiner can normally be reached M-F; 9:00AM-6:30PM.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DREW A DUNN can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: https://patentcenter.uspto.gov. Visit https://www.uspto.gov/patents/apply/patent-center for more information about Patent Center and https://www.uspto.gov/patents/docx for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

M'BAYE DIAO
Primary Examiner
Art Unit 2859

/M BAYE DIAO/
Primary Examiner, Art Unit 2859
September 23, 2022

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| Search Notes | Application/Control No. | Applicant(s)/Patent Under Reexamination |
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| | 16/819,831 | NOOK et al. |
| | Examiner | Art Unit |
| | M'BAYE DIAO | 2859 |

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| US Classification - Searched* | | | |
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| 320 | 105 | 08/18/2021 | MD |

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

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| /M BAYE DIAO/<br>Primary Examiner, Art Unit 2859 | |



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| **Search Notes** | **Date** | **Examiner** |
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| Inventor Name and Assignee search (SEARCH). | 08/18/2021 | MD |
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**CLAIMS**

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

| CLAIM | | DATE | | | | | | | | |
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| Application Number | 16819831 |
| Filing Date | 2020-03-16 |
| First Named Inventor | NOOK |
| Art Unit | 2859 |
| Examiner Name | DIAO |
| Attorney Docket Number | 054985-000055-US-02-01 |

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IPR2025-00885

| INFORMATION DISCLOSURE STATEMENT BY APPLICANT ( Not for submission under 37 CFR 1.99) | | |
|---|---|---|
| | Application Number | 16819831  |
| | Filing Date | 2020-03-16 |
| | First Named Inventor | NOOK |
| | Art Unit | 2859 |
| | Examiner Name | DIAO |
| | Attorney Docket Number | 054985-000055-US-02-01 |

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**FOREIGN PATENT DOCUMENTS** Remove

| Examiner Initial* | Cite No | Foreign Document Number[3] | Country Code[2] | Kind Code[4] | Publication Date | Name of Patentee or Applicant of cited Document | Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear | T[5] |
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| /M.D/ | 20 | 104488111 | CN | A | 2015-04-01 | SK INNOVATION CO LTD | English Abstract attached | ☒ |
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| Examiner Initials* | Cite No | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published. | T5 |
|---|---|---|---|
| | 1 | Copy of Australian Office Action for AU Patent Application No.: AU2020201224, mailed October 26, 2021. | |
| | 2 | DECLARATION by Cory Seligman (30 Pages) and ANNEXURE marked CS-1 (137 Pages), in the matter of AU 2019201559 and Opposition by Brown & Watson; 2020-Nov-23 | |
| | 3 | Copy of Petition for Inter Partes Review of US Patent No. 9007015 for Shenzhen Mediatek Tong Technology v. Noco Company (69 Pages); IPR2020-01387; 2020-Jul-29 | |
| | 4 | Copy of Petition for Inter Partes Review of US Patent No. 9007015 for Guangdong Boltpower Energy Co., Ltd. v. Noco Company (106 Pages); IPR2021-00309; 2020-Dec-11 | |
| | 5 | Exhibit 1004 from IPR2021-00309; PTAB Decision Denying Institution of Inter Partes Review of the '015 patent in Case IPR2018-00503 | |
| | 6 | Exhibit 1016 from IPR2020-01387; The NOCO Company, Inc. v. Shenzhen Lianfa Tong Technology Co. Ltd., et al., Case No. 1:19-cv-01855, (N.D. Ohio) First Amended Complaint for Patent Infringement | |

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| First Named Inventor | NOOK |
| Art Unit | 2859 |
| Examiner Name | DIAO |
| Attorney Docket Number | 054985-000055-US-02-01 |

| EXAMINER SIGNATURE | | | |
|---|---|---|---|
| Examiner Signature | /M BAYE DIAO/ | Date Considered | 09/23/2022 |

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# PE2E SEARCH - Search History (Prior Art)

| Ref # | Hits | Search Query | DBs | Default Operator | Plurals | British Equivalents | Time Stamp |
|---|---|---|---|---|---|---|---|
| L1 | 156178 | (automobile vehicle car locomotive motorcycle motorbike EV (electric$2 NEAR vehicle) HEV (hybrid NEAR electric$2 NEAR vehicle)) NEAR charg$2 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/06/17 01:25 PM |
| L2 | 628 | (jump boost) NEAR start$3 NEAR (apparatus device) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/06/17 01:26 PM |
| L3 | 1227683 | output NEAR port | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/06/17 01:26 PM |
| L4 | 84 | battery NEAR isolat$3 NEAR sens$2 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/06/17 01:27 PM |
| L5 | 1070 | reverse NEAR polarity NEAR (sens$2 detect$2) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/06/17 01:27 PM |
| L6 | 101 | battery NEAR isolat$3 NEAR (sens$2 detect$2) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/06/17 01:28 PM |
| L7 | 1427283 | power NEAR switch | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/06/17 01:28 PM |
| L8 | 24049223 | (microcontroller microprocessor controller processor) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/06/17 01:29 PM |
| L9 | 8 | L1 L2 L3 L5 L6 L7 L8 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2021/06/17 01:29 PM |
| L10 | 3904 | 320/109,105.ccls. | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); | OR | ON | ON | 2021/06/17 01:36 PM |

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|---|---|---|---|---|---|---|---|
| | | | FPRS; EPO; JPO; DERWENT; IBM_TDB) | | | | |
| L11 | 97030 | (B60L53/00 B60L53/53 H02J7/0034 H02J7/0068 H02J2207/20 H02J7/0029 H02J9/005).cpc. | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/06/17 01:37 PM |
| L12 | 8 | L1 L2 L3 L4 (L5 OR L6) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2021/06/17 01:38 PM |
| L13 | 10 | L1 L2 L6 L7 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2021/06/17 01:39 PM |
| L14 | 2 | "10875410".pn. | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/06/17 01:50 PM |
| L15 | 19 | Richardson.inv. AND (jump ADJ start$3) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/06/17 03:15 PM |
| L16 | 94 | ("0000001" OR "0000002" OR "0000008" OR "0000075" OR "0000359" OR "0000926" OR "0006344" OR "10046653" OR "10328806" OR "17236260" OR "17236279" OR "17236339" OR "20010038276" OR "20020075003" OR "20030096158" OR "20040066168" OR "20040130298" OR "20050110467" OR "20050162124" OR "20050258797" OR "20090008374" OR "20090174362" OR "20100013302" OR "20100055546" OR "20100173182" OR "20100181959" OR "20100244766" OR "20100301800" OR | (US-PGPUB; USPAT) | OR | ON | ON | 2021/06/17 09:50 PM |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | "20110127947" OR<br>"20110279089" OR<br>"20120013189" OR<br>"20120025763" OR<br>"20120068662" OR<br>"20120139498" OR<br>"20130015814" OR<br>"20130154543" OR<br>"20130241488" OR<br>"20140159509" OR<br>"20150012174" OR<br>"20150032312" OR<br>"20150212135" OR<br>"20150340907" OR<br>"20210107365" OR<br>"3267452" OR<br>"3343057" OR<br>"3950668" OR<br>"3950688" OR<br>"4871957" OR<br>"5319298" OR<br>"5487002" OR<br>"5793185" OR<br>"5831350" OR<br>"6057667" OR<br>"6130519" OR<br>"6144110" OR<br>"6160381" OR<br>"6212054" OR<br>"6249106" OR<br>"6262492" OR<br>"6271605" OR<br>"6351102" OR<br>"6362599" OR<br>"6424158" OR<br>"6426606" OR<br>"6632103" OR<br>"6774607" OR<br>"6803743" OR<br>"6919704" OR<br>"7199555" OR<br>"7339347" OR<br>"7345450" OR<br>"7579811" OR<br>"7656118" OR<br>"7675261" OR<br>"8072900" OR<br>"8125181" OR<br>"8172603" OR<br>"8183821" OR<br>"8447543" OR<br>"8565930" OR<br>"8692513" OR<br>"8723477" OR<br>"8994327" OR<br>"9007015" OR<br>"9007023" OR<br>"9248746" OR | | | | | |

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|---|---|---|---|---|---|---|---|
| | | "9263907" OR "9287725" OR "9333865" OR "9352652" OR "9412994" OR "9496728" OR "9506446" OR "9525297" OR "9871392" OR "9874611" OR "9954391").pn. | | | | | |
| L17 | 136 | ((("PILOT") near3 ("INC"))).AS,AANM. | (USPAT) | OR | ON | ON | 2021/06/17 10:14 PM |
| L18 | 237 | ((("WANG") near3 ("Calvin")) OR (("WANG") near3 ("Chung-Hsin"))).INV. | (US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT) | OR | ON | ON | 2021/06/17 10:14 PM |
| L19 | 17 | L1 L2 L5 L8 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2021/06/17 10:15 PM |
| L20 | 2 | "20090174362".pn. | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/17 07:27 PM |
| L21 | 35973 | polarity NEAR detect$3 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 10:39 AM |
| L22 | 1 | (battery NEAR presence NEAR (detect$3 sens$3)) WITH ((polarity (reverse NEAR polarity)) NEAR (detect$3 sens$3)) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 10:45 AM |
| L23 | 0 | (jump-start$3 boost$3) NEAR (device apparatus) SAME (battery NEAR (presence (connect$3 NEAR status) ) NEAR (detect$3 sens$3)) SAME ((polarity (reverse NEAR polarity)) NEAR (detect$3 sens$3)) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 10:49 AM |
| L24 | 4 | ((jump-start$3 boost$3) NEAR (device apparatus)) AND (battery NEAR (presence (connect$3 NEAR status) ) NEAR | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 10:52 AM |

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|---|---|---|---|---|---|---|---|
| | | (detect$3 sens$3)) AND ((polarity (reverse NEAR polarity)) NEAR (detect$3 sens$3)) | | | | | |
| L25 | 1 | (presence NEAR circuit$2) WITH (optically NEAR coupled NEAR isolator NEAR phototransistor) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 11:17 AM |
| L26 | 24 | (presence (battery NEAR presence) (battery NEAR status NEAR connect$3) NEAR circuit$2) WITH (optically NEAR coupled NEAR isolator NEAR phototransistor) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 11:19 AM |
| L27 | 106985 | (lithium-ion (lithium ADJ ion)) NEAR battery SAME ((power NEAR supply) jumps-starter NEAR battery) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 12:25 PM |
| L28 | 28 | L27 L4 L5 L6 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2021/08/18 12:26 PM |
| L29 | 24 | L28 L21 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2021/08/18 12:26 PM |
| L30 | 4 | L28 NOT L29 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2021/08/18 12:27 PM |
| L31 | 3352 | (10 11) AND 27 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 12:28 PM |
| L32 | 53 | L1 L2 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2021/08/18 12:29 PM |
| L33 | 7 | L32 L31 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2021/08/18 12:29 PM |
| L34 | 0 | lithium NEAR batter$3 NEAR back NEAR charge NEAR | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); | OR | ON | ON | 2021/08/18 01:47 PM |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | (protection prevention inhibition) NEAR (circuit$2 module) | FPRS; EPO; JPO; DERWENT; IBM_TDB) | | | | |
| L35 | 0 | lithium NEAR batter$3 NEAR ((back NEAR charge) (current NEAR back flow)) NEAR (protection prevention inhibition) NEAR (circuit$2 module) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 01:49 PM |
| L36 | 0 | lithium NEAR batter$3 NEAR ((back NEAR charge) ( back ADJ flow) NEAR current) NEAR (protection prevention inhibition) NEAR (circuit$2 module) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 01:50 PM |
| L37 | 7 | ((back NEAR charge) ( back ADJ flow) NEAR current) NEAR (protection prevention inhibition) NEAR (circuit$2 module) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 01:50 PM |
| L38 | 21994 | ((back NEAR charge) ( back ADJ flow) NEAR current) (back NEAR current NEAR flow) NEAR (protection prevention inhibition) NEAR (circuit$2 module) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 02:55 PM |
| L39 | 941281 | (Lithium lithium-ion (lithium NEAR polymer)) NEAR battery | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 02:57 PM |
| L40 | 42 | L39 SAME L38 WITH diode$1 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 02:57 PM |
| L41 | 117 | ("10328808" OR "10604024" OR "20010025618" OR "20020041174" OR "20030141845" OR "20040066168" OR "20040130298" OR "20040150373" OR "20040239290" OR "20050040788" OR "20050110467" OR "20050116688" OR "20050252573" OR "20060176011" OR | (US-PGPUB; USPAT) | OR | ON | ON | 2021/08/18 11:24 PM |

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|---|---|---|---|---|---|---|---|
| | | "20060220610" OR<br>"20060244412" OR<br>"20070278990" OR<br>"20070285049" OR<br>"20080143290" OR<br>"20100301800" OR<br>"20110068734" OR<br>"20110175461" OR<br>"20120025766" OR<br>"20120091944" OR<br>"20120319487" OR<br>"20130154543" OR<br>"20130162029" OR<br>"20130241488" OR<br>"20130314041" OR<br>"20140084844" OR<br>"20140159509" OR<br>"20140210399" OR<br>"20140368155" OR<br>"20150054336" OR<br>"20150137740" OR<br>"20150306964" OR<br>"20150340907" OR<br>"20160001666" OR<br>"20180111491" OR<br>"20180215274" OR<br>"20180269703" OR<br>"20180342891" OR<br>"20180345803" OR<br>"20190308518" OR<br>"3590357" OR<br>"3638108" OR<br>"3933140" OR<br>"4041445" OR<br>"4885524" OR<br>"4910628" OR<br>"4931731" OR<br>"5083076" OR<br>"5111130" OR<br>"5189359" OR<br>"5194799" OR<br>"5281904" OR<br>"5319298" OR<br>"5486434" OR<br>"5635817" OR<br>"5635818" OR<br>"5650974" OR<br>"5793185" OR<br>"5795182" OR<br>"5820407" OR<br>"5921809" OR<br>"5953681" OR<br>"5965998" OR<br>"6054779" OR<br>"6130519" OR<br>"6140796" OR<br>"6147471" OR<br>"6212054" OR | | | | | |

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|---|---|---|---|---|---|---|---|
| | | "6262492" OR "6262559" OR "6344733" OR "6362599" OR "6386907" OR "6424158" OR "6426606" OR "6632103" OR "6648701" OR "6650086" OR "6679212" OR "6756764" OR "6759833" OR "6803743" OR "6822425" OR "7148580" OR "7301303" OR "7345450" OR "7749031" OR "7872361" OR "7893657" OR "8076900" OR "8172603" OR "8199024" OR "8362745" OR "8376775" OR "8493021" OR "9007015" OR "9041244" OR "9153978" OR "9243601" OR "9506446" OR "9525297" OR "9770992" OR "9809183" OR "9954391" OR "D597029" OR "D625265" OR "D649116" OR "D689020" OR "D726109" OR "D726114" OR "D726121" OR "D735665" OR "D746774").pn. | | | | | |
| L42 | 62 | ((("THE") near3 ("NOCO") near3 ("COMPANY"))).AS,AANM. | (USPAT) | OR | ON | ON | 2021/08/18 11:28 PM |
| L43 | 135 | ((("NOOK") near3 ("Jonathan")) OR (("NOOK") near3 ("William")) OR (("STANFIELD") near3 ("James")) OR (("UNDERHILL") near3 ("Derek"))).INV. | (US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT) | OR | ON | ON | 2021/08/18 11:29 PM |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| L44 | 1 | WO ADJ "2016025869" | (US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT) | OR | ON | ON | 2021/08/18 11:50 PM |
| L45 | 417 | ("9007015" "9770992"<br>"10328808"<br>"10604024"<br>"20160001666"<br>"20180111491"<br>"20180215274"<br>"20180345803"<br>"20190308518"<br>"20200028368"<br>"20200169114"<br>"20200215926"<br>"20200259340"<br>"20200317068"<br>"5534369" "5749927"<br>"5772934" "5836981"<br>"4853305" "4999576"<br>"5411592" "5498489"<br>"5592069" "5694024"<br>"5698147" "5725822"<br>"5827331" "5867006"<br>"5883495" "6007938"<br>"6018228" "6157171"<br>"4285751" "4296461"<br>"4343312" "4373531"<br>"4437769" "4767682"<br>"4794056" "4830936"<br>"4855781" "4871956"<br>"4966822" "4970451"<br>"5008161" "5008165"<br>"5026615" "5043235"<br>"5179337" "5230967"<br>"5240655" "5250370"<br>"5281491" "5300373"<br>"5441825" "5525441"<br>"5569553" "5618318"<br>"5656393" "5667909"<br>"5731106" "5889385"<br>"5905363" "5949218"<br>"5949215" "5965997"<br>"6016105" "6019803"<br>"6036639" "6056415"<br>"6080507" "6147472"<br>"6174628" "6180280"<br>"6181107" "6203938"<br>"6322921" "6335114"<br>"6346346" "6348282"<br>"6372380" "6376109"<br>"6444354" "6667132"<br>"6724593" "6749649"<br>"6836095" "6953642"<br>"6958199" "7169505"<br>"7201997" "7235333"<br>"7402361" "7666545"<br>"7682754" "7687194"<br>"7719233" "7727674" | (US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT) | OR | ON | ON | 2021/08/18 11:57 PM |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | "7736800" "7768236"<br>"7785736" "7806943"<br>"7850743" "7897279"<br>"8003249" "8067114"<br>"7897279" "8003249"<br>"8067114" "8147999"<br>"8263247" "8420247"<br>"8450007" "8465874"<br>"8470471" "8472164"<br>"8564277" "8574008"<br>"8617257" "8628876"<br>"8691410" "8709642"<br>"8734985" RE44960<br>"8822070" "8865270"<br>"8877386" "8895174"<br>"8945744" "8951658"<br>"8952653" "8968910"<br>"8980462" "8999540"<br>"9012078" "9048490"<br>"9048503" "9059469"<br>"9105882" "9203123"<br>"9209446" "9209491"<br>"9219291" "9231271"<br>"9249522" "9252452"<br>RE45956 "9312723"<br>"9318748" "9379418"<br>).pn. | | | | | |
| L46 | 23 | L45 AND L2 | (US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT) | OR | ON | ON | 2021/08/18 11:58 PM |
| L47 | 2 | "20090174362".pn. | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2022/01/25 07:33 PM |
| L48 | 1063 | L38 L39 | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, | AND | ON | ON | 2022/01/25 10:16 PM |

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|---|---|---|---|---|---|---|---|
| | | | RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | | | | |
| L49 | 43 | L31 L48 | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2022/01/25 10:17 PM |
| L50 | 0 | (automatic NEAR detect$3) WITH (reverse NEAR polar$5) SAME (presence NEAR detect$3) | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2022/01/25 10:18 PM |
| L51 | 0 | (automatic NEAR detect$3) WITH (reverse NEAR polar$5) SAME (presence NEAR detect$3) | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2022/01/25 10:18 PM |
| L52 | 3 | (automatic NEAR detect$3) SAME (reverse NEAR polar$5) SAME (presence NEAR | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, | OR | ON | ON | 2022/01/25 10:19 PM |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | detect$3) | CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | | | | |
| L53 | 47 | (Artificial Intelligence) Similar to: 16/819,831 with 0 CPC Selections and 0 Text Selections<br>Text: (US-20200317068-A1 OR US-20200215926-A1 OR US-20190308518-A1 OR US-10604024-B2 OR US-20160001666-A1 OR US-9007015-B1 OR US-20180111491-A1 OR US-20180215274-A1 OR US-10328808-B2 OR US-9770992-B2 OR US-20210031640-A1 OR US-20180345803-A1 OR US-7479763-B2 OR US-20200259340-A1 OR US-20090174362-A1 OR US-11001212-B2 OR US-20200290535-A1 OR US-20040251876-A1 OR CN-207530573-U OR US-20030184264-A1 OR WO-2019101108-A1 OR CN-207217796-U OR WO-9730502-A1 OR US-20220085631-A1 OR WO-2022055644-A1 OR US-5668461-A OR WO-2019190588-A1 OR GB-2579150-A OR US-9506446-B2 OR US-20150054336-A1 OR JP-2020516219-A OR US-20090218988-A1 OR US-8493021-B2 OR CA-3072515-C OR US-20210155096-A1 | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN)) | OR | ON | ON | 2022/09/22 12:39 PM |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | OR AU-2018336956-B2 OR JP-2020534772-A OR EP-0930199-A3 OR DE-102019000352-A1 OR US-4349774-A OR US-10363824-B1 OR GB-2582520-A OR AU-2018336821-B2 OR GB-2350499-A OR DE-19946744-A1 OR FR-3036862-A1 OR US-20160082854-A1 OR CN-103326079-B OR US-20210296913-A1 OR JP-2022095635-A).did. | | | | | |
| L54 | 48 | (Artificial Intelligence) Similar to: 16/819,831 with 12 CPC Selections and 2 Text Selections<br>Text: (US-20200317068-A1 OR US-20200215926-A1 OR US-10604024-B2 OR US-20190308518-A1 OR US-20160001666-A1 OR US-9007015-B1 OR US-20180111491-A1 OR US-20210031640-A1 OR US-20180215274-A1 OR US-10328808-B2 OR US-20180345803-A1 OR US-9770992-B2 OR US-20200259340-A1 OR US-7479763-B2 OR US-20090174362-A1 OR US-20040251876-A1 OR US-20030184264-A1 OR US-11001212-B2 OR US-20200290535-A1 OR CN-207530573-U OR WO-9730502-A1 OR WO-2019101108-A1 OR US-5668461-A OR JP-2020516219-A OR WO-2019190588-A1 OR CN-207217796-U OR WO-2022055644-A1 OR GB-2579150-A OR US-20220085631-A1 OR US-20210155096-A1 OR US-20090218988-A1 | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN)) | OR | ON | ON | 2022/09/22 12:43 PM |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | OR US-8493021-B2 OR AU-2018336956-B2 OR US-9506446-B2 OR US-20150054336-A1 OR US-20210237591-A1 OR CA-3072515-C OR JP-2020534772-A OR US-4349774-A OR GB-2582520-A OR AU-2018336821-B2 OR DE-102019000352-A1 OR US-11104236-B2 OR US-20210237592-A1 OR WO-2019060552-A1 OR US-20210296913-A1 OR US-11254213-B2 OR EP-0930199-A3 OR AU-2022200448-A1 OR AU-2018337954-B2).did. | | | | | |
| L55 | 1 | ("20200317068").pn. | (US-PGPUB; USPAT) | OR | ON | ON | 2022/09/22 12:51 PM |
| L56 | 35 | (Artificial Intelligence) More like doc: US-20200317068-A1<br>Text: (US-20200215926-A1 OR AU-2021258059-B2 OR AU-2020201223-B2 OR US-10604024-B2 OR AU-2022200612-A1 OR AU-2019201559-B9 OR AU-2019201559-B2 OR AU-2020201224-A1 OR AU-2022201338-A1 OR AU-2022204065-A1 OR US-20190308518-A1 OR US-9007015-B1 OR US-20180111491-A1 OR US-20160001666-A1 OR US-20180215274-A1 OR WO-2019060699-A1 OR US-10328808-B2 OR AU-2016269555-A1 OR AU-2020201222-A1 OR AU-2020201223-A1).did. | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2022/09/22 12:51 PM |
| L57 | 23 | L2 L1 L3 L5 L7 L8 | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, | AND | ON | ON | 2022/09/22 12:53 PM |

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| | | | IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | | | | |
| L58 | 2 | "10875410".PN. | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2022/09/22 01:57 PM |
| L59 | 7 | "9525297".PN. | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2022/09/22 02:40 PM |
| L60 | 8 | "10328806".PN. | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2022/09/22 02:54 PM |

## PE2E SEARCH - Search History (Interference)

There are no Interference searches to show.

## PE2E SEARCH - Search History (Similarity Search)

| Ref # | Application Number | Text Selections | CPC Selections |
|---|---|---|---|
| L53 | 16/819,831 | No selections | No selections |
| L54 | 16/819,831 | (Abstract) A handheld device for jump starting a vehicle engine includes a rechargeable lithium ion battery pack (32) and a microcontroller (1). The lithium ion battery is coupled to a power output port of the device through a power switch circuit (15) actuated by the microcontroller. A vehicle battery isolation sensor (12) connected in circuit with positive and negative polarity outputs detects the presence of a vehicle battery (72) connected between the positive and negative polarity outputs. A reverse polarity sensor (10) connected in circuit with the positive and negative polarity outputs detects the polarity of a vehicle battery connected between the positive and negative polarity outputs, such that the microcontroller will enable power to be delivered from the lithium ion power pack to the output port only when a good battery is connected to the output port and only when the battery is connected with proper polarity of positive and negative terminals.<br><br>(Claims) A jump starter apparatus, comprising:<br><br>a power supply;<br><br>a positive battery terminal connector;<br><br>a negative battery terminal connector;<br><br>a power switch configured to electrically connect the power supply to a depleted or discharged battery; and<br><br>a control system or circuit electrically connected to and controlling the power switch, the control system or circuit configured to detect both presence of the depleted or discharged battery when connected between the positive and negative battery terminal connectors and proper polarity between the positive and negative battery terminal connectors and the positive and negative battery terminals of the depleted or discharged battery when connected between | (B60L53/14) Conductive energy transfer<br><br>(H02J1/122) Provisions for temporary connection of DC sources of essentially the same voltage, e.g. jumpstart cables<br><br>(H02J7/342) The other DC source being a battery actively interacting with the first one, i.e. battery to battery charging<br><br>(H02J7/0029) Circuit arrangements for charging or depolarising batteries or for supplying loads from batteries with safety or protection devices or circuits<br><br>(H02J7/0034) Circuit arrangements for charging or depolarising batteries or for supplying loads from batteries with safety or protection devices or circuits using reverse polarity correcting or protecting circuits<br><br>(H02J7/0047) Circuit arrangements for charging or depolarising batteries or for supplying loads from batteries with monitoring or indicating devices or circuits<br><br>(H02J7/0048) Detection of remaining charge capacity or state of charge [SOC]<br><br>(H02J7/00) Circuit arrangements for charging or depolarising batteries or for supplying loads from batteries<br><br>(H02J7/00306) Overdischarge protection<br><br>(H02J2310/46) The network being an on-board power network, i.e. within a vehicle for ICE-powered road vehicles<br><br>(H02J7/00309) Overheat or overtemperature protection<br><br>(H02J7/00302) Overcharge protection |

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|---|---|---|---|
| | | the positive and negative battery terminal connectors, the control system or circuit is configured to automatically execute the following steps when the jump starting apparatus becomes operational or is turned on, including:<br><br>(i) detect the presence of the depleted or discharged battery connected between the positive and negative battery connectors;<br><br>(ii) detect the proper polarity of a depleted or discharged battery when connected between the positive and negative battery terminal connectors;<br><br>and (iii) switch on power from the power supply to the depleted or discharged battery only when both the presence of the depleted or discharged battery connected between the positive and negative battery terminal connectors<br><br>is detected and a proper polarity connection between the positive and negative battery terminal connectors and the positive and negative battery terminals is detected. | |

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed



PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

**( Not for submission under 37 CFR 1.99)**

| | |
|---|---|
| Application Number | 16819831 |
| Filing Date | 2020-03-16 |
| First Named Inventor | NOOK |
| Art Unit | 2859 |
| Examiner Name | DIAO |
| Attorney Docket Number | 054985-000055-US-002-01 |

**U.S.PATENTS** Remove

| Examiner Initial* | Cite No | Patent Number | Kind Code[1] | Issue Date | Name of Patentee or Applicant of cited Document | Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear |
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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.D/

ADC EX1002
IPR2025-00885

# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

**( Not for submission under 37 CFR 1.99)**

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|---|---|
| Application Number | 16819831 |
| Filing Date | 2020-03-16 |
| First Named Inventor | NOOK |
| Art Unit | 2859 |
| Examiner Name | DIAO |
| Attorney Docket Number | 054985-000055-US-002-01 |

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|---|---|---|---|---|---|---|
| /M.D/ | 9 | 6215273 | | 2001-04-10 | SHY | |
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| | 14 | 7095339 | | 2006-08-22 | PENG et al. | |
| | 15 | D597029 | | 2009-07-28 | LI | |

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|---|---|---|---|---|---|---|
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| | 2 | 20080131764 | | 2008-06-05 | SAIKI | |



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IPR2025-00885

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.D/

| INFORMATION DISCLOSURE STATEMENT BY APPLICANT ( Not for submission under 37 CFR 1.99) | | |
|---|---|---|
| | Application Number | 16819831  |
| | Filing Date | 2020-03-16 |
| | First Named Inventor | NOOK |
| | Art Unit | 2859 |
| | Examiner Name | DIAO |
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| /M.D/ | 7 | DEFENDANT DELTONA TRANSFORMER CORPORATION'S INVALIDITY CONTENTIONS: USB Implementers Forum, Inc, Battery Charging Specification, Rev 1.1, 4/15/2009.; MICRO-START/PPS, offered for sale as late as 07/29/2013, by Antigravity Batteries.; E-Power, offered for sale as late as 04/15/2013 by Carku.; Battery Tender Power Pack, offered for sale prior to 07/03/2014 by Carku/Deltran USA LLC.; PowerAll, offered for sale as late as 03/26/2014 by Gryphon Mobile Electronics LLC.; Electromate 400, offered for sale as late as 2013 by Black & Decker. |
| | 8 | DEFENDANT TII TRADING INC.'S INVALIDITY CONTENTIONS |
| | 9 | DEFENDANT'S INVALIDITY AND UNENFORCEABILITY CONTENTIONS: USB Battery Charging Spec Ver 1.2.; E-flite EC Connector Assembly Instruct w 2008.; Datasheet for LM7805 Voltage Regulator from Fairchild Semiconductor.; Carku Product Brochure for Epower-20 jump starter product.; Carku Product Brochure for Epower-21 jump starter product.; MC78XX/LM78XX/MC78XXA 3-Terminal 1A Positive Voltage Regulator from Fairchild Semiconductor Corp. 2001.; Patent Owner The NOCO Company's Preliminary Response in Dongguan IPR. |
| | 10 | Memo Opin and Order of US Dist Ct Jud Barker construing disputed terms of claims 1, 9 and 19 of the '015 issued NOCO v. SmarTech Produts, Inc., 1:18-cv-2780 (N.D. Ohio April 2, 2020; NOCO Amend Compl NOCO v Shenzhen Lianfa Tong Tech Co., Ltd., et al., 1:19-cv-01855 (N.D. Ohio April 2, 2020; Dec Wan; Dec Hartup; Dec Kirtley; Special Master Report on Prop Claim Const For USPN 9,007,015 issued NOCO v. Shenzhen Dika Na'Er E-Commerce Co., 1:17CV2282 (N.D. Ohio June 28, 2018) acc/adopt by US Dist Ct Jud Boyko, 2019 WL 1723358 |
| | 11 | DEFENDANTS' AMENDED FINAL INVALIDITY AND UNENFORCEABILITY CONTENTIONS: The Powerall PBJS12000RD Jump Starter, offered for sale by Gryphon Mobile Electronics at least as early as 11/05/2013.; The Lightning 12V Jump Starter, offered for sale by Pilot, Inc. at least as early as 03/2014.; The L3 Model Jump Starter, offered for sale by Shenzhen Tsevie Company at least as early as 05/19/2019. |
| | 12 | STATEMENT OF DEFENSE AND COUNTERCLAIM: Carku Epower-20 jump starter; Carku Epower-21 jump starter; Carku Product Brochure for the Epower-20 jump starter product; Carku Product Brochure for the Epower-21 jump starter product |

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| | 2 | Copy of Report on the Filing or Determination of an Action Regarding a Patent or Trademark, filed 08/14/19, The NOCO Company, Inc. v. Sictec Instruments Company Limited, 1 page. | |
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| /M.D/ | 11 | Copy of Report on the Filing or Determination of an Action Regarding a Patent or Trademark, filed 03/13/20, The NOCO Company, Inc. v. Medcursor, Inc., 1 page. | |
| | 12 | Australian Patent Opposition #2, Notice of Opposition, Australian Patent Application No. 2019201559, Brown & Watson International Pty Ltd., February 21, 2020, 1 page. | |
| | 13 | The offering for sale and sale by ATD Tools, Inc of a product identified as the ADT 5900 Jump Starter prior to July 2014. | |
| | 14 | Australian Patent Opposition #3, Notice of Opposition, Australian Patent Application No. 2020201223, Brown & Watson International Pty Ltd., August 7, 2020. | |
| | 15 | German Patent Opposition. German Patent Application No. 102014114997 | |
| | 16 | D21 advertisement brochure of the opponent transmitted on 12-22-2013. | |
| | 17 | D22 advertisement brochure of the opponent transmitted on 04-23-2014. | |
| | 18 | D23 SGS test report relating to jump start devices of the opponent dated 04-21-2014. | |
| | 19 | D24 TWM417714U1 | |
| | 20 | D24a machine translation of D24 | |
| | 21 | D25 data sheet of TOPCOMTECHNOLOGY CO., LTD., for the product "Universal Power Bank", dated November 15, 2011. | |



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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.D/

| | | |
|---|---|---|
| **INFORMATION DISCLOSURE STATEMENT BY APPLICANT** (**Not for submission under 37 CFR 1.99**) | Application Number | 16819831  |
| | Filing Date | 2020-03-16 |
| | First Named Inventor | NOOK |
| | Art Unit | 2859 |
| | Examiner Name | DIAO |
| | Attorney Docket Number | 054985-000055-US-02-01 |

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|---|---|---|
| /M.D/ | 22 | D28 affidavit of the manager of the requesting party, 2013. |
| | 23 | German Nullity Action, German Patent Application No. 202014011347.5 |
| | 24 | THE NOCO COMPANY v. RING AUTOMOTIVE LIMITED, HP-2020-000022, Grounds of Invalidity, In the High Court of Justice Business And Property Courts of England and Wales Intellectual Property List (ChD) Patents Court, 2 pages |
| | 25 | the making available to the public by supply, description and/or use of the HP2200 jump starter described in the manual dated August 2013 at Annex A Before 3 July 2014 including in and after August 2013('HP2200') (cited on page 1 of reference THE NOCO COMPANY v. RING AUTOMOTIVE LIMITED, HP-2020-000022, Grounds of Invalidity) |
| | 26 | the Carku E-Power 21 device in so far as it is established to have been made available to the public in the Eariler Proceedings ('Carku E-Power 21) (cited on page 2 of reference THE NOCO COMPANY v. RING AUTOMOTIVE LIMITED, HP-2020-000022, Grounds of Invalidity) |
| | 27 | THE NOCO COMPANY v. SHENZHEN VALUELINK E-COMMERCES CO., LTD, Case No. 1:17-cv-02210, Defendants' Amended Final Invalidity and Unenforceability Contents, 9/23/2019, 5 pages.; The Powerall PBJS12000RD Jump Starter ("Powerall Jump Starter"), offered For sale by Gryphon Mobile Electronics at least as early as 11/5/2013; The Lightning 12V Jump Starter ("Lightning Jump Starter), offered for sale by Pilot, Inc. at least as early as 3/2014; The L3 Model Jump Starter, offered for sale by Shenzhen Tsevie Company as Early as 5/19/2019. |
| | 28 | THE NOCO COMPANY, INC. v. SHENZHEN CHANGXINYANG TECHNOLOGY CO., LTD., Case No. 1:17-cv-02209, Defendents' Amended Final Invalidity and Unenforceability Contents, In the US District Court of Northern Ohio, Eastern District, The Powerall PBJS12000RD Jump Starter ("Powerall Jump Starter"), offered For sale by Gryphon Mobile Electronics at least as early 11/5/13; The Lightning 12V Jump Starter ("Lightning Jump Starter), offered for sale by Pilot, Inc. at least as early 3/14; The L3 Model Jump Starter, offered for sale by Shenzhen Tsevie Co as Early |
| | 29 | Notification of Material filed under Section 27, Australian Government IP Australia, November 8, 2016 (3 pages); Declaration of Sheridan Lee (8 pages); Annexure SL-1 (8 pages); Annexure SL-2 (10 pages); Annexure SL-3 (9 pages); Annexure SL-4 (18 pages); Annexure SL-5, JP 3185027 (14 pages); Annexure SL-6 of English Translation of JP 3185027 (17 pages) and US 2004/0130298 (14 pages). |
| | 30 | This Portable USB Charger Battery Pack Can Also Jump Start Your Car (viewed on Internet on October 27, 2020] <URL: https://www.howto geek.com/179499/this-portable-usb-charger-battery-pack-can-also-jump-start-your-car/>, published on January 13, 2014. |
| | 31 | Clore Automotive, LLC, U.S. International Trade Commission, Investigation No. 337-TA-1256, RESPONSE OF CLORE AUTOMOTIVE, LLC TO THE AMENDED COMPLAINT AND NOTICE OF INVESTIGATION, pages 150-151. |
| | 32 | Deltran USA, LLC, U.S. International Trade Commission, Investigation No. 337-TA-1256 DELTRAN USA, LLC'S RESPONSE TO THE AMENDED COMPLAINT AND NOTICE OF INVESTIGATION, pages 196-219. |



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| | | |
|---|---|---|
| **INFORMATION DISCLOSURE STATEMENT BY APPLICANT** ( **Not for submission under 37 CFR 1.99**) | Application Number | 16819831  |
| | Filing Date | 2020-03-16 |
| | First Named Inventor | NOOK |
| | Art Unit | 2859 |
| | Examiner Name | DIAO |
| | Attorney Docket Number | 054985-000055-US-02-01 |

| | | |
|---|---|---|
| /M.D/ | 33 | Schumaker Electric Corporation and Schumacher Power Technology (Binhai) Co. Ltd., U.S. International Trade Commission, Investigation No. 337-TA-1256, RESPONSE OF SCHUMACHER ELECTRIC CORPORATON AND SCHUMACHER POWER TECHNOLOGY (BINHAI) CO. LTD., TO THE COMPLAINT OF THE NOCO COMPANY UNDER SECTION 337 OF THE TARIFF ACT OF 1930 AND NOTICE OF INVESTIGATION, pages 180-184. |
| | 34 | Best Buy Co., Inc.., U.S. International Trade Commission, Investigation No. 337-TA-1256, RESPONSE OF BEST BUY CO., INC. TO THE FIRST AMENDED COMPLAINT AND THE NOTICE OF INVESTIGATION, pages 69-71. |
| | 35 | Guangdong Boltpower Energy Co, Ltd., U.S. International Trade Commission, Investigation No. 337-TA-1256, RESPONSE OF GUANGDONG BOLTPOWER ENERGY CO., LTD. TO THE FIRST AMENDED COMPLAINT AND THE NOTICE OF INVESTIGATION, pages 73-74. |
| | 36 | Winplus North America, Inc. U.S. International Trade Commission, Investigation No. 337-TA-1256, RESPONSE OF WINPLUS NORTH AMERICA, INC. TO THE AMENDED COMPLAINT AND THE COMMISSIONER'S NOTICE OF INVESTIGATION, Exhibit B, pages 1-5. |
| | 37 | Autozone, Inc.,, U.S. International Trade Commission, Investigation No. 337-TA-1256, RESPONDENTS AUTOZONE, INC. AND BEST PARTS, INC.'S RESPONSE TO THE AMENDED COMPLAINT AND NOTICE OF INVESTIGATION. |
| | 38 | Shenzhen Carku Technology Co., Ltd., 70MAI Co., Ltd., Antigravity Batteries LLC, Gooloo Technologies LLC, Great Neck Saw Manufactures, Inc., Horizon Tool, Inc., MATCO Tools Corporation, Nekteck, Inc., Paris Corporation, Powermax Battery (U.S.A.), Inc., and Shenzhen Gooloo E-Commerce Co., Ltd. U.S. International Trade Commission, Investigation No. 337-TA-1256, SHENZHEN CARKU TECHNOLOGY CO., LTD., 70MAI CO., LTD., ANTIGRAVITY BATTERIES LLC, GOOLOO TECHNOLOGIES LLC, GREAT NECK SAW MANUFACTURERS, INC., HORIZON |
| | 39 | Walmart Inc., U.S. International Trade Commission, Investigation No. 337-TA-1256, RESPONSE OF WALMATR INC., TO THE COMPLAINT OF THE NOCO COMPANY UNDER SECTION 337 OF THE TARIFF ACT OF 1930 AND NOTICE OF INVESTIGATION |
| | 40 | Smartech Products, Inc., U.S. International Trade Commission, Investigation No. 337-TA-1256, RESPONDENT SMARTECH PRODUCTS, INC.'S RESPONSE TO THE COMPLAINT UNDER 337 OF THE TARIFF ACT OF 1930, AS AMENDED, AND NOTICE OF INVESTIGATION, pages 98-102. |
| | 41 | Halo2Cloud, LLC and ZAGG Inc., U.S. International Trade Commission, Investigation No. 337-TA-1256, RESPONSE OF HALO2CLOUD, LLC AND ZAGG INC TO THE SECOND AMENDED COMPLAINT AND NOTICE OF INVESTIGATION, pages 141-142. |
| | 42 | QVC, Inc., U.S. International Trade Commission, Investigation No. 337-1256, RESPONSE OF QVC, INC. TO THE SECOND AMENDED COMPLAINT AND NOTICE OF INVESTIGATION, pages 144-145. |
| | 43 | In re Certain Portable Battery Jumpstarters and Components Thereof, 3370TA01256, United States International Trade Commission (March 17, 2021). |



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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.D/

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**( Not for submission under 37 CFR 1.99)**

| | |
|---|---|
| Application Number | 16819831 |
| Filing Date | 2020-03-16 |
| First Named Inventor | NOOK |
| Art Unit | 2859 |
| Examiner Name | DIAO |
| Attorney Docket Number | 054985-000055-US-02-01 |

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|---|---|---|---|
| /M.D/ | 44 | Fairchild MC78XX/LM78XX/MC78XXA 3-Terminal 1A Positive Voltage Regulator | |
| | 45 | USB Battery Charging 1.2 Compliance Plan, Rev. 1.0 | |
| | 46 | Xysemi XR3403 | |
| | 47 | Texas Instruments LM2621 | |
| | 48 | USB Implementers Forum, Inc., Battery Charging Specification, Revision 1.1 | |
| | 49 | Carku Epower-20B catalog information | |
| | 50 | USB Power Delivery Specification 1.0, July 16, 2012, Exhibit 1045 | |

If you wish to add additional non-patent literature document citation information please click the Add button Add

**EXAMINER SIGNATURE**

| | | | |
|---|---|---|---|
| Examiner Signature | /M BAYE DIAO/ | Date Considered | 09/23/2022 |

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.



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# Search History_16881023

**Report Run Date:** 2022-09-22 UTC
**Searches:** 2
**Markers:** 0



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| Search # | Timestamp | Results | Page |
|---|---|---|---|
| 1 | 2022-09-22 13:43 UTC | 29,616,660 | 3 |
| 2 | 2022-09-22 13:44 UTC | 2,649,777 | 4 |



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**Content: Patent Publications (167)**

US Patents | US Designs | US Applications | EPO Patents | EPO Applications | China Patents | China Applications | Japan Patents | Japan Applications | Korea Patents | Korea Applications | WIPO Applications | Argentina Patents | Argentina Applications | Brazil Patents | Brazil Applications | Canada Patents | Canada Applications | Chile Patents | Chile Applications | Colombia Applications | Costa Rica Applications | Cuba Patents | Cuba Applications | Dominican Republic Applications | Ecuador Patents | Ecuador Applications | El Salvador Applications | Guatemala Applications | Honduras Applications | Mexico Patents | Mexico Applications | Nicaragua Patents | Panama Applications | Peru Applications | Trinidad & Tobago Patents | Uruguay Applications | Austria Patents | Austria Applications | Belarus Patents | Belgium Patents | Belgium Applications | Bosnia & Herzegovina Patents | Bosnia & Herzegovina Applications | Bulgaria Patents | Bulgaria Applications | Croatia Patents | Croatia Applications | Czech Republic Patents | Czech Republic Applications | Czechoslovakia Patents | Czechoslovakia Applications | Denmark Patents | Denmark Applications | Estonia Patents | Estonia Applications | EUIPO Patents | Finland Patents | Finland Applications | France Patents | France Applications | Germany Patents | Germany Applications | Great Britain Patents | Great Britain Applications | Greece Patents | Greece Applications | Hungary Patents | Hungary Applications | Iceland Patents | Iceland Applications | Ireland Patents | Ireland Applications | Italy Patents | Italy Applications | Latvia Patents | Latvia Applications | Lithuania Patents | Lithuania Applications | Luxembourg Patents | Malta Patents | Monaco Patents | Montenegro Patents | Montenegro Applications | Netherlands Patents | Netherlands Applications | Norway Patents | Norway Applications | Poland Patents | Poland Applications | Portugal Patents | Portugal Applications | Republic of Moldova Patents | Republic of Moldova Applications | Romania Patents | Romania Applications | San Marino Patents | San Marino Applications | Serbia Patents | Serbia Applications | Slovakia Patents | Slovakia Applications | Slovenia Patents | Spain Patents | Spain Applications | Sweden Patents | Sweden Applications | Switzerland Patents | Switzerland Applications | Ukraine Patents | Yugoslavia/Serbia and Montenegro Patents | Yugoslavia/Serbia and Montenegro Applications | Armenia Patents | Australia Patents | Australia Applications | Cyprus Patents | Gulf Cooperation Council Patents | Hong Kong Patents | India Patents | India Applications | Indonesia Patents | Indonesia Applications | Israel Applications | Jordan Patents | Jordan Applications | Kyrgyzstan Patents | Macao Applications | Malaysia Patents | Mongolia Patents | New Zealand Patents | Philippines Patents | Philippines Applications | Saudi Arabia Patents | Saudi Arabia Applications | Singapore Patents | Singapore Applications | Taiwan Patents | Taiwan Applications | Tajikistan Patents | Tajikistan Applications | Thailand Patents | Thailand Applications | Uzbekistan Patents | Vietnam Patents | Algeria Patents | ARIPO Patents | ARIPO Applications | Egypt Patents | Kenya Patents | Malawi Patents | Morocco Patents | Morocco Applications | OAPI Patents | South Africa Patents | Tunisia Applications | Zambia Patents | Zimbabwe Patents | EAPO Patents | EAPO Applications | Georgia Patents | Georgia Applications | Kazakhstan Patents | Kazakhstan Applications | Russia Patents | Russia Applications | Turkey Patents | Turkey Applications

1 **2022-09-22 13:43 UTC | 29,616,860 results from**

**De-Dup:** None | **Cut-off:** None | **Sort:** Relevance

**Main Concept:** Text

A management apparatus comprising: an acquirer configured to acquire vehicle usage state information about a usage state of a vehicle; and a processing unit that is configured to apply the vehicle usage state information to a model which outputs feature amounts when vehicle usage information is input thereto to acquire the feature amounts, configured to select a secondary battery recommended to be mounted in the vehicle for which the vehicle usage state information is acquired from secondary batteries providable as the secondary battery to be mounted in the vehicle and storing electric power for travel on the basis of the acquired feature amounts, and configured to transmit a selection result of the secondary battery to a power supply apparatus or to a display of a terminal that presents the selection result to a user, wherein the vehicle usage state information comprises user-originating information which is acquired from the user and represents a usage state of the vehicle assumed or experienced by the user, wherein the user-originating information is a result of a questionnaire conducted for the user, and wherein the



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IPR2025-00885

processing unit obtains the feature amounts by inputting the result of the questionnaire to the model, represents the obtained feature amounts on a radar chart, and selects the secondary battery on a basis of a shape of the radar chart

**Concept Modifiers:** None

**Filters:** None

**Content: Non-Patent Literature (23)**

IEEE Xplore Publications: IEEE Periodicals | IEEE Xplore Publications: IEEE Conferences | IEEE Xplore Publications: IEEE Standards | IEEE Xplore Publications: IEEE Early Access | IEEE Xplore Publications: SMPTE Periodicals | IEEE Xplore Publications: SMPTE Conferences | IEEE Xplore Publications: SMPTE Standards | IEEE Xplore Publications: MIT Press eBooks | IEEE Xplore Publications: Wiley-IEEE eBooks | IEEE Xplore Publications: IBM Periodicals | IEEE Xplore Publications: URSI Periodicals | IEEE Xplore Publications: VDE Conferences | IEEE Xplore Publications: Periodicals from China | IP.com Prior Art Database: The IP.com Journal | IP.com Prior Art Database: Internet Society RFC | IP.com Prior Art Database: IBM TDB Archive | IP.com Prior Art Database: Legacy Journals | IP.com Prior Art Database: Software Patent Institute | OnePetro.org: Periodicals at OnePetro.org | OnePetro.org: Conferences at OnePetro.org | Other Literature: IBM Redbooks | Other Literature: PubMed Central | Other Literature: arXiv.org

2 **2022-09-22 13:44 UTC | 2,649,777 results from**

**De-Dup:** None | **Cut-off:** None | **Sort:** Relevance

**Main Concept:** Text

A management apparatus comprising: an acquirer configured to acquire vehicle usage state information about a usage state of a vehicle; and a processing unit that is configured to apply the vehicle usage state information to a model which outputs feature amounts when vehicle usage information is input thereto to acquire the feature amounts, configured to select a secondary battery recommended to be mounted in the vehicle for which the vehicle usage state information is acquired from secondary batteries providable as the secondary battery to be mounted in the vehicle and storing electric power for travel on the basis of the acquired feature amounts, and configured to transmit a selection result of the secondary battery to a power supply apparatus or to a display of a terminal that presents the selection result to a user, wherein the vehicle usage state information comprises user-originating information which is acquired from the user and represents a usage state of the vehicle assumed or experienced by the user, wherein the user-originating information is a result of a questionnaire conducted for the user, and wherein the processing unit obtains the feature amounts by inputting the result of the questionnaire to the model, represents the obtained feature amounts on a radar chart, and selects the secondary battery on a basis of a shape of the radar chart

**Concept Modifiers:** None

**Filters:** None



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IPR2025-00885

**To:** patlaw@vorys.com,vorys_docketing@cardinal-ip.com,
**From:** PAIR_eOfficeAction@uspto.gov
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| Application | Document | Mailroom Date | Attorney Docket No. |
|---|---|---|---|
| 16819831 | CTNF | 09/29/2022 | 054985-000055-US-02-01 |
| | 892 | 09/29/2022 | 054985-000055-US-02-01 |
| | 1449 | 09/29/2022 | 054985-000055-US-02-01 |
| | 1449 | 09/29/2022 | 054985-000055-US-02-01 |
| | 1449 | 09/29/2022 | 054985-000055-US-02-01 |

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PATENT APPLICATION INFORMATION RETRIEVAL SYSTEM

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# POWER OF ATTORNEY TO PROSECUTE APPLICATIONS BEFORE THE USPTO

I hereby revoke all previous powers of attorney given in the application identified in the attached statement under 37 CFR 3.73(c).

I hereby appoint:

[X] Practitioners associated with Customer Number: 20583

**OR**

[ ] Practitioner(s) named below (if more than ten patent practitioners are to be named, then a customer number must be used):

| Name | Registration Number | Name | Registration Number |
|---|---|---|---|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

As attorney(s) or agent(s) to represent the undersigned before the United States Patent and Trademark Office (USPTO) in connection with any and all patent applications assigned only to the undersigned according to the USPTO assignment records or assignment documents attached to this form in accordance with 37 CFR 3.73(c).

Please change the correspondence address for the application identified in the attached statement under 37 CFR 3.73(c) to:

[X] The address associated with Customer Number: 20583

**OR**

[ ]

| | | |
|---|---|---|
| Firm or individual name | | |
| Address | | |
| City | State | Zip |
| Country | | |
| Telephone | Email | |

Assignee name and address: The Noco Company
30339 Diamond Parkway, #102
Glenwillow, OH 44139

**A copy of this form, together with a statement under 37 CFR 3.73(c) (Form PTO/AIA/96 or equivalent) is required to be filed in each application in which this form is used. The statement under 37 CFR 3.73(c) may be completed by one of the practitioners appointed in this form, and must identify the application in which this Power of Attorney is to be filed.**

**SIGNATURE of Assignee of Record**

The individual whose signature and title is supplied below is authorized to act on behalf of the assignee.

| | |
|---|---|
| Signature | Date September 12, 2022 |
| Name Jonathan L. Nook | Telephone 440-703-9065 |
| Title President | |

This collection of information is required by 37 CFR 1.31, 1.32, and 1.33. The information is required to obtain or retain a benefit by the public, which is to update (and by the USPTO to process) the file of a patent or reexamination proceeding. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 18 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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# STATEMENT UNDER 37 CFR 3.73(c)

Applicant/Patent Owner: The Noco Company

Application No./Patent No.: 16/819,831 Filed/Issue Date: 3/16/2020

Titled: PORTABLE VEHICLE BATTERY JUMP START APPARATUS WITH SAFETY PROTECTION

The Noco Company, a Corporation

(Name of Assignee) (Type of Assignee, e.g., corporation, partnership, university, government agency, etc.)

states that, for the patent application/patent identified above, it is (choose **one** of options 1, 2, 3 or 4 below):

1. ☑ The assignee of the entire right, title, and interest.

2. ☐ An assignee of less than the entire right, title, and interest (check applicable box):

   ☐ The extent (by percentage) of its ownership interest is _____%. Additional Statement(s) by the owners holding the balance of the interest must be submitted to account for 100% of the ownership interest.

   ☐ There are unspecified percentages of ownership. The other parties, including inventors, who together own the entire right, title and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

3. ☐ The assignee of an undivided interest in the entirety (a complete assignment from one of the joint inventors was made). The other parties, including inventors, who together own the entire right, title, and interest are:

   Additional Statement(s) by the owner(s) holding the balance of the interest must be submitted to account for the entire right, title, and interest.

4. ☐ The recipient, via a court proceeding or the like (*e.g.*, bankruptcy, probate), of an undivided interest in the entirety (a complete transfer of ownership interest was made). The certified document(s) showing the transfer is attached.

The interest identified in option 1, 2 or 3 above (not option 4) is evidenced by either (choose **one** of options A or B below):

A. ☑ An assignment from the inventor(s) of the patent application/patent identified above. The assignment was recorded in the United States Patent and Trademark Office at Reel 048539, Frame 0629, or for which a copy thereof is attached.

B. ☐ A chain of title from the inventor(s), of the patent application/patent identified above, to the current assignee as follows:

   1. From: _____ To: _____

      The document was recorded in the United States Patent and Trademark Office at

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   2. From: _____ To: _____

      The document was recorded in the United States Patent and Trademark Office at

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This collection of information is required by 37 CFR 3.73(b). The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450**.

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## STATEMENT UNDER 37 CFR 3.73(c)

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6. From: _____ To: _____

The document was recorded in the United States Patent and Trademark Office at

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☐ Additional documents in the chain of title are listed on a supplemental sheet(s).

☑ As required by 37 CFR 3.73(c)(1)(i), the documentary evidence of the chain of title from the original owner to the assignee was, or concurrently is being, submitted for recordation pursuant to 37 CFR 3.11.

[NOTE: A separate copy (i.e., a true copy of the original assignment document(s)) must be submitted to Assignment Division in accordance with 37 CFR Part 3, to record the assignment in the records of the USPTO. See MPEP 302.08]

The undersigned (whose title is supplied below) is authorized to act on behalf of the assignee.

| | |
|---|---|
| /Joseph M. Sauer/ | 30 September 2022 |
| Signature | Date |
| Joseph M. Sauer | 47919 |
| Printed or Typed Name | Title or Registration Number |

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The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (*i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | 054985-000055-US-02-01 |
|---|---|---|
| | Application Number | |
| Title of Invention | PORTABLE VEHICLE BATTERY JUMP START APPARATUS WITH SAFETY PROTECTION | |

The application data sheet is part of the provisional or nonprovisional application for which it is being submitted. The following form contains the bibliographic data arranged in a format specified by the United States Patent and Trademark Office as outlined in 37 CFR 1.76.
This document may be completed electronically and submitted to the Office in electronic format using the Electronic Filing System (EFS) or the document may be printed and included in a paper filed application.

## Secrecy Order 37 CFR 5.2:

☐ Portions or all of the application associated with this Application Data Sheet may fall under a Secrecy Order pursuant to 37 CFR 5.2 (Paper filers only. Applications that fall under Secrecy Order may not be filed electronically.)

## Inventor Information:

**Inventor 1** Remove

**Legal Name**

| Prefix | Given Name | Middle Name | Family Name | Suffix |
|---|---|---|---|---|
| | Jonathan | Lewis | NOOK | |

**Residence Information (Select One)** ◉ US Residency ○ Non US Residency ○ Active US Military Service

| City | State/Province | Country of Residence |
|---|---|---|
| Gates Mills | OH | US |

**Mailing Address of Inventor:**

| | |
|---|---|
| Address 1 | c/o The Noco Company, 30339 Diamond Parkway, #102 |
| Address 2 | |

| City | State/Province | Postal Code | Country i |
|---|---|---|---|
| Glenwillow | OH | 44139 | US |

**Inventor 2** Remove

**Legal Name**

| Prefix | Given Name | Middle Name | Family Name | Suffix |
|---|---|---|---|---|
| | William | Knight | NOOK | |

**Residence Information (Select One)** ◉ US Residency ○ Non US Residency ○ Active US Military Service

| City | State/Province | Country of Residence |
|---|---|---|
| Shaker Heights | OH | US |

**Mailing Address of Inventor:**

| | |
|---|---|
| Address 1 | c/o The Noco Company, 30339 Diamond Parkway, #102 |
| Address 2 | |

| City | State/Province | Postal Code | Country i |
|---|---|---|---|
| Glenwillow | OH | 44139 | US |

**Inventor 3** Remove

**Legal Name**

| Prefix | Given Name | Middle Name | Family Name | Suffix |
|---|---|---|---|---|
| | James | Richard | STANFIELD | |

**Residence Information (Select One)** ◉ US Residency ○ Non US Residency ○ Active US Military Service


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| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | 054985-000055-US-02-01 |
|---|---|---|
| | Application Number | |
| Title of Invention | PORTABLE VEHICLE BATTERY JUMP START APPARATUS WITH SAFETY PROTECTION | |

| City | Glendale | State/Province | AZ | Country of Residence | US |
|---|---|---|---|---|---|

**Mailing Address of Inventor:**

| Address 1 | c/o The Noco Company, 30339 Diamond Parkway, #102 | | |
|---|---|---|---|
| Address 2 | | | |
| City | Glenwillow | State/Province | OH |
| Postal Code | 44139 | Country | US |

Inventor 4 Remove

**Legal Name**

| Prefix | Given Name | Middle Name | Family Name | Suffix |
|---|---|---|---|---|
| | Derek | Michael | UNDERHILL | |

**Residence Information (Select One)** (•) US Residency ( ) Non US Residency ( ) Active US Military Service

| City | Tempe | State/Province | AZ | Country of Residence | US |
|---|---|---|---|---|---|

**Mailing Address of Inventor:**

| Address 1 | c/o The Noco Company, 30339 Diamond Parkway, #102 | | |
|---|---|---|---|
| Address 2 | | | |
| City | Glenwillow | State/Province | OH |
| Postal Code | 44139 | Country | US |

All Inventors Must Be Listed - Additional Inventor Information blocks may be generated within this form by selecting the **Add** button. Add

## Correspondence Information:

**Enter either Customer Number or complete the Correspondence Information section below.**
**For further information see 37 CFR 1.33(a).**

☐ **An Address is being provided for the correspondence Information of this application.**

| Customer Number | 20230 | | |
|---|---|---|---|
| Email Address | Patlaw@vorys.com | Add Email | Remove Email |

## Application Information:

| Title of the Invention | PORTABLE VEHICLE BATTERY JUMP START APPARATUS WITH SAFETY PROTECTION | | |
|---|---|---|---|
| Attorney Docket Number | 054985-000055-US-02-01 | Small Entity Status Claimed | ☒ |
| Application Type | Nonprovisional | | |
| Subject Matter | Utility | | |
| Total Number of Drawing Sheets (if any) | 13 | Suggested Figure for Publication (if any) | |



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| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | 054985-000055-US-02-01 |
|---|---|---|
| | Application Number | |
| Title of Invention | PORTABLE VEHICLE BATTERY JUMP START APPARATUS WITH SAFETY PROTECTION | |

## Filing By Reference:

Only complete this section when filing an application by reference under 35 U.S.C. 111(c) and 37 CFR 1.57(a). Do not complete this section if application papers including a specification and any drawings are being filed. Any domestic benefit or foreign priority information must be provided in the appropriate section(s) below (i.e., "Domestic Benefit/National Stage Information" and "Foreign Priority Information").

For the purposes of a filing date under 37 CFR 1.53(b), the description and any drawings of the present application are replaced by this reference to the previously filed application, subject to conditions and requirements of 37 CFR 1.57(a).

| Application number of the previously filed application | Filing date (YYYY-MM-DD) | Intellectual Property Authority or Country |
|---|---|---|
| | | |

## Publication Information:

☐ Request Early Publication (Fee required at time of Request 37 CFR 1.219)

☐ **Request Not to Publish.** I hereby request that the attached application not be published under 35 U.S.C. 122(b) and certify that the invention disclosed in the attached application **has not and will not** be the subject of an application filed in another country, or under a multilateral international agreement, that requires publication at eighteen months after filing.

## Representative Information:

Representative information should be provided for all practitioners having a power of attorney in the application. Providing this information in the Application Data Sheet does not constitute a power of attorney in the application (see 37 CFR 1.32).
Either enter Customer Number or complete the Representative Name section below. If both sections are completed the customer Number will be used for the Representative Information during processing.

| Please Select One: | ◉ Customer Number | US Patent Practitioner | ◯ Limited Recognition (37 CFR 11.9) |
|---|---|---|---|
| Customer Number | 20230 | | |

## Domestic Benefit/National Stage Information:

This section allows for the applicant to either claim benefit under 35 U.S.C. 119(e), 120, 121, 365(c), or 386(c) or indicate National Stage entry from a PCT application. Providing benefit claim information in the Application Data Sheet constitutes the specific reference required by 35 U.S.C. 119(e) or 120, and 37 CFR 1.78.
When referring to the current application, please leave the "Application Number" field blank.

| Prior Application Status | Pending | | Remove |
|---|---|---|---|
| Application Number | Continuity Type | Prior Application Number | Filing or 371(c) Date (YYYY-MM-DD) |
| | Continuation of | 15691884 | 2017-08-31 |



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Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | 054985-000055-US-02-01 |
|---|---|---|
| | Application Number | |
| Title of Invention | PORTABLE VEHICLE BATTERY JUMP START APPARATUS WITH SAFETY PROTECTION | |

| Prior Application Status | Patented | Remove |
|---|---|---|

| Application Number | Continuity Type | Prior Application Number | Filing Date (YYYY-MM-DD) | Patent Number | Issue Date (YYYY-MM-DD) |
|---|---|---|---|---|---|
| 15691884 | Continuation of | 14619655 | 2015-02-11 | 9770992 | 2017-09-26 |

| Prior Application Status | Patented | Remove |
|---|---|---|

| Application Number | Continuity Type | Prior Application Number | Filing Date (YYYY-MM-DD) | Patent Number | Issue Date (YYYY-MM-DD) |
|---|---|---|---|---|---|
| 14619655 | Division of | 14325938 | 2014-07-08 | 9007015 | 2015-04-14 |

| Prior Application Status | Pending | Remove |
|---|---|---|

| Application Number | Continuity Type | Prior Application Number | Filing or 371(c) Date (YYYY-MM-DD) |
|---|---|---|---|
| 14325938 | Continuation of | PCT/US14/45434 | 2014-07-03 |

Additional Domestic Benefit/National Stage Data may be generated within this form by selecting the **Add** button. Add

## Foreign Priority Information:

This section allows for the applicant to claim priority to a foreign application. Providing this information in the application data sheet constitutes the claim for priority as required by 35 U.S.C. 119(b) and 37 CFR 1.55. When priority is claimed to a foreign application that is eligible for retrieval under the priority document exchange program (PDX)[i] the information will be used by the Office to automatically attempt retrieval pursuant to 37 CFR 1.55(i)(1) and (2). Under the PDX program, applicant bears the ultimate responsibility for ensuring that a copy of the foreign application is received by the Office from the participating foreign intellectual property office, or a certified copy of the foreign priority application is filed, within the time period specified in 37 CFR 1.55(g)(1).

Remove

| Application Number | Country[i] | Filing Date (YYYY-MM-DD) | Access Code[i] (if applicable) |
|---|---|---|---|
| | | | |

Additional Foreign Priority Data may be generated within this form by selecting the **Add** button. Add

## Statement under 37 CFR 1.55 or 1.78 for AIA (First Inventor to File) Transition Applications

☐ This application (1) claims priority to or the benefit of an application filed before March 16, 2013 and (2) also contains, or contained at any time, a claim to a claimed invention that has an effective filing date on or after March 16, 2013.
NOTE: By providing this statement under 37 CFR 1.55 or 1.78, this application, with a filing date on or after March 16, 2013, will be examined under the first inventor to file provisions of the AIA.


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| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | 054985-000055-US-02-01 |
|---|---|---|
| | Application Number | |
| Title of Invention | PORTABLE VEHICLE BATTERY JUMP START APPARATUS WITH SAFETY PROTECTION | |

## Authorization or Opt-Out of Authorization to Permit Access:

When this Application Data Sheet is properly signed and filed with the application, applicant has provided written authority to permit a participating foreign intellectual property (IP) office access to the instant application-as-filed (see paragraph A in subsection 1 below) and the European Patent Office (EPO) access to any search results from the instant application (see paragraph B in subsection 1 below).

Should applicant choose not to provide an authorization identified in subsection 1 below, applicant **must opt-out** of the authorization by checking the corresponding box A or B or both in subsection 2 below.

**NOTE**: This section of the Application Data Sheet is **ONLY** reviewed and processed with the **INITIAL** filing of an application. After the initial filing of an application, an Application Data Sheet cannot be used to provide or rescind authorization for access by a foreign IP office(s). Instead, Form PTO/SB/39 or PTO/SB/69 must be used as appropriate.

**1. Authorization to Permit Access by a Foreign Intellectual Property Office(s)**

**A. Priority Document Exchange (PDX)** - Unless box A in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the European Patent Office (EPO), the Japan Patent Office (JPO), the Korean Intellectual Property Office (KIPO), the State Intellectual Property Office of the People's Republic of China (SIPO), the World Intellectual Property Organization (WIPO), and any other foreign intellectual property office participating with the USPTO in a bilateral or multilateral priority document exchange agreement in which a foreign application claiming priority to the instant patent application is filed, access to: (1) the instant patent application-as-filed and its related bibliographic data, (2) any foreign or domestic application to which priority or benefit is claimed by the instant application and its related bibliographic data, and (3) the date of filing of this Authorization. See 37 CFR 1.14(h)(1).

**B. Search Results from U.S. Application to EPO** - Unless box B in subsection 2 (opt-out of authorization) is checked, the undersigned hereby **grants the USPTO authority** to provide the EPO access to the bibliographic data and search results from the instant patent application when a European patent application claiming priority to the instant patent application is filed. See 37 CFR 1.14(h)(2).

The applicant is reminded that the EPO's Rule 141(1) EPC (European Patent Convention) requires applicants to submit a copy of search results from the instant application without delay in a European patent application that claims priority to the instant application.

**2. Opt-Out of Authorizations to Permit Access by a Foreign Intellectual Property Office(s)**

☐ A. Applicant **DOES NOT** authorize the USPTO to permit a participating foreign IP office access to the instant application-as-filed. If this box is checked, the USPTO will not be providing a participating foreign IP office with any documents and information identified in subsection 1A above.

☐ B. Applicant **DOES NOT** authorize the USPTO to transmit to the EPO any search results from the instant patent application. If this box is checked, the USPTO will not be providing the EPO with search results from the instant application.

**NOTE**: Once the application has published or is otherwise publicly available, the USPTO may provide access to the application in accordance with 37 CFR 1.14.



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| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | 054985-000055-US-02-01 |
|---|---|---|
| | Application Number | |
| Title of Invention | PORTABLE VEHICLE BATTERY JUMP START APPARATUS WITH SAFETY PROTECTION | |

## Applicant Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.

**Applicant** 1 — Remove

If the applicant is the inventor (or the remaining joint inventor or inventors under 37 CFR 1.45), this section should not be completed. The information to be provided in this section is the name and address of the legal representative who is the applicant under 37 CFR 1.43; or the name and address of the assignee, person to whom the inventor is under an obligation to assign the invention, or person who otherwise shows sufficient proprietary interest in the matter who is the applicant under 37 CFR 1.46. If the applicant is an applicant under 37 CFR 1.46 (assignee, person to whom the inventor is obligated to assign, or person who otherwise shows sufficient proprietary interest) together with one or more joint inventors, then the joint inventor or inventors who are also the applicant should be identified in this section.

Clear

| ◉ Assignee | Legal Representative under 35 U.S.C. 117 | Joint Inventor |
|---|---|---|
| Person to whom the inventor is obligated to assign. | Person who shows sufficient proprietary interest | |

If applicant is the legal representative, indicate the authority to file the patent application, the inventor is:

Name of the Deceased or Legally Incapacitated Inventor:

If the Applicant is an Organization check here. ☒

| Organization Name | THE NOCO COMPANY | | |
|---|---|---|---|
| **Mailing Address Information For Applicant:** | | | |
| **Address 1** | 30339 Diamond Parkway, #102 | | |
| Address 2 | | | |
| **City** | Glenwillow | **State/Province** | OH |
| **Country** | US | Postal Code | 44139 |
| Phone Number | | Fax Number | |
| Email Address | | | |

Additional Applicant Data may be generated within this form by selecting the Add button. Add

## Assignee Information including Non-Applicant Assignee Information:

Providing assignment information in this section does not substitute for compliance with any requirement of part 3 of Title 37 of CFR to have an assignment recorded by the Office.



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Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | 054985-000055-US-02-01 |
|---|---|---|
| | Application Number | |
| Title of Invention | PORTABLE VEHICLE BATTERY JUMP START APPARATUS WITH SAFETY PROTECTION | |

**Assignee 1**

Complete this section if assignee information, including non-applicant assignee information, is desired to be included on the patent application publication. An assignee-applicant identified in the "Applicant Information" section will appear on the patent application publication as an applicant. For an assignee-applicant, complete this section only if identification as an assignee is also desired on the patent application publication.

Remove

If the Assignee or Non-Applicant Assignee is an Organization check here. ☒

| Organization Name | THE NOCO COMPANY |
|---|---|

**Mailing Address Information For Assignee including Non-Applicant Assignee:**

| | | | |
|---|---|---|---|
| **Address 1** | 30339 Diamond Parkway, #102 | | |
| Address 2 | | | |
| **City** | Glenwillow | **State/Province** | OH |
| **Country** i | US | Postal Code | 44139 |
| Phone Number | | Fax Number | |
| Email Address | | | |

Additional Assignee or Non-Applicant Assignee Data may be generated within this form by selecting the Add button. Add

## Signature:

Remove

**NOTE:** This Application Data Sheet must be signed in accordance with 37 CFR 1.33(b). **However, if this Application Data Sheet is submitted with the INITIAL filing of the application and either box A or B is not checked in subsection 2 of the "Authorization or Opt-Out of Authorization to Permit Access" section, then this form must also be signed in accordance with 37 CFR 1.14(c).**

This Application Data Sheet **must** be signed by a patent practitioner if one or more of the applicants is a **juristic entity** (e.g., corporation or association). If the applicant is two or more joint inventors, this form must be signed by a patent practitioner, **all** joint inventors who are the applicant, or one or more joint inventor-applicants who have been given power of attorney (e.g., see USPTO Form PTO/AIA/81) on behalf of **all** joint inventor-applicants.

See 37 CFR 1.4(d) for the manner of making signatures and certifications.

| **Signature** | /William L. Klima/ | | | Date (YYYY-MM-DD) | 2020-03-16 |
|---|---|---|---|---|---|
| First Name | William L. | Last Name | Klima | Registration Number | 32422 |

Additional Signature may be generated within this form by selecting the Add button. Add



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Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

| Application Data Sheet 37 CFR 1.76 | Attorney Docket Number | 054985-000055-US-02-01 |
|---|---|---|
| | Application Number | |
| Title of Invention | PORTABLE VEHICLE BATTERY JUMP START APPARATUS WITH SAFETY PROTECTION | |

This collection of information is required by 37 CFR 1.76. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 23 minutes to complete, including gathering, preparing, and submitting the completed application data sheet form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

# Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these records.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent CooperationTreaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.



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# Electronic Acknowledgement Receipt

| | |
|---|---|
| **EFS ID:** | 46729088 |
| **Application Number:** | 16819831 |
| **International Application Number:** | |
| **Confirmation Number:** | 1630 |
| **Title of Invention:** | PORTABLE VEHICLE BATTERY JUMP START APPARATUS WITH SAFETY PROTECTION |
| **First Named Inventor/Applicant Name:** | Jonathan Lewis NOOK |
| **Customer Number:** | 20230 |
| **Filer:** | Joseph McGowan Sauer/Amy Frizzell |
| **Filer Authorized By:** | Joseph McGowan Sauer |
| **Attorney Docket Number:** | 054985-000055-US-02-01 |
| **Receipt Date:** | 30-SEP-2022 |
| **Filing Date:** | 16-MAR-2020 |
| **Time Stamp:** | 10:51:17 |
| **Application Type:** | Utility under 35 USC 111(a) |

## Payment information:

| | |
|---|---|
| Submitted with Payment | no |

## File Listing:

| Document Number | Document Description | File Name | File Size(Bytes)/ Message Digest | Multi Part /.zip | Pages (if appl.) |
|---|---|---|---|---|---|
| 1 | Power of Attorney | Signed_PoA.pdf | 363666<br>5c8d78e590a1f1cf76b59996d8c1b9d73b896cf0 | no | 1 |

**Warnings:**

| Information: | | | | | |
|---|---|---|---|---|---|
| 2 | Assignee showing of ownership per 37 CFR 3.73 | aia0096.pdf | 208909<br>d34d4a2b10c7b42d8d0641780a233962b265d1d2 | no | 3 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| 3 | Application Data Sheet | ADS_File2.pdf | 3543658<br>2c687585433de9fdb6ec524a208d24351ab7e573 | no | 9 |
| **Warnings:** | | | | | |
| **Information:** | | | | | |
| This is not an USPTO supplied ADS fillable form | | | | | |
| | | | **Total Files Size (in bytes):** | 4116233 | |

**This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.**

**New Applications Under 35 U.S.C. 111**

**If a new application is being filed and the application includes the necessary components for a filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application.**

**National Stage of an International Application under 35 U.S.C. 371**

**If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.**

**New International Application Filed with the USPTO as a Receiving Office**

**If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.**

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| APPLICATION NUMBER | FILING OR 371(C) DATE | FIRST NAMED APPLICANT | ATTY. DOCKET NO./TITLE |
|---|---|---|---|
| 16/819,831 | 03/16/2020 | Jonathan Lewis NOOK | 054985-000055-US-02-01 |

**CONFIRMATION NO. 1630**

20583
Jones Day
250 Vesey Street
New York, NY 10281-1047

**POA ACCEPTANCE LETTER**

*OC000000136506930*

Date Mailed: 10/11/2022

## NOTICE OF ACCEPTANCE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 09/30/2022.

The Power of Attorney in this application is accepted. Correspondence in this application will be mailed to the above address as provided by 37 CFR 1.33.

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/mnguyen/

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| APPLICATION NUMBER | FILING OR 371(C) DATE | FIRST NAMED APPLICANT | ATTY. DOCKET NO./TITLE |
|---|---|---|---|
| 16/819,831 | 03/16/2020 | Jonathan Lewis NOOK | 054985-000055-US-02-01 |

**CONFIRMATION NO. 1630**

**POWER OF ATTORNEY NOTICE**

20230
Vorys, Sater, Seymour and Pease LLP
1909 K St., NW
9th Floor
Washington, DC 20006-1152

*OC00000136506915*

Date Mailed: 10/11/2022

## NOTICE REGARDING CHANGE OF POWER OF ATTORNEY

This is in response to the Power of Attorney filed 09/30/2022.

- The Power of Attorney to you in this application has been revoked by the applicant. Future correspondence will be mailed to the new address of record(37 CFR 1.33).

Questions about the contents of this notice and the requirements it sets forth should be directed to the Office of Data Management, Application Assistance Unit, at **(571) 272-4000** or **(571) 272-4200** or **1-888-786-0101**.

/mnguyen/

**To:** ncgeorge@jonesday.com,wtokmakidis@jonesday.com,japarker@jonesday.com
**From:** PAIR_eOfficeAction@uspto.gov
**Cc:** PAIR_eOfficeAction@uspto.gov
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Jones Day
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UNITED STATES

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| Application | Document | Mailroom Date | Attorney Docket No. |
|---|---|---|---|
| 16819831 | N570 | 10/11/2022 | 054985-000055-US-02-01 |
| | N570 | 10/11/2022 | 054985-000055-US-02-01 |

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If you have any questions, please email the Electronic Business Center (EBC) at EBC@uspto.gov with 'e-Office Action' on the subject line or call 1-866-217-9197 during the following hours:

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Thank you for prompt attention to this notice,

UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT APPLICATION INFORMATION RETRIEVAL SYSTEM

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**FIRST NAMED INVENTOR:** Jonathan Lewis Nook

**CONFIRMATION NO.:** 1630

**APPLICATION NO.:** 16/819,831

**GROUP ART UNIT:** 2859

**FILING DATE:** March 16, 2020

**EXAMINER:** Diao, M Baye

**TITLE:** PORTABLE VEHICLE BATTERY JUMP START APPARATUS WITH SAFETY PROTECTION

**DOCKET NO.:** 014710-0136-999

**AMENDMENT IN REPLY TO OFFICE ACTION OF SEPTEMBER 29, 2022**

Mail Stop Amendment
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

This is in response to the Office Action issued on September 29, 2022. Reconsideration and allowance is requested in view of the amendments and remarks provided herein. Any fees due may be charged to Counsel's Deposit Account 50-5013, ref. 014710-136-999.

**Amendments to the claims** are provided on the listing of the claims which begins on page **2**.

**Remarks** begin on page **5** of this paper.

**LISTING OF THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

1-77. (Cancelled)

78. (New) A jump starter apparatus for jump starting a vehicle battery, comprising:

a power supply;

a vehicle battery isolation sensor configured to detect presence of the vehicle battery connected to the jump starter apparatus;

a reverse polarity sensor, separate from the vehicle battery isolation sensor, configured to detect a proper polarity connection between the jump starter apparatus and the vehicle battery; and

a power switch configured to electrically connect the power supply to the vehicle battery,

wherein the power switch is controlled based on signals from the vehicle battery isolation sensor and the reverse polarity sensor such that the power supply is connected to the vehicle battery when both (i) the vehicle battery isolation sensor currently indicates that the vehicle battery is connected to the jump starter apparatus, and (ii) the reverse polarity sensor currently indicates that the jump starter and the vehicle battery are connected with the proper polarity connection.

79. (New) The jump starter apparatus of claim 78, wherein the jump starter apparatus is a hand-held device.

80. (New) The jump starter apparatus of claim 78, further comprising:

a positive battery terminal connector for electrically connecting the jump starter apparatus to a positive terminal of the vehicle battery; and

a negative battery terminal connector for electrically connecting the jump starter apparatus to a negative terminal of the vehicle battery.

81. (New) The jump starter apparatus of claim 78, further comprising:

a controller that receives the signals from the vehicle battery isolation sensor and the reverse polarity sensor and controls the power switch.

82. (New) The jump starter apparatus of claim 81, wherein the controller is configured to automatically cause the vehicle battery isolation sensor to detect presence of the vehicle battery and the reverse polarity sensor to detect polarity of the vehicle battery when the vehicle battery is electrically connected to the jump starter apparatus and the jump starter apparatus becomes operational.

83. (New) The jump starter apparatus of claim 78, wherein the power switch is a FET switch.

84. (New) The jump starter apparatus of claim 78, wherein the reverse polarity sensor comprises an optically coupled isolator phototransistor coupled to a vehicle battery terminal connector via a diode.

85. (New) The jump starter apparatus of claim 78, wherein the vehicle battery isolation sensor comprises an optically coupled isolator phototransistor coupled to a vehicle battery terminal connector via a diode.

86. (New) The jump starter apparatus of claim 78, wherein the power supply includes one or more rechargeable batteries.

87. (New) The jump starter apparatus of claim 86, further comprising:

a USB port configured to receive power from an external power source for charging the one or more batteries.

88. (New) The jump starter apparatus of claim 87, further comprising:

a DC-DC converter coupled between the USB port and the one or more rechargeable batteries and configured to increase a voltage received from the external power source for charging the one or more rechargeable batteries.

89. (New) The jump starter apparatus of claim 88, further comprising:

a battery charge controller configure to control charging of the one or more rechargeable batteries from the USB port.

90. (New) The jump starter apparatus of claim 89, wherein the jump starter apparatus is further configured to provide power for charging an external device.

91. (New) The jump starter apparatus of claim 90, further comprising:

a USB output port for providing power from the rechargeable power supply for charging the external device.

## REMARKS

This responds to the Office Action issued on September 29, 2022. Claims 24-27 and 29-77 are cancelled and new claims 78-91 are added. No new matter is added. Reconsideration is respectfully requested in view of these amendments and the following remarks.

The Office Action rejects claims 24-27, 37-48, 58-60, 63, 65-66, 75 and 77 as being anticipated by Wang (U.S. 11,104,236), rejects claims 29-36, 49-52, 62, 64, and 76 as being unpatentable over Wang in view of Richardson (U.S. 2009/0174362), rejects claims 67-68 as being unpatentable over Wang in view of Brown (U.S. 8,076,900) and Waldron (U.S. 2011/0068734), rejects claims 69-74 as being unpatentable over Wang in view of Butler (U.S. 10,087,904), and rejects claim 61 as being unpatentable over Wang in view of Kim (U.S. 5,867,007). The Applicant respectfully disagrees with these rejections. Nonetheless, in an effort to further prosecution, claims 24-27 and 29-77 are cancelled and new claims 78-91 are added for clarification and to further distinguish over the cited references.

New Independent Claim 78

Among other distinctions, the cited references fail to teach or suggest a jump starter apparatus as recited in new independent claim 78 that includes a vehicle battery isolation sensor configured to detect presence of the vehicle battery connected to the jump starter apparatus, and a reverse polarity sensor, separate from the vehicle battery isolation sensor, configured to detect a proper polarity connection between the jump starter apparatus and the vehicle battery. The Office Action cites to Wang as disclosing a microcontroller configured to automatically detect both presence and polarity of a depleted or discharged battery. *See, e.g.*, Office Action, page 5. However, Wang fails to teach or suggest a vehicle battery isolation sensor and a separate reverse polarity sensor, as recited in new independent claim 78.

Wang describes an automobile charging device that prevents operation when the charging electrodes are improperly connected to the automobile battery. *See* Wang at 1:21-34; 42-45. An example of Wang's automobile charging device is illustrated in Figure 1 below:

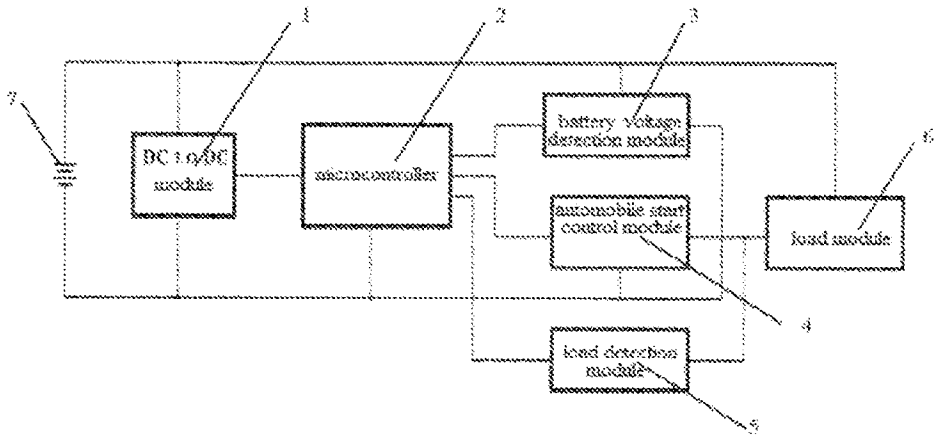



Figure 1

As shown in Fig. 1, the automobile charging device described in Wang includes a direct current power supply 7 (also referred to as a battery) that supplies charging current to a load module 6, which "comprises the automobile storage battery and the automobile engine." *See* Wang at 3:15-35; Fig. 1. The automobile charging device is controlled by a microcontroller 2, which collects data from a battery voltage detection module 3 and a load detection module 5 in order to control the supply of power to the load module 6 through an automobile start control module 4. *See id.* at 4:14-22; Fig. 1. Specifically, "[t]he battery voltage detection module [3] conducts the measurement of the batter[y] [7] voltage, the automobile start control module [4] conducts the power supply or the power outage for the load module [6] through the microcontroller [2], wherein the load detection module [5] detects whether the load module [6] is correctly connected." *Id.* at 4:16-22. The "load detection module" shown in Fig. 1 is also referred to in Wang as an "automatic detection module." *See, e.g.*, Wang at 2:51-58. Significantly, Wang specifically teaches *one singular component, i.e.,* the load/automatic detection module, that performs *both* functions of detecting whether a load is connected and detecting whether the electrode is connected with the correct polarity:

> The ***automatic detection module*** of the present disclosure can ***automatically detect[] whether the load is connected, whether the electrode is connected with the automobile storage battery reversely***, whether the automobile engine or the storage battery has reverse current, whether the battery state is suitable for heavy current power generation, thereby protecting the load and the circuit and thus has complete functions.

Wang at 2:51-58 (emphasis added). *See, also*, Wang at 4:20-22 ("[T]he load detection module detects whether the load module is correctly connected."). Thus, Wang makes clear that the

microcontroller assesses the connection of the vehicle battery, including both whether the battery is present and whether it is connected to the proper polarities, via the singular automatic/load detection module. *Id.*; *see also id.* at 2:40-43 ("The load detection of the present disclosure can prevent improper operations by the user, such as reversed polarity…."); *id.* at 4:20-22 ("[T]he load detection module detects whether the load module is correctly connected."). Wang therefore fails to teach or suggest a vehicle battery isolation sensor and a separate reverse polarity sensor, as recited in new independent claim 78.

New Dependent Claim 87

The cited references also fail to teach or suggest a jump starter apparatus having a USB port configured to receive power from an external power source for charging the one or more batteries, as recited in dependent claim 87. To the extent that the Examiner deems the rejection of cancelled claims 69-74 as applicable to new claim 87, this rejection is respectfully traversed.

In the rejection of claim 69-74, the Office Action relies on Butler (U.S. 10,087,904) for the disclosure of a USB charging port configured to provide charging power from an external power source. However, Butler does not qualify as prior art to the present application.

35 U.S.C. § 102(a) defines the prior art that may preclude the grant of a patent on a claimed invention. MPEP § 2152. 35 U.S.C. § 102(a) provides that:

> [a] *person shall be entitled to a patent unless—*
>
> (1) the claimed invention was patented, described in a printed publication, or in public use, on sale, or otherwise available to the public *before the effective filing date of the claimed invention*; or
>
> (2) the claimed invention was described in a patent issued under section 151, or in an application for patent published or deemed published under section 122(b), in which *the patent or application, as the case may be, names another inventor and was effectively filed before the effective filing date of the claimed invention.*
>
> (Emphasis added.)

35 U.S.C. § 100(i) defines "effective filing date" for patents and patent applications:

> (1) The term "effective filing date" for a claimed invention in a patent or application

for patent means—

> (A) if subparagraph (B) does not apply, *the actual filing date of the patent or the application for the patent* containing a claim to the invention; *or*
> (B) *the filing date of the earliest application for which the patent or application is entitled, as to such invention, to a right of priority* under section 119, 365(a), 365(b), 386(a), or 386(b) or to the benefit of an earlier filing date under section 120, 121, 365(c), or 386(c).

(Emphasis added.)

The earliest possible effective filing date of Butler is August 14, 2014. This is the filing date of Provisional Application No. 62/037,379, to which the parent application of Butler claims priority. However, the present application is a is a continuation of application No. 15/691,884, filed on August 31, 2017, now Patent No. 10,604,024, which is a continuation of application No. 14/619,655, filed on February 11, 2015, now Patent No. 9,770,992, which is a division of application No. 14/325,938, filed on July 8, 2014, now Patent No. 9,007,015, which is a continuation of application No. PCT/US2014/045434, filed on July 3, 2014. The effective filing date of the present application is therefore July 3, 2014—the filing date of PCT Application PCT/US2014/045434. Thus, the effective filing date of the present application predates the effective filing date of Butler and Butler is not a valid prior art reference. For at least this reason, Butler was improperly relied on by the Office Action to reject claims 69-74, and is therefore also inapplicable to new dependent claim 87 (as well as claims 88-91 which depend from claim 87).

Conclusion

Applicant respectfully submits that a full and complete response has been made to the outstanding Office Action, and, as such, there being no other objections or rejections, this application is in condition for allowance and a notice of the same is earnestly solicited.

In the event this paper is not being timely filed, the Applicant respectfully petitions for an appropriate extension of time. Any fees for such an extension together with any additional fees associated with the processing of this Response and any other documents filed concurrently with this Response may be charged to Counsel's Deposit Account 50-5013, under 37 CFR 1.16 and 1.17.

If the Office has any questions, or believes for any reason that personal

communication will expedite prosecution of this application, the Office is hereby invited to telephone the undersigned at the number provided below.

Respectfully submitted,

Date: January 18, 2023

/Joseph M. Sauer/

Joseph M. Sauer (Reg. No. 47,919)
JONES DAY
901 Lakeside Avenue
Cleveland, Ohio 44114
(216) 586-7506

UNITED STATES
PATENT AND TRADEMARK OFFICE
P.O. Box 1450
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# ELECTRONIC PAYMENT RECEIPT

| APPLICATION # | RECEIPT DATE / TIME | ATTORNEY DOCKET # |
|---|---|---|
| 16/819,831 | 01/18/2023 03:36:48 PM ET | 054985-000055-US-02-01 |

## Title of Invention

PORTABLE VEHICLE BATTERY JUMP START APPARATUS WITH SAFETY PROTECTION

## Application Information

| | | | |
|---|---|---|---|
| APPLICATION TYPE | Utility - Nonprovisional Application under 35 USC 111(a) | PATENT # | - |
| CONFIRMATION # | 1630 | FILED BY | Erin Rosenfelder |
| PATENT CENTER # | 61454737 | AUTHORIZED BY | Joseph Sauer |
| CUSTOMER # | 20583 | FILING DATE | 03/16/2020 |
| CORRESPONDENCE ADDRESS | - | FIRST NAMED INVENTOR | Jonathan Lewis NOOK |

## Payment Information

| PAYMENT METHOD | PAYMENT TRANSACTION ID | PAYMENT AUTHORIZED BY |
|---|---|---|
| DA / 503013 | E20231HF38552176 | Erin Rosenfelder |

| FEE CODE | DESCRIPTION | ITEM PRICE($) | QUANTITY | ITEM TOTAL($) |
|---|---|---|---|---|
| 2251 | EXTENSION FOR RESPONSE WITHIN FIRST MONTH | 88.00 | 1 | 88.00 |
| | | | TOTAL AMOUNT: | $88.00 |

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

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**National Stage of an International Application under 35 U.S.C. 371**

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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# PETITION FOR EXTENSION OF TIME UNDER 37 CFR 1.136(a)

Docket Number (Optional): 14710-136-999

Application Number: 16/819,831

Filed: March 16, 2020

For: PORTABLE VEHICLE BATTERY JUMP START APPARATUS WITH SAFETY PROTECTION

Art Unit: 2859

Examiner: Diao, M. Baye

This is a request under the provisions of 37 CFR 1.136(a) to extend the period for filing a reply in the above-identified application.

The requested extension and fee are as follows (check time period desired and enter the appropriate fee below):

| | Fee | Small Entity Fee | Micro Entity Fee | |
|---|---|---|---|---|
| ☑ One month (37 CFR 1.17(a)(1)) | $220 | $88 | $44 | $ 88 |
| ☐ Two months (37 CFR 1.17(a)(2)) | $640 | $256 | $128 | $ |
| ☐ Three months (37 CFR 1.17(a)(3)) | $1,480 | $592 | $296 | $ |
| ☐ Four months (37 CFR 1.17(a)(4)) | $2,320 | $928 | $464 | $ |
| ☐ Five months (37 CFR 1.17(a)(5)) | $3,160 | $1,264 | $632 | $ |

☑ Applicant asserts small entity status. See 37 CFR 1.27.

☐ Applicant certifies micro entity status. See 37 CFR 1.29.
Form PTO/SB/15A or B or equivalent must either be enclosed or have been submitted previously.

☐ A check in the amount of the fee is enclosed.

☐ Payment by credit card. Form PTO-2038 is attached.

☐ The Director has already been authorized to charge fees in this application to a Deposit Account.

☑ The Director is hereby authorized to charge any fees which may be required, or credit any overpayment, to Deposit Account Number 503013.

☑ Payment made via USPTO's patent electronic filing system (Patent Center or EFS-Web).

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I am the

☐ applicant.

☑ attorney or agent of record. Registration number 47919.

☐ attorney or agent acting under 37 CFR 1.34. Registration number _____.

/Joseph M. Sauer/ — Signature

18 January 2023 — Date

Joseph M. Sauer — Typed or printed name

216-586-7506 — Telephone Number

**NOTE:** This form must be signed in accordance with 37 CFR 1.33. See 37 CFR 1.4 for signature requirements and certifications. Submit multiple forms if more than one signature is required, see below*.

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Alexandria, VA 22313 - 1450
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# ELECTRONIC ACKNOWLEDGEMENT RECEIPT

| APPLICATION # | RECEIPT DATE / TIME | ATTORNEY DOCKET # |
|---|---|---|
| **16/819,831** | **01/18/2023 03:36:48 PM ET** | **054985-000055-US-02-01** |

## Title of Invention

PORTABLE VEHICLE BATTERY JUMP START APPARATUS WITH SAFETY PROTECTION

## Application Information

| | | | |
|---|---|---|---|
| APPLICATION TYPE | Utility - Nonprovisional Application under 35 USC 111(a) | PATENT # | - |
| CONFIRMATION # | 1630 | FILED BY | Erin Rosenfelder |
| PATENT CENTER # | 61454737 | FILING DATE | 03/16/2020 |
| CUSTOMER # | 20583 | FIRST NAMED INVENTOR | Jonathan Lewis NOOK |
| CORRESPONDENCE ADDRESS | - | AUTHORIZED BY | Joseph Sauer |

## Documents

**TOTAL DOCUMENTS: 4**

| DOCUMENT | | PAGES | DESCRIPTION | SIZE (KB) |
|---|---|---|---|---|
| 14710-136_Response092922.pdf | | 9 | - | 306 KB |
| 14710-136_Response092922-A....pdf | (1-1) | 1 | Amendment/Request for Reconsideration-After Non-Final Rejection | 114 KB |
| 14710-136_Response092922-CLM.pdf | (2-4) | 3 | Claims | 102 KB |
| 14710-136_Response092922-REM.pdf | (5-9) | 5 | Applicant Arguments/Remarks Made in an Amendment | 284 KB |

| | | | |
|---|---|---|---|
| 14710-136_aia0022.pdf | 2 | Extension of Time | 351 KB |

## Digest

| DOCUMENT | MESSAGE DIGEST(SHA-512) |
|---|---|
| 14710-136_Response092922.pdf | 554F15879B0A8808731668B2132A84DFD07CE98F7576B9E2DC494623621455D79D22D927954FAABB176ECD88AFEB916C41EBA5608CCB01BCE71C2790B0EDFCD4 |
| 14710-136_Response092922-A....pdf | A6D092BCCD95177DE13F738A0AF331D4FE3F4A9AF7F06C3523FFA66575B6757CCEB7EF9FDFC5265D05428A3CBDB07C9801FEBB40477962D66A8A89D658F49955 |
| 14710-136_Response092922-CLM.pdf | B6C9671DD23D1F80252AACDC858604975E0B850E695FA0A5561392FA311EFA4E923FAF1FCBBE1B75945A2B8D2E78CFF880550AF7AF647DBD9FE010888726FB81 |
| 14710-136_Response092922-REM.pdf | 7E44B1FCD0586F6B7E6CDA82CF6571794C5988A98EB507686F101B3DEF9515D397ADB0BBECC506BE41A73A0EC561DADC526701E4FF75F10F2F4F7E85BD6D7F89 |
| 14710-136_aia0022.pdf | 81C32E9AB7CAD225A63216AF7A6B12044676A36CE19C8B696D65DDD29A3A49685ABE905E219620F7D6D41971FD8C9789C6B21C61160DED8B98F86A0ECFD68DD3 |

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**New Applications Under 35 U.S.C. 111**

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

**National Stage of an International Application under 35 U.S.C. 371**

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**

If a new international application is being filed and the international application includes the necessary components for an

international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/06 (09-11)
Approved for use through 1/31/2014. OMB 0651-0032
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| PATENT APPLICATION FEE DETERMINATION RECORD<br>Substitute for Form PTO-875 | Application or Docket Number<br>16/819,831 | Filing Date<br>03/16/2020 | ☐ To be Mailed |
|---|---|---|---|

**ENTITY:** ☐ LARGE ☑ SMALL ☐ MICRO

## APPLICATION AS FILED - PART I

| FOR | (Column 1)<br>NUMBER FILED | (Column 2)<br>NUMBER EXTRA | | RATE ($) | FEE ($) |
|---|---|---|---|---|---|
| ☐ BASIC FEE<br>(37 CFR 1.16(a), (b), or (c)) | N/A | N/A | | N/A | |
| ☐ SEARCH FEE<br>(37 CFR 1.16(k), (i), or (m)) | N/A | N/A | | N/A | |
| ☐ EXAMINATION FEE<br>(37 CFR 1.16(o), (p), or (q)) | N/A | N/A | | N/A | |
| TOTAL CLAIMS<br>(37 CFR 1.16(i)) | minus 20 = | * | | x $50 = | |
| INDEPENDENT CLAIMS<br>(37 CFR 1.16(h)) | minus 3 = | * | | x $230 = | |
| ☐ APPLICATION SIZE FEE (37 CFR 1.16(s)) | If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s). | | | | |
| ☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j)) | | | | | |
| * If the difference in column 1 is less than zero, enter "0" in column 2. | | | | TOTAL | |

## APPLICATION AS AMENDED - PART II

| | | (Column 1) | | (Column 2) | (Column 3) | | | |
|---|---|---|---|---|---|---|---|---|
| AMENDMENT | 01/18/2023 | CLAIMS REMAINING AFTER AMENDMENT | | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA | | RATE ($) | ADDITIONAL FEE ($) |
| | Total<br>(37 CFR 1.16(i)) | * 15 | Minus | ** 20 | = 0 | | x $40 = | 0 |
| | Independent<br>(37 CFR 1.16(h)) | * 1 | Minus | *** 3 | = 0 | | x $192 = | 0 |
| | ☐ Application Size Fee (37 CFR 1.16(s)) | | | | | | | |
| | ☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) | | | | | | | |
| | | | | | | | TOTAL ADD'L FEE | 0 |

| | | (Column 1) | | (Column 2) | (Column 3) | | | |
|---|---|---|---|---|---|---|---|---|
| AMENDMENT | | CLAIMS REMAINING AFTER AMENDMENT | | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA | | RATE ($) | ADDITIONAL FEE ($) |
| | Total<br>(37 CFR 1.16(i)) | * | Minus | ** | = | | x $0 = | |
| | Independent<br>(37 CFR 1.16(h)) | * | Minus | *** | = | | x $0 = | |
| | ☐ Application Size Fee (37 CFR 1.16(s)) | | | | | | | |
| | ☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) | | | | | | | |
| | | | | | | | TOTAL ADD'L FEE | |

| | |
|---|---|
| * If the entry in column 1 is less than the entry in column 2, write "0" in column 3. | LIE |
| ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". | /TERRANCE R LAWRENCE/ |
| *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". | |
| The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1. | |

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 16/819,831 | 03/16/2020 | Jonathan Lewis NOOK | 054985-000055-US-02-01 | 1630 |

20583 7590 02/10/2023

Jones Day
250 Vesey Street
New York, NY 10281-1047

| EXAMINER |
|---|
| DIAO, M BAYE |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2859 | |

| NOTIFICATION DATE | DELIVERY MODE |
|---|---|
| 02/10/2023 | ELECTRONIC |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

japarker@jonesday.com
ncgeorge@jonesday.com
wtokmakidis@jonesday.com



ADC EX1002
IPR2025-00885

| Office Action Summary | Application No. 16/819,831 | Applicant(s) NOOK et al. | |
|---|---|---|---|
| | Examiner M'BAYE DIAO | Art Unit 2859 | AIA (FITF) Status Yes |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTHS FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☑ Responsive to communication(s) filed on 01/18/2023.

☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2a)☑ This action is **FINAL.** 2b) ☐ This action is non-final.

3)☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

4)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims***

5) ☑ Claim(s) 78-91 is/are pending in the application.

5a) Of the above claim(s) _____ is/are withdrawn from consideration.

6) ☐ Claim(s) _____ is/are allowed.

7) ☑ Claim(s) 78-91 is/are rejected.

8) ☐ Claim(s) _____ is/are objected to.

9) ☐ Claim(s) _____ are subject to restriction and/or election requirement

* If any claims have been determined allowable, you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see http://www.uspto.gov/patents/init_events/pph/index.jsp or send an inquiry to **PPHfeedback@uspto.gov.**

**Application Papers**

10)☐ The specification is objected to by the Examiner.

11)☑ The drawing(s) filed on 03/16/2020 is/are: a)☑ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

**Certified copies:**

a)☐ All b)☐ Some** c)☐ None of the:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

** See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☑ Notice of References Cited (PTO-892)

2) ☐ Information Disclosure Statement(s) (PTO/SB/08a and/or PTO/SB/08b) Paper No(s)/Mail Date _____.

3) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date _____.

4) ☐ Other: _____.



ADC EX1002
IPR2025-00885

## DETAILED ACTION

### *Notice of Pre-AIA or AIA Status*

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

### *Response to Amendment*

2. Acknowledgement is made of amendment filed on 01/18/2023 in which claims 1-77 have been canceled while claims 78-91 have been newly added. By this amendment, claims 78-91 are now pending in the application.

### *Claim Rejections - 35 USC § 103*

3. In the event the determination of the status of the application as subject to AIA 35 U.S.C. 102 and 103 (or as subject to pre-AIA 35 U.S.C. 102 and 103) is incorrect, any correction of the statutory basis for the rejection will not be considered a new ground of rejection if the prior art relied upon, and the rationale supporting the rejection, would be the same under either status.

4. The following is a quotation of 35 U.S.C. 103 which forms the basis for all obviousness rejections set forth in this Office action:

> A patent for a claimed invention may not be obtained, notwithstanding that the claimed invention is not identically disclosed as set forth in section 102, if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries for establishing a background for determining obviousness under 35 U.S.C. 103 are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.

3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims the examiner presumes that the subject matter of the various claims was commonly owned as of the effective filing date of the claimed invention(s) absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and effective filing dates of each claim that was not commonly owned as of the effective filing date of the later invention in order for the examiner to consider the applicability of 35 U.S.C. 102(b)(2)(C) for any potential 35 U.S.C. 102(a)(2) prior art against the later invention.

7. **Claim(s) 78, 80-83 are rejected under 35 U.S.C. 103 as being unpatentable over Wang et al., (Wang) USPAT 11,104,236 in view of Richardson US 2009/0174362 (Exhibit 1010 on IPR2020-0387)**

8. Regarding claim 78: Wang discloses and shows in **Figs. 1-2** A jump starter apparatus**(as shown in Fig. 1)** for jump starting a vehicle battery**(battery of vehicle)**, comprising:

a power supply**(7)**;

a vehicle battery isolation sensor**(construed as load detection module (5))** configured to detect presence of the vehicle battery connected to the jump starter apparatus;

a reverse polarity sensor**(see col. 4, lines 14-22)(note-The battery voltage detection module conducts the measurement of the batter voltage, and the automobile start control module conducts the power supply or the power outage for the load module through the microcontroller, wherein the load detection module detects whether the load module is correctly connected; see col. 4, lines 14-22)**, separate from the vehicle battery isolation sensor,

configured to detect a proper polarity connection between the jump starter apparatus and the vehicle battery;

and a power switch(**see switching configuration in Fig. 2 formed by Q3_1,Q3_2,Q3_3, Q4_1,Q4_2,Q4_3**) configured to electrically connect(**via DC to DC module (1); See Fig. 1**) the power supply(**7**) to the vehicle battery, wherein the power switch is controlled based on signals from the vehicle battery isolation sensor and the reverse polarity sensor(**all performed by element (5)**) such that the power supply(**7**) is connected to the vehicle battery when both (i) the vehicle battery isolation sensor currently indicates that the vehicle battery is connected to the jump starter apparatus, and (ii) the reverse polarity sensor currently indicates that the jump starter and the vehicle battery are connected with the proper polarity connection(**see claims 13 and 18; col. 2, lines 1-59 and col. 4, lines 23-45**).

However, Wang does not expressly teach that:

- a reverse polarity sensor separate from the vehicle battery isolation sensor, configured to detect a proper polarity connection between the jump starter apparatus and the vehicle battery

9. In the same field of endeavor, namely battery jump starters, Richardson discloses factual evidence of, a reverse polarity sensor(**24**)(**see ¶[0012],[0014]**) separate from the vehicle battery isolation sensor(**30**), configured to detect a proper polarity connection between the jump starter apparatus(**10**) and the vehicle battery(**battery of vehicle 28**)

10. Furthermore, Richardson discloses that the microcontroller(**12**), which receives input signals from the vehicle isolation sensor(**30**) and the reverse polarity sensor(**24**) and provides an output signal to the power switch(**note- Richardson's Fig. 1 shows distinct input signals**

**received by the microcontroller 12 from the vehicle voltage sensor (30) and the reverse voltage sensor (24).**

11. According to this limitation, the power switch can be turned on in response to affirmative indication of both (1) a signal indicating presence of a vehicle battery, and (2) a signal indicating proper polarity connection to that vehicle battery. If either signal is negative, however, the power switch cannot be turned on.

12. Richardson and Wang are battery jump starters analogous art. Therefore it would have been obvious to one having ordinary skill in the art before the effective filing date of the claimed invention to include a reverse polarity sensor separate from the vehicle battery isolation sensor, configured to detect a proper polarity connection between the jump starter apparatus and the vehicle battery into the apparatus of Wang in order to determine a reverse voltage jumper cable and thereby improving the overall safety of the jumpstarting system.

13. Accordingly claim 78 would have been obvious.

14. Regarding claim 80, Wang in view of Richardson discloses all the claimed invention. Wang discloses, further comprising: a positive battery terminal connector for electrically connecting the jump starter apparatus to a positive terminal of the vehicle battery**(vehicle battery has positive and negative terminals as shown in Fig. 2 as (BT+))**; and a negative battery terminal connector**(claim 13)** for electrically connecting the jump starter apparatus to a negative terminal**(vehicle battery has positive and negative terminals as shown in Fig. 2 as (BT-))** of the vehicle battery**(see claim 13)**.

15. Regarding claim 81, Wang in view of Richardson discloses all the claimed invention as set forth and discussed above in claim 78. Wang discloses, further comprising: a controller**(2)** that receives the signals from the vehicle battery isolation sensor and the reverse polarity

sensor(**5**) and controls the power switch(**see switching configuration in Fig. 2 formed by Q3_1,Q3_2,Q3_3, Q4_1,Q4_2,Q4_3**)(**see col. 2, lines 1-59 and col. 4, lines 14-45**).

16. Regarding claim 82, Wang in view of Richardson discloses all the claimed invention as set forth and discussed above in claim 78. Wang discloses, wherein the controller(**2**) is configured to automatically cause the vehicle battery isolation sensor(**5**) to detect presence of the vehicle battery and the reverse polarity sensor(**5**) to detect polarity of the vehicle battery when the vehicle battery is electrically connected to the jump starter apparatus and the jump starter apparatus becomes operational(**see also Richardson; ¶[0011-0015],[0020-0023]**).

17. Regarding claim 83, Wang in view of Richardson discloses all the claimed invention as set forth and discussed above in claim 78. Wang discloses, wherein the power switch is a FET switch(**see switching configuration in Fig. 2 formed by Q3_1,Q3_2,Q3_3, Q4_1,Q4_2,Q4_3 which are N channel FETs).**

18. **Claim 79 is rejected under 35 U.S.C. 103 as being unpatentable over Wang et al., (Wang) USPAT 11,104,236 in view of Richardson US 2009/0174362 (Exhibit 1010 on IPR2020-0387) and in further view of Epower-21 Exhibit 1013 on IPR2020-00944.**

19. Regarding claim 79, Wang in view of Richardson discloses all the claimed invention as set forth and discussed in claim 78 but fails to expressly teach the limitations of:

- Wherein the jump starter apparatus is hand-held device

20. In the same field of endeavor, Epower-21 discloses factual evidence of, wherein the jump starter apparatus is hand-held device **(Epower-21 has the following characteristics: Weight 615g (which is handheld and is portable) with an input of 14V/1A and with output having the following characteristics: 5V/1A ---mobile phone, tablet PC, other digital devices 5V/2A**

**--- tablet PC 12V/10A ---12V car electronic products (car air-compressor etc.) 19V/3.5A ---Laptop 12V car Jump Start).**

21. Therefore it would have been obvious to one having ordinary skill in the art before the effective filing date of the claimed invention to have made the jump starter apparatus of Wang as modified by Richardson to be a hand-held device, as recited, for ease, power accessibility and portability to the user.

22. Accordingly claim 79 would have been obvious.

23. **Claim(s) 84-86 are rejected under 35 U.S.C. 103 as being unpatentable over Wang et al., (Wang) USPAT 11,104,236 in view of Richardson US 2009/0174362 (Exhibit 1010 on IPR2020-0387) and in further view of Miller US 2017/0012448.**

24. Regarding claim 84, Wang in view of Richardson discloses all the claimed invention as set forth and discussed in claim 78 but fails to expressly teach the limitations of:

- wherein the reverse polarity sensor comprises an optically coupled isolator phototransistor coupled to a vehicle battery terminal connector via a diode.

25. Miller teaches factual evidence of, wherein the reverse polarity sensor**(reverse current protection circuit 250; see ¶[0126])** comprises an optically coupled isolator phototransistor**(72)(see Fig. 8)** coupled to a vehicle battery terminal connector via a diode**(see Fig. 21)**.

26. Wang, Richardson and Miller are battery jump starter analogous art. Therefore it would have been obvious to one having ordinary skill in the art before the effective filing date of the claimed invention to have had the reverse polarity sensor of Wang in view of Richardson, comprises an optically coupled isolator phototransistor coupled to a vehicle battery terminal connector via a diode, as recited, in order to provide safety to the charging operation.

27. Regarding claim 85, Wang in view of Richardson discloses all the claimed invention as set forth and discussed in claim 78 but fails to expressly teach the limitations of:

- wherein the vehicle battery isolation sensor comprises an optically coupled isolator phototransistor coupled to a vehicle battery terminal connector via a diode.

28. Miller teaches factual evidence of, wherein the vehicle battery isolation sensor**(clamp circuit 248; see Fig. 21 optical isolator 290 within the clamp check circuit 248)** comprises an optically coupled isolator phototransistor**(74)(see ¶[0085])** coupled to a vehicle battery terminal connector via a diode**(see Fig. 21).**

29. Wang, Richardson and Miller are battery jump starter analogous art. Therefore it would have been obvious to one having ordinary skill in the art before the effective filing date of the claimed invention to have had the vehicle battery isolation sensor comprises an optically coupled isolator phototransistor coupled to a vehicle battery terminal connector via a diode, as recited, in order to provide safety to the charging operation.

30. Regarding claim 86, Wang in view of Richardson discloses all the claimed invention as set forth and discussed above in claim 78. However, modified Wang stayed silent regarding the limitations of, "wherein the power supply include one or more rechargeable batteries".

31. Miller teaches, wherein the power supply include one or more rechargeable batteries **(rechargeable lithium-ion battery ¶[0016]) (Fig. 14; internal battery 127 comprises a plurality of individual batteries cells connected in series; see ¶[0016],[0102]).**.

32. It would have been obvious to one having ordinary skill in the art before the effective filing date of the claimed invention to modify Wang with the teachings of Miller by having, wherein the power supply include one or more rechargeable batteries, in order to ensure availability of a source of uninterruptible power.

33. **Claim(s) 87-91 are rejected under 35 U.S.C. 103 as being unpatentable over Wang et al., (Wang) USPAT 11,104,236 in view of Richardson US 2009/0174362 (Exhibit 1010 on IPR2020-0387) and Miller US 2017/0012448 and in further view of Butler et al., (Butler) USPAT 10,087,904.**

34. Regarding claim 87, Wang in view of Richardson and Miller discloses all the claimed invention as set forth and discussed above in claim 24. However, the combination of Wang, Richardson and Miller does not teach the limitations of, further comprising a USB port configured to receive power from an external power source for charging the one or more batteries.

**35.** Butler discloses factual evidence of, further comprising a USB port**(156)** configured to receive power**(via SEPIC circuit 302; see Butler; col. 5, lines 8-27)** from an external power source**(104 or 148)** for charging the one or more batteries**(150)(see col. 5, lines 54-col. 6, line 26)(see circuit connection of 156->154->150; Fig. 1) connecting the USB charging port(156) to the power supply(150)).**

36. Wang, Richardson, Miller and Butler are battery booster analogous art. Therefore it would have been obvious to one having ordinary skill in the art before the effective filing date of the claimed invention to incorporate the teachings of Butler into the apparatus of Wang as modified by Richardson and Miller to further comprising a USB port configured to receive power from an external power source for charging the one or more batteries, as recited, in order to facilitate charging energy or boosting energy to a vehicle/external battery or to one or more portable electronic devices, as per the teachings of Butler **(col. 5, lines 54-67).**

37. Regarding claim 88, Wang in view of Richardson, Miller and Butler discloses all the claimed invention as set forth and discussed above in claim 88. Butler further discloses, further

comprising a DC-DC converter**(note-SEPIC 302 is a DC to DC converter; see col. 12, lines 5-35 and col. 13, lines 13-34 & 62-65)** coupled between the USB port**(156)** and the one or more rechargeable batteries**(150)** and configured to increase a voltage received from the external power source for charging the one or more rechargeable batteries**(col. 5, lines 54-67; col. 12, lines 8-12)**.

38. Regarding claim 89, Wang in view of Richardson, Miller and Butler discloses all the claimed invention as set forth and discussed above in claim 88. Butler further discloses, further comprising: a battery charge controller configure to control charging of the one or more rechargeable batteries from the USB port**(156)(Butler discloses the DC- DC converter(302) is configured to be turned on and off via a circuit(duty cycle of semiconductor switches; see Butler col. 12, lines 8-27 and col. 13, lines 17-61)** by an output from a microcontroller**(128)(see Butler, Fig. 3)(note-The output power may be controlled by software (e.g. via a relay, MOSFET, and/or a silicon-controlled rectifier; see col. 17, lines 38-55)**.

39. Regarding claim 90, Wang in view of Richardson, Miller and Butler discloses all the claimed invention as set forth and discussed above in claim 89. Butler further discloses, wherein the jump starter apparatus is further configured to provide power for charging an external device **(note-Butler further discloses, a USB port or 12V supply may be provided as DC output terminals 136 on the charger to facilitate the charging of accessories, such as portable electronic devices 152. Thus, the compact battery charger's 102 internal battery 150 may also be used as a power source for one or more DC accessories; see col. 10, lines 65-67 to col. 11, lines 1-8)**.

40. Regarding claim 91, Wang in view of Richardson, Miller and Butler discloses all the claimed invention as set forth and discussed above in claim 90. Butler further discloses, further

comprising: a USB output port**(136)** for providing power from the rechargeable power supply for charging the external device**(such as portable electronic device 152)(note- Butler further discloses, a USB port or 12V supply may be provided as DC output terminals 136 on the charger to facilitate the charging of accessories, such as portable electronic devices 152; see col. 5, lines 54-67; col. 10, lines 65-67 and col. 11, lines 1-8).**

***Response to Arguments***

41. Applicant's arguments with respect to claim(s) 78-91 have been considered but are moot because the new ground of rejection does not rely on any reference applied in the prior rejection of record for any teaching or matter specifically challenged in the argument.

42. While Wang teaches that the load/automatic detection module **(5)** performs both functions of detecting whether a load is connected and detecting whether the electrodes are connected with the correct polarity, newly relied art to Richardson**(Exhibit 1010 on IPR2020-0387)** teaches factual evidence of, a reverse polarity sensor**(24)(see ¶[[0012],[0014])** separate from the vehicle battery isolation sensor**(30)**, configured to detect a proper polarity connection between the jump starter apparatus**(10)** and the vehicle battery**(battery of vehicle 28)**.

***Conclusion***

43. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period

will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

44. Any inquiry concerning this communication or earlier communications from the examiner should be directed to M'BAYE DIAO whose telephone number is (571)272-6127. The examiner can normally be reached M-F; 9:00AM-6:30PM.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DREW A DUNN can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit: https://patentcenter.uspto.gov. Visit https://www.uspto.gov/patents/apply/patent-center for more information about Patent Center and https://www.uspto.gov/patents/docx for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

M'BAYE DIAO
Primary Examiner
Art Unit 2859

/M BAYE DIAO/
Primary Examiner, Art Unit 2859
February 6, 2023

| Notice of References Cited | Application/Control No. 16/819,831 | Applicant(s)/Patent Under Reexamination NOOK et al. | |
|---|---|---|---|
| | Examiner M'BAYE DIAO | Art Unit 2859 | Page 1 of 1 |

**U.S. PATENT DOCUMENTS**

| * | | Document Number Country Code-Number-Kind Code | Date MM-YYYY | Name | CPC Classification | US Classification |
|---|---|---|---|---|---|---|
| | A | | | | | |
| | B | | | | | |
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**FOREIGN PATENT DOCUMENTS**

| * | | Document Number Country Code-Number-Kind Code | Date MM-YYYY | Country | Name | CPC Classification |
|---|---|---|---|---|---|---|
| | N | | | | | |
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**NON-PATENT DOCUMENTS**

| * | | Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages) |
|---|---|---|
| | U | P. R. Nicastri and H. Huang, "Jump starting 42V powernet vehicles," Gateway to the New Millennium. 18th Digital Avionics Systems Conference. Proceedings (Cat. No.99CH37033), St. Louis, MO, USA, 1999, pp. 8.A.6-8.A.6, doi: 10.1109/DASC.1999.822005. ( Year: 1999) |
| | V | |
| | W | |
| | X | |

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.



ADC EX1002
IPR2025-00885

| Index of Claims | Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|---|
| | 16/819,831 | NOOK et al. |
| | Examiner | Art Unit |
| | M'BAYE DIAO | 2859 |

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|---|---|---|---|---|---|---|---|
| ✓ | Rejected | - | Cancelled | N | Non-Elected | A | Appeal |
| = | Allowed | ÷ | Restricted | I | Interference | O | Objected |

**CLAIMS**

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☐ T.D. ☐ R.1.47

| CLAIM | | DATE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Final | Original | 08/17/2021 | 01/25/2022 | 09/23/2022 | 02/07/2023 | | | | | |
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| | 24 | ✓ | ✓ | ✓ | - | | | | | |
| | 25 | ✓ | ✓ | ✓ | - | | | | | |
| | 26 | ✓ | ✓ | ✓ | - | | | | | |
| | 27 | ✓ | ✓ | ✓ | - | | | | | |
| | 28 | ✓ | ✓ | - | - | | | | | |
| | 29 | ✓ | ✓ | ✓ | - | | | | | |
| | 30 | ✓ | ✓ | ✓ | - | | | | | |
| | 31 | ✓ | ✓ | ✓ | - | | | | | |
| | 32 | ✓ | ✓ | ✓ | - | | | | | |
| | 33 | ✓ | ✓ | ✓ | - | | | | | |
| | 34 | ✓ | ✓ | ✓ | - | | | | | |
| | 35 | ✓ | ✓ | ✓ | - | | | | | |
| | 36 | ✓ | ✓ | ✓ | - | | | | | |
| | 37 | ✓ | ✓ | ✓ | - | | | | | |
| | 38 | ✓ | ✓ | ✓ | - | | | | | |
| | 39 | ✓ | ✓ | ✓ | - | | | | | |
| | 40 | ✓ | ✓ | ✓ | - | | | | | |
| | 41 | ✓ | ✓ | ✓ | - | | | | | |
| | 42 | ✓ | ✓ | ✓ | - | | | | | |

| Index of Claims | Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|---|
| | 16/819,831 | NOOK et al. |
| | **Examiner** | **Art Unit** |
| | M'BAYE DIAO | 2859 |

| CLAIM | | DATE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Final | Original | 08/17/2021 | 01/25/2022 | 09/23/2022 | 02/07/2023 | | | | | |
| | 43 | ✓ | ✓ | ✓ | - | | | | | |
| | 44 | ✓ | ✓ | ✓ | - | | | | | |
| | 45 | ✓ | ✓ | ✓ | - | | | | | |
| | 46 | ✓ | ✓ | ✓ | - | | | | | |
| | 47 | ✓ | ✓ | ✓ | - | | | | | |
| | 48 | ✓ | ✓ | ✓ | - | | | | | |
| | 49 | ✓ | ✓ | ✓ | - | | | | | |
| | 50 | ✓ | ✓ | ✓ | - | | | | | |
| | 51 | ✓ | ✓ | ✓ | - | | | | | |
| | 52 | ✓ | ✓ | ✓ | - | | | | | |
| | 53 | ✓ | ✓ | ✓ | - | | | | | |
| | 54 | ✓ | ✓ | ✓ | - | | | | | |
| | 55 | ✓ | ✓ | ✓ | - | | | | | |
| | 56 | ✓ | ✓ | ✓ | - | | | | | |
| | 57 | ✓ | ✓ | ✓ | - | | | | | |
| | 58 | ✓ | ✓ | ✓ | - | | | | | |
| | 59 | ✓ | ✓ | ✓ | - | | | | | |
| | 60 | ✓ | ✓ | ✓ | - | | | | | |
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| | 62 | ✓ | ✓ | ✓ | - | | | | | |
| | 63 | ✓ | ✓ | ✓ | - | | | | | |
| | 64 | ✓ | ✓ | ✓ | - | | | | | |
| | 65 | ✓ | ✓ | ✓ | - | | | | | |
| | 66 | ✓ | ✓ | ✓ | - | | | | | |
| | 67 | ✓ | ✓ | ✓ | - | | | | | |
| | 68 | ✓ | ✓ | ✓ | - | | | | | |
| | 69 | ✓ | ✓ | ✓ | - | | | | | |
| | 70 | ✓ | ✓ | ✓ | - | | | | | |
| | 71 | ✓ | ✓ | ✓ | - | | | | | |
| | 72 | ✓ | ✓ | ✓ | - | | | | | |
| | 73 | ✓ | ✓ | ✓ | - | | | | | |
| | 74 | ✓ | ✓ | ✓ | - | | | | | |
| | 75 | | ✓ | ✓ | - | | | | | |
| | 76 | | ✓ | ✓ | - | | | | | |
| | 77 | | ✓ | ✓ | - | | | | | |
| | 78 | | | | ✓ | | | | | |
| | 79 | | | | ✓ | | | | | |
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| | 91 | | | | ✓ | | | | | |

| Search Notes | Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|---|
| | 16/819,831 | NOOK et al. |
| | Examiner | Art Unit |
| | M'BAYE DIAO | 2859 |

| CPC - Searched* | | |
|---|---|---|
| Symbol | Date | Examiner |
| B60L53/14 H02J7/342 H02J7/0047 H02J7/0034 H02J7/0029 H02J1/122 H02J7/00 H02J7/0048 H02J7/00302 H02J7/00309 H02J7/00306 Y02T90/14 Y02T10/7072 Y02T10/70 H02J2310/46 | 08/18/2021 | MD |

| CPC Combination Sets - Searched* | | |
|---|---|---|
| Symbol | Date | Examiner |
| | | |

| US Classification - Searched* | | | |
|---|---|---|---|
| Class | Subclass | Date | Examiner |
| 320 | 105 | 08/18/2021 | MD |

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

| | |
|---|---|
| /M BAYE DIAO/<br>Primary Examiner, Art Unit 2859 | |



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IPR2025-00885

| Search Notes | Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|---|
| | 16/819,831 | NOOK et al. |
| | Examiner | Art Unit |
| | M'BAYE DIAO | 2859 |

| Search Notes | | |
|---|---|---|
| **Search Notes** | **Date** | **Examiner** |
| SEARCH(Search Notes attached). | 08/18/2021 | MD |
| Inventor Name and Assignee search (SEARCH). | 08/18/2021 | MD |
| PLUS Search conducted.. | 09/25/2020 | MD |
| IP.COM search conducted. | 08/18/2021 | MD |
| Parent Applications noted. | 08/18/2021 | MD |
| IPR2018-00503 Reviewed Petition for Inter Partes Review of U.S. Patent No. 9,007,015. | 08/18/2021 | MD |
| IPR2020-00944 Reviewed Petition for Inter Partes Review of U.S. Patent No. 9,007,015. | 08/18/2021 | MD |
| IPR2020-01387 Reviewed Petition for Inter Partes Review of U.S. Patent No. 9,007,015. | 08/18/2021 | MD |
| IPR2021-00309 Reviewed Petition for Inter Partes Review of U.S. Patent No. 9,007,015. | 08/18/2021 | MD |
| Updated Search above. | 01/25/2022 | MD |
| Updated Search above. | 09/23/2022 | MD |
| Similarity and MLTD search conducted. | 09/23/2022 | MD |
| Updated Search Above. | 02/07/2023 | MD |

| Interference Search | | | |
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| **US Class/CPC Symbol** | **US Subclass/CPC Group** | **Date** | **Examiner** |
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| /M BAYE DIAO/<br>Primary Examiner, Art Unit 2859 | |



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# PE2E SEARCH - Search History (Prior Art)

| Ref # | Hits | Search Query | DBs | Default Operator | Plurals | British Equivalents | Time Stamp |
|---|---|---|---|---|---|---|---|
| L1 | 156178 | (automobile vehicle car locomotive motorcycle motorbike EV (electric$2 NEAR vehicle) HEV (hybrid NEAR electric$2 NEAR vehicle)) NEAR charg$2 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/06/17 01:25 PM |
| L2 | 628 | (jump boost) NEAR start$3 NEAR (apparatus device) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/06/17 01:26 PM |
| L3 | 1227683 | output NEAR port | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/06/17 01:26 PM |
| L4 | 84 | battery NEAR isolat$3 NEAR sens$2 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/06/17 01:27 PM |
| L5 | 1070 | reverse NEAR polarity NEAR (sens$2 detect$2) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/06/17 01:27 PM |
| L6 | 101 | battery NEAR isolat$3 NEAR (sens$2 detect$2) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/06/17 01:28 PM |
| L7 | 1427283 | power NEAR switch | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/06/17 01:28 PM |
| L8 | 24049223 | (microcontroller microprocessor controller processor) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/06/17 01:29 PM |
| L9 | 8 | L1 L2 L3 L5 L6 L7 L8 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2021/06/17 01:29 PM |
| L10 | 3904 | 320/109,105.ccls. | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); | OR | ON | ON | 2021/06/17 01:36 PM |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | FPRS; EPO; JPO; DERWENT; IBM_TDB) | | | | |
| L11 | 97030 | (B60L53/00 B60L53/53 H02J7/0034 H02J7/0068 H02J2207/20 H02J7/0029 H02J9/005).cpc. | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/06/17 01:37 PM |
| L12 | 8 | L1 L2 L3 L4 (L5 OR L6) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2021/06/17 01:38 PM |
| L13 | 10 | L1 L2 L6 L7 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2021/06/17 01:39 PM |
| L14 | 2 | "10875410".pn. | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/06/17 01:50 PM |
| L15 | 19 | Richardson.inv. AND (jump ADJ start$3) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/06/17 03:15 PM |
| L16 | 94 | ("0000001" OR "0000002" OR "0000008" OR "0000075" OR "0000359" OR "0000926" OR "0006344" OR "10046653" OR "10328806" OR "17236260" OR "17236279" OR "17236339" OR "20010038276" OR "20020075003" OR "20030096158" OR "20040066168" OR "20040130298" OR "20050110467" OR "20050162124" OR "20050258797" OR "20090008374" OR "20090174362" OR "20100013302" OR "20100055546" OR "20100173182" OR "20100181959" OR "20100244766" OR "20100301800" OR | (US-PGPUB; USPAT) | OR | ON | ON | 2021/06/17 09:50 PM |

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|---|---|---|---|---|---|---|---|
| | | "20110127947" OR<br>"20110279089" OR<br>"20120013189" OR<br>"20120025763" OR<br>"20120068662" OR<br>"20120139498" OR<br>"20130015814" OR<br>"20130154543" OR<br>"20130241488" OR<br>"20140159509" OR<br>"20150012174" OR<br>"20150032312" OR<br>"20150212135" OR<br>"20150340907" OR<br>"20210107365" OR<br>"3267452" OR<br>"3343057" OR<br>"3950668" OR<br>"3950688" OR<br>"4871957" OR<br>"5319298" OR<br>"5487002" OR<br>"5793185" OR<br>"5831350" OR<br>"6057667" OR<br>"6130519" OR<br>"6144110" OR<br>"6160381" OR<br>"6212054" OR<br>"6249106" OR<br>"6262492" OR<br>"6271605" OR<br>"6351102" OR<br>"6362599" OR<br>"6424158" OR<br>"6426606" OR<br>"6632103" OR<br>"6774607" OR<br>"6803743" OR<br>"6919704" OR<br>"7199555" OR<br>"7339347" OR<br>"7345450" OR<br>"7579811" OR<br>"7656118" OR<br>"7675261" OR<br>"8072900" OR<br>"8125181" OR<br>"8172603" OR<br>"8183821" OR<br>"8447543" OR<br>"8565930" OR<br>"8692513" OR<br>"8723477" OR<br>"8994327" OR<br>"9007015" OR<br>"9007023" OR<br>"9248746" OR | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | "9263907" OR "9287725" OR "9333865" OR "9352652" OR "9412994" OR "9496728" OR "9506446" OR "9525297" OR "9871392" OR "9874611" OR "9954391").pn. | | | | | |
| L17 | 136 | ((("PILOT") near3 ("INC"))).AS,AANM. | (USPAT) | OR | ON | ON | 2021/06/17 10:14 PM |
| L18 | 237 | ((("WANG") near3 ("Calvin")) OR (("WANG") near3 ("Chung-Hsin"))).INV. | (US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT) | OR | ON | ON | 2021/06/17 10:14 PM |
| L19 | 17 | L1 L2 L5 L8 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2021/06/17 10:15 PM |
| L20 | 2 | "20090174362".pn. | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/17 07:27 PM |
| L21 | 35973 | polarity NEAR detect$3 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 10:39 AM |
| L22 | 1 | (battery NEAR presence NEAR (detect$3 sens$3)) WITH ((polarity (reverse NEAR polarity)) NEAR (detect$3 sens$3)) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 10:45 AM |
| L23 | 0 | (jump-start$3 boost$3) NEAR (device apparatus) SAME (battery NEAR (presence (connect$3 NEAR status) ) NEAR (detect$3 sens$3)) SAME ((polarity (reverse NEAR polarity)) NEAR (detect$3 sens$3)) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 10:49 AM |
| L24 | 4 | ((jump-start$3 boost$3) NEAR (device apparatus)) AND (battery NEAR (presence (connect$3 NEAR status) ) NEAR | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 10:52 AM |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | (detect$3 sens$3)) AND ((polarity (reverse NEAR polarity)) NEAR (detect$3 sens$3)) | | | | | |
| L25 | 1 | (presence NEAR circuit$2) WITH (optically NEAR coupled NEAR isolator NEAR phototransistor) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 11:17 AM |
| L26 | 24 | (presence (battery NEAR presence) (battery NEAR status NEAR connect$3) NEAR circuit$2) WITH (optically NEAR coupled NEAR isolator NEAR phototransistor) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 11:19 AM |
| L27 | 106985 | (lithium-ion (lithium ADJ ion)) NEAR battery SAME ((power NEAR supply) jumps-starter NEAR battery) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 12:25 PM |
| L28 | 28 | L27 L4 L5 L6 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2021/08/18 12:26 PM |
| L29 | 24 | L28 L21 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2021/08/18 12:26 PM |
| L30 | 4 | L28 NOT L29 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2021/08/18 12:27 PM |
| L31 | 3352 | (10 11) AND 27 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 12:28 PM |
| L32 | 53 | L1 L2 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2021/08/18 12:29 PM |
| L33 | 7 | L32 L31 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2021/08/18 12:29 PM |
| L34 | 0 | lithium NEAR batter$3 NEAR back NEAR charge NEAR | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); | OR | ON | ON | 2021/08/18 01:47 PM |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | (protection prevention inhibition) NEAR (circuit$2 module) | FPRS; EPO; JPO; DERWENT; IBM_TDB) | | | | |
| L35 | 0 | lithium NEAR batter$3 NEAR ((back NEAR charge) (current NEAR back flow)) NEAR (protection prevention inhibition) NEAR (circuit$2 module) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 01:49 PM |
| L36 | 0 | lithium NEAR batter$3 NEAR ((back NEAR charge) ( back ADJ flow) NEAR current) NEAR (protection prevention inhibition) NEAR (circuit$2 module) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 01:50 PM |
| L37 | 7 | ((back NEAR charge) ( back ADJ flow) NEAR current) NEAR (protection prevention inhibition) NEAR (circuit$2 module) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 01:50 PM |
| L38 | 21994 | ((back NEAR charge) ( back ADJ flow) NEAR current) (back NEAR current NEAR flow) NEAR (protection prevention inhibition) NEAR (circuit$2 module) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 02:55 PM |
| L39 | 941281 | (Lithium lithium-ion (lithium NEAR polymer)) NEAR battery | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 02:57 PM |
| L40 | 42 | L39 SAME L38 WITH diode$1 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 02:57 PM |
| L41 | 117 | ("10328808" OR "10604024" OR "20010025618" OR "20020041174" OR "20030141845" OR "20040066168" OR "20040130298" OR "20040150373" OR "20040239290" OR "20050040788" OR "20050110467" OR "20050116688" OR "20050252573" OR "20060176011" OR | (US-PGPUB; USPAT) | OR | ON | ON | 2021/08/18 11:24 PM |

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|---|---|---|---|---|---|---|---|
| | | "20060220610" OR<br>"20060244412" OR<br>"20070278990" OR<br>"20070285049" OR<br>"20080143290" OR<br>"20100301800" OR<br>"20110068734" OR<br>"20110175461" OR<br>"20120025766" OR<br>"20120091944" OR<br>"20120319487" OR<br>"20130154543" OR<br>"20130162029" OR<br>"20130241488" OR<br>"20130314041" OR<br>"20140084844" OR<br>"20140159509" OR<br>"20140210399" OR<br>"20140368155" OR<br>"20150054336" OR<br>"20150137740" OR<br>"20150306964" OR<br>"20150340907" OR<br>"20160001666" OR<br>"20180111491" OR<br>"20180215274" OR<br>"20180269703" OR<br>"20180342891" OR<br>"20180345803" OR<br>"20190308518" OR<br>"3590357" OR<br>"3638108" OR<br>"3933140" OR<br>"4041445" OR<br>"4885524" OR<br>"4910628" OR<br>"4931731" OR<br>"5083076" OR<br>"5111130" OR<br>"5189359" OR<br>"5194799" OR<br>"5281904" OR<br>"5319298" OR<br>"5486434" OR<br>"5635817" OR<br>"5635818" OR<br>"5650974" OR<br>"5793185" OR<br>"5795182" OR<br>"5820407" OR<br>"5921809" OR<br>"5953681" OR<br>"5965998" OR<br>"6054779" OR<br>"6130519" OR<br>"6140796" OR<br>"6147471" OR<br>"6212054" OR | | | | | |

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|---|---|---|---|---|---|---|---|
| | | "6262492" OR<br>"6262559" OR<br>"6344733" OR<br>"6362599" OR<br>"6386907" OR<br>"6424158" OR<br>"6426606" OR<br>"6632103" OR<br>"6648701" OR<br>"6650086" OR<br>"6679212" OR<br>"6756764" OR<br>"6759833" OR<br>"6803743" OR<br>"6822425" OR<br>"7148580" OR<br>"7301303" OR<br>"7345450" OR<br>"7749031" OR<br>"7872361" OR<br>"7893657" OR<br>"8076900" OR<br>"8172603" OR<br>"8199024" OR<br>"8362745" OR<br>"8376775" OR<br>"8493021" OR<br>"9007015" OR<br>"9041244" OR<br>"9153978" OR<br>"9243601" OR<br>"9506446" OR<br>"9525297" OR<br>"9770992" OR<br>"9809183" OR<br>"9954391" OR<br>"D597029" OR<br>"D625265" OR<br>"D649116" OR<br>"D689020" OR<br>"D726109" OR<br>"D726114" OR<br>"D726121" OR<br>"D735665" OR<br>"D746774").pn. | | | | | |
| L42 | 62 | ((("THE") near3 ("NOCO") near3 ("COMPANY"))).AS,AANM. | (USPAT) | OR | ON | ON | 2021/08/18 11:28 PM |
| L43 | 135 | ((("NOOK") near3 ("Jonathan")) OR (("NOOK") near3 ("William")) OR (("STANFIELD") near3 ("James")) OR (("UNDERHILL") near3 ("Derek"))).INV. | (US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT) | OR | ON | ON | 2021/08/18 11:29 PM |

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| L44 | 1 | WO ADJ "2016025869" | (US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT) | OR | ON | ON | 2021/08/18 11:50 PM |
| L45 | 417 | ("9007015" "9770992"<br>"10328808"<br>"10604024"<br>"20160001666"<br>"20180111491"<br>"20180215274"<br>"20180345803"<br>"20190308518"<br>"20200028368"<br>"20200169114"<br>"20200215926"<br>"20200259340"<br>"20200317068"<br>"5534369" "5749927"<br>"5772934" "5836981"<br>"4853305" "4999576"<br>"5411592" "5498489"<br>"5592069" "5694024"<br>"5698147" "5725822"<br>"5827331" "5867006"<br>"5883495" "6007938"<br>"6018228" "6157171"<br>"4285751" "4296461"<br>"4343312" "4373531"<br>"4437769" "4767682"<br>"4794056" "4830936"<br>"4855781" "4871956"<br>"4966822" "4970451"<br>"5008161" "5008165"<br>"5026615" "5043235"<br>"5179337" "5230967"<br>"5240655" "5250370"<br>"5281491" "5300373"<br>"5441825" "5525441"<br>"5569553" "5618318"<br>"5656393" "5667909"<br>"5731106" "5889385"<br>"5905363" "5949218"<br>"5949215" "5965997"<br>"6016105" "6019803"<br>"6036639" "6056415"<br>"6080507" "6147472"<br>"6174628" "6180280"<br>"6181107" "6203938"<br>"6322921" "6335114"<br>"6346346" "6348282"<br>"6372380" "6376109"<br>"6444354" "6667132"<br>"6724593" "6749649"<br>"6836095" "6953642"<br>"6958199" "7169505"<br>"7201997" "7235333"<br>"7402361" "7666545"<br>"7682754" "7687194"<br>"7719233" "7727674" | (US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT) | OR | ON | ON | 2021/08/18 11:57 PM |

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|---|---|---|---|---|---|---|---|
| | | "7736800" "7768236" "7785736" "7806943" "7850743" "7897279" "8003249" "8067114" "7897279" "8003249" "8067114" "8147999" "8263247" "8420247" "8450007" "8465874" "8470471" "8472164" "8564277" "8574008" "8617257" "8628876" "8691410" "8709642" "8734985" RE44960 "8822070" "8865270" "8877386" "8895174" "8945744" "8951658" "8952653" "8968910" "8980462" "8999540" "9012078" "9048490" "9048503" "9059469" "9105882" "9203123" "9209446" "9209491" "9219291" "9231271" "9249522" "9252452" RE45956 "9312723" "9318748" "9379418" ).pn. | | | | | |
| L46 | 23 | L45 AND L2 | (US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT) | OR | ON | ON | 2021/08/18 11:58 PM |
| L47 | 2 | "20090174362".pn. | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2022/01/25 07:33 PM |
| L48 | 1063 | L38 L39 | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, | AND | ON | ON | 2022/01/25 10:16 PM |

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| | | | RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | | | | |
| L49 | 43 | L31 L48 | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2022/01/25 10:17 PM |
| L50 | 0 | (automatic NEAR detect$3) WITH (reverse NEAR polar$5) SAME (presence NEAR detect$3) | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2022/01/25 10:18 PM |
| L51 | 0 | (automatic NEAR detect$3) WITH (reverse NEAR polar$5) SAME (presence NEAR detect$3) | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2022/01/25 10:18 PM |
| L52 | 3 | (automatic NEAR detect$3) SAME (reverse NEAR polar$5) SAME (presence NEAR | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, | OR | ON | ON | 2022/01/25 10:19 PM |

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| | | detect$3) | CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | | | | |
| L53 | 47 | (Artificial Intelligence) Similar to: 16/819,831 with 0 CPC Selections and 0 Text Selections<br>Text: (US-20200317068-A1 OR US-20200215926-A1 OR US-20190308518-A1 OR US-10604024-B2 OR US-20160001666-A1 OR US-9007015-B1 OR US-20180111491-A1 OR US-20180215274-A1 OR US-10328808-B2 OR US-9770992-B2 OR US-20210031640-A1 OR US-20180345803-A1 OR US-7479763-B2 OR US-20200259340-A1 OR US-20090174362-A1 OR US-11001212-B2 OR US-20200290535-A1 OR US-20040251876-A1 OR CN-207530573-U OR US-20030184264-A1 OR WO-2019101108-A1 OR CN-207217796-U OR WO-9730502-A1 OR US-20220085631-A1 OR WO-2022055644-A1 OR US-5668461-A OR WO-2019190588-A1 OR GB-2579150-A OR US-9506446-B2 OR US-20150054336-A1 OR JP-2020516219-A OR US-20090218988-A1 OR US-8493021-B2 OR CA-3072515-C OR US-20210155096-A1 | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN)) | OR | ON | ON | 2022/09/22 12:39 PM |

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|---|---|---|---|---|---|---|---|
| | | OR AU-2018336956-B2 OR JP-2020534772-A OR EP-0930199-A3 OR DE-102019000352-A1 OR US-4349774-A OR US-10363824-B1 OR GB-2582520-A OR AU-2018336821-B2 OR GB-2350499-A OR DE-19946744-A1 OR FR-3036862-A1 OR US-20160082854-A1 OR CN-103326079-B OR US-20210296913-A1 OR JP-2022095635-A).did. | | | | | |
| L54 | 48 | (Artificial Intelligence) Similar to: 16/819,831 with 12 CPC Selections and 2 Text Selections<br>Text: (US-20200317068-A1 OR US-20200215926-A1 OR US-10604024-B2 OR US-20190308518-A1 OR US-20160001666-A1 OR US-9007015-B1 OR US-20180111491-A1 OR US-20210031640-A1 OR US-20180215274-A1 OR US-10328808-B2 OR US-20180345803-A1 OR US-9770992-B2 OR US-20200259340-A1 OR US-7479763-B2 OR US-20090174362-A1 OR US-20040251876-A1 OR US-20030184264-A1 OR US-11001212-B2 OR US-20200290535-A1 OR CN-207530573-U OR WO-9730502-A1 OR WO-2019101108-A1 OR US-5668461-A OR JP-2020516219-A OR WO-2019190588-A1 OR CN-207217796-U OR WO-2022055644-A1 OR GB-2579150-A OR US-20220085631-A1 OR US-20210155096-A1 OR US-20090218988-A1 | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN)) | OR | ON | ON | 2022/09/22 12:43 PM |

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|---|---|---|---|---|---|---|---|
| | | OR US-8493021-B2 OR AU-2018336956-B2 OR US-9506446-B2 OR US-20150054336-A1 OR US-20210237591-A1 OR CA-3072515-C OR JP-2020534772-A OR US-4349774-A OR GB-2582520-A OR AU-2018336821-B2 OR DE-102019000352-A1 OR US-11104236-B2 OR US-20210237592-A1 OR WO-2019060552-A1 OR US-20210296913-A1 OR US-11254213-B2 OR EP-0930199-A3 OR AU-2022200448-A1 OR AU-2018337954-B2).did. | | | | | |
| L55 | 1 | ("20200317068").pn. | (US-PGPUB; USPAT) | OR | ON | ON | 2022/09/22 12:51 PM |
| L56 | 35 | (Artificial Intelligence) More like doc: US-20200317068-A1<br>Text: (US-20200215926-A1 OR AU-2021258059-B2 OR AU-2020201223-B2 OR US-10604024-B2 OR AU-2022200612-A1 OR AU-2019201559-B9 OR AU-2019201559-B2 OR AU-2020201224-A1 OR AU-2022201338-A1 OR AU-2022204065-A1 OR US-20190308518-A1 OR US-9007015-B1 OR US-20180111491-A1 OR US-20160001666-A1 OR US-20180215274-A1 OR WO-2019060699-A1 OR US-10328808-B2 OR AU-2016269555-A1 OR AU-2020201222-A1 OR AU-2020201223-A1).did. | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2022/09/22 12:51 PM |
| L57 | 23 | L2 L1 L3 L5 L7 L8 | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, | AND | ON | ON | 2022/09/22 12:53 PM |

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|---|---|---|---|---|---|---|---|
| | | | IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | | | | |
| L58 | 2 | "10875410".PN. | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2022/09/22 01:57 PM |
| L59 | 7 | "9525297".PN. | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2022/09/22 02:40 PM |
| L60 | 8 | "10328806".PN. | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2022/09/22 02:54 PM |

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|---|---|---|---|---|---|---|---|
| L61 | 2 | "20090174362".pn. | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2022/09/22 11:38 PM |
| L62 | 4 | "10087904".pn. | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2022/09/23 11:49 AM |
| L63 | 5 | "5867007".pn. | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2022/09/23 01:00 PM |
| L64 | 4 | "20170012448".pn. | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, | AND | ON | ON | 2022/09/23 03:23 PM |

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| | | | MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | | | | |
| L65 | 460 | reverse ADJ polarity ADJ (detector sensor) | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2023/02/02 08:58 PM |
| L66 | 162 | battery ADJ isolation ADJ (detector sensor) | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2023/02/02 08:58 PM |
| L67 | 125 | L66 AND L65 | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2023/02/02 08:59 PM |
| L68 | 159 | vehicle ADJ battery ADJ isolation ADJ | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, | OR | ON | ON | 2023/02/02 09:00 PM |


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| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | (sensor detector) | AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | | | | |
| L69 | 125 | L68 L67 | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2023/02/02 09:00 PM |
| L70 | 119 | L66 SAME L65 | (US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2023/02/02 09:01 PM |
| L71 | 73 | L66 SAME L65 SAME (switch) SAME signals | (US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, | OR | ON | ON | 2023/02/02 09:02 PM |

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|---|---|---|---|---|---|---|---|
| | | | SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | | | | |
| L72 | 46 | L70 NOT L71 | (US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2023/02/02 09:13 PM |
| L73 | 0 | L67 AND (@PD<="20140703") | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2023/02/06 11:56 AM |
| L74 | 5 | L67 AND (@FD<="20140703") | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2023/02/06 11:56 AM |
| L75 | 2 | "11447023".PN. | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, | OR | ON | ON | 2023/02/06 12:08 PM |

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|---|---|---|---|---|---|---|---|
| | | | CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | | | | |
| L76 | 0 | (battery ADJ presense ADJ (sensor detector)) SAME ((reverse ADJ polarity) ADJ (sensor detector)) | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2023/02/06 12:20 PM |
| L77 | 120 | (battery ADJ (isolation presense) ADJ (sensor detector)) SAME ((reverse ADJ polarity) ADJ (sensor detector)) | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2023/02/06 12:21 PM |
| L78 | 120 | L77 AND L67 | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, | OR | ON | ON | 2023/02/06 12:22 PM |

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|---|---|---|---|---|---|---|---|
| | | | VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | | | | |
| L79 | 2 | "20090174362".pn. | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2023/02/06 12:32 PM |

## PE2E SEARCH - Search History (Interference)

There are no Interference searches to show.

## PE2E SEARCH - Search History (Similarity Search)

| Ref # | Application Number | Text Selections | CPC Selections |
|---|---|---|---|
| L53 | 16/819,831 | No selections | No selections |
| L54 | 16/819,831 | (Abstract) A handheld device for jump starting a vehicle engine includes a rechargeable lithium ion battery pack (32) and a microcontroller (1). The lithium ion battery is coupled to a power output port of the device through a power switch circuit (15) actuated by the microcontroller. A vehicle battery isolation sensor (12) connected in circuit with positive and negative polarity outputs detects the presence of a vehicle battery (72) connected between the positive and negative polarity outputs. A reverse polarity sensor (10) connected in circuit with the positive and negative polarity outputs detects the polarity of a vehicle battery connected between the positive and negative polarity outputs, such that the microcontroller will enable power to be delivered from the lithium ion power pack to the output port only when a good battery is connected to the output port and only when the battery is connected with proper polarity of positive and negative terminals.<br><br>(Claims) A jump starter apparatus, comprising:<br><br>a power supply; | (B60L53/14) Conductive energy transfer<br><br>(H02J1/122) Provisions for temporary connection of DC sources of essentially the same voltage, e.g. jumpstart cables<br><br>(H02J7/342) The other DC source being a battery actively interacting with the first one, i.e. battery to battery charging<br><br>(H02J7/0029) Circuit arrangements for charging or depolarising batteries or for supplying loads from batteries with safety or protection devices or circuits<br><br>(H02J7/0034) Circuit arrangements for charging or depolarising batteries or for supplying loads from batteries with safety or protection devices or circuits using reverse polarity correcting or protecting circuits<br><br>(H02J7/0047) Circuit arrangements for charging or depolarising batteries or for supplying loads from batteries with monitoring or indicating devices or circuits<br><br>(H02J7/0048) Detection of remaining charge |

| | | | |
|---|---|---|---|
| | | a positive battery terminal connector;<br><br>a negative battery terminal connector;<br><br>a power switch configured to electrically connect the power supply to a depleted or discharged battery; and<br><br>a control system or circuit electrically connected to and controlling the power switch, the control system or circuit configured to detect both presence of the depleted or discharged battery when connected between the positive and negative battery terminal connectors and proper polarity between the positive and negative battery terminal connectors and the positive and negative battery terminals of the depleted or discharged battery when connected between the positive and negative battery terminal connectors, the control system or circuit is configured to automatically execute the following steps when the jump starting apparatus becomes operational or is turned on, including:<br><br>(i) detect the presence of the depleted or discharged battery connected between the positive and negative battery connectors;<br><br>(ii) detect the proper polarity of a depleted or discharged battery when connected between the positive and negative battery terminal connectors;<br><br>and (iii) switch on power from the power supply to the depleted or discharged battery only when both the presence of the depleted or discharged battery connected between the positive and negative battery terminal connectors<br><br>is detected and a proper polarity connection between the positive and negative battery terminal connectors and the positive and negative battery terminals is detected. | capacity or state of charge [SOC]<br><br>(H02J7/00) Circuit arrangements for charging or depolarising batteries or for supplying loads from batteries<br><br>(H02J7/00306) Overdischarge protection<br><br>(H02J2310/46) The network being an on-board power network, i.e. within a vehicle for ICE-powered road vehicles<br><br>(H02J7/00309) Overheat or overtemperature protection<br><br>(H02J7/00302) Overcharge protection |

# Search History_16819831

**Report Run Date:** 2023-02-03 UTC
**Searches:** 4
**Markers:** 0



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| Search # | Timestamp | Results | Page |
|---|---|---|---|
| 1 | 2023-02-03 02:16 UTC | 772,413 | 3 |
| 2 | 2023-02-03 02:19 UTC | 13,301,929 | 4 |
| 3 | 2023-02-03 02:22 UTC | 11,694,983 | 4 |
| 4 | 2023-02-03 02:24 UTC | 11 | 4 |

**Content: Non-Patent Literature (23)**

IEEE Xplore Publications: IEEE Periodicals | IEEE Xplore Publications: IEEE Conferences | IEEE Xplore Publications: IEEE Standards | IEEE Xplore Publications: IEEE Early Access | IEEE Xplore Publications: SMPTE Periodicals | IEEE Xplore Publications: SMPTE Conferences | IEEE Xplore Publications: SMPTE Standards | IEEE Xplore Publications: MIT Press eBooks | IEEE Xplore Publications: Wiley-IEEE eBooks | IEEE Xplore Publications: IBM Periodicals | IEEE Xplore Publications: URSI Periodicals | IEEE Xplore Publications: VDE Conferences | IEEE Xplore Publications: Periodicals from China | IP.com Prior Art Database: The IP.com Journal | IP.com Prior Art Database: Internet Society RFC | IP.com Prior Art Database: IBM TDB Archive | IP.com Prior Art Database: Legacy Journals | IP.com Prior Art Database: Software Patent Institute | OnePetro.org: Periodicals at OnePetro.org | OnePetro.org: Conferences at OnePetro.org | Other Literature: IBM Redbooks | Other Literature: PubMed Central | Other Literature: arXiv.org

1 **2023-02-03 02:16 UTC | 772,413 results from**

**De-Dup:** None | **Relevance Cut-off:** None | **Sort:** Relevance

**Main Concept:** Text

A jump starter apparatus for jump starting a vehicle battery, comprising: a power supply; a vehicle battery isolation sensor configured to detect presence of the vehicle battery connected to the jump starter apparatus; a reverse polarity sensor, separate from the vehicle battery isolation sensor, configured to detect a proper polarity connection between the jump starter apparatus and the vehicle battery; and a power switch configured to electrically connect the power supply to the vehicle battery, wherein the power switch is controlled based on signals from the vehicle battery isolation sensor and the reverse polarity sensor such that the power supply is connected to the vehicle battery when both (i) the vehicle battery isolation sensor currently indicates that the vehicle battery is connected to the jump starter apparatus, and (ii) the reverse polarity sensor currently indicates that the jump starter and the vehicle battery are connected with the proper polarity connection.

**Concept Modifiers:** None

**Filters:** None

**Content: Patent Publications (169)**

US Patents | US Designs | US Applications | EPO Patents | EPO Applications | China Patents | China Applications | Japan Patents | Japan Applications | Korea Patents | Korea Applications | WIPO Applications | Argentina Patents | Argentina Applications | Brazil Patents | Brazil Applications | Canada Patents | Canada Applications | Chile Patents | Chile Applications | Colombia Applications | Costa Rica Applications | Cuba Patents | Cuba Applications | Dominican Republic Applications | Ecuador Patents | Ecuador Applications | El Salvador Applications | Guatemala Applications | Honduras Applications | Mexico Patents | Mexico Applications | Nicaragua Patents | Panama Applications | Peru Applications | Trinidad & Tobago Patents | Uruguay Applications | Austria Patents | Austria Applications | Belarus Patents | Belgium Patents | Belgium Applications | Bosnia & Herzegovina Patents | Bosnia & Herzegovina Applications | Bulgaria Patents | Bulgaria Applications | Croatia Patents | Croatia Applications | Czech Republic Patents | Czech Republic Applications | Czechoslovakia Patents | Czechoslovakia Applications | Denmark Patents | Denmark Applications | Estonia Patents | Estonia Applications | EUIPO Patents | Finland Patents | Finland Applications | France Patents | France Applications | Germany Patents | Germany Applications | Great Britain Patents | Great Britain Applications | Greece Patents | Greece Applications | Hungary Patents | Hungary Applications | Iceland Patents | Iceland Applications | Ireland Patents | Ireland Applications | Italy Patents | Italy Applications | Latvia Patents | Latvia Applications | Lithuania Patents | Lithuania Applications | Luxembourg Patents | Luxembourg Applications | Malta Patents | Monaco Patents | Montenegro Patents | Montenegro Applications | Netherlands Patents | Netherlands Applications | Norway Patents | Norway Applications |



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Poland Patents | Poland Applications | Portugal Patents | Portugal Applications | Republic of Moldova Patents | Republic of Moldova Applications | Romania Patents | Romania Applications | San Marino Patents | San Marino Applications | Serbia Patents | Serbia Applications | Slovakia Patents | Slovakia Applications | Slovenia Patents | Spain Patents | Spain Applications | Sweden Patents | Sweden Applications | Switzerland Patents | Switzerland Applications | Ukraine Patents | Yugoslavia/Serbia and Montenegro Patents | Yugoslavia/Serbia and Montenegro Applications | Armenia Patents | Australia Patents | Australia Applications | Cyprus Patents | Gulf Cooperation Council Patents | Hong Kong Patents | India Patents | India Applications | Indonesia Patents | Indonesia Applications | Israel Patents | Israel Applications | Jordan Patents | Jordan Applications | Kyrgyzstan Patents | Macao Applications | Malaysia Patents | Mongolia Patents | New Zealand Patents | Philippines Patents | Philippines Applications | Saudi Arabia Patents | Saudi Arabia Applications | Singapore Patents | Singapore Applications | Taiwan Patents | Taiwan Applications | Tajikistan Patents | Tajikistan Applications | Thailand Patents | Thailand Applications | Uzbekistan Patents | Vietnam Patents | Algeria Patents | ARIPO Patents | ARIPO Applications | Egypt Patents | Kenya Patents | Malawi Patents | Morocco Patents | Morocco Applications | OAPI Patents | South Africa Patents | Tunisia Applications | Zambia Patents | Zimbabwe Patents | EAPO Patents | EAPO Applications | Georgia Patents | Georgia Applications | Kazakhstan Patents | Kazakhstan Applications | Russia Patents | Russia Applications | Turkey Patents | Turkey Applications

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**De-Dup:** None | **Relevance Cut-off:** None | **Sort:** Relevance

**Main Concept:** Text
A jump starter apparatus for jump starting a vehicle battery, comprising: a power supply; a vehicle battery isolation sensor configured to detect presence of the vehicle battery connected to the jump starter apparatus; a reverse polarity sensor, separate from the vehicle battery isolation sensor, configured to detect a proper polarity connection between the jump starter apparatus and the vehicle battery; and a power switch configured to electrically connect the power supply to the vehicle battery, wherein the power switch is controlled based on signals from the vehicle battery isolation sensor and the reverse polarity sensor such that the power supply is connected to the vehicle battery when both (i) the vehicle battery isolation sensor currently indicates that the vehicle battery is connected to the jump starter apparatus, and (ii) the reverse polarity sensor currently indicates that the jump starter and the vehicle battery are connected with the proper polarity connection.

**Concept Modifiers:** None

**Filters:** None

3 **2023-02-03 02:22 UTC | 11,694,983 results from**

**De-Dup:** None | **Relevance Cut-off:** None | **Sort:** Relevance

**Main Concept:** Same as Search 2

**Concept Modifiers (1):**
1. More Like Document: US20200317068 Portable vehicle battery jump start apparatus with safety protection (view)

**Filters:** None

4 **2023-02-03 02:24 UTC | 11 results from**

**De-Dup:** None | **Relevance Cut-off:** None | **Sort:** Relevance



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**Main Concept:** Same as Search 2

**Concept Modifiers:** Same as Search 3

**Filters (1):**
CPC Codes limited to: B60L53/14 H02J1/122 H02J7/0029 H02J7/0034 H02J7/0047 H02J7/342 H02J7/00 H02J7/0048



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# JUMP STARTING 42V POWERNET VEHICLES

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*Henry Huang, Ford Motor Company, Dearborn, Michigan*

## Introduction

The automotive industry today is faced with ever increasing electrical power demands that are stretching the capabilities of present on-board power supplies. The use of electrical and electronic features to enhance customer comfort, convenience and safety, such as electronic automatic climate control, entertainment systems, antilock brakes (ABS) and traction control (TC) systems, contribute to exponential growth in power demand and also to size and complexity of the wiring harnesses as well. Today's typical luxury class vehicle draws 1,200W to 1,500W of steady state power from the electrical system and has about 2.5 km of wire in the harness with some 350 connectors and nearly 1,500 cut leads (i.e., number of circuits)[1]. The steady state electrical power needed in the year 2005 is estimated to be in the range of 3,000W to 7,000W [2].

Standardization of the electrical system is critical, especially when contemplating a system voltage increase. When the industry changed from 6V to 12V batteries in 1955, the changeover was accomplished within essentially two years [3]. Few major subsystems were impacted then, namely generator, battery, ignition, lighting, horn, clock and cranking motor. Today, the number of affected subsystems is enormous by comparison. Changing the electrical system today will impact nearly all components and systems. That is why automotive OEM's in North America, Europe and Asia are participating in the development of global standards for the next generation electrical system. The Consortium for Advanced Automotive Electrical/Electronic Components and Systems organized and coordinated by MIT now comprises some 30 companies with the goal of establishing the 42V PowerNet specification as the new voltage standard.

Today's automobile has an open architecture system for power supply. The open wiring systems of today's automotive electrical systems, with accessible fuse panels, power distribution boxes and junction blocks are facilitated by distribution voltage levels that are considered safe. The Society of Automotive Engineers (SAE) in their guideline J2232 [4], based on the work of interested engineers who formed the SAE Dual/Higher Voltage Committee in 1988, recommended 60 Vdc as the maximum safe voltage with dynamic overvoltages, including periodic ripple, to 65 Vdc for open wire systems. In Europe both DIN and VDE

[1] J.M. Miller, P.R. Nicastri, "The Next Generation Automotive Electrical Power System Architecture: Issues and Challenges." DASC98 Digital Avionic Systems Conference, Bellevue, WA, Oct.31-Nov.6, 1998

[2] A. Graf, D. Vogel, J. Gantioler, F. Klotz, "Intelligent Power Semiconductors for Future Automotive Electrical Systems," presented to MIT/Industry Consortium, January 21, 1998.

[3] J.M. Miller, D. Goel, D. Kaminski, H-P. Schöner, T.M. Jahns, "Making the Case for a Next Generation Automotive Electrical System," International Congress on Transportation Electronics, Convergence 1998, Hyatt-Regency Hotel, Dearborn, MI. Oct. 19-21, 1998

[4] SAE J2232, "Vehicle System Voltage - Initial Recommendations," SAE Information Report, SAE Handbook, 400 Commonwealth Drive, Warrendale, PA 15096-0001, June, 1992

0-7803-5749-3/99/$10.00 © 1999 IEEE 

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have comparable criteria setting 60 Vdc as the upper limit. As a result, when both static and dynamic overvoltages are taken into account the maximum power supply voltage should be less than 50 Vdc.

The move to a higher voltage system seems inevitable and the proposed 42V/14V dual voltage system will offer improved efficiency while adhering to the safe operating voltage guidelines as described by DIN and VDE and further, provides backward compatibility with the existing 14V component infrastructure. A simplified schematic of one such implementation of the dual voltage architecture is shown in Figure 1.[5]

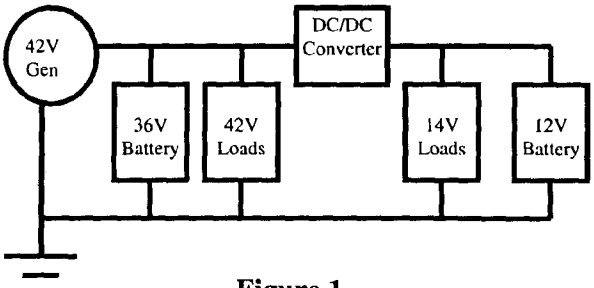



**Figure 1**

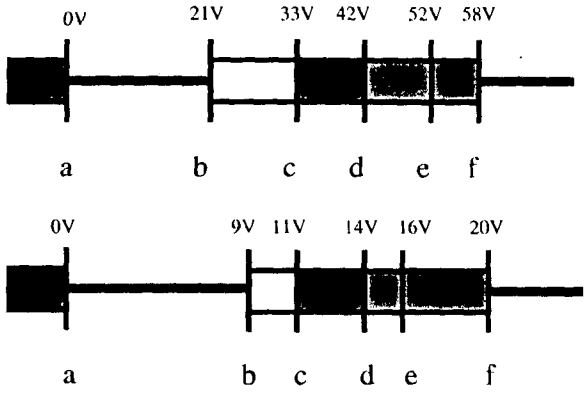
**Potential 42V/14V Architecture**

Someday a single 42V system might be powering the vehicles on the road, but the dual voltage system will likely be the transition architecture of choice for many manufacturers. The introduction of a 36V battery along side of the 12V battery will enhance starting reliability, but it also creates new risks and, therefore, a strategy for jump start is needed. This paper will discuss the issues that must be addressed with respect to charging and jump starting the batteries in the 42V/14V dual voltage systems.

## Sican's Forum Bordnetz Voltage Range Proposal

Many of the future high power electrical loads will need to be controlled using power electronics, and the key to keeping power electronic costs affordable, will be in how we protect the electrical system from overvoltages and reverse voltages. At 42V, the current draw is one third that required at 14V for equal power consumed. If at the same time, the voltage variations and overvoltages are reduced or eliminated, there will be great opportunity to reduce the cost of the electronics required.[6]

SICAN's Forum Bordnetz has proposed that the 42V and 14V buses be limited to the voltage ranges as shown in Figure 2. The MIT/Industry Consortium has adopted the previous Forum Bordnetz recommendation, and will likely adopt future Forum Bordnetz's proposals




a - Reverse polarity not allowed
b - minimum voltage at start
c - minimum operating voltage
d - PowerNet voltage
e - Maximum static overvoltage
f - Maximum dynamic overvoltage

**Figure 2**

**PowerNet Voltage Requirements at 42V & 14V**

5. J.G. Kassakian, H-C. Wolf, J.M. Miller, C.J. Hurton, "Automotive Electrical Systems circa 2005," IEEE Spectrum, August, 1996, pp. 22-27.

6. Paul Nicastri, Wolf-Dieter Blauensteiner, Jarvis Carter, Philippe Desrosches, Alfons Graf, Tom Keim,Peter Miller, "Jump Starting and Charging Batteries with the New 42V PowerNet", 1st International Congress on 42VPowerNet, Villach Austria, September 28th & 29th 1999.



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Note that the elimination of reverse polarity means that no continuous negative overvoltage should be applied to the loads. However, the loads will certainly have to withstand low energy transient negative voltages, as is the case in today's 14V system. These pulses are caused by inductive loads switching

## Personal Injury and Vehicle Damage Concerns With Dual Batteries

Most seasoned drivers have probably experienced a vehicle with a discharged battery. It may have been the result of leaving lights on or the result of extended cranking on a very cold day, but the result is the same; the engine won't start. Oftentimes help is available on the spot, as someone in the lot provides a jump start. Other times a call for assistance is needed and a tow truck shows up some time later. Jump starting a vehicle generally only requires someone with a pair of jumper cables and a vehicle with a good battery. By connecting the jumper cables from the good battery to the discharged battery, power can be transferred from the good battery to the discharged battery and/or to the starter on the vehicle with the discharged battery.

Unfortunately jump starting isn't always done under the best conditions (rainy, snowy, dark and/or bitter cold). As a result, occasionally people reverse the connections accidentally and subject the vehicle electrical system to a reverse voltage. This is potentially damaging to electronics and can be dangerous to the person doing the jump start; as high currents can flow causing fuses to blow and/or large sparks can be generated when the connection is made, with the potential risk of igniting the free hydrogen gas that are a byproduct of charging a battery. There is also a risk associated with jump starting from service vehicles equipped with double battery (24V) systems. In very cold climates, these 24V systems are sometimes used to provide extra power for cranking, but the higher voltage could damage sensitive electronics. Despite these risks, jump starting is frequently done.

Now consider the increased risks associated with 42V/14V dual voltage systems. Because the vehicle owner may not be aware that the vehicle has a 36V battery, he/she may try to get or give a jump start to someone who has only a 12V battery. The increased voltage of a 36V battery into a 12V electrical system could severely damage the other vehicle's electrical system and increase the risk of personal injury by creating additional sparks or overheating the jumper cables. Even if the owner is aware of the need to connect to the appropriate battery, due to the unfavorable conditions mentioned before, it would still be possible that the connections could be made to the wrong battery or in reverse. The Forum Bordnetz voltage range does not permit reverse connections, so the electrical system must be protected against reverse polarity connections. There is also a safety risk in a reverse connection as the voltage between the jumper cable and the last connection in the jump start is now at two times 36 volts, or 72 volts, above the previously mentioned 60V maximum. If the connection is made to the wrong battery, the 14V bus would be exposed to excessive voltage and damage to some systems could result.

Reverse polarity or improper voltage can also be an issue at the assembly plant or when batteries are replaced in the field. Most assembly plants use power drops to power up the vehicle before the battery is installed. If these connections are reversed or if the wrong voltage is applied, the vehicle electrical system could be damaged. In the field, if the wrong battery is installed (a 36V battery is installed where a 12V battery should be), or if the cable connections are reversed, the vehicle electrical system could be damaged. A method of minimizing or eliminating these risks must be employed to keep the system voltage within the recommended range.

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## Risk Mitigation Approach for 42v PowerNet Systems

Overall, the new system will be a significant benefit, as it should reduce the need for jump starting, because each vehicle will have two available batteries. One battery could provide the power required during times when the ignition key is off and the other battery could provide the power to crank the engine during a start. Loads like the clock and some microprocessors which require power, even with the ignition key off, can drain a battery over an extended period of time (typically several months). Lighting can drain a battery in hours. If these types of loads are isolated from the cranking battery, the probability of having a discharged cranking battery is substantially reduced.

If the vehicle is equipped with a bi-directional DC/DC converter and if the cranking battery is somehow discharged, but the other battery is not discharged, then the other battery could be used to provide a fairly rapid 'surface charge' to the cranking battery. This makes it possible to provide an internal jump start, without the need to connect any jumper cables, avoiding the inherent risks of those connections. Preliminary testing of the surface charging concept (*charge aid*) indicates that at -10°C, only about three minutes of charging the 36V battery from the 12V battery (drawing approximately 50 amps from the 12V battery) can provide enough surface charge to provide for several seconds of cranking. Under normal conditions, this should be sufficient to get a vehicle started.

In some future vehicles, proper vehicle functionality may require stored electrical energy. It may therefore be necessary to prohibit starting these vehicles when the battery is not functioning, such as when it has an open cell. Charge aid only allows transfer of energy from battery to battery, so if the battery is not functioning, starting will be inhibited.

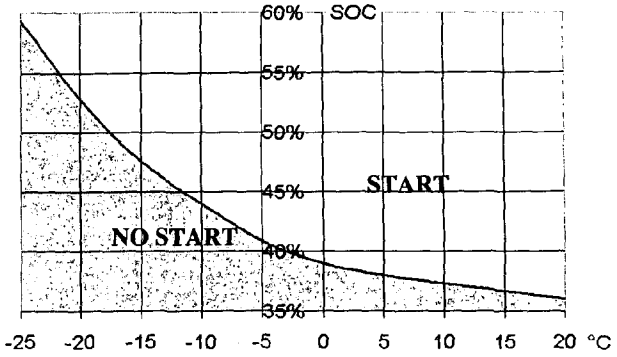



**Figure 3**

**Minimum Battery State-of-Charge (SOC) Required for Starting vs. Battery Temperature**

Figure 3 is a curve that indicates the relationship between the battery's SOC, the temperature and the point where a typical engine is likely to start. Attempts to start the engine when the battery is in the gray area (low SOC and low temperatures) will likely result in insufficient battery terminal voltage to allow the starter to turn fast enough to start the engine. If the battery is in the white region, the engine will likely start. If you are reasonably close to the curve, but in the gray area, there is a good chance that charge aid will provide sufficient energy transfer to allow cranking. This also assumes that the battery acid has not frozen. Charge aid works in three ways: it increases the SOC in general, it puts charge where it can be instantly discharged again, it increases the temperature of the battery cells.

The risks associated with jump starting, battery installation and charging are not new. Future electrical components and systems could be designed to withstand improper and reverse voltage, as is the case with most of today's vehicle electrical systems. Detailed instructions in the owners manuals, clearly identifying proper methods and procedures, will eliminate the risk of injury, when followed. Also, actions should be considered to



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prevent the occurrence or mitigate the consequences of improper or reversed voltage connections at the battery terminals. With both the 12V and 36V batteries in the new vehicles, along with the number of 12V only vehicles still on the road initially, the risk of improper voltage connections must be considered.

When developing a jump start strategy, it is necessary to consider both the situation where the vehicle is receiving aid, as well as, the situation where the vehicle is giving aid. In the receiving aid situation, there is a possibility of an internal jump start, where energy from one battery is transferred to the other battery, thus enabling a start. If this approach is not successful, or if both batteries are depleted, jump starting, charging or battery replacement would be necessary. Whenever jump starting occurs, it is critical that batteries of the same voltage are connected in order to protect the customer and the vehicle electrical system. In receiving aid, it is also possible to use the other vehicle's 12V battery to charge up a depleted 36V battery using the onboard DC/DC converter, but again the 12V batteries must be connected together. The same caution must be used when giving aid.

The possibility of performing an internal jump start creates an important benefit of a dual voltage system. This paper is predicated on the belief that surface charging is generally effective at achieving a start. Under this assumption, the only failure which would result in the vehicle failing to start is a double-contingency event: both batteries would need to be substantially discharged. If the discharges of the two batteries are independent events, and both occur with frequencies comparable to a discharged battery in today's cars, the occurrence of a failure to start will be far less frequent than on today's vehicles.

It is a relatively simple matter to insure that discharge of one battery will be largely independent of discharge of the other battery. The two factors which will cause battery discharges to become correlated are:

- a system which transfers load from a discharged battery to the other battery, especially one which functions while the vehicle is off, and no generation is available,
- a long-lasting excess of electrical load over electrical generation.

We can reasonably expect to avoid systems with the first characteristic and to provide automatic remediation or at least advance warning in the second case. Even though the need to *receive* starting assistance will be less common with the new system, it remains desirable to retain the ability to do so, and the ability to safely *give* starting assistance.

## Possible Jump Starting/Start Aid Configurations

Five systems to reduce risks in jump starting, charging or battery replacement are presented here, with a brief description of how they work and key assumptions. Figure 1 is the baseline configuration where both batteries are accessible for jump starting. Jump starting is done by a direct connection from an external 36V battery to the onboard 36V battery. The five alternatives are not an exhaustive set of potential solutions, but rather represent a variety of approaches intended to reduce the risks of improper voltage connections. A common premise for all proposed circuits is that a bidirectional DC/DC converter will be used to transfer energy from one battery to the other in a dual voltage/dual battery vehicle, without the need of an external source, allowing an internal jump start. In some of the proposed systems, direct cranking current jump starting is not permitted. These systems rely on surface charging of the depleted battery for successful starting. In all cases, the starter motor is assumed to be on the high voltage (42V) bus.

### *Strategy for Giving Aid*

As the starter is on the high voltage bus, the 12V battery may not be sized to provide direct cranking current, so that giving aid will



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also rely on the surface charging technique. To ensure a sufficient charging voltage of the external battery, the starting aid can be done only through the DC/DC converter.

The proposed approaches have presumed conventional starters and alternators. Approaches for high power combined starter/alternator (proposed for the future vehicles) will need to be determined by a separate study. Additionally, there are many other implementations of dual voltage systems presently under active consideration. Not all of them have the capability to provide power from the low voltage to the high voltage system, and not all of them envisage the starter working from the high-voltage bus. These alternative implementations have different characteristics and will require separate consideration of jump start issues. Such work is beyond the scope of this paper .

### *Alternative Jump Start Proposals*

Figure 4 requires that the 36V battery is not accessible for jump starting . Jump starting to the 12V battery is permitted and the 36V battery would be charged from the 12V battery using the bidirectional DC/DC converter. **Main Feature**: Only 12V jump starting permitted - DC/DC converter used to charge the 36V battery.

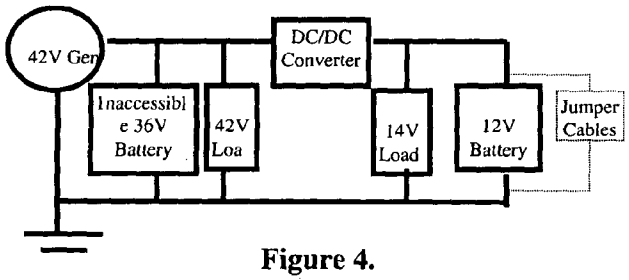



**Figure 4.**

**Jump Start Limited to 12V Side Only**

Figure 5 has both batteries accessible for jump starting, but the 36V battery has a unique polarized (to be standardized) connector. Jump start connections to the 12V battery can be done with standard clamp type jumper cables. Switches like S1, together with the control logic which gives them their presumed function, will be referred to in this paper as *smart switches.* The *Smart Battery Terminals* (SBT) described in the different configurations will be built with smart switches. Smart switches can be implemented either using electromechanical devices or silicon. In most cases, because of response time, smart switches may need to be implemented in silicon. Surface charge techniques can transfer energy to the 36V battery for starting. A polarized connector protects against improper 36V battery connections. A second polarized connector (which can be compatible with the battery connector) may be used to jump start directly to the 36V battery. **Main Feature:** Unique 36V battery connector permits 36V direct jump starts plus a smart battery terminal on the 12V battery.

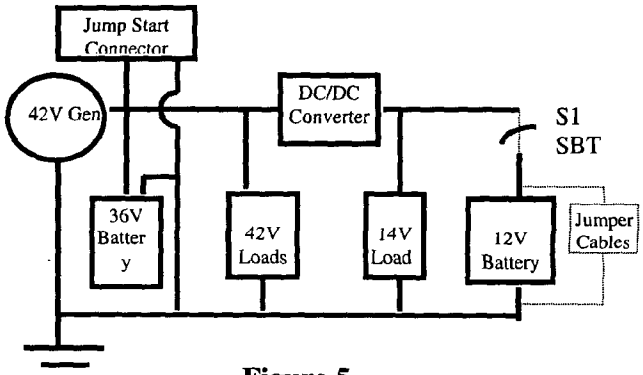



**Figure 5.**

**Jump Starting with Unique 36V Battery Terminals & Jumper Cables**

Figure 6 requires that both batteries are inaccessible for jump starting. An external two pole polarized external jump start post is used for all jump starting. The smart battery terminals can sense the voltage and open or close as required. Normal operation would have S1, S2, S4 & S5 closed and S3 open. **Main Features:** Start aid post with polarized connector, smart battery terminals and potential for direct 36V jump starting.



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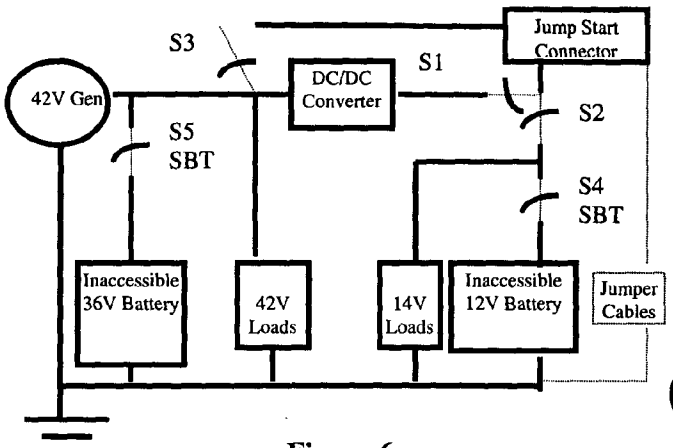



**Figure 6.**

### Jump Starting with Either 12V or 36V Batteries

Figure 7 requires that both batteries are inaccessible for jump starting. Jumper cables must be connected at the start aid post and switches S1, S2 and S3 would be open or closed as required to protect the system in the event of improper or reversed voltages. The smart battery terminals would sense the voltage and open or close as required. Normal operation would have S2 & S3 closed and S1 in position A. **Main Features:** Start aid post with smart terminals and 14V loads isolated from jump start.

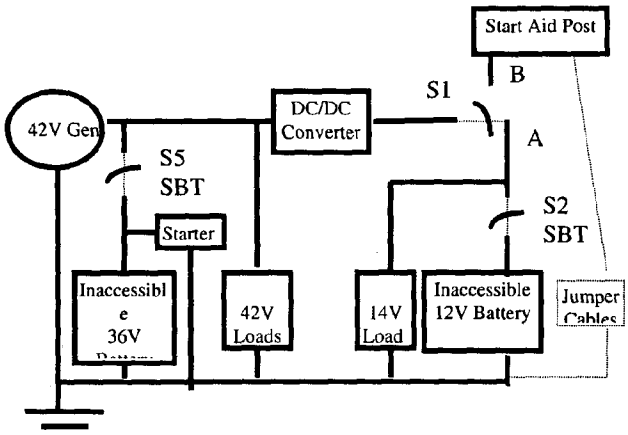



**Figure 7.**

### Jump Starting with a Start Aid Post

Figure 8 is similar to figure 7, but the 36V battery has unique polarized connectors and would allow direct jump starting to the 36V battery through a unique jumper cable.

**Main Features:** Start aid post with a 12V smart battery terminal, isolated 14V loads during jump start and 36V direct jump start capability.

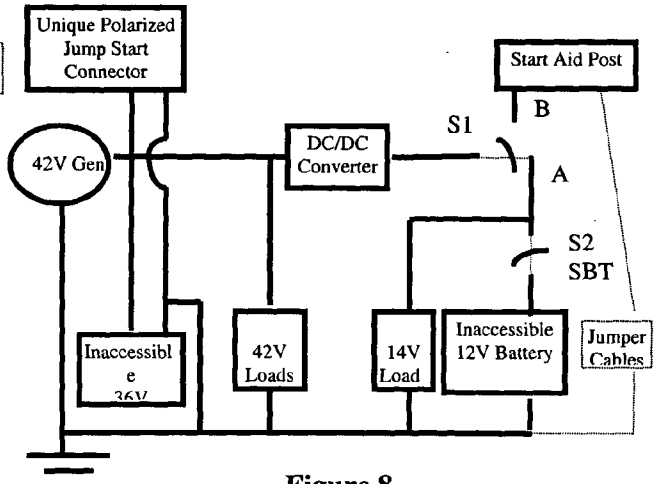



**Figure 8.**

### Jump Starting with a Start Aid Post and Unique 36V Battery Terminals

## Comparisons/Evaluations of the Alternative Approaches

An FMEA was developed to help record
the potential failure modes and compare the alternatives. Table 1 summarizes the results of the FMEA Risk Priority Numbers (RPN) for the five alternatives above. The RPN for each potential failure is the product of the SEVERITY of the potential effect(s) of failure, the relative probability of OCCURRENCE of the potential cause(s) of failure and the possible existence and effectiveness of DETECTION methods, all subjectively evaluated on a 10-point scale. Lower RPN's are better than higher RPN's. The first column is the RPN for the system as show in Figure 1, allowing jump starting of either battery. The FMEA was used to identify areas of concern and help to direct potential solutions to reduce those concerns.

A number of summary conclusions are



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supported by a quick scan of the subtotals and totals of Table 1. All of the proposed systems offer some improvement over the baseline system of Figure 1. Even the simplest system of Figure 4, which will be the least expensive to implement, results in a decrease in the frequency and severity of system failures. Other systems show varying benefits.

Two systems, represented by Figures 6 and 7, have identical scores, and are, by a substantial margin in RPN scores, better than the other alternatives. Systems less effective than these two vary substantially in the proportion of their benefit which accrues to vehicle impact and to customer impact, although as a generalization the vehicle impacts are reduced more than the customer impacts. The two most effective systems reduce both customer and vehicle impact with great effectiveness. This is a consequence of dealing with every potential failure mode and dealing with them all well.

The systems proposed here differ not only in their effectiveness at reducing the occurrence and consequences of failure but also in their cost and complexity of implementation. The choice to implement one of these candidates, or some other system, will be made by considering both cost and benefit. Cost will be a particularly difficult attribute to estimate. The technology of silicon power switches is rapidly evolving; the cost of implementation of any given system can be projected to vary based on the presumed year of production. Also, the most reliable cost models are those estimating the cost of an incremental volume of product in an existing facility. For some PowerNet installations, (for example, a limited-production specialty vehicle), this may be exactly the right model. But for other automotive applications the production volume may well be large enough to justify and/or require a product-specific facility, which may have entirely different costs.

The cost of the module is driven primarily by the following factors which affect the silicon:

- The required blocking voltage of the switch
- The switch ON resistance which defines power dissipation ($I^2R$) and thus heatsinking
- The ambient temperature near the switch

Note that a standard silicon MOSFET only acts as a switch for current in a single direction – due to a "built-in" reverse diode, thus two back-to-back MOSFETS are required to implement the bi-directional switches required in figures 5 to 8. Figure 9 shows the typical relationship between die size (related to cost) and the devices blocking voltage. For example the chip for a 2mΩ 80V MOSFET could cost approximately three to four times that of a 2mΩ 40V device. Clearly to create a 2mΩ bidirectional switch requires the use of two 1mΩ parts in "inverse series". This leads us to the possibility of using asymmetric switches where the blocking voltages are different in each direction in order to optimize cost.

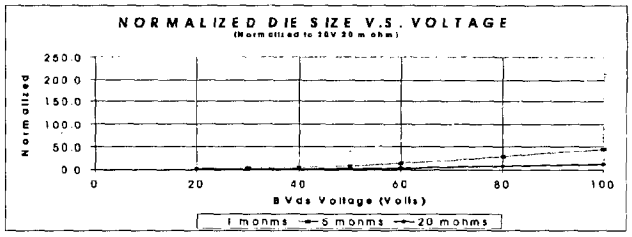



**Figure 9.**

**Normalized Die Size vs. Volts - 1, 5 & 20mΩ**

Cost can be compared on the same technical basis, e.g. all switches are silicon power switches. However, the validity of the comparison results is limited, because real cost will depend on the implementing of the switches. The implementation of switches depends on their requirements: switching currents, voltages, temperature but also number of operations. For example, in the system of Figure 7, the switch S1 can be implemented with electromechanical devices whose cost will depend on the number of operations we need.



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In addition S2 and S3 can be implemented with single use switches (i.e. triggered fuses) provided the replacement of the devices after failure is acceptable. Such choices can differ among car manufacturers.

Note that the occurrence of an open circuit in either or both of the battery legs is not included in the list of possible failures. This choice has consequences, as will be shown below.

The system shown in Figure 7 is not much different in complexity than the one in Figure 8; the principal difference is the addition of the smart switch on the 36V battery. Figure 6 incorporates a further high current smart switch, which will make the system of Figure 6 more expensive than the others. This additional expense contributes nothing to the value of the system as measured by RPN number. The value of the system of Figure 6 is that it permits a full-cranking-current direct jump start to the high voltage battery, if switches 3 and 5 are designed accordingly. Figure 8 allows direct access to the 36V battery through a polarized connector. This gives a considerably higher RPN, but at the same time a much lower cost compared to Figure 7. With the help of protection measures built into the device to be plugged into the polarized connector (special jump start cables, battery charger), the residual issues of Figure 8 in comparison to Figures 6 and 7 can be reduced to acceptable levels. In the present evaluation, we have presumed that surface charging is always fully satisfactory, so the additional capability does not result in any superior score. If there is a substantial range of conditions under which surface charging is not effective, the systems in Figure 6 and 8 will offer superior performance. And, of course, if the occurrence of an open circuit in the starting battery circuit leg had been considered as a failure condition, the circuits of Figure 6 and possibly Figure 8 would have been the clear winners with respect to RPN.

## Conclusions

It is clear from this study that there are a substantial range of options available for dealing with emergency aid in dual voltage vehicles. These options differ in both cost of implementation and relative freedom from failure modes and hazards. The choice will be complex.

The decision on which approach to use will likely vary among auto manufacturers. What is critical is not that all manufacturers have exactly the same implementation, but that there is an agreement on the approaches that are taken, and that those varied approaches are compatible once these systems are in the hand of the public. If the customers and their vehicles are going to be protected, some common practices will be needed. One area where it is essential for agreement soon, is in the connections to 36V battery. The 36V battery connections should not be interchangeable with 12V batteries. From our study, it will be required that all manufacturers use the same connection for the new 36V batteries. This would help in clearly identifying this battery as different from the 12V battery, much like the 9V primary battery connections are clearly different from a 1.5 volt primary battery.

## Key Findings of the Study

- The need for receiving starting aid will be lower in 42V PowerNet vehicles, since they will likely include separated battery requirements (cranking vs. load support) and internal jump start capability through the two independent batteries.
- Wrong connection of two 36V batteries can result in the users being exposed to voltages higher than 60V, which can potentially be hazardous. If the 36V battery in the 42V PowerNet will be directly accessible for jump starting, the jumper cables should be designed to make reverse connections and contact between users and bare conductors unlikely.



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- Start aid should be performed via a (protected) start aid post at the 14V level to ensure compatibility with vehicles with standard 14V systems using the DC/DC converter as a battery charger, and/or via a new polarized connector jumper cable specifically designed for the 36V battery, which only could be connected to another 36V battery or 36V battery charger, not a 12V battery.
- Start aid might be performed automatically via a controlled charge transfer instead of direct battery-to-battery connections in order to make start aid simpler and safer (for the user and the system); however this start aid method can only help when the battery is at a low state of charge (weak battery) and would not work on an extremely discharged, a frozen or a defective battery.
- Future 42V PowerNet vehicle may rely on electronics to function properly.

## Acknowledgments

The authors wish to acknowledge the guidance and support of many of our colleagues who have assisted us in the preparation of this paper. In particular, we express our appreciation to our colleagues at DaimlerChyrsler; Ford, Infineon Technologies, JCI, MIT, Motorola, ON Semiconductor, Siemens Automotive, and Varta, and many others who have contributed directly or indirectly to this paper.

**TABLE 1**
**Comparison of Risk Priority Numbers of the Alternative Approaches Considering Vehicle and Customer Impact**

| | | RPN for Vehicle Impact | | | | | | RPN for Customer Impact | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Bat | POTENTIAL CAUSE OF FAILURE | Fig 1 | Fig 4 | Fig 5 | Fig 6 | Fig 7 | Fig 8 | Fig 1 | Fig 4 | Fig 5 | Fig 6 | Fig 7 | Fig 8 |
| 36V | Connecting to opposite terminal during jump start or charging | 216 | 72 | 72 | 8 | 8 | 72 | 270 | 90 | 90 | 10 | 10 | 90 |
| 36V | Backward installation of battery or power drop | 144 | 144 | 72 | 8 | 8 | 72 | 180 | 180 | 90 | 10 | 10 | 90 |
| 36V | Installing wrong battery (reverse terminals) | 72 | 72 | 72 | 8 | 8 | 72 | 90 | 90 | 90 | 10 | 10 | 90 |
| 36V | Reverse charged battery | 80 | 80 | 80 | 8 | 8 | 80 | 100 | 100 | 100 | 10 | 10 | 100 |
| 36V | 2X jump start > 55V | 144 | 72 | 72 | 8 | 8 | 72 | 180 | 90 | 90 | 10 | 10 | 90 |
| 36V | Wrong battery charger > 55V | 144 | 144 | 72 | 8 | 8 | 72 | 180 | 180 | 90 | 10 | 10 | 90 |
| 36V | Jump start by wrong battery < 25V | 108 | 36 | 36 | 4 | 4 | 36 | 270 | 90 | 90 | 90 | 90 | 90 |
| 36V | Wrong battery charger < 25V | 72 | 72 | 36 | 4 | 4 | 36 | 72 | 72 | 36 | 4 | 4 | 36 |
| 36V | Wrong battery installed - Overcharged in use. | 36 | 36 | 4 | 4 | 4 | 4 | 36 | 36 | 4 | 4 | 4 | 4 |
| 36V | Jumper cable shorted | 72 | 36 | 36 | 4 | 4 | 36 | 180 | 90 | 90 | 90 | 90 | 90 |
| 36V | SUBTOTALS | 1088 | 764 | 552 | 64 | 64 | 552 | 1558 | 1018 | 770 | 248 | 248 | 770 |
| 12V | Connecting to opposite terminal during jump start or charging | 216 | 216 | 216 | 8 | 8 | 8 | 270 | 270 | 270 | 10 | 10 | 10 |
| 12V | Backward installation of battery or power drop | 144 | 144 | 8 | 8 | 8 | 8 | 180 | 180 | 10 | 10 | 10 | 10 |
| 12V | Installing wrong battery (reverse terminals) | 72 | 72 | 8 | 8 | 8 | 8 | 90 | 90 | 10 | 10 | 10 | 10 |
| 12V | Reverse charged battery | 80 | 80 | 8 | 8 | 8 | 8 | 100 | 100 | 10 | 10 | 10 | 10 |
| 12V | 2X jump start or wrong battery installed > 20V | 144 | 144 | 8 | 8 | 8 | 8 | 180 | 180 | 180 | 10 | 10 | 10 |
| 12V | Wrong battery charger > 20V | 144 | 144 | 108 | 8 | 8 | 8 | 180 | 180 | 180 | 90 | 90 | 90 |
| 12V | Jumper Cable Shorted | 72 | 72 | 72 | 4 | 4 | 4 | 180 | 180 | 180 | 10 | 10 | 10 |
| 12V | SUBTOTALS | 872 | 872 | 152 | 52 | 52 | 52 | 1180 | 1180 | 840 | 150 | 150 | 150 |
| | TOTALS | 1960 | 1636 | 704 | 116 | 116 | 604 | 2738 | 2198 | 1610 | 398 | 398 | 920 |



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PATENT APPLICATION INFORMATION RETRIEVAL SYSTEM

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**FIRST NAMED INVENTOR:** Jonathan Lewis Nook

**CONFIRMATION NO.:** 1630

**APPLICATION NO.:** 16/819,831

**GROUP ART UNIT:** 2859

**FILING DATE:** March 16, 2020

**EXAMINER:** Diao, M Baye

**TITLE:** PORTABLE VEHICLE BATTERY JUMP START APPARATUS WITH SAFETY PROTECTION

**DOCKET NO.:** 014710-0136-999

**REPLY TO OFFICE ACTION OF FEBRUARY 10, 2023**

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This is in response to the Office Action issued on February 10, 2023. Reconsideration and allowance is requested in view of the amendments and remarks provided herein. Any fees due may be charged to Counsel's Deposit Account 50-5013, ref. 014710-136-999.

**LISTING OF THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application.

1-77. (Cancelled)

78. (Currently Amended) A jump starter apparatus for jump starting a vehicle battery, comprising:

a power supply that includes one or more rechargeable batteries;

a USB port configured to receive power from an external power source for charging the one or more batteries;

a vehicle battery isolation sensor configured to detect presence of the vehicle battery connected to the jump starter apparatus;

a reverse polarity sensor, separate from the vehicle battery isolation sensor, configured to detect a proper polarity connection between the jump starter apparatus and the vehicle battery; and

a power switch configured to electrically connect the power supply to the vehicle battery,

wherein the power switch is controlled based on signals from the vehicle battery isolation sensor and the reverse polarity sensor such that the power supply is connected to the vehicle battery when both (i) the vehicle battery isolation sensor currently indicates that the vehicle battery is connected to the jump starter apparatus, and (ii) the reverse polarity sensor currently indicates that the jump starter and the vehicle battery are connected with the proper polarity connection.

79. (Previously Presented) The jump starter apparatus of claim 78, wherein the jump starter apparatus is a hand-held device.

80. (Previously Presented) The jump starter apparatus of claim 78, further comprising:

a positive battery terminal connector for electrically connecting the jump starter apparatus to a positive terminal of the vehicle battery; and

a negative battery terminal connector for electrically connecting the jump starter apparatus to a negative terminal of the vehicle battery.

81. (Previously Presented) The jump starter apparatus of claim 78, further comprising:

a controller that receives the signals from the vehicle battery isolation sensor and the reverse polarity sensor and controls the power switch.

82. (Previously Presented) The jump starter apparatus of claim 81, wherein the controller is configured to automatically cause the vehicle battery isolation sensor to detect presence of the vehicle battery and the reverse polarity sensor to detect polarity of the vehicle battery when the vehicle battery is electrically connected to the jump starter apparatus and the jump starter apparatus becomes operational.

83. (Previously Presented) The jump starter apparatus of claim 78, wherein the power switch is a FET switch.

84. (Previously Presented) The jump starter apparatus of claim 78, wherein the reverse polarity sensor comprises an optically coupled isolator phototransistor coupled to a vehicle battery terminal connector via a diode.

85. (Previously Presented) The jump starter apparatus of claim 78, wherein the vehicle battery isolation sensor comprises an optically coupled isolator phototransistor coupled to a vehicle battery terminal connector via a diode.

86. (Cancelled).

87. (Cancelled)

88. (Currently Amended) The jump starter apparatus of claim 78, ~~claim 87,~~ further comprising:

a DC-DC converter coupled between the USB port and the one or more rechargeable batteries and configured to increase a voltage received from the external power source for charging the one or more rechargeable batteries.

89. (Previously Presented) The jump starter apparatus of claim 88, further comprising:

a battery charge controller configure to control charging of the one or more rechargeable batteries from the USB port.

90. (Previously Presented) The jump starter apparatus of claim 89, wherein the jump starter apparatus is further configured to provide power for charging an external device.

91. (Previously Presented) The jump starter apparatus of claim 90, further comprising:

a USB output port for providing power from the rechargeable power supply for charging the external device.

## REMARKS AND INTERVIEW SUMMARY

This responds to the Office Action issued on February 10, 2023. Claims 78 and 88 are amended and claim 86 and 87 are cancelled. Reconsideration is respectfully requested in view of these amendments and the following remarks.

### *Interview Summary*

Examiner Diao is thanked for the courtesy of a telephone interview with the undersigned on March 21, 2023. During the interview, the use of the Butler reference (U.S. 10,087,904) in the rejection of claims 87-91 was discussed, and it was explained that Butler is not prior art to the instant application. Examiner Diao agreed that moving the limitations of claim 87 into independent claim 78 should therefore put this application into condition for allowance.

### *Claim Rejections*

The Office Action rejects independent claim 78 under 35 U.S.C. § 103 as being unpatentable over Wang (U.S. 11,104,236) in view of Richardson (U.S. 2009/0174362). The Applicant respectfully disagrees with this rejection. Nonetheless, in an effort to expedite examination, independent claim 78 is amended to add the elements from dependent claim 87 and intervening claim 86. The rejection of dependent claim 87 by the Office Action is respectfully traversed.

The Office Action rejects dependent claim 87 (now incorporated into independent claim 78) as being unpatentable over Wang in view of Richardson and Miller (U.S. 2017/0012448) in further view of Butler (U.S. 10,087,904). Specifically, the Office Action relies on Butler (U.S. 10,087,904) for the disclosure of a USB charging port configured to provide charging power from an external power source. *See* Office Action at pg. 9. However, as discussed during the March 21 telephone interview, Butler does not qualify as prior art to the present application.

35 U.S.C. § 102(a) defines the prior art that may preclude the grant of a patent on a claimed invention. MPEP § 2152. 35 U.S.C. § 102(a) provides that:

> [a] *person shall be entitled to a patent unless—*
>
> (1) the claimed invention was patented, described in a printed publication, or in public use, on sale, or otherwise available to the public *before the effective filing date of the claimed invention*; or
>
> (2) the claimed invention was described in a patent issued under section

> 151, or in an application for patent published or deemed published under section 122(b), in which *the patent or application, as the case may be, names another inventor and was effectively filed before the effective filing date of the claimed invention.*

(Emphasis added.)

35 U.S.C. § 100(i) defines "effective filing date" for patents and patent applications:

> (1) The term "effective filing date" for a claimed invention in a patent or application for patent means—
>
> (A) if subparagraph (B) does not apply, *the actual filing date of the patent or the application for the patent* containing a claim to the invention; *or*
>
> (B) *the filing date of the earliest application for which the patent or application is entitled, as to such invention, to a right of priority* under section 119, 365(a), 365(b), 386(a), or 386(b) or to the benefit of an earlier filing date under section 120, 121, 365(c), or 386(c).

(Emphasis added.)

The earliest possible effective filing date of Butler is August 14, 2014. This is the filing date of Provisional Application No. 62/037,379, to which the parent application of Butler claims priority. However, the present application is a is a continuation of application No. 15/691,884, filed on August 31, 2017, now Patent No. 10,604,024, which is a continuation of application No. 14/619,655, filed on February 11, 2015, now Patent No. 9,770,992, which is a division of application No. 14/325,938, filed on July 8, 2014, now Patent No. 9,007,015, which is a continuation of application No. PCT/US2014/045434, filed on July 3, 2014. The effective filing date of the present application is therefore July 3, 2014—the filing date of PCT Application PCT/US2014/045434. Thus, the effective filing date of the present application predates the effective filing date of Butler and Butler is not a valid prior art reference. For at least this reason, Butler was improperly relied on by the Office Action to reject dependent claim 87, and is therefore also inapplicable to amended independent claim 78, which has been amended to include the limitations of claim 87 and intervening claim 86.

For at least these reasons, Applicant submits that 78-85 and 88-91 are patentable over the cited prior art and in condition for allowance, which is respectfully requested.

If the Office has any questions, or believes for any reason that personal communication will expedite prosecution of this application, the Office is hereby invited to telephone the undersigned at the number provided below.

Respectfully submitted,

Date: March 21, 2023

/Joseph M. Sauer/

Joseph M. Sauer (Reg. No. 47,919)
JONES DAY
901 Lakeside Avenue
Cleveland, Ohio 44114
(216) 586-7506

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**7 February 2023**

# Examination report No. 1 for standard patent application

**Griffith Hack**
Level 10
161 Collins St
MELBOURNE VIC 3000
Australia

| | |
|---|---|
| **Your reference:** | P41255AU05.4 |
| **Application number:** | 2022201338 |
| **Applicant name:** | The NOCO Company |
| **Earliest priority date:** | 3 July 2014 |

| | |
|---|---|
| **Final date for acceptance:** | **7 February 2024** |
| **Date of this report:** | 7 February 2023 |
| **Examination request date:** | 25 February 2022 |

Dear Griffith Hack,

Your request for accelerated examination under the Patent Prosecution Highway has been received by the office and this application has been examined under *section 45 of the Patents Act 1990*. I consider that this application does not meet the requirements of the Act because there are issues with the application that are explained in the report details.

You have **12 months** from the date of this report to overcome all my objection(s) otherwise this application will lapse.

You will also need to pay any annual continuation fees that apply. Your next continuation fee is due on **3 July 2023**.

NOTE: There is a current postponement of acceptance in place. If you overcome all other objections before the expiration of that postponement, the Commissioner will only accept the application at that time if you have filed a clear and unambiguous statement requesting the withdrawal of that postponement. Otherwise, a further adverse report will be issued.

Details of this patent application can be viewed on Auspat, our Australian patent search database.

Yours sincerely,

Rifat Shahriar
Section: ELEC 2 - ELECTRONICS & COMMUNICATIONS
Phone: +61 2 6283 3173

Alternate contact: Amod Pradhan
Phone: +61 2 6283 2510

# Report details

## Basis of the report

In examining this application I have considered:

- the specification as filed.
- allowed and/or proposed amendment/s under S104 up to and including amendment item number 3, filed on 27 January 2023.

The item number 2 of the statement of proposed amendments (SOPA) filed on 27 January 2023 is considered as 3 to maintain sequence with the item numbers of SOPA of 25 February 2022. Please see objection 3 regarding this formalities issue.

## Summary of novelty, inventive step and patentable subject matter

| | *Satisfy requirements?* | *Claim numbers* |
|---|---|---|
| **Novelty/inventive step** | **Yes** | 1-57 |
| | **No** | NONE |
| **Patentable subject matter** | **Yes** | 1-57 |
| | **No** | NONE |

## Detailed objections on issues that have been identified

### Section 40 (support, disclosure, clarity, lack of unity)

1 Claims 1 and 57 lack support under subsection 40(3).

These claims are unduly broad due to the employment of the feature "power supply". A power supply can include within its scope multiple possibilities such as an AC-DC power adapter which would be inconsistent with the claimed features of "a USB charge circuit electrically connecting the USB input connector to the power supply".

Applicant may wish to consider amending these two claims to define the "power supply" to include "a rechargeable battery pack" (i.e., additional feature of claim 51), which is consistent with the purport of the body of the specification.

2 Claims 1, 7 and 49 lack clarity.

The feature of claim 1, "a power switch or switch circuit connected in circuit with the power supply..." is unclear due to the phrase "connected in circuit with". According to Fig. 1, this feature should recite as "a power switch or switch circuit connected in **series** with the...".

Claim 7, when appended to claim 6, lacks an antecedent to the feature of "the USB charger power source". During examination, this feature is considered to mean "the USB power source", as defined in claim 6.

Claim 49, when appended to claim 6, lacks an antecedent to the feature of "the USB charging source". During examination, this feature is considered to mean "the USB power source", as defined in claim 6.

## Documents cited or considered relevant

D1: US 2009/0174362 A1 (F D RICHARDSON ENTPR INC DOING) 9 July 2009 [1]
Category: A

D2: US 2011/0175461 A1 (AUDIOVOX CORP) 21 July 2011 [2]
Category: A

D3: US 2013/0154550 A1 (BALMEFREZOL ALEXANDRE et al.) 20 June 2013 [2]
Category: A

[1] Cited in the search/examination report of US 2020/0215926 A1
[2] Cited in the search/examination report of US 2020/0215926 A1

**Special categories of cited documents:**

**A**: Document defining the general state of the art which is not considered to be of particular relevance.

## Formalities

3 The item numbers of statement of proposed amendments (SOPA) filed on 25 Feb 2022 and 27 Jan 2023 are not consecutive. The item numbers of SOPA of 25 Feb 2022 were 1 and 2 and that of 27 Jan 2023 was 2 (which is non-consecutive with the previous item numbers).

To maintain the sequence, item number of SOPA of 27 Jan 2023 is considered as 3. Applicant is requested to rectify this issue and assign the future item number(s) of SOPA from 4.

END OF REPORT


ADC EX1002
IPR2025-00885

UNITED STATES
PATENT AND TRADEMARK OFFICE
P.O. Box 1450
Alexandria, VA 22313 - 1450
www.uspto.gov

# ELECTRONIC PAYMENT RECEIPT

| APPLICATION # | RECEIPT DATE / TIME | ATTORNEY DOCKET # |
|---|---|---|
| 16/819,831 | 03/21/2023 02:02:51 PM ET | 054985-000055-US-02-01 |

## Title of Invention

PORTABLE VEHICLE BATTERY JUMP START APPARATUS WITH SAFETY PROTECTION

## Application Information

| | | | |
|---|---|---|---|
| APPLICATION TYPE | Utility - Nonprovisional Application under 35 USC 111(a) | PATENT # | - |
| CONFIRMATION # | 1630 | FILED BY | Erin Rosenfelder |
| PATENT CENTER # | 61777084 | AUTHORIZED BY | Joseph Sauer |
| CUSTOMER # | 20583 | FILING DATE | 03/16/2020 |
| CORRESPONDENCE ADDRESS | - | FIRST NAMED INVENTOR | Jonathan Lewis NOOK |

## Payment Information

| PAYMENT METHOD | PAYMENT TRANSACTION ID | PAYMENT AUTHORIZED BY |
|---|---|---|
| DA / 503013 | E20233KE04275212 | Erin Rosenfelder |

| PRE-AUTHORIZED ACCOUNT | PRE-AUTHORIZED CATEGORY |
|---|---|
| 503013 | 37 CFR 1.16 (National application filing, search, and examination fees); 37 CFR 1.17 (Patent application and reexamination processing fees); 37 CFR 1.19 (Document supply fees); 37 CFR 1.20 (Post Issuance fees); 37 CFR 1.21 (Miscellaneous fees and charges) |

| FEE CODE | DESCRIPTION | ITEM PRICE($) | QUANTITY | ITEM TOTAL($) |
|---|---|---|---|---|
| 2806 | SUBMISSION OF AN INFORMATION DISCLOSURE STATEMENT | 104.00 | 1 | 104.00 |
| | | | TOTAL AMOUNT: | $104.00 |

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

**New Applications Under 35 U.S.C. 111**

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

**National Stage of an International Application under 35 U.S.C. 371**

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

PTO/SB/08a (02-18)
Approved for use through 11/30/2020. OMB 0651-0031
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

**( Not for submission under 37 CFR 1.99)**

| | |
|---|---|
| Application Number | 16819831 |
| Filing Date | 2020-03-16 |
| First Named Inventor | Jonathan NOOK |
| Art Unit | 2859 |
| Examiner Name | M Baye Diao |
| Attorney Docket Number | 14710-136-999 (55US0201) |

**U.S.PATENTS** Remove

| Examiner Initial* | Cite No | Patent Number | Kind Code[1] | Issue Date | Name of Patentee or Applicant of cited Document | Pages,Columns,Lines where Relevant Passages or Relevant Figures Appear |
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| Examiner Initials* | Cite No | Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc), date, pages(s), volume-issue number(s), publisher, city and/or country where published. | T[5] |
|---|---|---|---|



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IPR2025-00885

| INFORMATION DISCLOSURE STATEMENT BY APPLICANT ( Not for submission under 37 CFR 1.99) | | |
|---|---|---|
| | Application Number | 16819831 |
| | Filing Date | 2020-03-16 |
| | First Named Inventor | Jonathan NOOK |
| | Art Unit | 2859 |
| | Examiner Name | M Baye Diao |
| | Attorney Docket Number | 14710-136-999 (55US0201) |

| | | |
|---|---|---|
| | 1 | IP Australia, Appl. 2022200746, Examination Report No. 1, November 3, 2022. |
| | 2 | IP Australia, Appl. 2022201338, Examination Report No. 1, February 7, 2023. |

If you wish to add additional non-patent literature document citation information please click the Add button Add

**EXAMINER SIGNATURE**

| Examiner Signature | | Date Considered | |
|---|---|---|---|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.



ADC EX1002
IPR2025-00885

| INFORMATION DISCLOSURE STATEMENT BY APPLICANT ( Not for submission under 37 CFR 1.99) | | |
|---|---|---|
| | Application Number | 16819831 |
| | Filing Date | 2020-03-16 |
| | First Named Inventor | Jonathan NOOK |
| | Art Unit | 2859 |
| | Examiner Name | M Baye Diao |
| | Attorney Docket Number | 14710-136-999 (55US0201) |

**CERTIFICATION STATEMENT**

Please see 37 CFR 1.97 and 1.98 to make the appropriate selection(s):

That each item of information contained in the information disclosure statement was first cited in any communication from a foreign patent office in a counterpart foreign application not more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(1).

**OR**

☐ That no item of information contained in the information disclosure statement was cited in a communication from a foreign patent office in a counterpart foreign application, and, to the knowledge of the person signing the certification after making reasonable inquiry, no item of information contained in the information disclosure statement was known to any individual designated in 37 CFR 1.56(c) more than three months prior to the filing of the information disclosure statement. See 37 CFR 1.97(e)(2).

See attached certification statement.

The fee set forth in 37 CFR 1.17 (p) has been submitted herewith.

A certification statement is not submitted herewith.

**SIGNATURE**

A signature of the applicant or representative is required in accordance with CFR 1.33, 10.18. Please see CFR 1.4(d) for the form of the signature.

| Signature | /Joseph M. Sauer/ | Date (YYYY-MM-DD) | 2023-03-21 |
|---|---|---|---|
| Name/Print | Joseph M. Sauer | Registration Number | 47,919 |

This collection of information is required by 37 CFR 1.97 and 1.98. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 1 hour to complete, including gathering, preparing and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

# Privacy Act Statement

The Privacy Act of 1974 (P.L. 93-579) requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C. 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether the Freedom of Information Act requires disclosure of these record s.

2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.

3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.

4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).

5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.

6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).

7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.

8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspections or an issued patent.

9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.



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UNITED STATES
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# ELECTRONIC ACKNOWLEDGEMENT RECEIPT

| APPLICATION # | RECEIPT DATE / TIME | ATTORNEY DOCKET # |
|---|---|---|
| **16/819,831** | **03/21/2023 02:02:51 PM ET** | **054985-000055-US-02-01** |

## Title of Invention

PORTABLE VEHICLE BATTERY JUMP START APPARATUS WITH SAFETY PROTECTION

## Application Information

| | | | |
|---|---|---|---|
| APPLICATION TYPE | Utility - Nonprovisional Application under 35 USC 111(a) | PATENT # | - |
| CONFIRMATION # | 1630 | FILED BY | Erin Rosenfelder |
| PATENT CENTER # | 61777084 | FILING DATE | 03/16/2020 |
| CUSTOMER # | 20583 | FIRST NAMED INVENTOR | Jonathan Lewis NOOK |
| CORRESPONDENCE ADDRESS | - | AUTHORIZED BY | Joseph Sauer |

## Documents

**TOTAL DOCUMENTS: 6**

| DOCUMENT | | PAGES | DESCRIPTION | SIZE (KB) |
|---|---|---|---|---|
| 14710-136-999_Response021023.pdf | | 7 | - | 161 KB |
| 14710-136-999_Response021023-A.NE.pdf | (1-1) | 1 | Response After Final Action | 107 KB |
| 14710-136-999_Response021023-CLM.pdf | (2-4) | 3 | Claims | 96 KB |
| 14710-136-999_Response021023-REM.pdf | (5-7) | 3 | Applicant Arguments/Remarks Made in an Amendment | 138 KB |

| | | | |
|---|---|---|---|
| 14710-136-999_IDS.pdf | 4 | Information Disclosure Statement (IDS) Form (SB08) | 1010 KB |
| C97_AU2022200746_ExamRpt1_2022-11-03.pdf | 3 | Other reference-Patent/Application/Search Documents | 708 KB |
| C98_AU2022201338_ExamRpt_2023-02-07.pdf | 3 | Other reference-Patent/Application/Search Documents | 793 KB |

## Digest

| DOCUMENT | MESSAGE DIGEST(SHA-512) |
|---|---|
| 14710-136-999_Response021023.pdf | 562205F8FF3BFAAFC6AD259D02C066467E9FEDD881D45F6E5EB2A90742056FD005C1B99D86467F20EDDA2642C8F8076C45DE9CB72185D40FC5304B4294947BEC |
| 14710-136-999_Response021023-A.NE.pdf | C9E32B52D2A92D47EDC719424339B7B842D9434FCA39B6CF612223113CF4CEBF1C6D06D155AC7CD461B4EFB777F0FCE580DA4B9D86BA90E87DA414AD39E3FE4E |
| 14710-136-999_Response021023-CLM.pdf | AED2AC19F9880F0B62943B1836753AF5FF645206B365FCBABC26284FB79FFBD622A4F756E113531018E4BB0D9CF2160BBE5445B271B14E8A9F5E5E5ED4125DC5 |
| 14710-136-999_Response021023-REM.pdf | 6818D064CA9E1FE507E6F27104A8EF90F261B1E6A6306B955CE3909C436109E678BEEEDC2B068BA3AD131FBACF828B0C8A0CA8AFE43FAF95E577066B546C35D4 |
| 14710-136-999_IDS.pdf | 3806684A79E3F1475F2EA86FB96015AE3BBBBFA5C806F5E41784CD9723CEB655881BFF5266BAA67EE436D4F3D4E8B7F6B7769D0A5F095A407F88C1262411E148 |
| C97_AU2022200746_ExamRpt1_2022-11-03.pdf | 3076CA6ACFF9F3E9CFE1E3C18781BC655F013A37A8C7DE40DB00EFB068D498F0B6A54ACB2E15DED2448B6FE8B4673F57CD1BE6E7B12D0207FE8FC4CF5E321796 |

| | |
|---|---|
| C98_AU2022201338_ExamRpt_2023-02-07.pdf | 926AD8CD59241033094BD30C5BAAC7EC220AE0D794E2D2C6B7580478482D1D3B5342D4181D2AE65BF15C81F8279434088ECFE65431B2A81A13E0EA1B41561918 |

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**New Applications Under 35 U.S.C. 111**

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

**National Stage of an International Application under 35 U.S.C. 371**

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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ABN: 38 113 072 755

**3 November 2022**

# Examination report No. 1 for standard patent application

**Griffith Hack**
Level 10
161 Collins St
MELBOURNE VIC 3000
Australia

| | |
|---|---|
| **Your reference:** | P41255AU03.2 |
| **Application number:** | 2022200746 |
| **Applicant name:** | The NOCO Company |
| **Earliest priority date:** | 3 July 2014 |

| | |
|---|---|
| **Final date for acceptance:** | **3 November 2023** |
| **Date of this report:** | 3 November 2022 |
| **Examination request date:** | 4 February 2022 |

Dear Griffith Hack,

Your application has been examined under *section 45 of the Patents Act 1990*. I consider that this application does not meet the requirements of the Act because there are issues with the application that are explained in the report details.

You have **12 months** from the date of this report to overcome all my objection(s) otherwise this application will lapse.

You will also need to pay any annual continuation fees that apply. Your next continuation fee is due on **3 July 2023**.

NOTE: There is a current postponement of acceptance in place. If you overcome all other objections before the expiration of that postponement, the Commissioner will only accept the application at that time if you have filed a clear and unambiguous statement requesting the withdrawal of that postponement. Otherwise, a further adverse report will be issued.

Details of this patent application can be viewed on Auspat, our Australian patent search database.

Yours sincerely,

Ronaldo Sanchez
Section: ELEC 2 - ELECTRONICS & COMMUNICATIONS
Phone: +61 2 6283 2653

Alternate contact: Riju Jacob
Phone: +61 2 6283 2220



ADC EX1002
IPR2025-00885

# Report details

## Basis of the report

In examining this application I have considered:

- the specification as filed.
- allowed and/or proposed amendment/s under S104 up to and including amendment item number 3, filed on 30 June 2022.

## Summary of novelty, inventive step and patentable subject matter

| | *Satisfy requirements?* | *Claim numbers* |
|---|---|---|
| **Novelty/inventive step** | **Yes** | NONE |
| | **No** | 1-30 |
| **Patentable subject matter** | **Yes** | 1-30 |
| | **No** | NONE |

## Detailed objections on issues that have been identified

### Documents cited or considered relevant

D1: US 2004/0130298 A1 (KRIEGER MICHAEL [US], et al) 8 July 2004 [1]
Category: Y Claims: 1-30

D2: US 5650974 A (MITSUBISHI ELECTRIC CORP) 22 July 1997 [1]
Category: Y Claims: 1-30

[1] Cited in the search/examination report of US20180345803 A1

**Special categories of cited documents:**

**Y**: The claimed invention cannot be considered to involve an inventive step under *subsection 7(2)* of the Act in light of the common general knowledge when considered together with a combination of the document and one or more other such documents.

### Novelty and inventive step

1 The invention defined in independent claims 1, 2, 23, 26 and 27 lacks an inventive step in light of the prior art documents D1-D2 as discussed in the US Exam Report dated 11 January 2019 for US application 15/691884 - see pages 5-8 in Claim Rejections - 35 USC §103. While the objection regarding these documents was not made under Australian law, I agree with the reasons given in that report and consider they support a corresponding objection against the Australian claims. It is considered that in seeking a solution to the problem a person skilled in the art would be reasonably expected to combine the disclosures of these documents and arrive at a solution that is the same as the claimed invention. It should be noted that the scope of claims 1, 2, 23, 26 and 27 of the present application is similar in scope with corresponding claim 24 of the US application in which the US Exam Report was relied on. Additionally, the features of a USB charging port configured to provide charging power from an external


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power source to said internal power supply as defined in claim 27 is considered mere design choice.

Furthermore, appended claims 3-22, 24-25 and 28-30 add only features that are either disclosed in the above cited documents or are common general knowledge in the art or mere design choices and which therefore cannot contribute to providing an inventive step. For example, the key features relating to dependent claims 3-4 and 6-8 disclosed in D1 (see figs 1-6; paras 0032, 0034, 0044, 0053).

END OF REPORT


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| PATENT APPLICATION FEE DETERMINATION RECORD<br>Substitute for Form PTO-875 | Application or Docket Number<br>16/819,831 | Filing Date<br>03/16/2020 | ☐ To be Mailed |
|---|---|---|---|

**ENTITY:** ☐ LARGE ☑ SMALL ☐ MICRO

## APPLICATION AS FILED - PART I

| FOR | (Column 1)<br>NUMBER FILED | (Column 2)<br>NUMBER EXTRA | | RATE ($) | FEE ($) |
|---|---|---|---|---|---|
| ☐ BASIC FEE<br>(37 CFR 1.16(a), (b), or (c)) | N/A | N/A | | N/A | |
| ☐ SEARCH FEE<br>(37 CFR 1.16(k), (i), or (m)) | N/A | N/A | | N/A | |
| ☐ EXAMINATION FEE<br>(37 CFR 1.16(o), (p), or (q)) | N/A | N/A | | N/A | |
| TOTAL CLAIMS<br>(37 CFR 1.16(i)) | minus 20 = | * | | x $50 = | |
| INDEPENDENT CLAIMS<br>(37 CFR 1.16(h)) | minus 3 = | * | | x $230 = | |
| ☐ APPLICATION SIZE FEE (37 CFR 1.16(s)) | If the specification and drawings exceed 100 sheets of paper, the application size fee due is $310 ($155 for small entity) for each additional 50 sheets or fraction thereof. See 35 U.S.C. 41(a)(1)(G) and 37 CFR 1.16(s). | | | | |
| ☐ MULTIPLE DEPENDENT CLAIM PRESENT (37 CFR 1.16(j)) | | | | | |
| * If the difference in column 1 is less than zero, enter "0" in column 2. | | | | TOTAL | |

## APPLICATION AS AMENDED - PART II

| | | (Column 1) | | (Column 2) | (Column 3) | | | |
|---|---|---|---|---|---|---|---|---|
| AMENDMENT | 03/21/2023 | CLAIMS REMAINING AFTER AMENDMENT | | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA | | RATE ($) | ADDITIONAL FEE ($) |
| | Total<br>(37 CFR 1.16(i)) | * 12 | Minus | ** 20 | = 0 | | x $40 = | 0 |
| | Independent<br>(37 CFR 1.16(h)) | * 1 | Minus | *** 3 | = 0 | | x $192 = | 0 |
| | ☐ Application Size Fee (37 CFR 1.16(s)) | | | | | | | |
| | ☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) | | | | | | | |
| | | | | | | | TOTAL ADD'L FEE | 0 |

| | | (Column 1) | | (Column 2) | (Column 3) | | | |
|---|---|---|---|---|---|---|---|---|
| AMENDMENT | | CLAIMS REMAINING AFTER AMENDMENT | | HIGHEST NUMBER PREVIOUSLY PAID FOR | PRESENT EXTRA | | RATE ($) | ADDITIONAL FEE ($) |
| | Total<br>(37 CFR 1.16(i)) | * | Minus | ** | = | | x $0 = | |
| | Independent<br>(37 CFR 1.16(h)) | * | Minus | *** | = | | x $0 = | |
| | ☐ Application Size Fee (37 CFR 1.16(s)) | | | | | | | |
| | ☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j)) | | | | | | | |
| | | | | | | | TOTAL ADD'L FEE | |

| | |
|---|---|
| * If the entry in column 1 is less than the entry in column 2, write "0" in column 3. | LIE |
| ** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 20, enter "20". | /JACKIE A WHITE/ |
| *** If the "Highest Number Previously Paid For" IN THIS SPACE is less than 3, enter "3". | |
| The "Highest Number Previously Paid For" (Total or Independent) is the highest number found in the appropriate box in column 1. | |

This collection of information is required by 37 CFR 1.16. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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# DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

| Title of Invention | PORTABLE VEHICLE BATTERY JUMP START APPARATUS WITH SAFETY PROTECTION |
|---|---|

As the below named inventor, I hereby declare that:

This declaration is directed to:

- [■] The attached application, or
- [ ] United States application or PCT international application number _____ filed on _____.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

## WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Jonathan Lewis Nook Date (Optional): 7/7/2014

Signature: _____

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

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# Privacy Act Statement

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The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant ( *i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

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# DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

| Title of Invention | PORTABLE VEHICLE BATTERY JUMP START APPARATUS WITH SAFETY PROTECTION |
|---|---|

As the below named inventor, I hereby declare that:

This declaration is directed to:

- [■] The attached application, or
- [ ] United States application or PCT international application number _____

  filed on _____.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than **five** (5) years, or both.

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LEGAL NAME OF INVENTOR

Inventor: William Knight Nook Date (Optional): 7-7-14

Signature: William Knight Nook

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form **or must have been previously filed**. Use an additional PTO/AIA/01 form for each additional inventor.

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- [x] The attached application, or
- [ ] United States application or PCT international application number _____ filed on _____.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

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LEGAL NAME OF INVENTOR

Inventor: James Richard Stanfield Date (Optional): 7/8/2014

Signature: James Richard Stanfield

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

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6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

PTO/AIA/01 (06-12)
Approved for use through 01/31/2014. OMB 0651-0032
U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE
Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

# DECLARATION (37 CFR 1.63) FOR UTILITY OR DESIGN APPLICATION USING AN APPLICATION DATA SHEET (37 CFR 1.76)

| Title of Invention | PORTABLE VEHICLE BATTERY JUMP START APPARATUS WITH SAFETY PROTECTION |
|---|---|

As the below named inventor, I hereby declare that:

This declaration is directed to:

- [■] The attached application, or
- [ ] United States application or PCT international application number _____

filed on _____.

The above-identified application was made or authorized to be made by me.

I believe that I am the original inventor or an original joint inventor of a claimed invention in the application.

I hereby acknowledge that any willful false statement made in this declaration is punishable under 18 U.S.C. 1001 by fine or imprisonment of not more than five (5) years, or both.

## WARNING:

Petitioner/applicant is cautioned to avoid submitting personal information in documents filed in a patent application that may contribute to identity theft. Personal information such as social security numbers, bank account numbers, or credit card numbers (other than a check or credit card authorization form PTO-2038 submitted for payment purposes) is never required by the USPTO to support a petition or an application. If this type of personal information is included in documents submitted to the USPTO, petitioners/applicants should consider redacting such personal information from the documents before submitting them to the USPTO. Petitioner/applicant is advised that the record of a patent application is available to the public after publication of the application (unless a non-publication request in compliance with 37 CFR 1.213(a) is made in the application) or issuance of a patent. Furthermore, the record from an abandoned application may also be available to the public if the application is referenced in a published application or an issued patent (see 37 CFR 1.14). Checks and credit card authorization forms PTO-2038 submitted for payment purposes are not retained in the application file and therefore are not publicly available.

LEGAL NAME OF INVENTOR

Inventor: Derek Michael Underhill Date (Optional) :_____

Signature: _____

Note: An application data sheet (PTO/SB/14 or equivalent), including naming the entire inventive entity, must accompany this form or must have been previously filed. Use an additional PTO/AIA/01 form for each additional inventor.

This collection of information is required by 35 U.S.C. 115 and 37 CFR 1.63. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.11 and 1.14. This collection is estimated to take 1 minute to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, VA 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. **SEND TO: Commissionor for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.**

*If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.*

# Privacy Act Statement

The **Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant ( *i.e.*, GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

# NOTICE OF ALLOWANCE AND FEE(S) DUE

20583 7590 04/05/2023

Jones Day
250 Vesey Street
New York, NY 10281-1047

| EXAMINER |
|---|
| DIAO, M BAYE |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2859 | |

DATE MAILED: 04/05/2023

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 16/819,831 | 03/16/2020 | Jonathan Lewis NOOK | 054985-000055-US-02-01 | 1630 |

TITLE OF INVENTION: PORTABLE VEHICLE BATTERY JUMP START APPARATUS WITH SAFETY PROTECTION

| APPLN. TYPE | ENTITY STATUS | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE |
|---|---|---|---|---|---|---|
| nonprovisional | SMALL | $480 | $0.00 | $0.00 | $480 | 07/05/2023 |

**THE APPLICATION IDENTIFIED ABOVE HAS BEEN EXAMINED AND IS ALLOWED FOR ISSUANCE AS A PATENT. PROSECUTION ON THE MERITS IS CLOSED. THIS NOTICE OF ALLOWANCE IS NOT A GRANT OF PATENT RIGHTS. THIS APPLICATION IS SUBJECT TO WITHDRAWAL FROM ISSUE AT THE INITIATIVE OF THE OFFICE OR UPON PETITION BY THE APPLICANT. SEE 37 CFR 1.313 AND MPEP 1308.**

**THE ISSUE FEE AND PUBLICATION FEE (IF REQUIRED) MUST BE PAID WITHIN THREE MONTHS FROM THE MAILING DATE OF THIS NOTICE OR THIS APPLICATION SHALL BE REGARDED AS ABANDONED. THIS STATUTORY PERIOD CANNOT BE EXTENDED. SEE 35 U.S.C. 151. THE ISSUE FEE DUE INDICATED ABOVE DOES NOT REFLECT A CREDIT FOR ANY PREVIOUSLY PAID ISSUE FEE IN THIS APPLICATION. IF AN ISSUE FEE HAS PREVIOUSLY BEEN PAID IN THIS APPLICATION (AS SHOWN ABOVE), THE RETURN OF PART B OF THIS FORM WILL BE CONSIDERED A REQUEST TO REAPPLY THE PREVIOUSLY PAID ISSUE FEE TOWARD THE ISSUE FEE NOW DUE.**

**HOW TO REPLY TO THIS NOTICE:**

I. Review the ENTITY STATUS shown above. If the ENTITY STATUS is shown as SMALL or MICRO, verify whether entitlement to that entity status still applies.

If the ENTITY STATUS is the same as shown above, pay the TOTAL FEE(S) DUE shown above.

If the ENTITY STATUS is changed from that shown above, on PART B - FEE(S) TRANSMITTAL, complete section number 5 titled "Change in Entity Status (from status indicated above)".

For purposes of this notice, small entity fees are 40% the amount of undiscounted fees, and micro entity fees are 20% the amount of undiscounted fees.

II. PART B - FEE(S) TRANSMITTAL, or its equivalent, must be completed and returned to the United States Patent and Trademark Office (USPTO) with your ISSUE FEE and PUBLICATION FEE (if required). If you are charging the fee(s) to your deposit account, section "4b" of Part B - Fee(s) Transmittal should be completed. If an equivalent of Part B is filed, a request to reapply a previously paid issue fee must be clearly made, and delays in processing may occur due to the difficulty in recognizing the paper as an equivalent of Part B.

III. All communications regarding this application must give the application number. Please direct all communications prior to issuance to Mail Stop ISSUE FEE unless advised to the contrary.

**IMPORTANT REMINDER: Maintenance fees are due in utility patents issuing on applications filed on or after Dec. 12, 1980. It is patentee's responsibility to ensure timely payment of maintenance fees when due. More information is available at www.uspto.gov/PatentMaintenanceFees.**





ADC EX1002
IPR2025-00885

# PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications. **Because electronic patent issuance may occur shortly after issue fee payment, any desired continuing application should preferably be filed prior to payment of this issue fee in order not to jeopardize copendency.**

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

20583 7590 04/05/2023

Jones Day
250 Vesey Street
New York, NY 10281-1047

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

**Certificate of Mailing or Transmission**

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

| (Typed or printed name) |
|---|
| (Signature) |
| (Date) |

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 16/819,831 | 03/16/2020 | Jonathan Lewis NOOK | 054985-000055-US-02-01 | 1630 |

TITLE OF INVENTION: PORTABLE VEHICLE BATTERY JUMP START APPARATUS WITH SAFETY PROTECTION

| APPLN. TYPE | ENTITY STATUS | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE |
|---|---|---|---|---|---|---|
| nonprovisional | SMALL | $480 | $0.00 | $0.00 | $480 | 07/05/2023 |

| EXAMINER | ART UNIT | CLASS-SUBCLASS |
|---|---|---|
| DIAO, M BAYE | 2859 | 320-105000 |

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/AIA/122 or PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/AIA/47 or PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 _____
2 _____
3 _____

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE (B) RESIDENCE: (CITY and STATE OR COUNTRY)

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ❑ Corporation or other private group entity ❑ Government

4a. Fees submitted: ❑ Issue Fee ❑ Publication Fee (if required)

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

❑ Electronic Payment via Patent Center or EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

❑ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. _____

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

❑ Applicant asserting small entity status. See 37 CFR 1.27

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

❑ Applicant changing to regular undiscounted fee status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature _____ Date _____

Typed or printed name _____ Registration No. _____



PTOL-85 Part B (08-18) Approved for use through 01/31/2020 OMB 0651-0033 U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

ADC EX1002
IPR2025-00885

UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 16/819,831 | 03/16/2020 | Jonathan Lewis NOOK | 054985-000055-US-02-01 | 1630 |

20583 7590 04/05/2023

Jones Day
250 Vesey Street
New York, NY 10281-1047

| EXAMINER | |
|---|---|
| DIAO, M BAYE | |
| ART UNIT | PAPER NUMBER |
| 2859 | |

DATE MAILED: 04/05/2023

**Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)**
(Applications filed on or after May 29, 2000)

The Office has discontinued providing a Patent Term Adjustment (PTA) calculation with the Notice of Allowance.

Section 1(h)(2) of the AIA Technical Corrections Act amended 35 U.S.C. 154(b)(3)(B)(i) to eliminate the requirement that the Office provide a patent term adjustment determination with the notice of allowance. See Revisions to Patent Term Adjustment, 78 Fed. Reg. 19416, 19417 (Apr. 1, 2013). Therefore, the Office is no longer providing an initial patent term adjustment determination with the notice of allowance. The Office will continue to provide a patent term adjustment determination with the Issue Notification Letter that is mailed to applicant approximately three weeks prior to the issue date of the patent, and will include the patent term adjustment on the patent. Any request for reconsideration of the patent term adjustment determination (or reinstatement of patent term adjustment) should follow the process outlined in 37 CFR 1.705.

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Customer Service Center of the Office of Patent Publication at 1-(888)-786-0101 or (571)-272-4200.





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## OMB Clearance and PRA Burden Statement for PTOL-85 Part B

The Paperwork Reduction Act (PRA) of 1995 requires Federal agencies to obtain Office of Management and Budget approval before requesting most types of information from the public. When OMB approves an agency request to collect information from the public, OMB (i) provides a valid OMB Control Number and expiration date for the agency to display on the instrument that will be used to collect the information and (ii) requires the agency to inform the public about the OMB Control Number's legal significance in accordance with 5 CFR 1320.5(b).

The information collected by PTOL-85 Part B is required by 37 CFR 1.311. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 30 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, P.O. Box 1450, Alexandria, Virginia 22313-1450. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, P.O. Box 1450, Alexandria, Virginia 22313-1450. Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

## Privacy Act Statement

**The Privacy Act of 1974 (P.L. 93-579)** requires that you be given certain information in connection with your submission of the attached form related to a patent application or patent. Accordingly, pursuant to the requirements of the Act, please be advised that: (1) the general authority for the collection of this information is 35 U.S.C. 2(b)(2); (2) furnishing of the information solicited is voluntary; and (3) the principal purpose for which the information is used by the U.S. Patent and Trademark Office is to process and/or examine your submission related to a patent application or patent. If you do not furnish the requested information, the U.S. Patent and Trademark Office may not be able to process and/or examine your submission, which may result in termination of proceedings or abandonment of the application or expiration of the patent.

The information provided by you in this form will be subject to the following routine uses:

1. The information on this form will be treated confidentially to the extent allowed under the Freedom of Information Act (5 U.S.C. 552) and the Privacy Act (5 U.S.C 552a). Records from this system of records may be disclosed to the Department of Justice to determine whether disclosure of these records is required by the Freedom of Information Act.
2. A record from this system of records may be disclosed, as a routine use, in the course of presenting evidence to a court, magistrate, or administrative tribunal, including disclosures to opposing counsel in the course of settlement negotiations.
3. A record in this system of records may be disclosed, as a routine use, to a Member of Congress submitting a request involving an individual, to whom the record pertains, when the individual has requested assistance from the Member with respect to the subject matter of the record.
4. A record in this system of records may be disclosed, as a routine use, to a contractor of the Agency having need for the information in order to perform a contract. Recipients of information shall be required to comply with the requirements of the Privacy Act of 1974, as amended, pursuant to 5 U.S.C. 552a(m).
5. A record related to an International Application filed under the Patent Cooperation Treaty in this system of records may be disclosed, as a routine use, to the International Bureau of the World Intellectual Property Organization, pursuant to the Patent Cooperation Treaty.
6. A record in this system of records may be disclosed, as a routine use, to another federal agency for purposes of National Security review (35 U.S.C. 181) and for review pursuant to the Atomic Energy Act (42 U.S.C. 218(c)).
7. A record from this system of records may be disclosed, as a routine use, to the Administrator, General Services, or his/her designee, during an inspection of records conducted by GSA as part of that agency's responsibility to recommend improvements in records management practices and programs, under authority of 44 U.S.C. 2904 and 2906. Such disclosure shall be made in accordance with the GSA regulations governing inspection of records for this purpose, and any other relevant (i.e., GSA or Commerce) directive. Such disclosure shall not be used to make determinations about individuals.
8. A record from this system of records may be disclosed, as a routine use, to the public after either publication of the application pursuant to 35 U.S.C. 122(b) or issuance of a patent pursuant to 35 U.S.C. 151. Further, a record may be disclosed, subject to the limitations of 37 CFR 1.14, as a routine use, to the public if the record was filed in an application which became abandoned or in which the proceedings were terminated and which application is referenced by either a published application, an application open to public inspection or an issued patent.
9. A record from this system of records may be disclosed, as a routine use, to a Federal, State, or local law enforcement agency, if the USPTO becomes aware of a violation or potential violation of law or regulation.

ADC EX1002
IPR2025-00885

| Notice of Allowability | Application No. 16/819,831 | Applicant(s) NOOK et al. | |
|---|---|---|---|
| | Examiner M'BAYE DIAO | Art Unit 2859 | AIA (FITF) Status Yes |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--*

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to A.NE filed on 03/21/2023.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are See Continuation Sheet . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   **Certified copies:**

   a) ☐ All b) ☐ Some* c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   **Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☑ Notice of References Cited (PTO-892)
2. ☑ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 03/21/2023.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☑ Interview Summary (PTO-413), Paper No./Mail Date. 20230329.
5. ☑ Examiner's Amendment/Comment
6. ☑ Examiner's Statement of Reasons for Allowance
7. ☐ Other _____.

| /M BAYE DIAO/<br>Primary Examiner, Art Unit 2859 | 03/29/2023 |
|---|---|



ADC EX1002
IPR2025-00885

Continuation of 3. The allowed claim(s) is/are: 78-85,89-91 (renumbered 1-11)

## DETAILED ACTION

### *Notice of Pre-AIA or AIA Status*

1. The present application, filed on or after March 16, 2013, is being examined under the first inventor to file provisions of the AIA.

### *Response to Amendment*

2. Acknowledgement is made of amendment filed on 03/21/2023 after final in which claims 78 and 88 are currently amended while claims 1-77, 86 and 87 have been canceled. By this amendment, claims 78-85, and 88-91 are still pending in the application.

### *Terminal Disclaimer*

3. The terminal disclaimer filed on 05/02/2022 disclaiming the terminal portion of any patent granted on this application which would extend beyond the expiration date of **application No. 16/450,422 now USPAT 11,447,023** has been reviewed and is accepted. The terminal disclaimer has been recorded.

### *Information Disclosure Statement*

4. The information disclosure statement (IDS) filed on 03/21/2023 has been considered and placed of record. An initialed copy is attached herewith.

## EXAMINER'S AMENDMENT

5. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it MUST be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in an interview with Joseph M. Sauer Reg. No. 47,919 on 03/29/2023.

The application has been amended as follows:

**Claims 78 and 89 have been amended as shown below and claim 88 has been canceled**.

**78. (Currently Amended)** A jump starter apparatus for jump starting a vehicle battery, comprising:

a power supply that includes one or more rechargeable batteries;

a USB port configured to receive power from an external power source for charging the one or more batteries;

a DC-DC converter coupled between the USB port and the one or more rechargeable batteries and configured to increase a voltage received from the external power source for charging the one or more rechargeable batteries;

a vehicle battery isolation sensor configured to detect presence of the vehicle battery connected to the jump starter apparatus;

a reverse polarity sensor, separate from the vehicle battery isolation sensor, configured to detect a proper polarity connection between the jump starter apparatus and the vehicle battery; and

a power switch configured to electrically connect the power supply to the vehicle battery,

wherein the power switch is controlled based on signals from the vehicle battery isolation sensor and the reverse polarity sensor such that the power supply is connected to the vehicle battery when both (i) the vehicle battery isolation sensor currently indicates that the vehicle battery is connected to the jump starter apparatus, and (ii) the reverse polarity sensor currently indicates that the jump starter and the vehicle battery are connected with the proper polarity connection.

**88. (Canceled)**

**89. (Currently Amended)** The jump starter apparatus of claim ~~88~~ 78, further comprising: a battery charge controller configure to control charging of the one or more rechargeable batteries from the USB port.

***Reasons for Allowance***

6. Claims 78-85, and 89-91(renumbered 1-11) are allowed over the prior art of record.

7. The elements of independent claim 78 were not found through a search of the prior art, nor were they considered obvious by the examiner. In particular, the prior art of record does not teach or reasonably suggest, in combination with the remaining limitations: a jump starter apparatus having among other patentable features, "…a power supply that includes one or more rechargeable batteries; a USB port configured to receive power from an external power source for charging the one or more batteries; a DC-DC converter coupled between the USB port and the one or more rechargeable batteries and configured to increase a voltage received from the external power source for charging the one or more rechargeable batteries; a vehicle battery isolation sensor configured to detect presence of the vehicle battery connected to the jump starter apparatus; a reverse polarity sensor, separate from the vehicle battery isolation sensor, configured to detect a proper polarity connection between the jump starter apparatus and the vehicle battery; and a power switch configured to electrically connect the power supply to the vehicle battery, wherein the power switch is controlled based on signals from the vehicle battery isolation sensor and the reverse polarity sensor such that the power supply is connected to the vehicle battery when both (i) the vehicle battery isolation sensor currently indicates that the vehicle battery is connected to the jump starter apparatus, and (ii) the reverse polarity sensor

currently indicates that the jump starter and the vehicle battery are connected with the proper polarity connection".

8. Claims 79-85 and 89-91 depend either directly or indirectly from claim 78 and thus are allowed for the same reasons.

### *Citation of Prior Art*

9. For a list of related prior art references not mentioned above but disclose related apparatus or method, see Form PTO-892.

10. US 2005/0077870 to Ha et al., (Ha) discloses a battery charging device for a mobile apparatus using an ear-microphone jack.

### *Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to M'BAYE DIAO whose telephone number is (571)272-6127. The examiner can normally be reached M-F; 9:00AM-6:30PM.

Examiner interviews are available via telephone, in-person, and video conferencing using a USPTO supplied web-based collaboration tool. To schedule an interview, applicant is encouraged to use the USPTO Automated Interview Request (AIR) at http://www.uspto.gov/interviewpractice.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, DREW A DUNN can be reached on 571-272-2312. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of published or unpublished applications may be obtained from Patent Center. Unpublished application information in Patent Center is available to registered users. To file and manage patent submissions in Patent Center, visit:

https://patentcenter.uspto.gov. Visit https://www.uspto.gov/patents/apply/patent-center for more information about Patent Center and https://www.uspto.gov/patents/docx for information about filing in DOCX format. For additional questions, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

M'BAYE DIAO
Primary Examiner
Art Unit 2859

/M BAYE DIAO/
Primary Examiner, Art Unit 2859
March 29, 2023

| *Examiner-Initiated Interview Summary* | **Application No.** 16/819,831 | **Applicant(s)** NOOK et al. | | |
|---|---|---|---|---|
| | **Examiner** M'BAYE DIAO | **Art Unit** 2859 | **AIA (First Inventor to File) Status** Yes | **Page** 1 of 1 |

| **All Participants** (applicant, applicants representative, PTO personnel) | **Title** | **Type** |
|---|---|---|
| M'BAYE DIAO | Primary Examiner | Telephonic |
| Joseph M. Sauer Reg. No. 47,919 | Attorney | |

**Date of Interview:** 29 March 2023

**Issues Discussed:**

**Proposed Amendment(s)**

The examiner initiated a telephone interview with Applicant's Representative to obtain authorization for proposed amendments to the claims --as indicated in the Examiner's Amendments section of the attached office action-- to expedite prosecution and place the application in better condition for allowance. Applicant's Representative authorized the proposed amendments which consisted essentially in moving the limitations of claim 88 into claim 78.

| /M BAYE DIAO/<br>Primary Examiner, Art Unit 2859 | 03/29/2023 |
|---|---|

**Applicant is reminded that a complete written statement as to the substance of the interview must be made of record in the application file. It is the applicants responsibility to provide the written statement, unless the interview was initiated by the Examiner and the Examiner has indicated that a written summary will be provided. See MPEP 713.04**
Please further see:
MPEP 713.04
Title 37 Code of Federal Regulations (CFR) § 1.133 Interviews, paragraph (b)
37 CFR § 1.2 Business to be transacted in writing

**Applicant recordation instructions:** It is not necessary for applicant to provide a separate record of the substance of interview.

**Examiner recordation instructions:** Examiners must summarize the substance of any interview of record. A complete and proper recordation of the substance of an interview should include the items listed in MPEP 713.04 for complete and proper recordation including the identification of the general thrust of each argument or issue discussed, a general indication of any other pertinent matters discussed regarding patentability and the general results or outcome of the interview, to include an indication as to whether or not agreement was reached on the issues raised.



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IPR2025-00885

| Notice of References Cited | Application/Control No. 16/819,831 | Applicant(s)/Patent Under Reexamination NOOK et al. | |
|---|---|---|---|
| | Examiner M'BAYE DIAO | Art Unit 2859 | Page 1 of 1 |

**U.S. PATENT DOCUMENTS**

| * | | Document Number Country Code-Number-Kind Code | Date MM-YYYY | Name | CPC Classification | US Classification |
|---|---|---|---|---|---|---|
| * | A | US-20050077870-A1 | 04-2005 | Ha, Min-Woong | H02J7/0044 | 320/114 |
| | B | | | | | |
| | C | | | | | |
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**FOREIGN PATENT DOCUMENTS**

| * | | Document Number Country Code-Number-Kind Code | Date MM-YYYY | Country | Name | CPC Classification |
|---|---|---|---|---|---|---|
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**NON-PATENT DOCUMENTS**

| * | | Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages) |
|---|---|---|
| | U | |
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*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
Dates in MM-YYYY format are publication dates. Classifications may be US or foreign.



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| Issue Classification | Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|---|
| | 16/819,831 | NOOK et al. |
| | **Examiner** | **Art Unit** |
| | M'BAYE DIAO | 2859 |

| CPC | | | | | | | |
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| **Symbol** | | | | | | **Type** | **Version** |
| B60L | / | 53 | / | 14 | | F | 2019-02-01 |
| H02J | / | 7 | / | 0034 | | I | 2013-01-01 |
| H02J | / | 7 | / | 0029 | | I | 2013-01-01 |
| H02J | / | 7 | / | 0047 | | I | 2013-01-01 |
| H02J | / | 7 | / | 342 | | I | 2020-01-01 |
| H02J | / | 1 | / | 122 | | I | 2020-01-01 |
| H02J | / | 7 | / | 00 | | A | 2013-01-01 |
| H02J | / | 7 | / | 0048 | | A | 2020-01-01 |
| H02J | / | 7 | / | 00302 | | A | 2020-01-01 |
| H02J | / | 7 | / | 00306 | | A | 2020-01-01 |
| H02J | / | 7 | / | 00309 | | A | 2020-01-01 |
| H02J | / | 2310 | / | 46 | | A | 2020-01-01 |

| CPC Combination Sets | | | | | | | | |
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| NONE | | Total Claims Allowed: | |
|---|---|---|---|
| (Assistant Examiner) | (Date) | 11 | |
| /M BAYE DIAO/<br>Primary Examiner, Art Unit 2859 | 29 March 2023 | O.G. Print Claim(s) | O.G. Print Figure |
| (Primary Examiner) | (Date) | 1 | 3 |

U.S. Patent and Trademark Office — Part of Paper No.: 20230329



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|---|---|---|
| | 16/819,831 | NOOK et al. |
| | **Examiner** | **Art Unit** |
| | M'BAYE DIAO | 2859 |

| INTERNATIONAL CLASSIFICATION | | | | |
|---|---|---|---|---|
| **CLAIMED** | | | | |
| B60L53/14 | / | 53 | / | 14 |
| H02J7/00 | / | 7 | / | 00 |
| H02J7/34 | / | 7 | / | 34 |
| H02J1/10 | / | 1 | / | 10 |

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| US ORIGINAL CLASSIFICATION | |
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| **CLASS** | **SUBCLASS** |
| 320 | 105 |

| CROSS REFERENCES(S) | | | | | | |
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| **CLASS** | **SUBCLASS (ONE SUBCLASS PER BLOCK)** | | | | | |
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| NONE<br>(Assistant Examiner) (Date) | **Total Claims Allowed:**<br>11 | |
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| /M BAYE DIAO/<br>Primary Examiner, Art Unit 2859<br>(Primary Examiner) 29 March 2023 (Date) | O.G. Print Claim(s)<br>1 | O.G. Print Figure<br>3 |

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Part of Paper No.: 20230329



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| Issue Classification | Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|---|
| | 16/819,831 | NOOK et al. |
| | Examiner | Art Unit |
| | M'BAYE DIAO | 2859 |

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☑ T.D. ☐ R.1.47

**CLAIMS**

| Final | Original | Final | Original | Final | Original | Final | Original | Final | Original | Final | Original | Final | Original | Final | Original |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
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| NONE<br>(Assistant Examiner) | (Date) | **Total Claims Allowed:**<br>11 | |
| /M BAYE DIAO/<br>Primary Examiner, Art Unit 2859<br>(Primary Examiner) | 29 March 2023<br>(Date) | O.G. Print Claim(s)<br>1 | O.G. Print Figure<br>3 |

U.S. Patent and Trademark Office

Part of Paper No.: 20230329



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IPR2025-00885

| Search Notes | Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|---|
| | 16/819,831 | NOOK et al. |
| | Examiner | Art Unit |
| | M'BAYE DIAO | 2859 |

| CPC - Searched* | | |
|---|---|---|
| Symbol | Date | Examiner |
| B60L53/14 H02J7/342 H02J7/0047 H02J7/0034 H02J7/0029 H02J1/122 H02J7/00 H02J7/0048 H02J7/00302 H02J7/00309 H02J7/00306 Y02T90/14 Y02T10/7072 Y02T10/70 H02J2310/46 | 08/18/2021 | MD |

| CPC Combination Sets - Searched* | | |
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| Symbol | Date | Examiner |
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| US Classification - Searched* | | | |
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| Class | Subclass | Date | Examiner |
| 320 | 105 | 08/18/2021 | MD |

* See search history printout included with this form or the SEARCH NOTES box below to determine the scope of the search.

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| /M BAYE DIAO/<br>Primary Examiner, Art Unit 2859 | |



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| Search Notes | Application/Control No. | Applicant(s)/Patent Under Reexamination |
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| | 16/819,831 | NOOK et al. |
| | Examiner | Art Unit |
| | M'BAYE DIAO | 2859 |

| Search Notes | | |
|---|---|---|
| **Search Notes** | **Date** | **Examiner** |
| SEARCH(Search Notes attached). | 08/18/2021 | MD |
| Inventor Name and Assignee search (SEARCH). | 08/18/2021 | MD |
| PLUS Search conducted.. | 09/25/2020 | MD |
| IP.COM search conducted. | 08/18/2021 | MD |
| Parent Applications noted. | 08/18/2021 | MD |
| IPR2018-00503 Reviewed Petition for Inter Partes Review of U.S. Patent No. 9,007,015. | 08/18/2021 | MD |
| IPR2020-00944 Reviewed Petition for Inter Partes Review of U.S. Patent No. 9,007,015. | 08/18/2021 | MD |
| IPR2020-01387 Reviewed Petition for Inter Partes Review of U.S. Patent No. 9,007,015. | 08/18/2021 | MD |
| IPR2021-00309 Reviewed Petition for Inter Partes Review of U.S. Patent No. 9,007,015. | 08/18/2021 | MD |
| Updated Search above. | 01/25/2022 | MD |
| Updated Search above. | 09/23/2022 | MD |
| Similarity and MLTD search conducted. | 09/23/2022 | MD |
| Updated Search Above. | 02/07/2023 | MD |
| Updated Search Above. | 03/29/2023 | MD |

| Interference Search | | | |
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| **US Class/CPC Symbol** | **US Subclass/CPC Group** | **Date** | **Examiner** |
| | See attached text. | 03/29/2023 | MD |

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| /M BAYE DIAO/<br>Primary Examiner, Art Unit 2859 | |



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| Index of Claims | Application/Control No. | Applicant(s)/Patent Under Reexamination |
|---|---|---|
| | 16/819,831 | NOOK et al. |
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| | M'BAYE DIAO | 2859 |

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**CLAIMS**

☐ Claims renumbered in the same order as presented by applicant ☐ CPA ☑ T.D. ☐ R.1.47

| CLAIM | | DATE | | | | | | | | |
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| Final | Original | 08/17/2021 | 01/25/2022 | 09/23/2022 | 02/07/2023 | 03/29/2023 | | | | |
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| Index of Claims | Application/Control No. | Applicant(s)/Patent Under Reexamination |
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| | 16/819,831 | NOOK et al. |
| | **Examiner** | **Art Unit** |
| | M'BAYE DIAO | 2859 |

| CLAIM | | DATE | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Final | Original | 08/17/2021 | 01/25/2022 | 09/23/2022 | 02/07/2023 | 03/29/2023 | | | | |
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| 11 | 91 | | | | ✓ | = | | | | |

Doc code: IDS
Doc description: Information Disclosure Statement (IDS) Filed



PTO/SB/08a (02-18)
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# INFORMATION DISCLOSURE STATEMENT BY APPLICANT

**( Not for submission under 37 CFR 1.99)**

| | |
|---|---|
| Application Number | 16819831 |
| Filing Date | 2020-03-16 |
| First Named Inventor | Jonathan NOOK |
| Art Unit | 2859 |
| Examiner Name | M Baye Diao |
| Attorney Docket Number | 14710-136-999 (55US0201) |

**U.S.PATENTS** Remove

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IPR2025-00885

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.A./

| INFORMATION DISCLOSURE STATEMENT BY APPLICANT ( Not for submission under 37 CFR 1.99) | | |
|---|---|---|
| | Application Number | 16819831 |
| | Filing Date | 2020-03-16 |
| | First Named Inventor | Jonathan NOOK |
| | Art Unit | 2859 |
| | Examiner Name | M Baye Diao |
| | Attorney Docket Number | 14710-136-999 (55US0201) |

| | | |
|---|---|---|
| /M.D/ | 1 | IP Australia, Appl. 2022200746, Examination Report No. 1, November 3, 2022. |
| /M.D/ | 2 | IP Australia, Appl. 2022201338, Examination Report No. 1, February 7, 2023. |

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**EXAMINER SIGNATURE**

| Examiner Signature | /M BAYE DIAO/ | Date Considered | 03/28/2023 |
|---|---|---|---|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through a citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

[1] See Kind Codes of USPTO Patent Documents at www.USPTO.GOV or MPEP 901.04. [2] Enter office that issued the document, by the two-letter code (WIPO Standard ST.3). [3] For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. [4] Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST.16 if possible. [5] Applicant is to place a check mark here if English language translation is attached.



ADC EX1002
IPR2025-00885

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.D/

# PE2E SEARCH - Search History (Prior Art)

| Ref # | Hits | Search Query | DBs | Default Operator | Plurals | British Equivalents | Time Stamp |
|---|---|---|---|---|---|---|---|
| L1 | 156178 | (automobile vehicle car locomotive motorcycle motorbike EV (electric$2 NEAR vehicle) HEV (hybrid NEAR electric$2 NEAR vehicle)) NEAR charg$2 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/06/17 01:25 PM |
| L2 | 628 | (jump boost) NEAR start$3 NEAR (apparatus device) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/06/17 01:26 PM |
| L3 | 1227683 | output NEAR port | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/06/17 01:26 PM |
| L4 | 84 | battery NEAR isolat$3 NEAR sens$2 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/06/17 01:27 PM |
| L5 | 1070 | reverse NEAR polarity NEAR (sens$2 detect$2) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/06/17 01:27 PM |
| L6 | 101 | battery NEAR isolat$3 NEAR (sens$2 detect$2) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/06/17 01:28 PM |
| L7 | 1427283 | power NEAR switch | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/06/17 01:28 PM |
| L8 | 24049223 | (microcontroller microprocessor controller processor) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/06/17 01:29 PM |
| L9 | 8 | L1 L2 L3 L5 L6 L7 L8 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2021/06/17 01:29 PM |
| L10 | 3904 | 320/109,105.ccls. | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); | OR | ON | ON | 2021/06/17 01:36 PM |

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| | | | FPRS; EPO; JPO; DERWENT; IBM_TDB) | | | | |
| L11 | 97030 | (B60L53/00 B60L53/53 H02J7/0034 H02J7/0068 H02J2207/20 H02J7/0029 H02J9/005).cpc. | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/06/17 01:37 PM |
| L12 | 8 | L1 L2 L3 L4 (L5 OR L6) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2021/06/17 01:38 PM |
| L13 | 10 | L1 L2 L6 L7 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2021/06/17 01:39 PM |
| L14 | 2 | "10875410".pn. | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/06/17 01:50 PM |
| L15 | 19 | Richardson.inv. AND (jump ADJ start$3) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/06/17 03:15 PM |
| L16 | 94 | ("0000001" OR "0000002" OR "0000008" OR "0000075" OR "0000359" OR "0000926" OR "0006344" OR "10046653" OR "10328806" OR "17236260" OR "17236279" OR "17236339" OR "20010038276" OR "20020075003" OR "20030096158" OR "20040066168" OR "20040130298" OR "20050110467" OR "20050162124" OR "20050258797" OR "20090008374" OR "20090174362" OR "20100013302" OR "20100055546" OR "20100173182" OR "20100181959" OR "20100244766" OR "20100301800" OR | (US-PGPUB; USPAT) | OR | ON | ON | 2021/06/17 09:50 PM |

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|---|---|---|---|---|---|---|---|
| | | "20110127947" OR<br>"20110279089" OR<br>"20120013189" OR<br>"20120025763" OR<br>"20120068662" OR<br>"20120139498" OR<br>"20130015814" OR<br>"20130154543" OR<br>"20130241488" OR<br>"20140159509" OR<br>"20150012174" OR<br>"20150032312" OR<br>"20150212135" OR<br>"20150340907" OR<br>"20210107365" OR<br>"3267452" OR<br>"3343057" OR<br>"3950668" OR<br>"3950688" OR<br>"4871957" OR<br>"5319298" OR<br>"5487002" OR<br>"5793185" OR<br>"5831350" OR<br>"6057667" OR<br>"6130519" OR<br>"6144110" OR<br>"6160381" OR<br>"6212054" OR<br>"6249106" OR<br>"6262492" OR<br>"6271605" OR<br>"6351102" OR<br>"6362599" OR<br>"6424158" OR<br>"6426606" OR<br>"6632103" OR<br>"6774607" OR<br>"6803743" OR<br>"6919704" OR<br>"7199555" OR<br>"7339347" OR<br>"7345450" OR<br>"7579811" OR<br>"7656118" OR<br>"7675261" OR<br>"8072900" OR<br>"8125181" OR<br>"8172603" OR<br>"8183821" OR<br>"8447543" OR<br>"8565930" OR<br>"8692513" OR<br>"8723477" OR<br>"8994327" OR<br>"9007015" OR<br>"9007023" OR<br>"9248746" OR | | | | | |

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|---|---|---|---|---|---|---|---|
| | | "9263907" OR "9287725" OR "9333865" OR "9352652" OR "9412994" OR "9496728" OR "9506446" OR "9525297" OR "9871392" OR "9874611" OR "9954391").pn. | | | | | |
| L17 | 136 | ((("PILOT") near3 ("INC"))).AS,AANM. | (USPAT) | OR | ON | ON | 2021/06/17 10:14 PM |
| L18 | 237 | ((("WANG") near3 ("Calvin")) OR (("WANG") near3 ("Chung-Hsin"))).INV. | (US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT) | OR | ON | ON | 2021/06/17 10:14 PM |
| L19 | 17 | L1 L2 L5 L8 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2021/06/17 10:15 PM |
| L20 | 2 | "20090174362".pn. | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/17 07:27 PM |
| L21 | 35973 | polarity NEAR detect$3 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 10:39 AM |
| L22 | 1 | (battery NEAR presence NEAR (detect$3 sens$3)) WITH ((polarity (reverse NEAR polarity)) NEAR (detect$3 sens$3)) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 10:45 AM |
| L23 | 0 | (jump-start$3 boost$3) NEAR (device apparatus) SAME (battery NEAR (presence (connect$3 NEAR status) ) NEAR (detect$3 sens$3)) SAME ((polarity (reverse NEAR polarity)) NEAR (detect$3 sens$3)) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 10:49 AM |
| L24 | 4 | ((jump-start$3 boost$3) NEAR (device apparatus)) AND (battery NEAR (presence (connect$3 NEAR status) ) NEAR | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 10:52 AM |

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|---|---|---|---|---|---|---|---|
| | | (detect$3 sens$3)) AND ((polarity (reverse NEAR polarity)) NEAR (detect$3 sens$3)) | | | | | |
| L25 | 1 | (presence NEAR circuit$2) WITH (optically NEAR coupled NEAR isolator NEAR phototransistor) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 11:17 AM |
| L26 | 24 | (presence (battery NEAR presence) (battery NEAR status NEAR connect$3) NEAR circuit$2) WITH (optically NEAR coupled NEAR isolator NEAR phototransistor) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 11:19 AM |
| L27 | 106985 | (lithium-ion (lithium ADJ ion)) NEAR battery SAME ((power NEAR supply) jumps-starter NEAR battery) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 12:25 PM |
| L28 | 28 | L27 L4 L5 L6 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2021/08/18 12:26 PM |
| L29 | 24 | L28 L21 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2021/08/18 12:26 PM |
| L30 | 4 | L28 NOT L29 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2021/08/18 12:27 PM |
| L31 | 3352 | (10 11) AND 27 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 12:28 PM |
| L32 | 53 | L1 L2 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2021/08/18 12:29 PM |
| L33 | 7 | L32 L31 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2021/08/18 12:29 PM |
| L34 | 0 | lithium NEAR batter$3 NEAR back NEAR charge NEAR | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); | OR | ON | ON | 2021/08/18 01:47 PM |

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| | | (protection prevention inhibition) NEAR (circuit$2 module) | FPRS; EPO; JPO; DERWENT; IBM_TDB) | | | | |
| L35 | 0 | lithium NEAR batter$3 NEAR ((back NEAR charge) (current NEAR back flow)) NEAR (protection prevention inhibition) NEAR (circuit$2 module) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 01:49 PM |
| L36 | 0 | lithium NEAR batter$3 NEAR ((back NEAR charge) ( back ADJ flow) NEAR current) NEAR (protection prevention inhibition) NEAR (circuit$2 module) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 01:50 PM |
| L37 | 7 | ((back NEAR charge) ( back ADJ flow) NEAR current) NEAR (protection prevention inhibition) NEAR (circuit$2 module) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 01:50 PM |
| L38 | 21994 | ((back NEAR charge) ( back ADJ flow) NEAR current) (back NEAR current NEAR flow) NEAR (protection prevention inhibition) NEAR (circuit$2 module) | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 02:55 PM |
| L39 | 941281 | (Lithium lithium-ion (lithium NEAR polymer)) NEAR battery | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 02:57 PM |
| L40 | 42 | L39 SAME L38 WITH diode$1 | (US-PGPUB; USPAT; USOCR; FIT (CN, EP, FR, JP, KR, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2021/08/18 02:57 PM |
| L41 | 117 | ("10328808" OR "10604024" OR "20010025618" OR "20020041174" OR "20030141845" OR "20040066168" OR "20040130298" OR "20040150373" OR "20040239290" OR "20050040788" OR "20050110467" OR "20050116688" OR "20050252573" OR "20060176011" OR | (US-PGPUB; USPAT) | OR | ON | ON | 2021/08/18 11:24 PM |

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|---|---|---|---|---|---|---|---|
| | | "20060220610" OR<br>"20060244412" OR<br>"20070278990" OR<br>"20070285049" OR<br>"20080143290" OR<br>"20100301800" OR<br>"20110068734" OR<br>"20110175461" OR<br>"20120025766" OR<br>"20120091944" OR<br>"20120319487" OR<br>"20130154543" OR<br>"20130162029" OR<br>"20130241488" OR<br>"20130314041" OR<br>"20140084844" OR<br>"20140159509" OR<br>"20140210399" OR<br>"20140368155" OR<br>"20150054336" OR<br>"20150137740" OR<br>"20150306964" OR<br>"20150340907" OR<br>"20160001666" OR<br>"20180111491" OR<br>"20180215274" OR<br>"20180269703" OR<br>"20180342891" OR<br>"20180345803" OR<br>"20190308518" OR<br>"3590357" OR<br>"3638108" OR<br>"3933140" OR<br>"4041445" OR<br>"4885524" OR<br>"4910628" OR<br>"4931731" OR<br>"5083076" OR<br>"5111130" OR<br>"5189359" OR<br>"5194799" OR<br>"5281904" OR<br>"5319298" OR<br>"5486434" OR<br>"5635817" OR<br>"5635818" OR<br>"5650974" OR<br>"5793185" OR<br>"5795182" OR<br>"5820407" OR<br>"5921809" OR<br>"5953681" OR<br>"5965998" OR<br>"6054779" OR<br>"6130519" OR<br>"6140796" OR<br>"6147471" OR<br>"6212054" OR | | | | | |

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|---|---|---|---|---|---|---|---|
| | | "6262492" OR<br>"6262559" OR<br>"6344733" OR<br>"6362599" OR<br>"6386907" OR<br>"6424158" OR<br>"6426606" OR<br>"6632103" OR<br>"6648701" OR<br>"6650086" OR<br>"6679212" OR<br>"6756764" OR<br>"6759833" OR<br>"6803743" OR<br>"6822425" OR<br>"7148580" OR<br>"7301303" OR<br>"7345450" OR<br>"7749031" OR<br>"7872361" OR<br>"7893657" OR<br>"8076900" OR<br>"8172603" OR<br>"8199024" OR<br>"8362745" OR<br>"8376775" OR<br>"8493021" OR<br>"9007015" OR<br>"9041244" OR<br>"9153978" OR<br>"9243601" OR<br>"9506446" OR<br>"9525297" OR<br>"9770992" OR<br>"9809183" OR<br>"9954391" OR<br>"D597029" OR<br>"D625265" OR<br>"D649116" OR<br>"D689020" OR<br>"D726109" OR<br>"D726114" OR<br>"D726121" OR<br>"D735665" OR<br>"D746774").pn. | | | | | |
| L42 | 62 | ((("THE") near3 ("NOCO") near3 ("COMPANY"))).AS,AANM. | (USPAT) | OR | ON | ON | 2021/08/18 11:28 PM |
| L43 | 135 | ((("NOOK") near3 ("Jonathan")) OR (("NOOK") near3 ("William")) OR (("STANFIELD") near3 ("James")) OR (("UNDERHILL") near3 ("Derek"))).INV. | (US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT) | OR | ON | ON | 2021/08/18 11:29 PM |

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|---|---|---|---|---|---|---|---|
| L44 | 1 | WO ADJ "2016025869" | (US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT) | OR | ON | ON | 2021/08/18 11:50 PM |
| L45 | 417 | ("9007015" "9770992"<br>"10328808"<br>"10604024"<br>"20160001666"<br>"20180111491"<br>"20180215274"<br>"20180345803"<br>"20190308518"<br>"20200028368"<br>"20200169114"<br>"20200215926"<br>"20200259340"<br>"20200317068"<br>"5534369" "5749927"<br>"5772934" "5836981"<br>"4853305" "4999576"<br>"5411592" "5498489"<br>"5592069" "5694024"<br>"5698147" "5725822"<br>"5827331" "5867006"<br>"5883495" "6007938"<br>"6018228" "6157171"<br>"4285751" "4296461"<br>"4343312" "4373531"<br>"4437769" "4767682"<br>"4794056" "4830936"<br>"4855781" "4871956"<br>"4966822" "4970451"<br>"5008161" "5008165"<br>"5026615" "5043235"<br>"5179337" "5230967"<br>"5240655" "5250370"<br>"5281491" "5300373"<br>"5441825" "5525441"<br>"5569553" "5618318"<br>"5656393" "5667909"<br>"5731106" "5889385"<br>"5905363" "5949218"<br>"5949215" "5965997"<br>"6016105" "6019803"<br>"6036639" "6056415"<br>"6080507" "6147472"<br>"6174628" "6180280"<br>"6181107" "6203938"<br>"6322921" "6335114"<br>"6346346" "6348282"<br>"6372380" "6376109"<br>"6444354" "6667132"<br>"6724593" "6749649"<br>"6836095" "6953642"<br>"6958199" "7169505"<br>"7201997" "7235333"<br>"7402361" "7666545"<br>"7682754" "7687194"<br>"7719233" "7727674" | (US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT) | OR | ON | ON | 2021/08/18 11:57 PM |

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|---|---|---|---|---|---|---|---|
| | | "7736800" "7768236" "7785736" "7806943" "7850743" "7897279" "8003249" "8067114" "7897279" "8003249" "8067114" "8147999" "8263247" "8420247" "8450007" "8465874" "8470471" "8472164" "8564277" "8574008" "8617257" "8628876" "8691410" "8709642" "8734985" RE44960 "8822070" "8865270" "8877386" "8895174" "8945744" "8951658" "8952653" "8968910" "8980462" "8999540" "9012078" "9048490" "9048503" "9059469" "9105882" "9203123" "9209446" "9209491" "9219291" "9231271" "9249522" "9252452" RE45956 "9312723" "9318748" "9379418" ).pn. | | | | | |
| L46 | 23 | L45 AND L2 | (US-PGPUB; USPAT; USOCR; EPO; JPO; DERWENT) | OR | ON | ON | 2021/08/18 11:58 PM |
| L47 | 2 | "20090174362".pn. | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2022/01/25 07:33 PM |
| L48 | 1063 | L38 L39 | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, | AND | ON | ON | 2022/01/25 10:16 PM |

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|---|---|---|---|---|---|---|---|
| | | | RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | | | | |
| L49 | 43 | L31 L48 | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2022/01/25 10:17 PM |
| L50 | 0 | (automatic NEAR detect$3) WITH (reverse NEAR polar$5) SAME (presence NEAR detect$3) | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2022/01/25 10:18 PM |
| L51 | 0 | (automatic NEAR detect$3) WITH (reverse NEAR polar$5) SAME (presence NEAR detect$3) | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2022/01/25 10:18 PM |
| L52 | 3 | (automatic NEAR detect$3) SAME (reverse NEAR polar$5) SAME (presence NEAR | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, | OR | ON | ON | 2022/01/25 10:19 PM |

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| | | detect$3) | CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | | | | |
| L53 | 47 | (Artificial Intelligence) Similar to: 16/819,831 with 0 CPC Selections and 0 Text Selections<br>Text: (US-20200317068-A1 OR US-20200215926-A1 OR US-20190308518-A1 OR US-10604024-B2 OR US-20160001666-A1 OR US-9007015-B1 OR US-20180111491-A1 OR US-20180215274-A1 OR US-10328808-B2 OR US-9770992-B2 OR US-20210031640-A1 OR US-20180345803-A1 OR US-7479763-B2 OR US-20200259340-A1 OR US-20090174362-A1 OR US-11001212-B2 OR US-20200290535-A1 OR US-20040251876-A1 OR CN-207530573-U OR US-20030184264-A1 OR WO-2019101108-A1 OR CN-207217796-U OR WO-9730502-A1 OR US-20220085631-A1 OR WO-2022055644-A1 OR US-5668461-A OR WO-2019190588-A1 OR GB-2579150-A OR US-9506446-B2 OR US-20150054336-A1 OR JP-2020516219-A OR US-20090218988-A1 OR US-8493021-B2 OR CA-3072515-C OR US-20210155096-A1 | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN)) | OR | ON | ON | 2022/09/22 12:39 PM |

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| | | OR AU-2018336956-B2 OR JP-2020534772-A OR EP-0930199-A3 OR DE-102019000352-A1 OR US-4349774-A OR US-10363824-B1 OR GB-2582520-A OR AU-2018336821-B2 OR GB-2350499-A OR DE-19946744-A1 OR FR-3036862-A1 OR US-20160082854-A1 OR CN-103326079-B OR US-20210296913-A1 OR JP-2022095635-A).did. | | | | | |
| L54 | 48 | (Artificial Intelligence) Similar to: 16/819,831 with 12 CPC Selections and 2 Text Selections<br>Text: (US-20200317068-A1 OR US-20200215926-A1 OR US-10604024-B2 OR US-20190308518-A1 OR US-20160001666-A1 OR US-9007015-B1 OR US-20180111491-A1 OR US-20210031640-A1 OR US-20180215274-A1 OR US-10328808-B2 OR US-20180345803-A1 OR US-9770992-B2 OR US-20200259340-A1 OR US-7479763-B2 OR US-20090174362-A1 OR US-20040251876-A1 OR US-20030184264-A1 OR US-11001212-B2 OR US-20200290535-A1 OR CN-207530573-U OR WO-9730502-A1 OR WO-2019101108-A1 OR US-5668461-A OR JP-2020516219-A OR WO-2019190588-A1 OR CN-207217796-U OR WO-2022055644-A1 OR GB-2579150-A OR US-20220085631-A1 OR US-20210155096-A1 OR US-20090218988-A1 | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN)) | OR | ON | ON | 2022/09/22 12:43 PM |

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| | | OR US-8493021-B2 OR AU-2018336956-B2 OR US-9506446-B2 OR US-20150054336-A1 OR US-20210237591-A1 OR CA-3072515-C OR JP-2020534772-A OR US-4349774-A OR GB-2582520-A OR AU-2018336821-B2 OR DE-102019000352-A1 OR US-11104236-B2 OR US-20210237592-A1 OR WO-2019060552-A1 OR US-20210296913-A1 OR US-11254213-B2 OR EP-0930199-A3 OR AU-2022200448-A1 OR AU-2018337954-B2).did. | | | | | |
| L55 | 1 | ("20200317068").pn. | (US-PGPUB; USPAT) | OR | ON | ON | 2022/09/22 12:51 PM |
| L56 | 35 | (Artificial Intelligence)<br>More like doc: US-20200317068-A1<br>Text: (US-20200215926-A1 OR AU-2021258059-B2 OR AU-2020201223-B2 OR US-10604024-B2 OR AU-2022200612-A1 OR AU-2019201559-B9 OR AU-2019201559-B2 OR AU-2020201224-A1 OR AU-2022201338-A1 OR AU-2022204065-A1 OR US-20190308518-A1 OR US-9007015-B1 OR US-20180111491-A1 OR US-20160001666-A1 OR US-20180215274-A1 OR WO-2019060699-A1 OR US-10328808-B2 OR AU-2016269555-A1 OR AU-2020201222-A1 OR AU-2020201223-A1).did. | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2022/09/22 12:51 PM |
| L57 | 23 | L2 L1 L3 L5 L7 L8 | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, | AND | ON | ON | 2022/09/22 12:53 PM |

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| | | | IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | | | | |
| L58 | 2 | "10875410".PN. | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2022/09/22 01:57 PM |
| L59 | 7 | "9525297".PN. | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2022/09/22 02:40 PM |
| L60 | 8 | "10328806".PN. | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2022/09/22 02:54 PM |

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|---|---|---|---|---|---|---|---|
| L61 | 2 | "20090174362".pn. | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2022/09/22 11:38 PM |
| L62 | 4 | "10087904".pn. | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2022/09/23 11:49 AM |
| L63 | 5 | "5867007".pn. | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2022/09/23 01:00 PM |
| L64 | 4 | "20170012448".pn. | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, | AND | ON | ON | 2022/09/23 03:23 PM |

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| | | | MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | | | | |
| L65 | 460 | reverse ADJ polarity ADJ (detector sensor) | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2023/02/02 08:58 PM |
| L66 | 162 | battery ADJ isolation ADJ (detector sensor) | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2023/02/02 08:58 PM |
| L67 | 125 | L66 AND L65 | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2023/02/02 08:59 PM |
| L68 | 159 | vehicle ADJ battery ADJ isolation ADJ | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, | OR | ON | ON | 2023/02/02 09:00 PM |

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| | | (sensor detector) | AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | | | | |
| L69 | 125 | L68 L67 | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2023/02/02 09:00 PM |
| L70 | 119 | L66 SAME L65 | (US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2023/02/02 09:01 PM |
| L71 | 73 | L66 SAME L65 SAME (switch) SAME signals | (US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, | OR | ON | ON | 2023/02/02 09:02 PM |

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| | | | SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | | | | |
| L72 | 46 | L70 NOT L71 | (US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2023/02/02 09:13 PM |
| L73 | 0 | L67 AND (@PD<="20140703") | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2023/02/06 11:56 AM |
| L74 | 5 | L67 AND (@FD<="20140703") | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2023/02/06 11:56 AM |
| L75 | 2 | "11447023".PN. | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, | OR | ON | ON | 2023/02/06 12:08 PM |

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|---|---|---|---|---|---|---|---|
| | | | CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | | | | |
| L76 | 0 | (battery ADJ presense ADJ (sensor detector)) SAME ((reverse ADJ polarity) ADJ (sensor detector)) | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2023/02/06 12:20 PM |
| L77 | 120 | (battery ADJ (isolation presense) ADJ (sensor detector)) SAME ((reverse ADJ polarity) ADJ (sensor detector)) | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2023/02/06 12:21 PM |
| L78 | 120 | L77 AND L67 | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, | OR | ON | ON | 2023/02/06 12:22 PM |

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| | | | VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | | | | |
| L79 | 2 | "20090174362".pn. | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2023/02/06 12:32 PM |
| L80 | 5 | "5650974".pn. | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2023/03/28 02:04 PM |
| L81 | 2 | "20040130298".pn. | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2023/03/28 02:06 PM |
| L82 | 2 | "20110175461".pn. | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, | OR | ON | ON | 2023/03/28 02:09 PM |

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|---|---|---|---|---|---|---|---|
| | | | HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | | | | |
| L83 | 2 | "20130154550".pn. | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2023/03/28 02:11 PM |
| L84 | 224 | (battery ADJ (charger charg$3) ADJ (apparatus device module)) WITH (USB (universal ADJ serial ADJ bus)) ADJ (ports input ADJ port) | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2023/03/28 02:24 PM |
| L85 | 583580 | (B60L53/14 or H02J1/122 or H02J7/0029 or H02J7/0034 or H02J7/0047 or H02J7/342 or H02J7/00 or H02J7/00302 or H02J7/00306 or H02J7/00309 or H02J7/0048 or H02J2310/46 or Y02T10/7072 or Y02T90/14).cpc. | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; | OR | ON | ON | 2023/03/28 02:26 PM |

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| | | | IBM_TDB) | | | | |
| L86 | 583778 | (B60L53/14 OR H02J1/122 OR H02J7/0029 OR H02J7/0034 OR H02J7/0047 OR H02J7/342 OR H02J7/00 OR H02J7/00302 OR H02J7/00306 OR H02J7/00309 OR H02J7/0048 OR H02J2310/46 OR Y02T10/7072 OR Y02T90/14).cpc. 320/105.ccls. | (US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2023/03/28 02:26 PM |
| L87 | 45 | L86 L84 | (US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | AND | ON | ON | 2023/03/28 02:27 PM |
| L88 | 5 | "5650974".pn. | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2023/03/29 10:08 AM |
| L89 | 224 | L84 AND (L85 OR L84) | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, | OR | ON | ON | 2023/03/29 10:57 AM |

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|---|---|---|---|---|---|---|---|
| | | | MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | | | | |
| L90 | 45 | L84 AND (L85 OR 320/105.ccls.) | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2023/03/29 10:57 AM |
| L91 | 22 | "2013126286" | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2023/03/29 11:08 AM |
| L92 | 7 | "2013126286".pn. | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2023/03/29 11:09 AM |
| L93 | 4 | "20130126286".pn. | (US-PGPUB; USPAT; | OR | ON | ON | 2023/03/29 |

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|---|---|---|---|---|---|---|---|
| | | | USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | | | | 11:10 AM |
| L94 | 7 | WO ADJ "2013099228" | (US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2023/03/29 11:17 AM |
| L95 | 2 | "8371442".PN. | (US-PGPUB; USPAT; USOCR; FIT (AP, AT, AU, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, MC, MD, MY, NL, NO, NZ, OA, PH, PL, PT, RO, RS, RU, SE, SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2023/03/29 11:42 AM |
| L96 | 2 | (vehicle car cart automobile locomotive) ADJ battery ADJ jumpstart$3 ADJ (device module apparatus) | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, | OR | ON | ON | 2023/03/29 11:46 AM |

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|---|---|---|---|---|---|---|---|
| | | | NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | | | | |
| L97 | 2 | battery ADJ jumpstart$3 ADJ (device module apparatus) | (US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA, EE, EP, ES, FI, FR, GB, HR, HU, ID, IE, IL, IS, IT, JP, KR, LT, LU, LV, MA, OA, RU, SU, WO, MC, MD, MY, NL, NO, NZ, PH, PL, PT, RO, RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) | OR | ON | ON | 2023/03/29 11:47 AM |

## PE2E SEARCH - Search History (Interference)

| Ref # | Hits | Search Query | DBs | Default Operator | Plurals | British Equivalents | Time Stamp |
|---|---|---|---|---|---|---|---|
| N1 | 14 | (jump AND start$2 AND power AND supply AND battery AND isolat$3 AND sens$2 AND detect$3 AND presence AND vehicle AND batter$3 AND reverse AND polarity AND sens$2 AND power AND switch).clm. | (US-PGPUB; USPAT) | OR | OFF | ON | 2023/03/28 04:25 PM |

## PE2E SEARCH - Search History (Similarity Search)

| Ref # | Sort and Retrieval Information | Text Selections | CPC Selections |
|---|---|---|---|
| L53 | Sort results by: Similarity to Application # 16/819,831<br><br>Retrieve results by: Application # 16/819,831 | No selections | No selections |
| L54 | Sort results by: Similarity to Application # 16/819,831<br><br>Retrieve results by: Application # 16/819,831 | (Abstract) A handheld device for jump starting a vehicle engine includes a rechargeable lithium ion battery pack (32) and a microcontroller (1). The lithium ion battery is coupled to a power output port of the device through a power switch | (B60L53/14) Conductive energy transfer<br><br>(H02J1/122) Provisions for temporary connection of DC sources of essentially the same voltage, e.g. jumpstart cables<br><br>(H02J7/342) The other DC source being a battery actively interacting with the first one, i.e. battery to battery charging |

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| | | circuit (15) actuated by the microcontroller. A vehicle battery isolation sensor (12) connected in circuit with positive and negative polarity outputs detects the presence of a vehicle battery (72) connected between the positive and negative polarity outputs. A reverse polarity sensor (10) connected in circuit with the positive and negative polarity outputs detects the polarity of a vehicle battery connected between the positive and negative polarity outputs, such that the microcontroller will enable power to be delivered from the lithium ion power pack to the output port only when a good battery is connected to the output port and only when the battery is connected with proper polarity of positive and negative terminals.<br><br>(Claims) A jump starter apparatus, comprising:<br><br>a power supply;<br><br>a positive battery terminal connector;<br><br>a negative battery terminal connector;<br><br>a power switch configured to electrically connect the power supply to a depleted or discharged battery; and<br><br>a control system or circuit electrically connected to and controlling the power switch, the control system or circuit configured to detect both presence of the depleted or discharged battery when connected between the positive and negative battery terminal connectors and proper polarity between the positive and negative battery terminal connectors and the positive and negative battery | (H02J7/0029) Circuit arrangements for charging or depolarising batteries or for supplying loads from batteries with safety or protection devices or circuits<br><br>(H02J7/0034) Circuit arrangements for charging or depolarising batteries or for supplying loads from batteries with safety or protection devices or circuits using reverse polarity correcting or protecting circuits<br><br>(H02J7/0047) Circuit arrangements for charging or depolarising batteries or for supplying loads from batteries with monitoring or indicating devices or circuits<br><br>(H02J7/0048) Detection of remaining charge capacity or state of charge [SOC]<br><br>(H02J7/00) Circuit arrangements for charging or depolarising batteries or for supplying loads from batteries<br><br>(H02J7/00306) Overdischarge protection<br><br>(H02J2310/46) The network being an on-board power network, i.e. within a vehicle for ICE-powered road vehicles<br><br>(H02J7/00309) Overheat or overtemperature protection<br><br>(H02J7/00302) Overcharge protection |

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|---|---|---|---|
| | | terminals of the depleted or discharged battery when connected between the positive and negative battery terminal connectors, the control system or circuit is configured to automatically execute the following steps when the jump starting apparatus becomes operational or is turned on, including:<br><br>(i) detect the presence of the depleted or discharged battery connected between the positive and negative battery connectors;<br><br>(ii) detect the proper polarity of a depleted or discharged battery when connected between the positive and negative battery terminal connectors;<br><br>and (iii) switch on power from the power supply to the depleted or discharged battery only when both the presence of the depleted or discharged battery connected between the positive and negative battery terminal connectors<br><br>is detected and a proper polarity connection between the positive and negative battery terminal connectors and the positive and negative battery terminals is detected. | |

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

**FIRST NAMED INVENTOR:** Jonathan Lewis Nook

**CONFIRMATION NO.:** 1630

**APPLICATION NO.:** 16/819,831

**GROUP ART UNIT:** 2859

**FILING DATE:** March 16, 2020

**EXAMINER:** Diao, M Baye

**TITLE:** PORTABLE VEHICLE BATTERY JUMP START APPARATUS WITH SAFETY PROTECTION

**DOCKET NO.:** 014710-0136-999

**REPLY TO OFFICE ACTION OF FEBRUARY 10, 2023**

Mail Stop AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

This is in response to the Office Action issued on February 10, 2023. Reconsideration and allowance is requested in view of the amendments and remarks provided herein. Any fees due may be charged to Counsel's Deposit Account 50-5013, ref. 014710-136-999.

**To:** ncgeorge@jonesday.com,wtokmakidis@jonesday.com,japarker@jonesday.com
**From:** PAIR_eOfficeAction@uspto.gov
**Cc:** PAIR_eOfficeAction@uspto.gov
**Subject:** Private PAIR Correspondence Notification for Customer Number 20583

Apr 05, 2023 07:22:25 AM

Dear PAIR Customer:

Jones Day
250 Vesey Street
New York, NY 10281-1047
UNITED STATES

The following USPTO patent application(s) associated with your Customer Number, 20583 , have new outgoing correspondence. This correspondence is now available for viewing in Private PAIR.

The official date of notification of the outgoing correspondence will be indicated on the form PTOL-90 accompanying the correspondence.

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The list of documents shown below is provided as a courtesy and is not part of the official file wrapper. The content of the images shown in PAIR is the official record.

| Application | Document | Mailroom Date | Attorney Docket No. |
|---|---|---|---|
| 16819831 | NOA | 04/05/2023 | 054985-000055-US-02-01 |
| | EXIN | 04/05/2023 | 054985-000055-US-02-01 |
| | 892 | 04/05/2023 | 054985-000055-US-02-01 |
| | 1449 | 04/05/2023 | 054985-000055-US-02-01 |

To view your correspondence online or update your email addresses, please visit us anytime at https://sportal.uspto.gov/secure/myportal/privatepair.

If you have any questions, please email the Electronic Business Center (EBC) at EBC@uspto.gov with 'e-Office Action' on the subject line or call 1-866-217-9197 during the following hours:

Monday - Friday 6:00 a.m. to 12:00 a.m.

Thank you for prompt attention to this notice,

UNITED STATES PATENT AND TRADEMARK OFFICE

PATENT APPLICATION INFORMATION RETRIEVAL SYSTEM

# PRINTER RUSH
(PTO ASSISTANCE)

| | | |
|---|---|---|
| **Application:** 16819831 | **Examiner:** Diao | **GAU:** 2859 |
| **From:** | **Location:** IDC | **Creation Date:** 04/06/2023 |

Week Date: 4/3/2023

| DOC CODE | DOC DATE | MISCELLANEOUS |
|---|---|---|
| [X] 1449 | 08/23/2021 | [ ] Continuing Data |
| [ ] IDS | | [ ] Foreign Priority |
| [ ] CLM | | [ ] Document Legibility |
| [ ] IIFW/FWCLM | | [ ] Fees |
| [ ] SRFW | | [ ] Petition (TC) |
| [ ] DRW | | [ ] Other |
| [ ] OATH | | |
| [ ] 312 | | |
| [ ] SPEC | | |

**[RUSH] Message:**

**Please supply the information that is missing from NPL Cite No. 23 on page 8 of 1449 8/23/2021 consisting of 8 pages. The citation ends with a plus sign which indicates data is missing.**

**Thank you**

**[XRUSH] Response:**

Initials: _____

Examiner: PUBS contact - James Leija, (703) 756-1197
NOTE: This form will be included as part of the official USPTO record with the response document coded as XRUSH.
REV: AUG 16

# PART B - FEE(S) TRANSMITTAL

Complete and send this form, together with applicable fee(s), by mail or fax, or via EFS-Web.

By mail, send to: Mail Stop ISSUE FEE
Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

By fax, send to: (571)-273-2885

INSTRUCTIONS: This form should be used for transmitting the ISSUE FEE and PUBLICATION FEE (if required). Blocks 1 through 5 should be completed where appropriate. All further correspondence will be mailed to the current correspondence address as indicated unless corrected below or directed otherwise in Block 1, by (a) specifying a new correspondence address; and/or (b) indicating a separate "FEE ADDRESS" for maintenance fee notifications. **Because electronic patent issuance may occur shortly after issue fee payment, any desired continuing application should preferably be filed prior to payment of this issue fee in order not to jeopardize copendency.**

CURRENT CORRESPONDENCE ADDRESS (Note: Use Block 1 for any change of address)

20583 7590 04/05/2023

Jones Day
250 Vesey Street
New York, NY 10281-1047

Note: A certificate of mailing can only be used for domestic mailings of the Fee(s) Transmittal. This certificate cannot be used for any other accompanying papers. Each additional paper, such as an assignment or formal drawing, must have its own certificate of mailing or transmission.

**Certificate of Mailing or Transmission**

I hereby certify that this Fee(s) Transmittal is being deposited with the United States Postal Service with sufficient postage for first class mail in an envelope addressed to the Mail Stop ISSUE FEE address above, or being transmitted to the USPTO via EFS-Web or by facsimile to (571) 273-2885, on the date below.

| (Typed or printed name) |
|---|
| (Signature) |
| (Date) |

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 16/819,831 | 03/16/2020 | Jonathan Lewis NOOK | 054985-000055-US-02-01 | 1630 |

TITLE OF INVENTION: PORTABLE VEHICLE BATTERY JUMP START APPARATUS WITH SAFETY PROTECTION

| APPLN. TYPE | ENTITY STATUS | ISSUE FEE DUE | PUBLICATION FEE DUE | PREV. PAID ISSUE FEE | TOTAL FEE(S) DUE | DATE DUE |
|---|---|---|---|---|---|---|
| nonprovisional | SMALL | $480 | $0.00 | $0.00 | $480 | 07/05/2023 |

| EXAMINER | ART UNIT | CLASS-SUBCLASS |
|---|---|---|
| DIAO, M BAYE | 2859 | 320-105000 |

1. Change of correspondence address or indication of "Fee Address" (37 CFR 1.363).

❑ Change of correspondence address (or Change of Correspondence Address form PTO/AIA/122 or PTO/SB/122) attached.

❑ "Fee Address" indication (or "Fee Address" Indication form PTO/AIA/47 or PTO/SB/47; Rev 03-02 or more recent) attached. **Use of a Customer Number is required.**

2. For printing on the patent front page, list
(1) The names of up to 3 registered patent attorneys or agents OR, alternatively,
(2) The name of a single firm (having as a member a registered attorney or agent) and the names of up to 2 registered patent attorneys or agents. If no name is listed, no name will be printed.

1 Jones Day
2
3

3. ASSIGNEE NAME AND RESIDENCE DATA TO BE PRINTED ON THE PATENT (print or type)

PLEASE NOTE: Unless an assignee is identified below, no assignee data will appear on the patent. If an assignee is identified below, the document must have been previously recorded, or filed for recordation, as set forth in 37 CFR 3.11 and 37 CFR 3.81(a). Completion of this form is NOT a substitute for filing an assignment.

(A) NAME OF ASSIGNEE: The NOCO Company

(B) RESIDENCE: (CITY and STATE OR COUNTRY): Glenwillow, OH

Please check the appropriate assignee category or categories (will not be printed on the patent) : ❑ Individual ☒ Corporation or other private group entity ❑ Government

4a. Fees submitted: ☒ Issue Fee ❑ Publication Fee (if required)

4b. Method of Payment: *(Please first reapply any previously paid fee shown above)*

☒ Electronic Payment via Patent Center or EFS-Web ❑ Enclosed check ❑ Non-electronic payment by credit card (Attach form PTO-2038)

☒ The Director is hereby authorized to charge the required fee(s), any deficiency, or credit any overpayment to Deposit Account No. 503013

5. **Change in Entity Status** (from status indicated above)

❑ Applicant certifying micro entity status. See 37 CFR 1.29

NOTE: Absent a valid certification of Micro Entity Status (see forms PTO/SB/15A and 15B), issue fee payment in the micro entity amount will not be accepted at the risk of application abandonment.

❑ Applicant asserting small entity status. See 37 CFR 1.27

NOTE: If the application was previously under micro entity status, checking this box will be taken to be a notification of loss of entitlement to micro entity status.

❑ Applicant changing to regular undiscounted fee status.

NOTE: Checking this box will be taken to be a notification of loss of entitlement to small or micro entity status, as applicable.

NOTE: This form must be signed in accordance with 37 CFR 1.31 and 1.33. See 37 CFR 1.4 for signature requirements and certifications.

Authorized Signature /Joseph M. Sauer/ Date 10 April 2023

Typed or printed name Joseph M. Sauer Registration No. 47919





ADC EX1002
IPR2025-00885

UNITED STATES
PATENT AND TRADEMARK OFFICE
P.O. Box 1450
Alexandria, VA 22313 - 1450
www.uspto.gov

# ELECTRONIC PAYMENT RECEIPT

| APPLICATION # | RECEIPT DATE / TIME | ATTORNEY DOCKET # |
|---|---|---|
| 16/819,831 | 04/10/2023 01:59:33 PM ET | 054985-000055-US-02-01 |

## Title of Invention

PORTABLE VEHICLE BATTERY JUMP START APPARATUS WITH SAFETY PROTECTION

## Application Information

| | | | |
|---|---|---|---|
| APPLICATION TYPE | Utility - Nonprovisional Application under 35 USC 111(a) | PATENT # | - |
| CONFIRMATION # | 1630 | FILED BY | Erin Rosenfelder |
| PATENT CENTER # | 61893507 | AUTHORIZED BY | Joseph Sauer |
| CUSTOMER # | 20583 | FILING DATE | 03/16/2020 |
| CORRESPONDENCE ADDRESS | - | FIRST NAMED INVENTOR | Jonathan Lewis NOOK |

## Payment Information

| PAYMENT METHOD | PAYMENT TRANSACTION ID | PAYMENT AUTHORIZED BY |
|---|---|---|
| DA / 503013 | E202340E00388821 | Erin Rosenfelder |

| PRE-AUTHORIZED ACCOUNT | PRE-AUTHORIZED CATEGORY |
|---|---|
| 503013 | 37 CFR 1.19 (Document supply fees); 37 CFR 1.20 (Post Issuance fees); 37 CFR 1.21 (Miscellaneous fees and charges) |

| FEE CODE | DESCRIPTION | ITEM PRICE($) | QUANTITY | ITEM TOTAL($) |
|---|---|---|---|---|
| 2501 | UTILITY ISSUE FEE | 480.00 | 1 | 480.00 |
| | | | TOTAL AMOUNT: | $480.00 |

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

**New Applications Under 35 U.S.C. 111**

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

**National Stage of an International Application under 35 U.S.C. 371**

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

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# ELECTRONIC ACKNOWLEDGEMENT RECEIPT

| APPLICATION # | RECEIPT DATE / TIME | ATTORNEY DOCKET # |
|---|---|---|
| **16/819,831** | **04/10/2023 01:59:33 PM ET** | **054985-000055-US-02-01** |

## Title of Invention

PORTABLE VEHICLE BATTERY JUMP START APPARATUS WITH SAFETY PROTECTION

## Application Information

| | | | |
|---|---|---|---|
| APPLICATION TYPE | Utility - Nonprovisional Application under 35 USC 111(a) | PATENT # | - |
| CONFIRMATION # | 1630 | FILED BY | Erin Rosenfelder |
| PATENT CENTER # | 61893507 | FILING DATE | 03/16/2020 |
| CUSTOMER # | 20583 | FIRST NAMED INVENTOR | Jonathan Lewis NOOK |
| CORRESPONDENCE ADDRESS | - | AUTHORIZED BY | Joseph Sauer |

## Documents

**TOTAL DOCUMENTS: 1**

| DOCUMENT | PAGES | DESCRIPTION | SIZE (KB) |
|---|---|---|---|
| 14710-136_IssueFee.pdf | 1 | Issue Fee Payment (PTO-85B) | 86 KB |

## Digest

| DOCUMENT | MESSAGE DIGEST(SHA-512) |
|---|---|
| 14710-136_IssueFee.pdf | B8EED02B60B56536A567C1D31E19893DCBDD833FBFE6AEFA85C84FE99CFE288D4F19CA923CA07AB8FE02086744995E83F20DADBECA1B5053764F52717FDD9801 |

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as

described in MPEP 503.

**New Applications Under 35 U.S.C. 111**

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

**National Stage of an International Application under 35 U.S.C. 371**

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

Sheet 1 of 2

| LIST OF REFERENCES CITED BY APPLICANT (Use several sheets if necessary) | ATTY. DOCKET NO. 14710-136-999 (55-US-02-01) | APPLICATION NO. 16/819,831 |
|---|---|---|
| | FIRST NAMED INVENTOR Jonathan Lewis Nook | |
| | FILING DATE March 16, 2020 | ART UNIT 2859 |

## U.S. PATENT DOCUMENTS

| *Examiner Initials | | Document Number | Date yyyy-mm-dd | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |
|---|---|---|---|---|---|
| | A01 | | | | |

## FOREIGN PATENT DOCUMENTS

| *Examiner Initials | | Foreign Patent Document Country Code, Number, Kind Code (if known) | Date yyyy-mm-dd | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear | T | Additional Information |
|---|---|---|---|---|---|---|---|
| | B01 | | | | | | |

## NON PATENT LITERATURE DOCUMENTS

| *Examiner Initials | | Include name of the author (in CAPITAL LETTERS), (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T | Additional Information |
|---|---|---|---|---|
| | C01 | THE NOCO COMPANY v. SHENZHEN DIKA NA'ER E-COMMERCE (Lead Case No. 1:17-cv-02282), THE NOCO COMPANY v. SHENZHEN CHANGXINYANG TECHNOLOGY CO., LTD (Case No. 1:117-cv-02209). THE NOCO COMPANY v. SHENZHEN VALUELINK E-COMMERCES CO., LTD (Case No. 1:17-cv-02210), Defendants' Amended Final Invalidity and Unenforceability Contents, The Powerall PBJS12000RD Jump Starter ("Powerall Jump Starter"), offered for sale by Gryphon Mobile Electronics at least as early as November 5, 2013, on page 2, The Lightning 12V Jump Starter ("Lightning Jump Starter"), offered for sale by Pilot, Inc. at least as early as March 2014, on page 2, and The L3 Model Jump Starter, offered for sale by Shenzhen Tsevie Company at least as early as May 19, 2019, on page 2, September 23, 2019, 5 pages. | | |
| | C02 | THE NOCO COMPANY, INC. v. SHENZHEN CHANGXINYANG TECHNOLOGY CO., LTD., Case No. 1:17-cv-02209, Defendents' Amended Final Invalidity and Unenforceability Contents, In the US District Court of Northern Ohio, Eastern District. The Powerall PBJS12000RD Jump Starter ("Powerall Jump Starter"), offered For sale by Gryphon Mobile Electronics at least as early 11/5/13; The Lightning 12V Jump Starter ("Lightning Jump Starter), offered for sale by Pilot, Inc. at least as early 3/14; The L3 Model Jump Starter, offered for sale by Shenzhen Tsevie Co as Early 5/19/19. | | |
| | C03 | Shenzhen Carku Technology Co., Ltd., 70MAI Co., Ltd., Antigravity Batteries LLC, Gooloo Technoligies LLC, Great Neck Saw Manufactures, Inc., Horizon Tool, Inc., MATCO Tools Corporation, Nekteck, Inc., Paris Corporation, Powermax Battery (U.S.A.), Inc., and Shenzhen Gooloo E-Commerce Co., Ltd. U.S. International Trade Commission, Investigation No. 337-TA-1256, SHENZHEN CARKU TECHNOLOGY CO., LTD., 70MAI CO., LTD., ANTIGRAVITY BATTERIES LLC, GOOLOO | | |

| EXAMINER | DATE CONSIDERED |
|---|---|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



ADC EX1002
IPR2025-00885

| LIST OF REFERENCES CITED BY APPLICANT<br>(Use several sheets if necessary) | ATTY. DOCKET NO.<br>14710-136-999<br>(55-US-02-01) | APPLICATION NO.<br>16/819,831 |
|---|---|---|
| | FIRST NAMED INVENTOR<br>Jonathan Lewis Nook | |
| | FILING DATE<br>March 16, 2020 | ART UNIT<br>2859 |

## NON PATENT LITERATURE DOCUMENTS

| *Examiner Initials | | Include name of the author (in CAPITAL LETTERS), (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T | Additional Information |
|---|---|---|---|---|
| | | TECHNOLOGIES LLC, GREAT NECK SAW MANUFACTURERS, INC., HORIZON TOOL, INC., MATCO TOOLS CORPORATION, NEKTECK, INC., PARIS CORPORATION, POWERMAX BATTERY (U.S.A.), INC. AND SHENZHEN GOOLOO E-COMMERCE CO., LTD.'S RESPONSE TO THE AMENDED COMPLAINT AND NOTICE OF INVESTIGATION, Exhibit B, pages 1-3. | | |

| EXAMINER | DATE CONSIDERED |
|---|---|
| *EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant. | |



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IPR2025-00885

UNITED STATES
PATENT AND TRADEMARK OFFICE
P.O. Box 1450
Alexandria, VA 22313 - 1450
www.uspto.gov

# ELECTRONIC ACKNOWLEDGEMENT RECEIPT

| APPLICATION # | RECEIPT DATE / TIME | ATTORNEY DOCKET # |
|---|---|---|
| **16/819,831** | **05/01/2023 11:59:47 AM ET** | **054985-000055-US-02-01** |

## Title of Invention

PORTABLE VEHICLE BATTERY JUMP START APPARATUS WITH SAFETY PROTECTION

## Application Information

| | | | |
|---|---|---|---|
| APPLICATION TYPE | Utility - Nonprovisional Application under 35 USC 111(a) | PATENT # | - |
| CONFIRMATION # | 1630 | FILED BY | Erin Rosenfelder |
| PATENT CENTER # | 62012959 | FILING DATE | 03/16/2020 |
| CUSTOMER # | 20583 | FIRST NAMED INVENTOR | Jonathan Lewis NOOK |
| CORRESPONDENCE ADDRESS | - | AUTHORIZED BY | Joseph Sauer |

## Documents

**TOTAL DOCUMENTS: 2**

| DOCUMENT | PAGES | DESCRIPTION | SIZE (KB) |
|---|---|---|---|
| 14710-136-999_ListRefs_rev.pdf | 2 | Information Disclosure Statement (IDS) Form (SB08) | 130 KB |
| Warning: This is not a USPTO supplied IDS fillable form. Data in the form cannot be automatically loaded to other USPTO systems. | | | |
| 14710-136-999_TransRevisedIDS.pdf | 1 | Transmittal Letter | 105 KB |

## Digest

| DOCUMENT | MESSAGE DIGEST(SHA-512) |
|---|---|

| | |
|---|---|
| 14710-136-999_ListRefs_rev.pdf | 83A693252AF99091082A0EC48C7E0439BDE8F6896A25D18316 81FA8AB6C54D5F8EA29FBAF4DC0076B37EFAE891F9B9DCF7 5E8E96CA696B7E73364D6974044AFC |
| 14710-136-999_TransRevisedIDS.pdf | 38C17F2ACBC7D7DEC106A7483745BEE6340A950DC387B0222 13300D562DA541CEF41605C2B537157F9183B00AC491BDB27 E5AFEA98F95E33CA30BCC4C3B2046F |

This Acknowledgement Receipt evidences receipt on the noted date by the USPTO of the indicated documents, characterized by the applicant, and including page counts, where applicable. It serves as evidence of receipt similar to a Post Card, as described in MPEP 503.

**New Applications Under 35 U.S.C. 111**

If a new application is being filed and the application includes the necessary components for filing date (see 37 CFR 1.53(b)-(d) and MPEP 506), a Filing Receipt (37 CFR 1.54) will be issued in due course and the date shown on this Acknowledgement Receipt will establish the filing date of the application

**National Stage of an International Application under 35 U.S.C. 371**

If a timely submission to enter the national stage of an international application is compliant with the conditions of 35 U.S.C. 371 and other applicable requirements a Form PCT/DO/EO/903 indicating acceptance of the application as a national stage submission under 35 U.S.C. 371 will be issued in addition to the Filing Receipt, in due course.

**New International Application Filed with the USPTO as a Receiving Office**

If a new international application is being filed and the international application includes the necessary components for an international filing date (see PCT Article 11 and MPEP 1810), a Notification of the International Application Number and of the International Filing Date (Form PCT/RO/105) will be issued in due course, subject to prescriptions concerning national security, and the date shown on this Acknowledgement Receipt will establish the international filing date of the application.

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

| | | | |
|---|---|---|---|
| First Named Inventor: | Jonathan Lewis Nook | Confirmation No.: | 1630 |
| Serial No.: | 16/819,831 | Art Unit: | 2859 |
| Filed: | March 16, 2020 | Examiner: | Diao, M Baye |
| For: | PORTABLE VEHICLE BATTERY JUMP START APPARATUS WITH SAFETY PROTECTION | Attorney Docket No.: | 014710-0136-999 |

## TRANSMITTAL LETTER

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sirs:

Per the April 29, 2023 voicemail from Examiner Diao, submitted herewith is a revised IDS of those originally submitted on July 23, 2020 and May 2, 2022. This revised IDS contains non-truncated Non-Patent Literature descriptions.

If the Office has any questions, or believes for any reason that personal communication will expedite prosecution of this application, the Office is hereby invited to telephone the undersigned at the number provided below.

Respectfully submitted,

Date: May 1, 2023

/Joseph M. Sauer/
Joseph M. Sauer (Reg. No. 47,919)
JONES DAY
901 Lakeside Avenue
Cleveland, Ohio 44114
(216) 586-7506



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IPR2025-00885

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 16/819,831 | 03/16/2020 | Jonathan Lewis NOOK | 054985-000055-US-02-01 | 1630 |

20583 7590 05/04/2023

Jones Day
250 Vesey Street
New York, NY 10281-1047

| EXAMINER |
|---|
| DIAO, M BAYE |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2859 | |

| NOTIFICATION DATE | DELIVERY MODE |
|---|---|
| 05/04/2023 | ELECTRONIC |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

japarker@jonesday.com
ncgeorge@jonesday.com
wtokmakidis@jonesday.com



ADC EX1002
IPR2025-00885

| **Corrected**<br>***Notice of Allowability*** | **Application No.**<br>16/819,831 | **Applicant(s)**<br>NOOK et al. | |
|---|---|---|---|
| | **Examiner**<br>M'BAYE DIAO | **Art Unit**<br>2859 | **AIA (FITF) Status**<br>Yes |

***-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--***

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☑ This communication is responsive to A.NE of 03/21/2023 and IDS filed on 05/01/2023.
   ☐ A declaration(s)/affidavit(s) under **37 CFR 1.130(b)** was/were filed on _____.

2. ☐ An election was made by the applicant in response to a restriction requirement set forth during the interview on _____; the restriction requirement and election have been incorporated into this action.

3. ☑ The allowed claim(s) is/are 78-85,89-91 (renumbered 1-11) . As a result of the allowed claim(s), you may be eligible to benefit from the **Patent Prosecution Highway** program at a participating intellectual property office for the corresponding application. For more information, please see **http://www.uspto.gov/patents/init_events/pph/index.jsp** or send an inquiry to **PPHfeedback@uspto.gov.**

4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

   **Certified copies:**

   a) ☐ All  b) ☐ Some*  c) ☐ None of the:

   1. ☐ Certified copies of the priority documents have been received.
   2. ☐ Certified copies of the priority documents have been received in Application No. _____ .
   3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

   * Certified copies not received: _____ .

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
   ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____ .

   **Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).**

6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

1. ☐ Notice of References Cited (PTO-892)
2. ☑ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date 05/01/2023.
3. ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material _____.
4. ☐ Interview Summary (PTO-413), Paper No./Mail Date. _____.
5. ☐ Examiner's Amendment/Comment
6. ☐ Examiner's Statement of Reasons for Allowance
7. ☑ Other RUSH of 04/06/2023.

| /M BAYE DIAO/<br>Primary Examiner, Art Unit 2859 | 05/01/2023 |
|---|---|



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IPR2025-00885

| LIST OF REFERENCES CITED BY APPLICANT (Use several sheets if necessary) | ATTY. DOCKET NO. 14710-136-999 (55-US-02-01) | APPLICATION NO. 16/819,831 |
|---|---|---|
| | FIRST NAMED INVENTOR Jonathan Lewis Nook | |
| | FILING DATE March 16, 2020 | ART UNIT 2859 |

## U.S. PATENT DOCUMENTS

| *Examiner Initials | | Document Number | Date yyyy-mm-dd | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear |
|---|---|---|---|---|---|
| | A01 | | | | |

## FOREIGN PATENT DOCUMENTS

| *Examiner Initials | | Foreign Patent Document Country Code, Number, Kind Code (if known) | Date yyyy-mm-dd | Name of Patentee or Applicant of Cited Document | Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear | T | Additional Information |
|---|---|---|---|---|---|---|---|
| | B01 | | | | | | |

## NON PATENT LITERATURE DOCUMENTS

| *Examiner Initials | | Include name of the author (in CAPITAL LETTERS), (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T | Additional Information |
|---|---|---|---|---|
| /M.D/ | C01 | THE NOCO COMPANY v. SHENZHEN DIKA NA'ER E-COMMERCE (Lead Case No. 1:17-cv-02282), THE NOCO COMPANY v. SHENZHEN CHANGXINYANG TECHNOLOGY CO., LTD (Case No. 1:117-cv-02209). THE NOCO COMPANY v. SHENZHEN VALUELINK E-COMMERCES CO., LTD (Case No. 1:17-cv-02210), Defendants' Amended Final Invalidity and Unenforceability Contents, The Powerall PBJS12000RD Jump Starter ("Powerall Jump Starter"), offered for sale by Gryphon Mobile Electronics at least as early as November 5, 2013, on page 2, The Lightning 12V Jump Starter ("Lightning Jump Starter"), offered for sale by Pilot, Inc. at least as early as March 2014, on page 2, and The L3 Model Jump Starter, offered for sale by Shenzhen Tsevie Company at least as early as May 19, 2019, on page 2, September 23, 2019, 5 pages. | | /M.D/ corresponds to citation No.23 on page 8 of 1449 of 08/23/2021 |
| /M.D/ | C02 | THE NOCO COMPANY, INC. v. SHENZHEN CHANGXINYANG TECHNOLOGY CO., LTD., Case No. 1:17-cv-02209, Defendents' Amended Final Invalidity and Unenforceability Contents, In the US District Court of Northern Ohio, Eastern District. The Powerall PBJS12000RD Jump Starter ("Powerall Jump Starter"), offered For sale by Gryphon Mobile Electronics at least as early 11/5/13; The Lightning 12V Jump Starter ("Lightning Jump Starter), offered for sale by Pilot, Inc. at least as early 3/14; The L3 Model Jump Starter, offered for sale by Shenzhen Tsevie Co as Early 5/19/19. | | /M.D/ corresponds to citation No.28 on page 10/14 of IDS filed 05/02/2022 |
| /M.D/ | C03 | Shenzhen Carku Technology Co., Ltd., 70MAI Co., Ltd., Antigravity Batteries LLC, Gooloo Technoligies LLC, Great Neck Saw Manufactures, Inc., Horizon Tool, Inc., MATCO Tools Corporation, Nekteck, Inc., Paris Corporation, Powermax Battery (U.S.A.), Inc., and Shenzhen Gooloo E-Commerce Co., Ltd. U.S. International Trade Commission, Investigation No. 337-TA-1256, SHENZHEN CARKU TECHNOLOGY CO., LTD., 70MAI CO., LTD., ANTIGRAVITY BATTERIES LLC, GOOLOO | | /M.D/ corresponds to citation No.38 on page 11/14 of IDS filed 05/02/2022 |

| EXAMINER /M BAYE DIAO/ | DATE CONSIDERED 05/01/2023 |
|---|---|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



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IPR2025-00885

ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.D/

| LIST OF REFERENCES CITED BY APPLICANT (Use several sheets if necessary) | ATTY. DOCKET NO. 14710-136-999 (55-US-02-01) | APPLICATION NO. 16/819,831 |
|---|---|---|
| | FIRST NAMED INVENTOR Jonathan Lewis Nook | |
| | FILING DATE March 16, 2020 | ART UNIT 2859 |

## NON PATENT LITERATURE DOCUMENTS

| *Examiner Initials | | Include name of the author (in CAPITAL LETTERS), (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published. | T | Additional Information |
|---|---|---|---|---|
| | | TECHNOLOGIES LLC, GREAT NECK SAW MANUFACTURERS, INC., HORIZON TOOL, INC., MATCO TOOLS CORPORATION, NEKTECK, INC., PARIS CORPORATION, POWERMAX BATTERY (U.S.A.), INC. AND SHENZHEN GOOLOO E-COMMERCE CO., LTD.'S RESPONSE TO THE AMENDED COMPLAINT AND NOTICE OF INVESTIGATION, Exhibit B, pages 1-3. | | |

| EXAMINER /M BAYE DIAO/ | DATE CONSIDERED 05/01/2023 |
|---|---|

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.



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ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.D/

# PRINTER RUSH
(PTO ASSISTANCE)

| | | |
|---|---|---|
| **Application:** 16819831 | **Examiner:** Diao | **GAU:** 2859 |
| **From:** | **Location:** IDC | **Creation Date:** 04/06/2023 |

Week Date: 4/3/2023

| DOC CODE | DOC DATE | MISCELLANEOUS |
|---|---|---|
| [X] 1449 | 08/23/2021 | [ ] Continuing Data |
| [ ] IDS | | [ ] Foreign Priority |
| [ ] CLM | | [ ] Document Legibility |
| [ ] IIFW/FWCLM | | [ ] Fees |
| [ ] SRFW | | [ ] Petition (TC) |
| [ ] DRW | | [ ] Other |
| [ ] OATH | | |
| [ ] 312 | | |
| [ ] SPEC | | |

**[RUSH] Message:**

**Please supply the information that is missing from NPL Cite No. 23 on page 8 of 1449 8/23/2021 consisting of 8 pages. The citation ends with a plus sign which indicates data is missing.**

**Thank you**

**[XRUSH] Response:**

Missing information have been provided in newly filed IDS filed on 05/01/2023 along with missing information in citations 28(page 10 of 14 in IDS filed 05/02/2022) and 38(page 11 of 14 in IDS filed 05/02/2022). See attached corrected notice of allowability.

Initials: /M.D/

Examiner: PUBS contact - James Leija, (703) 756-1197
NOTE: This form will be included as part of the official USPTO record with the response document coded as XRUSH.
REV: AUG 16

TO: ncgeorge@jonesday.com,wtokmakidis@jonesday.com,japarker@jonesday.com
FROM: noreply@uspto.gov
CC: patentcenter_eofficeaction@uspto.gov
SUBJECT: USPTO: Patent Electronic System - Correspondence Notification for Customer Number 20583

Thu May 04 06:41:46 EDT 2023

Dear Patent Center Customer:

Correspondence Address:

Jones Day
250 Vesey Street
New York,NEW YORK,10281-1047
UNITED STATES

This is a courtesy notification regarding the following USPTO patent application(s) associated with your Customer Number, 20583, that have new outgoing correspondence. This correspondence is now available for viewing in Patent Center.

The official date of notification of the outgoing correspondence will be indicated on the form (e.g., PTOL-90) accompanying the correspondence.

Disclaimer:
The list of documents shown below are provided as a courtesy and is not part of the official file wrapper. The content of the images shown in the Image File Wrapper is the official record.

| Application | Document | Mailroom Date | Attorney Docket No. |
|---|---|---|---|
| 16819831 | NOA | 05/04/2023 | 054985-000055-US-02-01 |
| 16819831 | 1449 | 05/04/2023 | 054985-000055-US-02-01 |

To view your correspondence online, please sign in to Patent Center and then select Workbench/View correspondence. To update your email address(es), select Manage/Manage customer numbers.

If you have any questions, please contact the Patent Electronic Business Center (EBC) at ebc@uspto.gov or 866-217-9197 Monday – Friday, 6 a.m. to midnight ET.

Please do not reply to this email as it was sent from an unmonitored mailbox.

Sincerely,

The Patent Center Team

| INFORMATION DISCLOSURE STATEMENT BY APPLICANT ( Not for submission under 37 CFR 1.99) | | |
|---|---|---|
| | Application Number | 16819831  |
| | Filing Date | 2020-03-16 |
| | First Named Inventor | Jonathan Lewis NOOK |
| | Art Unit | 2859 |
| | Examiner Name | M. Baye DIAO |
| | Attorney Docket Number | 054985-000055-US-02-01 |

| | | | | | | |
|---|---|---|---|---|---|---|
| /M.D/ | 7 | 20050116688 | A1 | 2005-06-02 | YIN | |
| | 8 | 20060176011 | A1 | 2006-08-10 | LUI | |
| | 9 | 20060220610 | A1 | 2006-10-05 | SOLBERG | |
| | 10 | 20060244412 | A1 | 2006-11-02 | BONZER | |
| | 11 | 20080143290 | A1 | 2008-07-19 | CHAVAKULA | |
| | 12 | 20110175461 | A1 | 2011-07-21 | TINAPHONG | |
| | 13 | 20120025766 | A1 | 2012-02-02 | READE | |
| | 14 | 20130162029 | A1 | 2013-06-27 | REICHOW | |
| | 15 | 20140084844 | A1 | 2014-03-27 | WEFLEN | |
| | 16 | 20140210399 | A1 | 2014-07-31 | URSCHEL | |
| | 17 | 20140368155 | A1 | 12/2014 ~~2013-12-18~~ | CHEN | |

Change(s) applied to document,
/M.E.G./
5/5/2023



ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.D/

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| **INFORMATION DISCLOSURE STATEMENT BY APPLICANT** (Not for submission under 37 CFR 1.99) | Application Number | 16819831  |
| | Filing Date | 2020-03-16 |
| | First Named Inventor | Jonathan Lewis NOOK |
| | Art Unit | 2859 |
| | Examiner Name | M. Baye DIAO |
| | Attorney Docket Number | 054985-000055-US-02-01 |

| | | | | | | |
|---|---|---|---|---|---|---|
| /M.D/ | 9 | 6650086 | | 2003-11-18 | CHANG | |
| | 10 | 6679212 | | 2004-01-20 | KELLING | |
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| | 14 | 8362745 | | 2013-01-29 | TINAPHONG | |
| | 15 | 9153978 | | 2015-10-06 | READE | |
| | 16 | 9243601 | | 2016-01-26 | REICHOW | |
| | 17 | 9525297 | | 2016-12-20 | WANG | |
| | 18 | 9809183 | | ~~2014-03-27~~ 11/2017 | WEFLEN | |
| | 19 | 9954391 | | 2018-04-24 | LEI | |

Change(s) applied to document, /M.E.G./ 5/5/2023



ALL REFERENCES CONSIDERED EXCEPT WHERE LINED THROUGH. /M.D/

ADC EX1002
IPR2025-00885

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|---|---|---|---|---|
| 16/819,831 | 06/06/2023 | 11667203 | 054985-000055-US-02-01 | 1630 |

20583 7590 05/17/2023

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# ISSUE NOTIFICATION

The projected patent number and issue date are specified above. The patent will issue electronically. The electronically issued patent is the official patent grant pursuant to 35 U.S.C. § 153. The patent may be accessed on or after the issue date through Patent Center at https://patentcenter.uspto.gov/. The patent will be available in both the public and the private sides of Patent Center. Further assistance in electronically accessing the patent, or about Patent Center, is available by calling the Patent Electronic Business Center at 1-888-217-9197.

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**Determination of Patent Term Adjustment under 35 U.S.C. 154 (b)**
(application filed on or after May 29, 2000)

The Patent Term Adjustment is 46 day(s). Any patent to issue from the above-identified application will include an indication of the adjustment on the front page.

If a Continued Prosecution Application (CPA) was filed in the above-identified application, the filing date that determines Patent Term Adjustment is the filing date of the most recent CPA.

Applicant will be able to obtain more detailed information by accessing the Patent Application Information Retrieval (PAIR) WEB site (http://pair.uspto.gov).

Any questions regarding the Patent Term Extension or Adjustment determination should be directed to the Office of Patent Legal Administration at (571)-272-7702. Questions relating to issue and publication fee payments should be directed to the Application Assistance Unit (AAU) of the Office of Patents Stakeholder Experience (OPSE), Stakeholder Support Division (SSD) at (571)-272-4200.



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IPR2025-00885

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| 16819831 | ISSUE.NTF | 05/17/2023 | 054985-000055-US-02-01 |

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