

L2785	44	OR US-20050078274-A1 OR US-20190278110-A1 OR US-20200218094-A1 OR US-20190285913-A1 OR US-20220011603-A1 OR US-11536988-B2 OR US-20230236444-A1).did. (Artificial Intelligence) Similar to: 18/597,874 with 0 CPC Selections and 3 Text Selections Text: (US-11921355-B2 OR US-20240036361-A1 OR US-20230273464-A1 OR US-20210314698-A1 OR JP-20220108194-A5 OR US-20180239413-A1 OR US-20170045928-A1 OR CN-108472686-B OR EP-3566468-B1 OR US-20170180863-A1 OR US-10146262-B1 OR US-10495885-B2 OR US-11829518-B1 OR US-20190064750-A1 OR US-20170322416-A1 OR EP-3345142-A1 OR WO-2017040397-A1 OR US-20170131575-A1 OR CA-2997538-A1 OR EP-3320832-A1 OR US-20160282628-A1 OR US-20180132031-A1 OR WO-2023194827-A1 OR US-20180113524-A1 OR US-20220361787-A1 OR AU-2016316932-B2 OR US-20180253159-A1 OR US-20180113504-A1 OR US-20180113590-A1 OR US-20220313089-A1 OR EP-3242153-A1 OR US-20210096372-A1 OR US-9690121-B2 OR US-10338394-B2 OR EP-3998946-A1 OR	(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))	OR	ON	ON	2024/09/04 01:05 PM
-------	----	---	--	----	----	----	---------------------

L2786	49	WO-2021016094-A1 OR US-9977483-B2 OR US-20210364827-A9 OR US-20190187492- A1 OR EP-3625976-A1 OR WO-2018210974- A1 OR EP-2929405-A2 OR WO-2014089074- A2 OR US-10694299- B2 OR US-11778428- B2 OR US- 20230127100-A1 OR JP-2020184692-A OR US-11144125-B2 OR US-20180185665-A1 OR WO-2021224497- A1).did. (Artificial Intelligence) Similar to: 18/597,874 with 2 CPC Selections and 3 Text Selections Text: (US-20240036361-A1 OR US-11921355-B2 OR US-20230273464- A1 OR US- 20210314698-A1 OR US-11829518-B1 OR US-20170131575-A1 OR US-9690121-B2 OR US-20190187492-A1 OR US-20210364827- A9 OR US- 20230359266-A1 OR US-20170146829-A1 OR US-20230412967- A1 OR US- 20220167077-A1 OR WO-2022109190-A1 OR US-11653140-B2 OR US-20220011603- A1 OR JP-2023538681- A OR WO-2021222214- A1 OR EP-4144099-A1 OR US-20150253590- A1 OR US-10330956- B2 OR US- 20210341762-A1 OR US-11086147-B2 OR US-11762224-B2 OR US-9033493-B2 OR US-20210364828-A1 OR US-20220260859- A1 OR US-8109629-B2 OR US-11733549-B2 OR US-8465151-B2 OR	(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))	OR	ON	ON	2024/09/04 01:05 PM
-------	----	--	---	----	----	----	------------------------

L2787	49	US-20230408850-A1 OR US-11500227-B2 OR US-20120133885-A1 OR US-20150085245-A1 OR US-20130201440-A1 OR US-20130308089-A1 OR US-20110187990-A1 OR US-20170090219-A1 OR US-20180335650-A1 OR US-20050264752-A1 OR US-7581833-B2 OR US-20070046887-A1 OR CN-108472686-B OR US-7922321-B2 OR EP-3242153-A1 OR US-20190364352-A1 OR US-10531173-B2 OR US-10338394-B2 OR EP-3320832-A1 OR US-11204512-B2).did. (Artificial Intelligence) Similar to: 18/597,874 with 2 CPC Selections and 3 Text Selections Text: (US-20240036361-A1 OR US-11921355-B2 OR US-20230273464-A1 OR US-20170131575-A1 OR US-9690121-B2 OR US-20210364827-A9 OR US-20190187492-A1 OR US-20170146829-A1 OR US-11829518-B1 OR US-20210314698-A1 OR US-20230359266-A1 OR US-20150253590-A1 OR US-20160370606-A1 OR CN-113330355-A OR US-8465151-B2 OR US-20220260859-A1 OR US-11733549-B2 OR US-10025119-B2 OR US-10330956-B2 OR US-20120133885-A1 OR US-20180143451-A1 OR US-11086147-B2 OR US-20230408850-A1 OR US-9033493-B2 OR	(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))	OR	ON	ON	2024/09/04 01:05 PM
-------	----	---	--	----	----	----	---------------------

L2788	48	US-20130201440-A1 OR US-20210364828-A1 OR US-11762224-B2 OR US-8109629-B2 OR US-9897822-B2 OR US-20150346511-A1 OR US-20070046887-A1 OR US-7581833-B2 OR US-9158116-B1 OR US-20150309317-A1 OR WO-2016205601-A1 OR CN-113454521-A OR US-9423842-B2 OR WO-2021222214-A1 OR EP-4144099-A1 OR US-20210341762-A1 OR US-20230412967-A1 OR US-11500227-B2 OR US-20160085278-A1 OR US-20200249733-A1 OR US-20220167077-A1 OR CN-114222941-A OR WO-2022109190-A1 OR US-20170031395-A1 OR US-20150309534-A1 OR WO-2015031107-A1).did. (Artificial Intelligence) Similar to: 18/597,874 with 4 CPC Selections and 3 Text Selections Text: (US-20240036361-A1 OR US-11921355-B2 OR US-20230273464-A1 OR US-20170131575-A1 OR US-9690121-B2 OR US-20190187492-A1 OR US-20210364827-A9 OR US-20170146829-A1 OR US-11829518-B1 OR US-20210314698-A1 OR US-20230359266-A1 OR US-20150253590-A1 OR US-10330956-B2 OR US-11086147-B2 OR US-11762224-B2 OR US-9033493-B2 OR US-20220260859-A1 OR US-11733549-B2	(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))	OR	ON	ON	2024/09/04 01:05 PM
-------	----	--	--	----	----	----	---------------------

L2789	47	OR US-8109629-B2 OR US-20210364828-A1 OR US-20230408850-A1 OR US-8465151-B2 OR US-20120133885-A1 OR US- 20130201440-A1 OR US-7581833-B2 OR US-20070046887-A1 OR US-20230412967-A1 OR US- 20220167077-A1 OR WO-2022109190-A1 OR US-11653140-B2 OR WO-2021222214-A1 OR US- 20160370606-A1 OR EP-4144099-A1 OR US-20180143451-A1 OR CN-113330355-A OR US-20220011603-A1 OR US-9897822-B2 OR US-10025119-B2 OR US-20210341762-A1 OR US-9158116-B1 OR US-20150346511-A1 OR DE- 202022101915-U1 OR US-20150309317-A1 OR US-11500227-B2 OR US-20240094800-A1 OR US- 20110187990-A1 OR US-7806525-B2 OR WO-2021254359-A1 OR US-11668958-B2 OR JP-2023538681-A).did. (Artificial Intelligence) Similar to: 18/597,874 with 6 CPC Selections and 3 Text Selections Text: (US-20240036361-A1 OR US-11921355-B2 OR US-20170131575-A1 OR US- 20230273464-A1 OR US-9690121-B2 OR US-20210364827-A9 OR US-20190187492-A1 OR US- 20170146829-A1 OR US-20150253590-A1 OR US-10330956-B2 OR US-11762224-B2	(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))	OR	ON	ON	2024/09/04 01:05 PM
-------	----	---	---	----	----	----	------------------------

L2862	42	OR US-11086147-B2 OR US-8109629-B2 OR US-20210364828-A1 OR US-9033493-B2 OR US-20120133885-A1 OR US-20230408850- A1 OR US-11733549- B2 OR US- 20220260859-A1 OR US-20130201440-A1 OR US-8465151-B2 OR CN-113330355-A OR US-11829518-B1 OR US-7581833-B2 OR US-20070046887-A1 OR US-20210314698- A1 OR US- 20230359266-A1 OR WO-2021222214-A1 OR EP-4144099-A1 OR DE-202022101915-U1 OR US-20210341762- A1 OR US- 20190204617-A1 OR US-11500227-B2 OR FR-3126050-A3 OR ES-1289195-U OR CA- 3149165-A1 OR US- 11849273-B2 OR GB- 2609686-A OR NL- 2031025-A OR NL- 2031025-B1 OR US- 20230040338-A1 OR CH-718869-A2 OR US- 20210191159-A1 OR JP-3237752-U OR US- 11668958-B2 OR KR- 20210080253-A OR AT-525342-B1 OR US- 20220113562-A1 OR DE-102020102281-A1 OR CA-3103299- A1).did. (Artificial Intelligence) More like doc: <u>US-20030045283-A1</u> Text: (WO-2023130105-A1 OR DK-2153693-T3 OR AU-2008261403-A1 OR AU-2008261403-B2 OR CA-2689257-A1 OR EP-2153693-A1 OR DE-102006049213-B4 OR US-8300864-B2 OR US-20090296967-A1 OR US-20080123865-	(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;	OR	ON	ON	2024/09/04 02:03 PM
-------	----	---	--	----	----	----	------------------------

L2863	39	A1 OR EP-1643802-A2 OR CN-101682824-A OR DE-102004047759-B3 OR EP-1643801-A2 OR AU-2009231433-A1 OR EP-2107825-A1 OR EP-1915031-A2 OR DE-102006049213-A1 OR CN-101175342-B OR CN-101175342-A).did. (Artificial Intelligence) More like doc: US-20050090295-A1 Text: (WO-2005036922-A1 OR EP-1673960-A4 OR EP-1673960-A1 OR CA-2542622-A1 OR EP-1949370-A1 OR WO-2007019702-A1 OR US-20070041589-A1 OR CA-2619268-A1 OR EP-1251715-B1 OR EP-1251715-B2 OR US-8121323-B2 OR US-7647077-B2 OR US-20030012392-A1 OR EP-1251715-A2 OR US-20070127752-A1 OR US-7181034-B2 OR CA-2382362-C OR US-20110136537-A1 OR CA-2420989-C OR WO-2010006707-A1).did.	JPO; DERWENT; IBM_TDB) (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	2024/09/04 02:03 PM
L2864	22	(Artificial Intelligence) More like doc: US-20170289323-A1 Text: (US-8140658-B1 OR US-10757000-B2 OR US-20100201516-A1 OR US-20100148940-A1 OR US-20110035491-A1 OR US-20150046582-A1 OR US-8836503-B2 OR US-9628365-B2 OR US-7844687-B1 OR US-7797367-B1 OR US-8832244-B2 OR US-8812654-B2 OR US-7484008-B1 OR US-7891004-B1 OR US-8079118-B2 OR US-20110029644-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); FPRS; EPO; JPO; DERWENT; IBM_TDB)	OR	ON	ON	2024/09/04 02:03 PM

L2865	39	OR US-7904569-B1 OR US-8601595-B2 OR US-20120079149-A1 OR US-6859831-B1).did. (Artificial Intelligence) More like doc: JP-2005167902-A Text: (JP-2007318476-A OR JP-4887907-B2 OR JP-2009157290-A OR US-8174569-B2 OR JP-2004120154-A OR US-20070291966-A1 OR US-20030090439-A1 OR WO-03023756-A1 OR EP-1433160-A1 OR JP-2006209144-A OR WO-2018186062-A1 OR US-20200053449-A1 OR JP-2002539498-A OR US-20120268433-A1 OR US-6356392-B1 OR US-6204974-B1 OR JP-4411547-B2 OR EP-1169663-A4 OR WO-0055676-A1 OR EP-1169663-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	2024/09/04 02:03 PM
L2901	50	(Artificial Intelligence) Similar to: 18/597,874 with 0 CPC Selections and 7 Text Selections Text: (US-12044901-B2 OR US-20240036361-A1 OR US-12140819-B1 OR US-20230273464-A1 OR US-20170131575-A1 OR DE-102013222202-A1 OR US-20190187492-A1 OR US-20210364827-A9 OR US-12078870-B2 OR US-20170146829-A1 OR US-9690121-B2 OR US-20220011603-A1 OR US-20240019718-A1 OR US-20200092663-A1 OR US-10575106-B1 OR US-20190033621-A1 OR CN-110024416-B OR US-3665121-A OR	(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	2024/12/13 05:08 PM

L2902	50	WO-2011083425-A2 OR US-20200081247-A1 OR US-20220099966-A1 OR US-20100177918-A1 OR US-20140003644-A1 OR US-10045133-B2 OR CN-213602833-U OR US-7729774-B1 OR US-8554350-B2 OR US-3883701-A OR CN-102804813-A OR EP-3629600-B1 OR WO-2007142520-A1 OR EP-4387275-A2 OR US-20230398354-A1 OR CN-212381404-U OR US-20110170722-A1 OR US-5553152-A OR DK-2412174-T3 OR CA-2537165-C OR EP-2408221-B1 OR EP-3439329-B1 OR US-5048090-A OR US-11638109-B2 OR US-11700495-B2 OR US-20230082717-A1 OR US-10979831-B2 OR US-20200367001-A1 OR US-20210168543-A1 OR US-11223918-B2 OR US-10897678-B2 OR US-20210099811-A1).did. (Artificial Intelligence) Similar to: 18/597,874 with 2 CPC Selections and 7 Text Selections Text: (US-12044901-B2 OR US-20240036361-A1 OR US-20230273464-A1 OR US-12140819-B1 OR US-20170131575-A1 OR US-20190187492-A1 OR US-20210364827-A9 OR US-12078870-B2 OR US-20170146829-A1 OR US-9690121-B2 OR DE-102013222202-A1 OR US-20220011603-A1 OR US-20240019718-A1 OR US-20190033621-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	2024/12/13 05:09 PM
-------	----	---	--	----	----	----	------------------------

L2903	50	OR CN-212381404-U OR US-9033493-B2 OR US-20090296044-A1 OR US-11474375-B1 OR US-20150253590- A1 OR US- 20130201440-A1 OR US-8465151-B2 OR US-20100309426-A1 OR US-20120133885- A1 OR US-10330956- B2 OR US-8109629-B2 OR US-11733549-B2 OR US-20200092663- A1 OR US-10575106- B1 OR US-11086147- B2 OR US- 20230408850-A1 OR US-3665121-A OR US- 20070046887-A1 OR US-7581833-B2 OR US-20190033623-A1 OR US-20220260859- A1 OR US-11762224- B2 OR US- 20210364828-A1 OR US-20210247625-A1 OR WO-2013188805- A2 OR CN-110024416- B OR EP-2862021-B1 OR US-3883701-A OR WO-2007142520-A1 OR US-20120176579- A1 OR US- 20220099966-A1 OR US-20200081247-A1 OR US-9039169-B2 OR US-20100177918-A1 OR JP-2022057677-A OR US-20140003644- A1).did. (Artificial Intelligence) Similar to: 18/597,874 with 4 CPC Selections and 7 Text Selections Text: (US-12044901-B2 OR US-20240036361-A1 OR US-20230273464- A1 OR US-12140819- B1 OR US- 20170131575-A1 OR US-20190187492-A1 OR US-20210364827- A9 OR US-12078870- B2 OR US-	(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	2024/12/13 05:10 PM
-------	----	---	---	----	----	----	------------------------

L2904	50	20170146829-A1 OR US-9690121-B2 OR US-20220011603-A1 OR US-20240019718- A1 OR US-9033493-B2 OR US-20090296044- A1 OR US- 20150253590-A1 OR US-20130201440-A1 OR US-8465151-B2 OR US-20100309426-A1 OR US-20120133885- A1 OR US-10330956- B2 OR US-8109629-B2 OR US-11733549-B2 OR US-11086147-B2 OR US-20230408850- A1 OR US- 20070046887-A1 OR US-7581833-B2 OR US-20220260859-A1 OR US-20190033623- A1 OR US-11762224- B2 OR US- 20210364828-A1 OR US-11131865-B2 OR US-20210011307-A1 OR DE-102013222202- A1 OR US- 20210082011-A1 OR WO-2019181150-A1 OR WO-2024182389- A1 OR US-11867981- B1 OR US- 20240288710-A1 OR US-12025855-B2 OR US-20230017635-A1 OR CN-111684340-A OR US-3665121-A OR US-20220357599-A1 OR US-11644693-B2 OR US-20110102734- A1 OR WO- 2013188805-A2 OR EP-2862021-B1 OR US-3883701-A OR US- 20200012127-A1 OR US-8905542-B2).did. (Artificial Intelligence) Similar to: 18/597,874 with 6 CPC Selections and 7 Text Selections Text: (US-12044901-B2 OR US-20240036361-A1 OR US-20230273464-	(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,	OR	ON	ON	2024/12/13 05:10 PM
-------	----	--	---	----	----	----	------------------------

L2912	287	2911 AND 54	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) (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	2024/12/13 05:15 PM
L2913	195	2911 AND 56	(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	2024/12/13 05:15 PM
L2914	102	2911 AND 60	(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	2024/12/13 05:15 PM

L2915	46	2911 AND 63	RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) (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	2024/12/13 05:15 PM
L2916	7	2911 AND 49	(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	2024/12/13 05:16 PM
L2917	164903	131 132 133 134 135 136 137 138 139 140 141	(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	2024/12/13 05:26 PM
L2925	10784	2917 AND 54	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY,	OR	ON	ON	2024/12/13 05:26 PM

L2926	8397	2917 AND 56	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) (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	2024/12/13 05:26 PM
L2927	3854	2917 AND 60	(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	2024/12/13 05:27 PM
L2928	1548	2917 AND 61	(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	2024/12/13 05:27 PM

L2929	392	2917 AND 63	TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) (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	2024/12/13 05:27 PM
L2930	99	2917 AND 49	(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	2024/12/13 05:27 PM
L2931	3	2917 AND 52	(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	2024/12/13 05:27 PM
L2932	390	(US-0000347-\$ US-0000733-\$ US-0001827-\$ US-0003803-\$ US-	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU,	OR	ON	ON	2024/12/13 05:39 PM

		0004325-\$ US- 0005069-\$ US- 0005230-\$ US- 0008763-\$ US- 0011603-\$ US- 0012127-\$ US- 0017635-\$ US- 0017997-\$ US- 0018274-\$ US- 0021407-\$ US- 0022690-\$ US- 0023158-\$ US- 0026146-\$ US- 0028309-\$ US- 0029582-\$ US- 0030442-\$ US- 0032449-\$ US- 0033061-\$ US- 0033622-\$ US- 0033623-\$ US- 0033660-\$ US- 0034478-\$ US- 0034542-\$ US- 0035830-\$ US- 0036103-\$ US- 0045283-\$ US- 0045928-\$ US- 0046887-\$ US- 0050668-\$ US- 0050754-\$ US- 0054092-\$ US- 0055888-\$ US- 0057654-\$ US- 0059159-\$ US- 0059212-\$ US- 0059381-\$ US- 0061579-\$ US- 0062046-\$ US- 0062338-\$ US- 0062357-\$ US- 0063378-\$ US- 0063763-\$ US- 0064746-\$ US- 0065257-\$ US- 0067580-\$ US- 0067585-\$ US- 0068057-\$ US- 0068559-\$ US- 0072828-\$ US- 0073375-\$ US- 0074721-\$ US- 0077175-\$ US- 0078274-\$ US- 0079356-\$ US- 0081982-\$ US- 0083591-\$ US- 0084990-\$ US- 0085245-\$ US-	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)				
--	--	--	---	--	--	--	--

		0088365-\$ US-					
		0089545-\$ US-					
		0089639-\$ US-					
		0090103-\$ US-					
		0090219-\$ US-					
		0090295-\$ US-					
		0091200-\$ US-					
		0096078-\$ US-					
		0098192-\$ US-					
		0098874-\$ US-					
		0098877-\$ US-					
		0100384-\$ US-					
		0100792-\$ US-					
		0101178-\$ US-					
		0101411-\$ US-					
		0101568-\$ US-					
		0102734-\$ US-					
		0104864-\$ US-					
		0105445-\$ US-					
		0107822-\$ US-					
		0109491-\$ US-					
		0109600-\$ US-					
		0110368-\$ US-					
		0114770-\$ US-					
		0117121-\$ US-					
		0122208-\$ US-					
		0128737-\$ US-					
		0131575-\$ US-					
		0132382-\$ US-					
		0132913-\$ US-					
		0133885-\$ US-					
		0136414-\$ US-					
		0140899-\$ US-					
		0141233-\$ US-					
		0143519-\$ US-					
		0144854-\$ US-					
		0146097-\$ US-					
		0146829-\$ US-					
		0147215-\$ US-					
		0150986-\$ US-					
		0151175-\$ US-					
		0151179-\$ US-					
		0156012-\$ US-					
		0156128-\$ US-					
		0157649-\$ US-					
		0158506-\$ US-					
		0159023-\$ US-					
		0160571-\$ US-					
		0160572-\$ US-					
		0160573-\$ US-					
		0164122-\$ US-					
		0172691-\$ US-					
		0176580-\$ US-					
		0176902-\$ US-					
		0178743-\$ US-					
		0186330-\$ US-					
		0187492-\$ US-					
		0187990-\$ US-					

		0189548-\$ US-					
		0197002-\$ US-					
		0197961-\$ US-					
		0198293-\$ US-					
		0200927-\$ US-					
		0201440-\$ US-					
		0201585-\$ US-					
		0208531-\$ US-					
		0211574-\$ US-					
		0211921-\$ US-					
		0213026-\$ US-					
		0214630-\$ US-					
		0218094-\$ US-					
		0218684-\$ US-					
		0226838-\$ US-					
		0226978-\$ US-					
		0227219-\$ US-					
		0230596-\$ US-					
		0230988-\$ US-					
		0231293-\$ US-					
		0236444-\$ US-					
		0238194-\$ US-					
		0239502-\$ US-					
		0241976-\$ US-					
		0245754-\$ US-					
		0246075-\$ US-					
		0248238-\$ US-					
		0248717-\$ US-					
		0248718-\$ US-					
		0248719-\$ US-					
		0251660-\$ US-					
		0251661-\$ US-					
		0253590-\$ US-					
		0260859-\$ US-					
		0262392-\$ US-					
		0264752-\$ US-					
		0268008-\$ US-					
		0268013-\$ US-					
		0268017-\$ US-					
		0270663-\$ US-					
		0271065-\$ US-					
		0271116-\$ US-					
		0271387-\$ US-					
		0272800-\$ US-					
		0273365-\$ US-					
		0273464-\$ US-					
		0277123-\$ US-					
		0278110-\$ US-					
		0278446-\$ US-					
		0278678-\$ US-					
		0279584-\$ US-					
		0283894-\$ US-					
		0285913-\$ US-					
		0289323-\$ US-					
		0291667-\$ US-					
		0292333-\$ US-					
		0296044-\$ US-					
		0296045-\$ US-					

L2933	318	0302992-\$ US- 0303187-\$ US- 0308089-\$ US- 0309426-\$ US- 0310132-\$ US- 0314079-\$ US- 0318589-\$ US- 0335650-\$ US- 0335792-\$ US- 0338677-\$ US- 0348050-\$ US- 0357599-\$ US- 0359266-\$ US- 0361185-\$ US- 0364827-\$ US- 0364828-\$ US- 0364992-\$ US- 0369402-\$).DID. (US-0378493-\$ US- 0379425-\$ US- 0387351-\$ US- 0399691-\$ US- 0408850-\$ US- 0415338-\$ US- 1255265-\$ US- 1917745-\$ US- 10042186-\$ US- 10060790-\$ US- 10061144-\$ US- 10310296-\$ US- 10345625-\$ US- 10359311-\$ US- 10515623-\$ US- 10539459-\$ US- 10571715-\$ US- 10624790-\$ US- 10777048-\$ US- 10802582-\$ US- 10964190-\$ US- 11042045-\$ US- 11069358-\$ US- 11086147-\$ US- 11204512-\$ US- 11243416-\$ US- 11326941-\$ US- 11513371-\$ US- 11536988-\$ US- 11630331-\$ US- 11644361-\$ US- 11644693-\$ US- 11721183-\$ US- 11733549-\$ US- 11762224-\$ US- 11803069-\$ US- 11829518-\$ US- 2249572-\$ US- 2638532-\$ US-	(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	2024/12/13 05:39 PM
-------	-----	---	---	----	----	----	------------------------

		2725462-\$ US-					
		2794085-\$ US-					
		2818511-\$ US-					
		2830132-\$ US-					
		2874230-\$ US-					
		2904670-\$ US-					
		20010005230-\$ US-					
		20010028309-\$ US-					
		20010050754-\$ US-					
		20020017997-\$ US-					
		20020021407-\$ US-					
		20020081982-\$ US-					
		20020084990-\$ US-					
		20020089639-\$ US-					
		20020090103-\$ US-					
		20020098877-\$ US-					
		20020101568-\$ US-					
		20020109600-\$ US-					
		20020136414-\$ US-					
		20020140899-\$ US-					
		20020146097-\$ US-					
		20020159023-\$ US-					
		20020197961-\$ US-					
		20030018274-\$ US-					
		20030022690-\$ US-					
		20030032449-\$ US-					
		20030045283-\$ US-					
		20030062046-\$ US-					
		20030063763-\$ US-					
		20030064746-\$ US-					
		20030065257-\$ US-					
		20030067585-\$ US-					
		20030068057-\$ US-					
		20030083591-\$ US-					
		20030091200-\$ US-					
		20030214630-\$ US-					
		20030226978-\$ US-					
		20030231293-\$ US-					
		20040000733-\$ US-					
		20040005069-\$ US-					
		20040029582-\$ US-					
		20040059212-\$ US-					
		20040063378-\$ US-					
		20040096078-\$ US-					
		20040100384-\$ US-					
		20040101178-\$ US-					
		20040104864-\$ US-					
		20040114770-\$ US-					
		20040128737-\$ US-					
		20040150986-\$ US-					
		20040156012-\$ US-					
		20040157649-\$ US-					
		20040160571-\$ US-					
		20040160572-\$ US-					
		20040160573-\$ US-					
		20040197002-\$ US-					
		20040227219-\$ US-					
		20050036103-\$ US-					

		20050067580-\$ US-					
		20050078274-\$ US-					
		20050088365-\$ US-					
		20050090295-\$ US-					
		20050201585-\$ US-					
		20050213026-\$ US-					
		20050230596-\$ US-					
		20050238194-\$ US-					
		20050239502-\$ US-					
		20050248717-\$ US-					
		20050248718-\$ US-					
		20050248719-\$ US-					
		20050264752-\$ US-					
		20050278446-\$ US-					
		20060001827-\$ US-					
		20060003803-\$ US-					
		20060023158-\$ US-					
		20060034478-\$ US-					
		20060107822-\$ US-					
		20060132382-\$ US-					
		20060291667-\$ US-					
		20070030442-\$ US-					
		20070035830-\$ US-					
		20070046887-\$ US-					
		20070055888-\$ US-					
		20070098192-\$ US-					
		20070109491-\$ US-					
		20070186330-\$ US-					
		20070189548-\$ US-					
		20070200927-\$ US-					
		20070208531-\$ US-					
		20070211574-\$ US-					
		20070248238-\$ US-					
		20070270663-\$ US-					
		20070271065-\$ US-					
		20070271116-\$ US-					
		20070271387-\$ US-					
		20070279584-\$ US-					
		20080062338-\$ US-					
		20080068559-\$ US-					
		20080089545-\$ US-					
		20080100792-\$ US-					
		20080144854-\$ US-					
		20080151175-\$ US-					
		20080151179-\$ US-					
		20080158506-\$ US-					
		20080211921-\$ US-					
		20080218684-\$ US-					
		20080262392-\$ US-					
		20080278678-\$ US-					
		20090059159-\$ US-					
		20090059381-\$ US-					
		20090073375-\$ US-					
		20090141233-\$ US-					
		20090147215-\$ US-					
		20090156128-\$ US-					
		20090251660-\$ US-					
		20090251661-\$ US-					

L2934	342	20090296044-\$ US- 20100045928-\$ US- 20100061579-\$ US- 20100079356-\$ US- 20100105445-\$ US- 20100110368-\$ US- 20100245754-\$).DID. (US-20100296045-\$ US-20100309426-\$ US-20110102734-\$ US-20110164122-\$ US-20110187990-\$ US-20110241976-\$ US-20110273365-\$ US-20110292333-\$ US-20120033061-\$ US-20120050668-\$ US-20120062357-\$ US-20120101411-\$ US-20120133885-\$ US-20120176580-\$ US-20120283894-\$ US-20130072828-\$ US-20130077175-\$ US-20130143519-\$ US-20130172691-\$ US-20130201440-\$ US-20130308089-\$ US-20140132913-\$ US-20140176902-\$ US-20140198293-\$ US-20140226838-\$ US-20140268008-\$ US-20140268013-\$ US-20140268017-\$ US-20140361185-\$ US-20150085245-\$ US-20150230988-\$ US-20150253590-\$ US-20150277123-\$ US-20150338677-\$ US-20160098874-\$ US-20160246075-\$ US-20160302992-\$ US-20170074721-\$ US-20170090219-\$ US-20170131575-\$ US-20170146829-\$ US-20170289323-\$ US-20170303187-\$ US-20180122208-\$ US-20180314079-\$ US-20180335650-\$ US-20180348050-\$ US-20190004325-\$ US-20190033622-\$ US-20190033623-\$	(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	2024/12/13 05:39 PM
-------	-----	---	---	----	----	----	------------------------

		US-20190117121-\$					
		US-20190187492-\$					
		US-20190272800-\$					
		US-20190278110-\$					
		US-20190285913-\$					
		US-20190310132-\$					
		US-20190318589-\$					
		US-20190369402-\$					
		US-20190378493-\$					
		US-20190387351-\$					
		US-20200012127-\$					
		US-20200218094-\$					
		US-20200364992-\$					
		US-20210000347-\$					
		US-20210026146-\$					
		US-20210271116-\$					
		US-20210364827-\$					
		US-20210364828-\$					
		US-20210379425-\$					
		US-20210399691-\$					
		US-20220008763-\$					
		US-20220011603-\$					
		US-20220034542-\$					
		US-20220054092-\$					
		US-20220178743-\$					
		US-20220260859-\$					
		US-20220335792-\$					
		US-20220357599-\$					
		US-20220415338-\$					
		US-20230017635-\$					
		US-20230033660-\$					
		US-20230057654-\$					
		US-20230236444-\$					
		US-20230273464-\$					
		US-20230359266-\$					
		US-20230408850-\$					
		US-3060308-\$ US-					
		3104290-\$ US-					
		3119903-\$ US-					
		3597054-\$ US-					
		3710115-\$ US-					
		3858001-\$ US-					
		3883701-\$ US-					
		4165487-\$ US-					
		4254451-\$ US-					
		4283127-\$ US-					
		4322585-\$ US-					
		4348664-\$ US-					
		4389217-\$ US-					
		4526473-\$ US-					
		4535244-\$ US-					
		4608492-\$ US-					
		4683587-\$ US-					
		4751691-\$ US-					
		4757714-\$ US-					
		4773095-\$ US-					
		4806011-\$ US-					
		4822160-\$ US-					

		4822161-\$ US-					
		4851686-\$ US-					
		4856086-\$ US-					
		4859047-\$ US-					
		4882769-\$ US-					
		4904078-\$ US-					
		4942629-\$ US-					
		4962469-\$ US-					
		4967268-\$ US-					
		4985632-\$ US-					
		5008548-\$ US-					
		5015086-\$ US-					
		5020150-\$ US-					
		5026151-\$ US-					
		5036311-\$ US-					
		5050150-\$ US-					
		5064410-\$ US-					
		5093576-\$ US-					
		5106179-\$ US-					
		5144344-\$ US-					
		5148023-\$ US-					
		5151600-\$ US-					
		5161250-\$ US-					
		5172256-\$ US-					
		5264877-\$ US-					
		5306917-\$ US-					
		5353378-\$ US-					
		5359370-\$ US-					
		5359444-\$ US-					
		5367345-\$ US-					
		5379464-\$ US-					
		5382986-\$ US-					
		5394005-\$ US-					
		5452026-\$ US-					
		5452480-\$ US-					
		5455637-\$ US-					
		5455640-\$ US-					
		5457751-\$ US-					
		5463428-\$ US-					
		5475798-\$ US-					
		5500532-\$ US-					
		5510961-\$ US-					
		5513384-\$ US-					
		5519781-\$ US-					
		5533130-\$ US-					
		5541641-\$ US-					
		5581090-\$ US-					
		5585871-\$ US-					
		5589398-\$ US-					
		5590417-\$ US-					
		5606743-\$ US-					
		5608808-\$ US-					
		5634201-\$ US-					
		5671035-\$ US-					
		5686727-\$ US-					
		5694475-\$ US-					
		5715323-\$ US-					
		5737436-\$ US-					

L2935	293	5777715-\$ US- 5790311-\$ US- 5818381-\$ US- 5819183-\$ US- 5835185-\$ US- 5900720-\$ US- 5903395-\$).DID. (US-5923398-\$ US- 5941837-\$ US- 5946071-\$ US- 5949516-\$ US- 5966746-\$ US- 5980037-\$ US- 5988812-\$ US- 5991085-\$ US- 5992996-\$ US- 5995592-\$ US- 6010216-\$ US- 6013919-\$ US- 6028627-\$ US- 6046455-\$ US- 6060321-\$ US- 6061580-\$ US- 6091546-\$ US- 6091832-\$ US- 6115177-\$ US- 6132681-\$ US- 6145983-\$ US- 6154552-\$ US- 6176576-\$ US- 6225897-\$ US- 6231181-\$ US- 6236969-\$ US- 6243578-\$ US- 6259367-\$ US- 6270466-\$ US- 6292213-\$ US- 6292685-\$ US- 6301050-\$ US- 6301367-\$ US- 6307526-\$ US- 6311155-\$ US- 6343858-\$ US- 6346929-\$ US- 6349001-\$ US- 6349422-\$ US- 6409335-\$ US- 6409338-\$ US- 6426719-\$ US- 6431705-\$ US- 6474816-\$ US- 6478736-\$ US- 6506142-\$ US- 6511175-\$ US- 6513532-\$ US- 6517203-\$ US- 6539336-\$ US-	(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	2024/12/13 05:39 PM
-------	-----	--	---	----	----	----	------------------------

		6542081-\$ US-					
		6546101-\$ US-					
		6554763-\$ US-					
		6582075-\$ US-					
		6619799-\$ US-					
		6629076-\$ US-					
		6678381-\$ US-					
		6717737-\$ US-					
		6729726-\$ US-					
		6736759-\$ US-					
		6764194-\$ US-					
		6769767-\$ US-					
		6771423-\$ US-					
		6788309-\$ US-					
		6792401-\$ US-					
		6816314-\$ US-					
		6824265-\$ US-					
		6857741-\$ US-					
		6871951-\$ US-					
		6879930-\$ US-					
		6912386-\$ US-					
		6929365-\$ US-					
		6932090-\$ US-					
		6947219-\$ US-					
		7004582-\$ US-					
		7013009-\$ US-					
		7023594-\$ US-					
		7030902-\$ US-					
		7031667-\$ US-					
		7033025-\$ US-					
		7059717-\$ US-					
		7073905-\$ US-					
		7079876-\$ US-					
		7123215-\$ US-					
		7192136-\$ US-					
		7255437-\$ US-					
		7265358-\$ US-					
		7274292-\$ US-					
		7289767-\$ US-					
		7312699-\$ US-					
		7331666-\$ US-					
		7376238-\$ US-					
		7380936-\$ US-					
		7401918-\$ US-					
		7405801-\$ US-					
		7429965-\$ US-					
		7430299-\$ US-					
		7438409-\$ US-					
		7438410-\$ US-					
		7445332-\$ US-					
		7481531-\$ US-					
		7500746-\$ US-					
		7500747-\$ US-					
		7512414-\$ US-					
		7517083-\$ US-					
		7527374-\$ US-					
		7543934-\$ US-					
		7581833-\$ US-					

		7621634-\$ US- 7648236-\$ US- 7677723-\$ US- 7760898-\$ US- 7771046-\$ US- 7787647-\$ US- 7792552-\$ US- 7801570-\$ US- 7806525-\$ US- 7922321-\$ US- 7976159-\$ US- 8009849-\$ US- 8109629-\$ US- 8142015-\$ US- 8174569-\$ US- 8175886-\$ US- 8251875-\$ US- 8337013-\$ US- 8430507-\$ US- 8434863-\$ US- 8465151-\$ US- 8485661-\$ US- 8500271-\$ US- 8571241-\$ US- 8582789-\$ US- 8620208-\$ US- 8626246-\$ US- 8770742-\$ US- 8849185-\$ US- 8905542-\$ US- 9033493-\$ US- 9183351-\$ US- 9244292-\$ US- 9369814-\$ US- 9400390-\$ US- 9405135-\$ US- 9488520-\$ US- 9547184-\$ US- 9690121-\$ US- 9922236-\$).DID.					
L2936	73	(11/183256 11/183269 11/546685 11/580222 12/462286 12/803732 12/806312 13/085402 13/291020 13/367346 13/831419 13/831445 13/831512 13/955336 14/557409 14/594662 14/715501 15/375423 15/396428 15/409723 16/049120 16/127957 16/182969 16/424018 16/429181 16/574254	(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	2024/12/13 05:39 PM

L2937	83	16/821810 17/395509 17/484080 17/737866 17/873104 17/942347 17/949029 17/964853 18/129660 18/144557 18/224793 19/594662).APP. (CA-2487391-\$ CN- 88203065-\$ CN- 89214222-\$ CN- 90208199-\$ DE- 10123226-\$ EP- 1027626-\$ EP- 1134491-\$ EP- 2290433-\$ FR- 2530039-\$ GB- 1467982-\$ JP- 58113914-\$ JP- 02181722-\$ JP- 09017204-\$ JP- 10161072-\$ JP- 2000039595-\$ JP- 2002341059-\$ JP- 2005151292-\$ JP- 2005167902-\$ JP- 58113912-\$ KR- 20020044416-\$ TW- 484711-\$ WO- 0106298-\$ WO- 0124576-\$ WO- 0206881-\$ WO- 03069394-\$ WO- 03100368-\$ WO- 03100503-\$ WO- 04012477-\$ WO- 04025554-\$ WO- 9712205-\$ WO- 9950706-\$).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	2024/12/13 05:39 PM
L2938	73	(US-0024594-\$ US- 0030597-\$ US- 0182812-\$ US- 0203183-\$ US- 0281440-\$ US- 0363835-\$ US- 20030030597-\$ US- 20050281440-\$ US- 20060203183-\$ US- 20070182812-\$ US- 20080024594-\$ US- 20200363835-\$ US- 4852988-\$ US- 4882598-\$ US- 4975584-\$ US- 5184156-\$ US- 5495576-\$ US-	(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	2024/12/13 05:39 PM

L2939	36	5583795-\$ US- 5841507-\$ US- 5966680-\$ US- 6099124-\$ US- 6163281-\$ US- 6244703-\$ US- 6433760-\$ US- 6491391-\$ US- 6563532-\$ US- 6771294-\$ US- 6847336-\$ US- 6943754-\$ US- 6977776-\$ US- 7148489-\$ US- 7150526-\$ US- 7278734-\$ US- 7347551-\$ US- 7488294-\$ US- 7651220-\$ US- 8408699-\$ US- 8931896-\$).DID. (AT-036110-\$ AL- 316473-\$ AT-362895-\$ AL-388766-\$ CA- 2233047-\$ CA- 2316473-\$ CA- 2362895-\$ CA- 2388766-\$ CA- 2435873-\$ EP- 0441791-\$ HO- 2102521-\$ HO- 2159272-\$ JP- 6275987-\$ JP- 63153218-\$ WO- 0184095-\$ WO- 02086599-\$ WO- 03062906-\$ WO- 04001373-\$ WO- 05036110-\$).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	2024/12/13 05:39 PM
L2946	1469	2932 2933 2934 2935 2936 2937 2938 2939	(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	2024/12/13 05:40 PM
L2947	229	2946 AND 54	(US-PGPUB; USPAT; USOCR; FIT (AU, AP,	OR	ON	ON	2024/12/13 05:41 PM

L2948	132	2946 AND 59	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) (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	2024/12/13 05:41 PM
L2949	61	2946 AND 63	(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	2024/12/13 05:41 PM
L2950	13	2946 AND 49	(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	2024/12/13 05:41 PM

L2951	2	2946 AND 52	RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) (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	2024/12/13 05:42 PM
L2952	663	("197708" "198608" "198805" "198909" "99411" "199511" "199609" "199709" "199807" "200011" "200101" "200102" "200205" "200208" "200210" "200302" "200512" "200907" "1129988" "6081194" "681194" "7312791" "8237349" "2107638").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	2024/12/13 05:50 PM
L2953	383	(US-10042186-\$ US-10060790-\$ US-10061144-\$ US-10310296-\$ US-10345625-\$ US-10359311-\$ US-10359459-\$ US-10624790-\$ US-10777048-\$ US-11042045-\$ US-1255265-\$ US-1917745-\$ US-2249572-\$ US-2638532-\$ US-2794085-\$ US-2818511-\$ US-2830132-\$ US-2874230-\$ US-2904670-\$ US-3060308-\$ US-	(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	2024/12/13 05:50 PM

		3597054-\$ US-					
		3710115-\$ US-					
		3858001-\$ US-					
		3883701-\$ US-					
		4165487-\$ US-					
		4254451-\$ US-					
		4283127-\$ US-					
		4322585-\$ US-					
		4348664-\$ US-					
		4389217-\$ US-					
		4526473-\$ US-					
		4535244-\$ US-					
		4608492-\$ US-					
		4683587-\$ US-					
		4751691-\$ US-					
		4757714-\$ US-					
		4773095-\$ US-					
		4806011-\$ US-					
		4822160-\$ US-					
		4822161-\$ US-					
		4851686-\$ US-					
		4856086-\$ US-					
		4859047-\$ US-					
		4882769-\$ US-					
		4904078-\$ US-					
		4942629-\$ US-					
		4962469-\$ US-					
		4967268-\$ US-					
		4985632-\$ US-					
		5008548-\$ US-					
		5015086-\$ US-					
		5020150-\$ US-					
		5026151-\$ US-					
		5036311-\$ US-					
		5050150-\$ US-					
		5064410-\$ US-					
		5093576-\$ US-					
		5106179-\$ US-					
		5148023-\$ US-					
		5151600-\$ US-					
		5161250-\$ US-					
		5172256-\$ US-					
		5264877-\$ US-					
		5306917-\$ US-					
		5353378-\$ US-					
		5359370-\$ US-					
		5359444-\$ US-					
		5367345-\$ US-					
		5379464-\$ US-					
		5382986-\$ US-					
		5394005-\$ US-					
		5452026-\$ US-					
		5452480-\$ US-					
		5455637-\$ US-					
		5455640-\$ US-					
		5457751-\$ US-					
		5463428-\$ US-					
		5500532-\$ US-					

		5510961-\$ US-					
		5513384-\$ US-					
		5533130-\$ US-					
		5541641-\$ US-					
		5581090-\$ US-					
		5585871-\$ US-					
		5589398-\$ US-					
		5590417-\$ US-					
		5606743-\$ US-					
		5608808-\$ US-					
		5634201-\$ US-					
		5671035-\$ US-					
		5686727-\$ US-					
		5694475-\$ US-					
		5715323-\$ US-					
		5737436-\$ US-					
		5818381-\$ US-					
		5835185-\$ US-					
		5900720-\$ US-					
		5903395-\$ US-					
		5923398-\$ US-					
		5941837-\$ US-					
		5946071-\$ US-					
		5949516-\$ US-					
		5966746-\$ US-					
		5980037-\$ US-					
		5988812-\$ US-					
		5991085-\$ US-					
		5992996-\$ US-					
		5995592-\$ US-					
		6010216-\$ US-					
		6013919-\$ US-					
		6028627-\$ US-					
		6046455-\$ US-					
		6060321-\$ US-					
		6061580-\$ US-					
		6091546-\$ US-					
		6091832-\$ US-					
		6115177-\$ US-					
		6132681-\$ US-					
		6145983-\$ US-					
		6154552-\$ US-					
		6176576-\$ US-					
		6225897-\$ US-					
		6231181-\$ US-					
		6236969-\$ US-					
		6243578-\$ US-					
		6259367-\$ US-					
		6270466-\$ US-					
		6292213-\$ US-					
		6292685-\$ US-					
		6301367-\$ US-					
		6307526-\$ US-					
		6343858-\$ US-					
		6349001-\$ US-					
		6349422-\$ US-					
		6409335-\$ US-					
		6409338-\$ US-					

		6426719-\$ US-					
		6431705-\$ US-					
		6474816-\$ US-					
		6478736-\$ US-					
		6506142-\$ US-					
		6511175-\$ US-					
		6513532-\$ US-					
		6517203-\$ US-					
		6539336-\$ US-					
		6542081-\$ US-					
		6546101-\$ US-					
		6554763-\$ US-					
		6582075-\$ US-					
		6619799-\$ US-					
		6629076-\$ US-					
		6729726-\$ US-					
		6736759-\$ US-					
		6764194-\$ US-					
		6769767-\$ US-					
		6788309-\$ US-					
		6792401-\$ US-					
		6816314-\$ US-					
		6824265-\$ US-					
		6857741-\$ US-					
		6871951-\$ US-					
		6879930-\$ US-					
		6912386-\$ US-					
		6929365-\$ US-					
		6932090-\$ US-					
		6947219-\$ US-					
		7004582-\$ US-					
		7013009-\$ US-					
		7023594-\$ US-					
		7030902-\$ US-					
		7031667-\$ US-					
		7033025-\$ US-					
		7059717-\$ US-					
		7073905-\$ US-					
		7079876-\$ US-					
		7123215-\$ US-					
		7192136-\$ US-					
		7255437-\$ US-					
		7265358-\$ US-					
		7274292-\$ US-					
		7289767-\$ US-					
		7312699-\$ US-					
		7331666-\$ US-					
		7376238-\$ US-					
		7380936-\$ US-					
		7401918-\$ US-					
		7405801-\$ US-					
		7429965-\$ US-					
		7438409-\$ US-					
		7438410-\$ US-					
		7445332-\$ US-					
		7481531-\$ US-					
		7500746-\$ US-					
		7500747-\$ US-					

L2954	381	7512414-\$).DID. (US-20190310132-\$ US-20190318589-\$ US-20190387351-\$ US-20200012127-\$ US-20200218094-\$ US-20200364992-\$ US-3060308-\$ US- 3597054-\$ US- 3710115-\$ US- 3858001-\$ US- 3883701-\$ US- 4165487-\$ US- 4254451-\$ US- 4283127-\$ US- 4322585-\$ US- 4348664-\$ US- 4389217-\$ US- 4526473-\$ US- 4535244-\$ US- 4608492-\$ US- 4683587-\$ US- 4751691-\$ US- 4757714-\$ US- 4773095-\$ US- 4806011-\$ US- 4822160-\$ US- 4822161-\$ US- 4851686-\$ US- 4856086-\$ US- 4859047-\$ US- 4882769-\$ US- 4904078-\$ US- 4942629-\$ US- 4962469-\$ US- 4967268-\$ US- 4985632-\$ US- 5008548-\$ US- 5015086-\$ US- 5020150-\$ US- 5026151-\$ US- 5036311-\$ US- 5050150-\$ US- 5064410-\$ US- 5093576-\$ US- 5106179-\$ US- 5148023-\$ US- 5151600-\$ US- 5161250-\$ US- 5172256-\$ US- 5264877-\$ US- 5306917-\$ US- 5353378-\$ US- 5359370-\$ US- 5359444-\$ US- 5367345-\$ US- 5379464-\$ US-	(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	2024/12/13 05:50 PM
-------	-----	--	---	----	----	----	------------------------

		5382986-\$ US-					
		5394005-\$ US-					
		5452026-\$ US-					
		5452480-\$ US-					
		5455637-\$ US-					
		5455640-\$ US-					
		5457751-\$ US-					
		5463428-\$ US-					
		5500532-\$ US-					
		5510961-\$ US-					
		5513384-\$ US-					
		5533130-\$ US-					
		5541641-\$ US-					
		5581090-\$ US-					
		5585871-\$ US-					
		5589398-\$ US-					
		5590417-\$ US-					
		5606743-\$ US-					
		5608808-\$ US-					
		5634201-\$ US-					
		5671035-\$ US-					
		5686727-\$ US-					
		5694475-\$ US-					
		5715323-\$ US-					
		5737436-\$ US-					
		5818381-\$ US-					
		5835185-\$ US-					
		5900720-\$ US-					
		5903395-\$ US-					
		5923398-\$ US-					
		5941837-\$ US-					
		5946071-\$ US-					
		5949516-\$ US-					
		5966746-\$ US-					
		5980037-\$ US-					
		5988812-\$ US-					
		5991085-\$ US-					
		5992996-\$ US-					
		5995592-\$ US-					
		6010216-\$ US-					
		6013919-\$ US-					
		6028627-\$ US-					
		6046455-\$ US-					
		6060321-\$ US-					
		6061580-\$ US-					
		6091546-\$ US-					
		6091832-\$ US-					
		6115177-\$ US-					
		6132681-\$ US-					
		6145983-\$ US-					
		6154552-\$ US-					
		6176576-\$ US-					
		6225897-\$ US-					
		6231181-\$ US-					
		6236969-\$ US-					
		6243578-\$ US-					
		6259367-\$ US-					
		6270466-\$ US-					

		6292213-\$ US-					
		6292685-\$ US-					
		6301367-\$ US-					
		6307526-\$ US-					
		6343858-\$ US-					
		6349001-\$ US-					
		6349422-\$ US-					
		6409335-\$ US-					
		6409338-\$ US-					
		6426719-\$ US-					
		6431705-\$ US-					
		6474816-\$ US-					
		6478736-\$ US-					
		6506142-\$ US-					
		6511175-\$ US-					
		6513532-\$ US-					
		6517203-\$ US-					
		6539336-\$ US-					
		6542081-\$ US-					
		6546101-\$ US-					
		6554763-\$ US-					
		6582075-\$ US-					
		6619799-\$ US-					
		6629076-\$ US-					
		6729726-\$ US-					
		6736759-\$ US-					
		6764194-\$ US-					
		6769767-\$ US-					
		6788309-\$ US-					
		6792401-\$ US-					
		6816314-\$ US-					
		6824265-\$ US-					
		6857741-\$ US-					
		6871951-\$ US-					
		6879930-\$ US-					
		6912386-\$ US-					
		6929365-\$ US-					
		6932090-\$ US-					
		6947219-\$ US-					
		7004582-\$ US-					
		7013009-\$ US-					
		7023594-\$ US-					
		7030902-\$ US-					
		7031667-\$ US-					
		7033025-\$ US-					
		7059717-\$ US-					
		7073905-\$ US-					
		7079876-\$ US-					
		7123215-\$ US-					
		7192136-\$ US-					
		7255437-\$ US-					
		7265358-\$ US-					
		7274292-\$ US-					
		7289767-\$ US-					
		7312699-\$ US-					
		7331666-\$ US-					
		7376238-\$ US-					
		7380936-\$ US-					

L2955	376	7401918-\$ US- 7405801-\$ US- 7429965-\$ US- 7438409-\$ US- 7438410-\$ US- 7445332-\$ US- 7481531-\$ US- 7500746-\$ US- 7500747-\$ US- 7512414-\$ US- 7517083-\$ US- 7527374-\$ US- 7543934-\$ US- 7581833-\$ US- 7621634-\$ US- 7648236-\$ US- 7677723-\$ US- 7760898-\$ US- 7771046-\$ US- 7792552-\$ US- 7806525-\$ US- 7922321-\$).DID. (US-0000733-\$ US- 0001827-\$ US- 0003803-\$ US- 0005230-\$ US- 0012127-\$ US- 0017997-\$ US- 0018274-\$ US- 0021407-\$ US- 0022690-\$ US- 0023158-\$ US- 0028309-\$ US- 0029582-\$ US- 0030442-\$ US- 0032449-\$ US- 0033061-\$ US- 0033623-\$ US- 0034478-\$ US- 0035830-\$ US- 0046887-\$ US- 0050668-\$ US- 0050754-\$ US- 0055888-\$ US- 0059159-\$ US- 0059212-\$ US- 0059381-\$ US- 0061579-\$ US- 0062046-\$ US- 0062338-\$ US- 0062357-\$ US- 0063378-\$ US- 0065257-\$ US- 0067580-\$ US- 0067585-\$ US- 0068057-\$ US- 0068117-\$ US-	(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	2024/12/13 05:50 PM
-------	-----	--	---	----	----	----	------------------------

		0068559-\$ US-					
		0072828-\$ US-					
		0073375-\$ US-					
		0074721-\$ US-					
		0077175-\$ US-					
		0078274-\$ US-					
		0079356-\$ US-					
		0081982-\$ US-					
		0083591-\$ US-					
		0084990-\$ US-					
		0085245-\$ US-					
		0088365-\$ US-					
		0089639-\$ US-					
		0090103-\$ US-					
		0090219-\$ US-					
		0096078-\$ US-					
		0098192-\$ US-					
		0098877-\$ US-					
		0100384-\$ US-					
		0100792-\$ US-					
		0101178-\$ US-					
		0101568-\$ US-					
		0102734-\$ US-					
		0107822-\$ US-					
		0109491-\$ US-					
		0109600-\$ US-					
		0110368-\$ US-					
		0128737-\$ US-					
		0131575-\$ US-					
		0132382-\$ US-					
		0132913-\$ US-					
		0133885-\$ US-					
		0140899-\$ US-					
		0141233-\$ US-					
		0143519-\$ US-					
		0144854-\$ US-					
		0146829-\$ US-					
		0147215-\$ US-					
		0150986-\$ US-					
		0151175-\$ US-					
		0151179-\$ US-					
		0156012-\$ US-					
		0156128-\$ US-					
		0157649-\$ US-					
		0158506-\$ US-					
		0159023-\$ US-					
		0160571-\$ US-					
		0160572-\$ US-					
		0160573-\$ US-					
		0164122-\$ US-					
		0176580-\$ US-					
		0176902-\$ US-					
		0186330-\$ US-					
		0187492-\$ US-					
		0187990-\$ US-					
		0197002-\$ US-					
		0197961-\$ US-					
		0198293-\$ US-					

		0200927-\$ US-					
		0201440-\$ US-					
		0201585-\$ US-					
		0208531-\$ US-					
		0211921-\$ US-					
		0213026-\$ US-					
		0214630-\$ US-					
		0218094-\$ US-					
		0218684-\$ US-					
		0226978-\$ US-					
		0227219-\$ US-					
		0230596-\$ US-					
		0230988-\$ US-					
		0231293-\$ US-					
		0238194-\$ US-					
		0239502-\$ US-					
		0241796-\$ US-					
		0245754-\$ US-					
		0246075-\$ US-					
		0248238-\$ US-					
		0248717-\$ US-					
		0248718-\$ US-					
		0248719-\$ US-					
		0251660-\$ US-					
		0251661-\$ US-					
		0253590-\$ US-					
		0262392-\$ US-					
		0264752-\$ US-					
		0268008-\$ US-					
		0268013-\$ US-					
		0268017-\$ US-					
		0270663-\$ US-					
		0271065-\$ US-					
		0271116-\$ US-					
		0271387-\$ US-					
		0272800-\$ US-					
		0273365-\$ US-					
		0278110-\$ US-					
		0278446-\$ US-					
		0278678-\$ US-					
		0279584-\$ US-					
		0285913-\$ US-					
		0296044-\$ US-					
		0296045-\$ US-					
		0302992-\$ US-					
		0303187-\$ US-					
		0308089-\$ US-					
		0309426-\$ US-					
		0310132-\$ US-					
		0314079-\$ US-					
		0318589-\$ US-					
		0348050-\$ US-					
		0361185-\$ US-					
		0364992-\$ US-					
		0387351-\$ US-					
		10042186-\$ US-					
		10060790-\$ US-					
		10061144-\$ US-					

L2956	369	10310296-\$ US- 10345625-\$ US- 10359311-\$ US- 10359459-\$ US- 10624790-\$ US- 10777048-\$ US- 11042045-\$ US- 11086147-\$ US- 1255265-\$ US- 1917745-\$ US- 20010005230-\$ US- 20010028309-\$ US- 20010050754-\$ US- 20020017997-\$ US- 20020021407-\$ US- 20020081982-\$ US- 20020084990-\$ US- 20020089639-\$ US- 20020090103-\$ US- 20020098877-\$ US- 20020101568-\$ US- 20020109600-\$ US- 20020140899-\$ US- 20020159023-\$ US- 20020197961-\$ US- 20030018274-\$ US- 20030022690-\$ US- 20030032449-\$ US- 20030062046-\$ US- 20030065257-\$ US- 20030067585-\$ US- 20030068057-\$ US- 20030083591-\$ US- 20030214630-\$ US- 20030226978-\$ US- 20030231293-\$ US- 20040000733-\$).DID. (US-6060321-\$ US- 6061580-\$ US- 6091832-\$ US- 6115177-\$ US- 6132681-\$ US- 6154552-\$ US- 6176576-\$ US- 61810704-\$ US- 6199550-\$ US- 62023804-\$ US- 6225897-\$ US- 6231181-\$ US- 6236969-\$ US- 6259367-\$ US- 6270466-\$ US- 6292213-\$ US- 6292685-\$ US- 6301367-\$ US- 6343858-\$ US- 6409335-\$ US-	(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	2024/12/13 05:50 PM
-------	-----	--	---	----	----	----	------------------------

		6409338-\$ US-					
		6431705-\$ US-					
		6474816-\$ US-					
		64782605-\$ US-					
		64783605-\$ US-					
		6511175-\$ US-					
		6513532-\$ US-					
		6517203-\$ US-					
		6539336-\$ US-					
		6542081-\$ US-					
		6546101-\$ US-					
		6554444-\$ US-					
		6582075-\$ US-					
		6619799-\$ US-					
		6629076-\$ US-					
		6686843-\$ US-					
		6729726-\$ US-					
		6736759-\$ US-					
		6764194-\$ US-					
		6769767-\$ US-					
		6788309-\$ US-					
		6792401-\$ US-					
		6798391-\$ US-					
		6824265-\$ US-					
		6840908-\$ US-					
		6853303-\$ US-					
		6857741-\$ US-					
		6871951-\$ US-					
		6879930-\$ US-					
		6898550-\$ US-					
		6899585-\$ US-					
		6912386-\$ US-					
		6932090-\$ US-					
		6947219-\$ US-					
		6974226-\$ US-					
		7013009-\$ US-					
		7023594-\$ US-					
		7030902-\$ US-					
		7031667-\$ US-					
		7033025-\$ US-					
		7044615-\$ US-					
		7048370-\$ US-					
		7059717-\$ US-					
		7079876-\$ US-					
		7148879-\$ US-					
		7150526-\$ US-					
		7192136-\$ US-					
		7255437-\$ US-					
		7265358-\$ US-					
		7274292-\$ US-					
		7278734-\$ US-					
		7289767-\$ US-					
		7312699-\$ US-					
		7313246-\$ US-					
		7319780-\$ US-					
		7376238-\$ US-					
		7380936-\$ US-					
		7405801-\$ US-					

		7438409-\$ US-					
		7438410-\$ US-					
		7452067-\$ US-					
		7500746-\$ US-					
		7500747-\$ US-					
		7512414-\$ US-					
		7521623-\$ US-					
		7543934-\$ US-					
		7543938-\$ US-					
		7547101-\$ US-					
		7581833-\$ US-					
		7604348-\$ US-					
		7643895-\$ US-					
		7648236-\$ US-					
		7677723-\$ US-					
		7740353-\$ US-					
		7760898-\$ US-					
		7792552-\$ US-					
		7798638-\$ US-					
		7806525-\$ US-					
		7818142-\$ US-					
		7834759-\$ US-					
		7922321-\$ US-					
		8073984-\$ US-					
		8095799-\$ US-					
		8109629-\$ US-					
		8142015-\$ US-					
		8182267-\$ US-					
		8184067-\$ US-					
		8243973-\$ US-					
		8328420-\$ US-					
		8337013-\$ US-					
		8421851-\$ US-					
		8430507-\$ US-					
		8465151-\$ US-					
		8482488-\$ US-					
		8485661-\$ US-					
		8508851-\$ US-					
		8558759-\$ US-					
		8593795-\$ US-					
		8668334-\$ US-					
		8766747-\$ US-					
		8767306-\$ US-					
		8778022-\$ US-					
		8801174-\$ US-					
		8823740-\$ US-					
		8832233-\$ US-					
		8838708-\$ US-					
		8884845-\$ US-					
		8905541-\$ US-					
		8907867-\$ US-					
		8908894-\$ US-					
		8931896-\$ US-					
		8941560-\$ US-					
		8944590-\$ US-					
		8952869-\$ US-					
		8957835-\$ US-					
		8979259-\$ US-					

		9024843-\$ US-					
		9081212-\$ US-					
		9091851-\$ US-					
		9097890-\$ US-					
		9097891-\$ US-					
		9116545-\$ US-					
		9128281-\$ US-					
		9128522-\$ US-					
		9129295-\$ US-					
		9134534-\$ US-					
		9137309-\$ US-					
		9141194-\$ US-					
		9143848-\$ US-					
		9158116-\$ US-					
		9182596-\$ US-					
		9201512-\$ US-					
		9223134-\$ US-					
		9229227-\$ US-					
		9230501-\$ US-					
		9256071-\$ US-					
		9277334-\$ US-					
		9285589-\$ US-					
		9298007-\$ US-					
		9299194-\$ US-					
		9341843-\$ US-					
		9349280-\$ US-					
		9366862-\$ US-					
		9400390-\$ US-					
		9401540-\$ US-					
		9405135-\$ US-					
		9405892-\$ US-					
		9423842-\$ US-					
		9423870-\$ US-					
		9494800-\$ US-					
		9529197-\$ US-					
		9529199-\$ US-					
		9568746-\$ US-					
		9582071-\$ US-					
		9589482-\$ US-					
		9594433-\$ US-					
		9600079-\$ US-					
		9651787-\$ US-					
		9672210-\$ US-					
		9684172-\$ US-					
		9684374-\$ US-					
		9690121-\$ US-					
		9715112-\$ US-					
		9715774-\$ US-					
		9730647-\$ US-					
		9740280-\$ US-					
		9753288-\$ US-					
		9759917-\$ US-					
		9766463-\$ US-					
		9781408-\$ US-					
		9800990-\$ US-					
		9829707-\$ US-					
		9836122-\$ US-					
		9841599-\$ US-					

L2957	345	9857590-\$).DID. (US-5036311-\$ US- 5050150-\$ US- 5064410-\$ US- 5093576-\$ US- 5106179-\$ US- 5148023-\$ US- 5151600-\$ US- 5161250-\$ US- 5172256-\$ US- 5264877-\$ US- 5306917-\$ US- 5353378-\$ US- 5359370-\$ US- 5359444-\$ US- 5367345-\$ US- 5379464-\$ US- 5382986-\$ US- 5394005-\$ US- 5452026-\$ US- 5452480-\$ US- 5455637-\$ US- 5455640-\$ US- 5457751-\$ US- 5463428-\$ US- 5500532-\$ US- 5510961-\$ US- 5513384-\$ US- 5533130-\$ US- 5541641-\$ US- 5581090-\$ US- 5585871-\$ US- 5589398-\$ US- 5590417-\$ US- 5606743-\$ US- 5608808-\$ US- 5634201-\$ US- 5671035-\$ US- 5686727-\$ US- 5694475-\$ US- 5715323-\$ US- 5737436-\$ US- 5818381-\$ US- 5835185-\$ US- 5900720-\$ US- 5903395-\$ US- 5923398-\$ US- 5941837-\$ US- 5946071-\$ US- 5949516-\$ US- 5966746-\$ US- 5980037-\$ US- 5988812-\$ US- 5991085-\$ US- 5992996-\$ US- 5995592-\$ US- 6010216-\$ US-	(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	2024/12/13 05:50 PM
-------	-----	--	---	----	----	----	------------------------

		6013919-\$ US-					
		6028627-\$ US-					
		6046455-\$ US-					
		6060321-\$ US-					
		6061580-\$ US-					
		6091546-\$ US-					
		6091832-\$ US-					
		6115177-\$ US-					
		6132681-\$ US-					
		6145983-\$ US-					
		6154552-\$ US-					
		6176576-\$ US-					
		6225897-\$ US-					
		6231181-\$ US-					
		6236969-\$ US-					
		6243578-\$ US-					
		6259367-\$ US-					
		6270466-\$ US-					
		6292213-\$ US-					
		6292685-\$ US-					
		6301367-\$ US-					
		6307526-\$ US-					
		6343858-\$ US-					
		6349001-\$ US-					
		6349422-\$ US-					
		6409335-\$ US-					
		6409338-\$ US-					
		6426719-\$ US-					
		6431705-\$ US-					
		6474816-\$ US-					
		6478736-\$ US-					
		6506142-\$ US-					
		6511175-\$ US-					
		6513532-\$ US-					
		6517203-\$ US-					
		6539336-\$ US-					
		6542081-\$ US-					
		6546101-\$ US-					
		6554763-\$ US-					
		6582075-\$ US-					
		6619799-\$ US-					
		6629076-\$ US-					
		6729726-\$ US-					
		6736759-\$ US-					
		6764194-\$ US-					
		6769767-\$ US-					
		6788309-\$ US-					
		6792401-\$ US-					
		6816314-\$ US-					
		6824265-\$ US-					
		6857741-\$ US-					
		6871951-\$ US-					
		6879930-\$ US-					
		6912386-\$ US-					
		6929365-\$ US-					
		6932090-\$ US-					
		6947219-\$ US-					
		7004582-\$ US-					

		7013009-\$ US-					
		7023594-\$ US-					
		7030902-\$ US-					
		7031667-\$ US-					
		7033025-\$ US-					
		7059717-\$ US-					
		7073905-\$ US-					
		7079876-\$ US-					
		7123215-\$ US-					
		7192136-\$ US-					
		7255437-\$ US-					
		7265358-\$ US-					
		7274292-\$ US-					
		7289767-\$ US-					
		7312699-\$ US-					
		7331666-\$ US-					
		7376238-\$ US-					
		7380936-\$ US-					
		7401918-\$ US-					
		7405801-\$ US-					
		7429965-\$ US-					
		7438409-\$ US-					
		7438410-\$ US-					
		7445332-\$ US-					
		7481531-\$ US-					
		7500746-\$ US-					
		7500747-\$ US-					
		7512414-\$ US-					
		7517083-\$ US-					
		7527374-\$ US-					
		7543934-\$ US-					
		7581833-\$ US-					
		7621634-\$ US-					
		7648236-\$ US-					
		7677723-\$ US-					
		7760898-\$ US-					
		7771046-\$ US-					
		7792552-\$ US-					
		7806525-\$ US-					
		7922321-\$ US-					
		7976159-\$ US-					
		8109629-\$ US-					
		8142015-\$ US-					
		8174569-\$ US-					
		8337013-\$ US-					
		8430507-\$ US-					
		8434863-\$ US-					
		8465151-\$ US-					
		8485661-\$ US-					
		8500271-\$ US-					
		8770742-\$ US-					
		8905542-\$ US-					
		9033493-\$ US-					
		9244292-\$ US-					
		9400390-\$ US-					
		9405135-\$ US-					
		9488520-\$ US-					
		9547184-\$ US-					

L2958	342	9690121-\$ US- 9922236-\$ US- D369167-\$).DID. (US-10042186-\$ US- 10045732-\$ US- 10108984-\$ US- 10123732-\$ US- 10180572-\$ US- 10215568-\$ US- 10227063-\$ US- 10254856-\$ US- 10276028-\$ US- 10310296-\$ US- 10310597-\$ US- 10345625-\$ US- 10359459-\$ US- 10448867-\$ US- 10463300-\$ US- 10466491-\$ US- 10466510-\$ US- 10469916-\$ US- 10473950-\$ US- 10561376-\$ US- 10613355-\$ US- 10617342-\$ US- 10624790-\$ US- 10649220-\$ US- 10663740-\$ US- 10678322-\$ US- 10684478-\$ US- 10684687-\$ US- 10686972-\$ US- 10690936-\$ US- 10722128-\$ US- 10742965-\$ US- 10777048-\$ US- 10824253-\$ US- 10831316-\$ US- 10853589-\$ US- 10908421-\$ US- 10997943-\$ US- 11042045-\$ US- 11061252-\$ US- 11086147-\$ US- 11115074-\$ US- 11137626-\$ US- 11138301-\$ US- 11156856-\$ US- 11204512-\$ US- 1255265-\$ US- 1917745-\$ US- 20020021407-\$ US- 20020081982-\$ US- 20020090103-\$ US- 20020098877-\$ US- 20030022690-\$ US- 20030032449-\$ US-	(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	2024/12/13 05:50 PM
-------	-----	--	---	----	----	----	------------------------

		20030226978-\$ US-					
		20040096078-\$ US-					
		20050230596-\$ US-					
		20050248719-\$ US-					
		20050278446-\$ US-					
		20060034478-\$ US-					
		20060269079-\$ US-					
		20070186330-\$ US-					
		20070258040-\$ US-					
		20070270663-\$ US-					
		20070271116-\$ US-					
		20080062338-\$ US-					
		20080144854-\$ US-					
		20080273166-\$ US-					
		20090156128-\$ US-					
		20090201460-\$ US-					
		20120002160-\$ US-					
		20120105740-\$ US-					
		20120108215-\$ US-					
		20120176580-\$ US-					
		20120194550-\$ US-					
		20120249797-\$ US-					
		20130072828-\$ US-					
		20130143519-\$ US-					
		20130169513-\$ US-					
		20140176902-\$ US-					
		20140198293-\$ US-					
		20150309316-\$ US-					
		20150309534-\$ US-					
		20160187651-\$ US-					
		20160223832-\$ US-					
		20160239985-\$ US-					
		20190278110-\$ US-					
		20190285913-\$ US-					
		20200029140-\$ US-					
		20220011603-\$ US-					
		2249572-\$ US-					
		2638532-\$ US-					
		2794085-\$ US-					
		2818511-\$ US-					
		2830132-\$ US-					
		2874230-\$ US-					
		2904670-\$ US-					
		3060308-\$ US-					
		3597054-\$ US-					
		3710115-\$ US-					
		3858001-\$ US-					
		3883701-\$ US-					
		4165487-\$ US-					
		4254451-\$ US-					
		4283127-\$ US-					
		4322585-\$ US-					
		4348664-\$ US-					
		4389217-\$ US-					
		4526473-\$ US-					
		4535244-\$ US-					
		4608492-\$ US-					
		4683587-\$ US-					

		4751691-\$ US-					
		4757714-\$ US-					
		4806011-\$ US-					
		4822160-\$ US-					
		4822161-\$ US-					
		4851666-\$ US-					
		4851686-\$ US-					
		4856086-\$ US-					
		4859047-\$ US-					
		4882769-\$ US-					
		4962469-\$ US-					
		4967268-\$ US-					
		4985632-\$ US-					
		5008548-\$ US-					
		5015086-\$ US-					
		5020150-\$ US-					
		5026151-\$ US-					
		5064410-\$ US-					
		5093576-\$ US-					
		50963103-\$ US-					
		5151600-\$ US-					
		5161250-\$ US-					
		5172256-\$ US-					
		5264877-\$ US-					
		52756503-\$ US-					
		5306917-\$ US-					
		5353378-\$ US-					
		5359444-\$ US-					
		5367345-\$ US-					
		5379464-\$ US-					
		5382986-\$ US-					
		5394005-\$ US-					
		5452026-\$ US-					
		5452480-\$ US-					
		5455637-\$ US-					
		5455640-\$ US-					
		5457751-\$ US-					
		5463428-\$ US-					
		5500532-\$ US-					
		5510961-\$ US-					
		5513384-\$ US-					
		5533130-\$ US-					
		5581090-\$ US-					
		5585871-\$ US-					
		56279804-\$ US-					
		5634201-\$ US-					
		5671035-\$ US-					
		5673692-\$ US-					
		5694475-\$ US-					
		5715323-\$ US-					
		58316904-\$ US-					
		5835185-\$ US-					
		5900720-\$ US-					
		5903395-\$ US-					
		59204504-\$ US-					
		5923398-\$ US-					
		5941837-\$ US-					
		5946071-\$ US-					

L2965	1808	5949516-\$ US- 5963294-\$ US- 5966746-\$ US- 5988812-\$ US- 5991085-\$ US- 5992996-\$ US- 6010216-\$ US- 6013919-\$ US- 6028627-\$ US- 6046455-\$ US- 60519104-\$).DID. 2952 2953 2954 2955 2956 2957 2958	(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	2024/12/13 05:52 PM
L2966	156	2965 AND 54	(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	2024/12/13 05:52 PM
L2967	118	2965 AND 56	(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;	OR	ON	ON	2024/12/13 05:52 PM

L2968	57	2965 AND 61	JPO; DERWENT; IBM_TDB) (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	2024/12/13 05:53 PM
L2969	31	2965 AND 65	(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	2024/12/13 05:53 PM
L2970	18	2965 AND 49	(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	2024/12/13 05:53 PM
L2971	97	(US-0005069-\$ US- 0017634-\$ US- 0033660-\$ US- 0044416-\$ US- 0045928-\$ US- 0057654-\$ US-	(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	2024/12/16 02:58 PM

		0064746-\$ US- 0091200-\$ US- 0114770-\$ US- 0136414-\$ US- 0189548-\$ US- 02511706-\$ US- 0283894-\$ US- 0291667-\$ US- 0292333-\$ US- 0357599-\$ US- 0379425-\$ US- 0415388-\$ US- 10802582-\$ US- 11513371-\$ US- 11536988-\$ US- 11630331-\$ US- 11644361-\$ US- 11644693-\$ US- 2725462-\$ US- 20020136414-\$ US- 20030064746-\$ US- 20030091200-\$ US- 20040005069-\$ US- 20040114770-\$ US- 20060291667-\$ US- 20070189548-\$ US- 20100045928-\$ US- 20110292333-\$ US- 20120283894-\$ US- 20210379425-\$ US- 20220357599-\$ US- 20220415388-\$ US- 20230017634-\$ US- 20230033660-\$ US- 20230057654-\$ US- 3104290-\$ US- 3119903-\$ US- 5519781-\$ US- 5819183-\$ US- 6311155-\$ US- 6678381-\$ US- 7801570-\$ US- 8582789-\$ US- 8849185-\$).DID.	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)				
L2972	78	(US-10359459-\$ US- 10624790-\$ US- 10777048-\$ US- 20030231293-\$ US- 20040059212-\$ US- 20040101178-\$ US- 20060034478-\$ US- 20070035830-\$ US- 20080100792-\$ US- 20090073375-\$ US- 20090141233-\$ US- 20120033061-\$ US- 20130072828-\$ US-	(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	2024/12/16 02:58 PM

		20130148519-\$ US- 20140132913-\$ US- 20160302992-\$ US- 20170074721-\$ US- 20170090219-\$ US- 20170131575-\$ US- 20170146829-\$ US- 20170303187-\$ US- 20190272800-\$ US- 20190278110-\$ US- 20190285913-\$ US- 20190310132-\$ US- 20190318589-\$ US- 20190387351-\$ US- 20200012127-\$ US- 20200364992-\$ US- 3858001-\$ US- 4904078-\$ US- 5455637-\$ US- 5541641-\$ US- 5923398-\$ US- 6091546-\$ US- 6788309-\$ US- 6816314-\$ US- 6857741-\$ US- 7023594-\$ US- 7517083-\$).DID.	VN); FPRS; EPO; JPO; DERWENT; IBM_TDB)				
L2973	76	(AU-2005259090-\$ CA-2388872-\$ CN- 1110465-\$ CN- 214896080-\$ DE- 69800345-\$ EP- 1156572-\$ EP- 2082281-\$ EP- 3306380-\$ JP- 2001183620-\$ JP- 2002027680-\$ JP- 2002218669-\$ JP- 2003017020-\$ JP- 2020027271-\$ JP- 6742059-\$ KR- 100238065-\$ KR- 100720019-\$ KR- 20010078034-\$ KR- 200165484-\$ KR- 200250874-\$ KR- 200262295-\$ NZ- 527050-\$ WO- 2001035159-\$ WO- 2002054135-\$ WO- 2009062381-\$ WO- 2010010204-\$ WO- 2019011925-\$).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	2024/12/16 02:59 PM
L2974	65	(US-7517083-\$ US- 7527374-\$ US- 7543934-\$ US- 7581833-\$ US-	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU,	OR	ON	ON	2024/12/16 02:59 PM

		7621634-\$ US- 7648236-\$ US- 7677723-\$ US- 7760898-\$ US- 7771046-\$ US- 7792552-\$ US- 7806525-\$ US- 7922321-\$ US- 7976159-\$ US- 8109629-\$ US- 8142015-\$ US- 8174569-\$ US- 8337013-\$ US- 8430507-\$ US- 8434863-\$ US- 8465151-\$ US- 8485661-\$ US- 8500271-\$ US- 8770742-\$ US- 8905542-\$ US- 9033493-\$ US- 9244292-\$ US- 9400390-\$ US- 9405135-\$ US- 9488520-\$ US- 9547184-\$ US- 9690121-\$ US- D369167-\$).DID.	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)				
L2975	43	(US-0045283-\$ US- 0090295-\$ US- 0359266-\$ US- 0408850-\$ US- 11480802-\$ US- 11803069-\$ US- 11829518-\$ US- 20030045283-\$ US- 20050090295-\$ US- 20230359266-\$ US- 20230408850-\$ US- 5790311-\$ US- 7430299-\$ US- 7787647-\$ US- 8009849-\$ US- 8175886-\$ US- 8251875-\$ US- 8571241-\$ US- 8620208-\$ US- 8626246-\$ US- 9183351-\$ US- 9369814-\$).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	2024/12/16 02:59 PM
L2976	40	(US-7976159-\$ US- 8109629-\$ US- 8142015-\$ US- 8174569-\$ US- 8337013-\$ US- 8430507-\$ US- 8434863-\$ US-	(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,	OR	ON	ON	2024/12/16 02:59 PM

L2977	33	8465151-\$ US-8485661-\$ US-8500271-\$ US-8770742-\$ US-8905542-\$ US-9033493-\$ US-9244292-\$ US-9400390-\$ US-9405135-\$ US-9488520-\$ US-9547184-\$ US-9690121-\$).DID. (US-0063763-\$ US-0117121-\$ US-0146097-\$ US-0260859-\$ US-0273464-\$ US-0399691-\$ US-0415338-\$ US-11721183-\$ US-11733549-\$ US-11762224-\$ US-20020146097-\$ US-20030063763-\$ US-20190117121-\$ US-20210399691-\$ US-20220260859-\$ US-20220415338-\$ US-20230273464-\$).DID.	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) (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	2024/12/16 02:59 PM
L2978	24	(US-0026146-\$ US-0036103-\$ US-0089545-\$ US-0122208-\$ US-0178743-\$ US-10571715-\$ US-11326941-\$ US-20050036103-\$ US-20080089545-\$ US-20180122208-\$ US-20210026146-\$ US-20220178743-\$).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	2024/12/16 02:59 PM
L2979	20	(US-11086147-\$ US-11204512-\$ US-20050278446-\$ US-20080211921-\$ US-20120062357-\$ US-20190033622-\$ US-20210271116-\$ US-20210364827-\$ US-20210364828-\$ US-9922236-\$).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,	OR	ON	ON	2024/12/16 02:59 PM

L2980	40	(US-0011603-\$ US-0054092-\$ US-0104864-\$ US-0172691-\$ US-0226838-\$ US-0369402-\$ US-11243416-\$ US-20040104864-\$ US-20130172691-\$ US-20140226838-\$ US-20190369402-\$ US-20220011603-\$ US-20220054092-\$ US-5144344-\$ US-5475798-\$ US-5777715-\$ US-6301050-\$ US-6346929-\$ US-6717737-\$ US-6771423-\$).DID.	TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) (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	2024/12/16 02:59 PM
L2981	16	(US-11042045-\$ US-11086147-\$ US-20050278446-\$ US-20070248238-\$ US-20080211921-\$ US-20120062357-\$ US-20210271116-\$ US-9922236-\$).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	2024/12/16 02:59 PM
L2982	13	(US-9880441-\$ US-9882992-\$ US-9910298-\$ US-9922236-\$ US-9939934-\$ US-9952883-\$ US-9965681-\$).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	2024/12/16 02:59 PM

L2983	10	(EP-1027626-\$ EP-2290433-\$).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	2024/12/16 02:59 PM
L2984	9	("20070211574" "20190378493" "20020044416" "200124576").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	2024/12/16 02:59 PM
L2997	499	2971 2972 2973 2974 2975 2976 2977 2978 2979 2980 2981 2982 2983 2984	(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	2024/12/16 03:03 PM
L2998	96	2997 AND 54	(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,	OR	ON	ON	2024/12/16 03:03 PM

L2999	63	2997 AND 59	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) (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	2024/12/16 03:03 PM
L3000	28	2997 AND 65	(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	2024/12/16 03:04 PM
L3001	7	2997 AND 49	(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	2024/12/16 03:04 PM
L3002	1	2997 AND 52	(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	2024/12/16

			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)				03:04 PM
L3003	317	(US-20040029582-\$ US-20040059212-\$ US-20040063378-\$ US-20040096078-\$ US-20040100384-\$ US-20040101178-\$ US-20040128737-\$ US-20040150986-\$ US-20040156012-\$ US-20040157649-\$ US-20040160571-\$ US-20040160572-\$ US-20040160573-\$ US-20040197002-\$ US-20040227219-\$ US-20050067580-\$ US-20050078274-\$ US-20050088365-\$ US-20050201585-\$ US-20050213026-\$ US-20050230596-\$ US-20050238194-\$ US-20050239502-\$ US-20050248717-\$ US-20050248718-\$ US-20050248719-\$ US-20050264752-\$ US-20050278446-\$ US-20060001827-\$ US-20060003803-\$ US-20060023158-\$ US-20060034478-\$ US-20060107822-\$ US-20060132382-\$ US-20070030442-\$ US-20070035830-\$ US-20070046887-\$ US-20070055888-\$ US-20070098192-\$ US-20070109491-\$ US-20070186330-\$ US-20070200927-\$	(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	2024/12/16 03:20 PM

		US-20070208531-\$					
		US-20070248238-\$					
		US-20070270663-\$					
		US-20070271065-\$					
		US-20070271116-\$					
		US-20070271387-\$					
		US-20070279584-\$					
		US-20080062338-\$					
		US-20080068559-\$					
		US-20080100792-\$					
		US-20080144854-\$					
		US-20080151175-\$					
		US-20080151179-\$					
		US-20080158506-\$					
		US-20080211921-\$					
		US-20080218684-\$					
		US-20080262392-\$					
		US-20080278678-\$					
		US-20090059159-\$					
		US-20090059381-\$					
		US-20090073375-\$					
		US-20090141233-\$					
		US-20090147215-\$					
		US-20090156128-\$					
		US-20090251660-\$					
		US-20090251661-\$					
		US-20090296044-\$					
		US-20100061579-\$					
		US-20100079356-\$					
		US-20100110368-\$					
		US-20100245754-\$					
		US-20100296045-\$					
		US-20100309426-\$					
		US-20110102734-\$					
		US-20110164122-\$					
		US-20110187990-\$					
		US-20110241796-\$					
		US-20110273365-\$					
		US-20120033061-\$					
		US-20120050668-\$					
		US-20120062357-\$					
		US-20120133885-\$					
		US-20120176580-\$					
		US-20130072828-\$					
		US-20130077175-\$					
		US-20130143519-\$					
		US-20130201440-\$					
		US-20130308089-\$					
		US-20140132913-\$					
		US-20140176902-\$					
		US-20140198293-\$					
		US-20140268008-\$					
		US-20140268013-\$					
		US-20140268017-\$					
		US-20140361185-\$					
		US-20150085245-\$					
		US-20150230988-\$					
		US-20150253590-\$					

		US-20160246075-\$					
		US-20160302992-\$					
		US-20170068117-\$					
		US-20170074721-\$					
		US-20170090219-\$					
		US-20170131575-\$					
		US-20170146829-\$					
		US-20170303187-\$					
		US-20180314079-\$					
		US-20180348050-\$					
		US-20190033623-\$					
		US-20190187492-\$					
		US-20190272800-\$					
		US-20190278110-\$					
		US-20190285913-\$					
		US-20190310132-\$					
		US-20190318589-\$					
		US-20190387351-\$					
		US-20200012127-\$					
		US-20200218094-\$					
		US-20200364992-\$					
		US-20210271116-\$					
		US-2249572-\$ US-					
		2638532-\$ US-					
		2794085-\$ US-					
		2818511-\$ US-					
		2830132-\$ US-					
		2874230-\$ US-					
		2904670-\$ US-					
		3060308-\$ US-					
		3597054-\$ US-					
		3710115-\$ US-					
		3858001-\$ US-					
		3883701-\$ US-					
		4165487-\$ US-					
		4254451-\$ US-					
		4283127-\$ US-					
		4322585-\$ US-					
		4348664-\$ US-					
		4389217-\$ US-					
		4526473-\$ US-					
		4535244-\$ US-					
		4608492-\$ US-					
		4683587-\$ US-					
		4751691-\$ US-					
		4757714-\$ US-					
		4773095-\$ US-					
		4806011-\$ US-					
		4822160-\$ US-					
		4822161-\$ US-					
		4851686-\$ US-					
		4856086-\$ US-					
		4859047-\$ US-					
		4882769-\$ US-					
		4904078-\$ US-					
		4942629-\$ US-					
		4962469-\$ US-					
		4967268-\$ US-					

L3004	301	4985632-\$ US- 5008548-\$ US- 5015086-\$ US- 5020150-\$ US- 5026151-\$).DID. (US-1255265-\$ US- 1917745-\$ US- 10042186-\$ US- 10060790-\$ US- 10061144-\$ US- 10310296-\$ US- 10345625-\$ US- 10359311-\$ US- 10539459-\$ US- 10624790-\$ US- 10777048-\$ US- 11042045-\$ US- 2249572-\$ US- 2638532-\$ US- 2794085-\$ US- 2818511-\$ US- 2830132-\$ US- 2874230-\$ US- 2904670-\$ US- 20010005230-\$ US- 20010028309-\$ US- 20010050754-\$ US- 20020017997-\$ US- 20020021407-\$ US- 20020081982-\$ US- 20020084990-\$ US- 20020090103-\$ US- 20020098877-\$ US- 20020101568-\$ US- 20020109600-\$ US- 20020140899-\$ US- 20020159023-\$ US- 20020197961-\$ US- 20030018274-\$ US- 20030022690-\$ US- 20030032449-\$ US- 20030062046-\$ US- 20030065257-\$ US- 20030067585-\$ US- 20030068057-\$ US- 20030083591-\$ US- 20030214630-\$ US- 20030226978-\$ US- 20030231293-\$ US- 20040000733-\$ US- 20040029582-\$ US- 20040059212-\$ US- 20040063378-\$ US- 20040096078-\$ US- 20040100384-\$ US- 20040101178-\$ US- 20040128737-\$ US-	(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	2024/12/16 03:20 PM
-------	-----	--	---	----	----	----	------------------------

		20040150986-\$ US-					
		20040156012-\$ US-					
		20040157649-\$ US-					
		20040160571-\$ US-					
		20040160572-\$ US-					
		20040160573-\$ US-					
		20040197002-\$ US-					
		20040227219-\$ US-					
		20050067580-\$ US-					
		20050078274-\$ US-					
		20050088365-\$ US-					
		20050201585-\$ US-					
		20050213026-\$ US-					
		20050230596-\$ US-					
		20050238194-\$ US-					
		20050239502-\$ US-					
		20050248717-\$ US-					
		20050248718-\$ US-					
		20050248719-\$ US-					
		20050264752-\$ US-					
		20060001827-\$ US-					
		20060003803-\$ US-					
		20060023158-\$ US-					
		20060034478-\$ US-					
		20060107822-\$ US-					
		20060132382-\$ US-					
		20070030442-\$ US-					
		20070035830-\$ US-					
		20070046887-\$ US-					
		20070055888-\$ US-					
		20070098192-\$ US-					
		20070109491-\$ US-					
		20070186330-\$ US-					
		20070200927-\$ US-					
		20070208531-\$ US-					
		20070248238-\$ US-					
		20070270663-\$ US-					
		20070271065-\$ US-					
		20070271116-\$ US-					
		20070271387-\$ US-					
		20070279584-\$ US-					
		20080062338-\$ US-					
		20080068559-\$ US-					
		20080100792-\$ US-					
		20080144854-\$ US-					
		20080151175-\$ US-					
		20080151179-\$ US-					
		20080158506-\$ US-					
		20080218684-\$ US-					
		20080262392-\$ US-					
		20080278678-\$ US-					
		20090059159-\$ US-					
		20090059381-\$ US-					
		20090073375-\$ US-					
		20090141233-\$ US-					
		20090147215-\$ US-					
		20090156128-\$ US-					
		20090251660-\$ US-					

L3005	283	20090251661-\$ US- 20090296044-\$ US- 20100061579-\$ US- 20100079356-\$ US- 20100110368-\$ US- 20100245754-\$ US- 20100296045-\$ US- 20100309426-\$ US- 20110102734-\$ US- 20110164122-\$ US- 20110187990-\$ US- 20110241976-\$ US- 20110273365-\$ US- 20120033061-\$ US- 20120050668-\$ US- 20120133885-\$ US- 20120176580-\$ US- 20130072828-\$ US- 20130077175-\$ US- 20130143519-\$ US- 20130201440-\$ US- 20130308089-\$ US- 20140132913-\$ US- 20140176902-\$ US- 20140198293-\$ US- 20140268008-\$ US- 20140268013-\$ US- 20140268017-\$ US- 20140361185-\$ US- 20150085245-\$ US- 20150230988-\$ US- 20150253590-\$ US- 20160246075-\$ US- 20160302992-\$ US- 20170068117-\$ US- 20170074721-\$ US- 20170090219-\$ US- 20170131575-\$ US- 20170146829-\$ US- 20170303187-\$ US- 20180314079-\$ US- 20180335650-\$ US- 20180348050-\$ US- 20190033623-\$ US- 20190187492-\$ US- 20190272800-\$ US- 20190278110-\$ US- 20190285913-\$).DID. (US-20010005230-\$ US-20010028309-\$ US-20010050754-\$ US-20020017997-\$ US-20020021407-\$ US-20020081982-\$ US-20020084990-\$ US-20020089639-\$ US-20020090103-\$	(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,	OR	ON	ON	2024/12/16 03:20 PM
-------	-----	--	---	----	----	----	------------------------

		US-20020098877-\$ US-20020101568-\$ US-20020109600-\$ US-20020140899-\$ US-20020159023-\$ US-20020197961-\$ US-20030018274-\$ US-20030022690-\$ US-20030032449-\$ US-20030062046-\$ US-20030065257-\$ US-20030067585-\$ US-20030068057-\$ US-20030083591-\$ US-20030214630-\$ US-20030226978-\$ US-20030231293-\$ US-20040000733-\$ US-20040029582-\$ US-20040059212-\$ US-20040063378-\$ US-20040096078-\$ US-20040100384-\$ US-20040101178-\$ US-20040128737-\$ US-20040150986-\$ US-20040156012-\$ US-20040157649-\$ US-20040160571-\$ US-20040160572-\$ US-20040160573-\$ US-20040197002-\$ US-20040227219-\$ US-20050067580-\$ US-20050078274-\$ US-20050088365-\$ US-20050201585-\$ US-20050213026-\$ US-20050230596-\$ US-20050238194-\$ US-20050239502-\$ US-20050248717-\$ US-20050248718-\$ US-20050248719-\$ US-20050264752-\$ US-20060001827-\$ US-20060003803-\$ US-20060023158-\$ US-20060034478-\$ US-20060107822-\$ US-20060132382-\$ US-20070030442-\$ US-20070035830-\$ US-20070046887-\$ US-20070055888-\$ US-20070098192-\$ US-20070109491-\$ US-20070186330-\$	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)				
--	--	--	--	--	--	--	--

		US-20070200927-\$					
		US-20070208531-\$					
		US-20070248238-\$					
		US-20070270663-\$					
		US-20070271065-\$					
		US-20070271116-\$					
		US-20070271387-\$					
		US-20070279584-\$					
		US-20080062338-\$					
		US-20080068559-\$					
		US-20080100792-\$					
		US-20080144854-\$					
		US-20080151175-\$					
		US-20080151179-\$					
		US-20080158506-\$					
		US-20080218684-\$					
		US-20080262392-\$					
		US-20080278678-\$					
		US-20090059159-\$					
		US-20090059381-\$					
		US-20090073375-\$					
		US-20090141233-\$					
		US-20090147215-\$					
		US-20090156128-\$					
		US-20090251660-\$					
		US-20090251661-\$					
		US-20090296044-\$					
		US-20100061579-\$					
		US-20100079356-\$					
		US-20100110368-\$					
		US-20100245754-\$					
		US-20100296045-\$					
		US-20100309426-\$					
		US-20110102734-\$					
		US-20110164122-\$					
		US-20110187990-\$					
		US-20110241976-\$					
		US-20110273365-\$					
		US-20120033061-\$					
		US-20120050668-\$					
		US-20120133885-\$					
		US-20120176580-\$					
		US-20130072828-\$					
		US-20130077175-\$					
		US-20130143519-\$					
		US-20130201440-\$					
		US-20130308089-\$					
		US-20140132913-\$					
		US-20140176902-\$					
		US-20140198293-\$					
		US-20140268008-\$					
		US-20140268013-\$					
		US-20140268017-\$					
		US-20140361185-\$					
		US-20150085245-\$					
		US-20150230988-\$					
		US-20150253590-\$					
		US-20160246075-\$					

L3006	211	US-20160302992-\$ US-20170068117-\$ US-20170074721-\$ US-20170090219-\$ US-20170131575-\$ US-20170146829-\$ US-20170303187-\$ US-20180314079-\$ US-20180335650-\$ US-20180348050-\$ US-20190033623-\$ US-20190187492-\$ US-20190272800-\$ US-20190278110-\$ US-20190285913-\$ US-20190310132-\$ US-20190318589-\$ US-20190387351-\$ US-20200218094-\$ US-20200364992-\$).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	2024/12/16 03:20 PM
		(US-3192826-\$ US- 3216308-\$ US- 3229580-\$ US- 3524710-\$ US- 3610825-\$ US- 3787109-\$ US- 3885095-\$ US- 3915548-\$ US- 3923370-\$ US- 3936605-\$ US- 3940204-\$ US- 4052073-\$ US- 4082432-\$ US- 4195915-\$ US- 4218111-\$ US- 4447128-\$ US- 4550984-\$ US- 4649434-\$ US- 4664475-\$ US- 4665385-\$ US- 4722601-\$ US- 4751691-\$ US- 4753514-\$ US- 4799765-\$ US- 4806001-\$ US- 4806011-\$ US- 4818048-\$ US- 4826287-\$ US- 4852988-\$ US- 4853306-\$ US- 4867551-\$ US- 4869575-\$ US- 4884137-\$ US- 4961626-\$ US- 4968117-\$ US- 4973132-\$ US-					

		4973139-\$ US-					
		4988183-\$ US-					
		5003300-\$ US-					
		5013134-\$ US-					
		5028119-\$ US-					
		5044709-\$ US-					
		5050962-\$ US-					
		5053755-\$ US-					
		5129716-\$ US-					
		5138470-\$ US-					
		5162828-\$ US-					
		5212471-\$ US-					
		5214425-\$ US-					
		5231379-\$ US-					
		5281957-\$ US-					
		5281960-\$ US-					
		5309169-\$ US-					
		5320538-\$ US-					
		5325386-\$ US-					
		5334991-\$ US-					
		5348477-\$ US-					
		5359669-\$ US-					
		5367345-\$ US-					
		5369415-\$ US-					
		5381267-\$ US-					
		5384654-\$ US-					
		5392158-\$ US-					
		5416876-\$ US-					
		5446507-\$ US-					
		5455591-\$ US-					
		5459612-\$ US-					
		5469185-\$ US-					
		5491510-\$ US-					
		5506728-\$ US-					
		5519410-\$ US-					
		5537253-\$ US-					
		5539578-\$ US-					
		5576887-\$ US-					
		5579148-\$ US-					
		5583590-\$ US-					
		5585871-\$ US-					
		5589846-\$ US-					
		5596451-\$ US-					
		5606743-\$ US-					
		5610765-\$ US-					
		5626410-\$ US-					
		5629790-\$ US-					
		5648789-\$ US-					
		5653751-\$ US-					
		5654827-\$ US-					
		5654828-\$ US-					
		5671037-\$ US-					
		5673139-\$ US-					
		5682173-\$ US-					
		5699194-\$ US-					
		5712649-\$ US-					
		5717479-\$ US-					
		5719588-\$ US-					

L3007	125	5744788-\$ US- 5751493-\$ US- 5808589-\$ US- 5815326-\$ US- 5886822-\$ US- 5943171-\$ US- 5973845-\$ US- 5991103-\$ US- 6005720-\$ US- 6023372-\$ US- 6081304-\$ US- 6091546-\$ US- D195365-\$ US- RE28847-\$).DID. (US-10042186-\$ US- 10222617-\$ US- 10345625-\$ US- 10613355-\$ US- 10624790-\$ US- 10777048-\$ US- 11061252-\$ US- 12003393-\$ US- 20040160572-\$ US- 20090097688-\$ US- 20090296044-\$ US- 20100177277-\$ US- 20100265456-\$ US- 20110080556-\$ US- 20110102734-\$ US- 20110109873-\$ US- 20120002159-\$ US- 20130010256-\$ US- 20160109729-\$ US- 20170068117-\$ US- 20190126060-\$ US- 20200004050-\$ US- 3042548-\$ US- 3683168-\$ US- 3923384-\$ US- 4447504-\$ US- 4449799-\$ US- 4618226-\$ US- 4675259-\$ US- 4756605-\$ US- 4770954-\$ US- 4883728-\$ US- 4977899-\$ US- 5007726-\$ US- 5142406-\$ US- 5455637-\$ US- 5455638-\$ US- 5835185-\$ US- 5900720-\$ US- 5933496-\$ US- 6099117-\$ US- 6325507-\$ US- 64764696-\$ US-	(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	2024/12/16 03:20 PM
-------	-----	---	---	----	----	----	------------------------

L3008	156	6552511-\$ US- 7150526-\$ US- 7339353-\$ US- 7461936-\$ US- 8337013-\$ US- 8465151-\$ US- 8500271-\$ US- 8770742-\$ US- 8787970-\$ US- 8801174-\$ US- 8876285-\$ US- 8905541-\$ US- 8944590-\$ US- 9192772-\$ US- 9207515-\$ US- 9274395-\$ US- 9405135-\$ US- 9470909-\$ US- 9482880-\$ US- 9619201-\$ US- 9632059-\$ US- 9720258-\$ US- 9720260-\$).DID. (US-20020098877-\$ US-20020118825-\$ US-20020176330-\$ US-20030003969-\$ US-20030022690-\$ US-20030067585-\$ US-20030068057-\$ US-20040000733-\$ US-20040132509-\$ US-20040156012-\$ US-20040157649-\$ US-20040160572-\$ US-20040160573-\$ US-20040239874-\$ US-20050046789-\$ US-20050046790-\$ US-20050128431-\$ US-20050185815-\$ US-20060183427-\$ US-2424935-\$ US- 2856466-\$ US- 2882348-\$ US- 2999136-\$ US- 3104290-\$ US- 3119903-\$ US- 3495898-\$ US- 3588384-\$ US- 3665122-\$ US- 3769663-\$ US- 3883701-\$ US- 4636048-\$ US- 4683587-\$ US- 4856086-\$ US- 4882769-\$ US-	(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	2024/12/16 03:20 PM
-------	-----	---	---	----	----	----	------------------------

L3009	93	4902120-\$ US-					
		4904078-\$ US-					
		5020150-\$ US-					
		5159639-\$ US-					
		5327178-\$ US-					
		5335285-\$ US-					
		5367345-\$ US-					
		5533130-\$ US-					
		5579400-\$ US-					
		5606743-\$ US-					
		5608808-\$ US-					
		5634201-\$ US-					
		5694475-\$ US-					
		5715323-\$ US-					
		5717479-\$ US-					
		5737436-\$ US-					
		5781272-\$ US-					
		5892564-\$ US-					
		5988812-\$ US-					
		6010216-\$ US-					
		6012812-\$ US-					
		6176576-\$ US-					
		6218958-\$ US-					
		6233344-\$ US-					
		6233345-\$ US-					
		6252970-\$ US-					
		6301050-\$ US-					
		6301367-\$ US-					
		6311155-\$ US-					
		6325507-\$ US-					
		6349001-\$ US-					
		6356392-\$ US-					
		6384982-\$ US-					
		6392798-\$ US-					
		6409338-\$ US-					
		6421031-\$ US-					
		6456721-\$ US-					
		6490362-\$ US-					
		6690807-\$ US-					
		6729726-\$ US-					
		6769767-\$ US-					
		6929365-\$ US-					
		6966647-\$ US-					
		7004582-\$ US-					
		7013009-\$ US-					
		D207919-\$ US-					
		D212863-\$ US-					
		D418153-\$ US-					
		D426845-\$ US-					
		D435058-\$ US-					
		D445416-\$ US-					
		D462708-\$ US-					
		RE35051-\$).DID.					
		(US-20010035242-\$	(US-PGPUB; USPAT;	OR	ON	ON	2024/12/16
		US-20020072387-\$	USOCR; FIT (AU, AP,				03:20 PM
		US-20020193151-\$	AT, BE, BG, BR, BY,				
		US-20030036414-\$	CA, CH, CN, CS, CU,				

L3016	887	US-20030040285-\$ US-20030042348-\$ US-20030108217-\$ US-20030182003-\$ US-20040077382-\$ US-20040204165-\$ US-20050078274-\$ US-20050128431-\$ US-20050201585-\$ US-20050220316-\$ US-20050248717-\$ US-20050255883-\$ US-20050255898-\$ US-20060013410-\$ US-20060023158-\$ US-20060093178-\$ US-20060153409-\$ US-20060177086-\$ US-20060185062-\$ US-20060251283-\$ US-20070064969-\$ US-20090175482-\$ US-2249572-\$ US- 3528734-\$ US- 4456797-\$ US- 4902120-\$ US- 4942617-\$ US- 5034995-\$ US- 5164987-\$ US- 5422957-\$ US- 5608808-\$ US- 5715323-\$ US- 5737436-\$ US- 5881160-\$ US- 6095820-\$ US- 6097822-\$ US- 6176576-\$ US- 6633770-\$ US- 6643528-\$ US- 6690808-\$ US- 6920228-\$ US- 7519192-\$ US- 7702122-\$ US- D533539-\$).DID.	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)				
		3003 3004 3005 3006 3007 3008 3009	(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	2024/12/16 03:22 PM

L3017	140	3016 AND 54	VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) (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	2024/12/16 03:22 PM
L3018	80	3016 AND 58	(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	2024/12/16 03:22 PM
L3019	44	3016 AND 61	(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	2024/12/16 03:23 PM
L3020	19	3016 AND 65	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA,	OR	ON	ON	2024/12/16 03:23 PM

L3021	1	3016 AND 49	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) (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	2024/12/16 03:23 PM
L3022	31	"20090296044"	(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	2024/12/16 03:52 PM
L3023	33	"20070046887"	(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	2024/12/16 03:52 PM

L3024	27	"20070248238"	JPO; DERWENT; IBM_TDB) (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	2024/12/16 03:53 PM
L3025	22	"20040160573"	(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	2024/12/16 03:53 PM
L3026	32	"20040000733"	(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	2024/12/16 03:53 PM
L3027	25	"20030063763"	(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,	OR	ON	ON	2024/12/16 03:53 PM

L3028	20	"20030045283"	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) (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	2024/12/16 03:53 PM
L3029	157	"20030030597"	(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	2024/12/16 03:53 PM
L3030	24	"20020146097"	(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;	OR	ON	ON	2024/12/16 03:53 PM

L3031	27	"20020140899"	IBM_TDB) (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	2024/12/16 03:53 PM
L3032	58	"11204512"	(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	2024/12/16 04:18 PM
L3033	43	"11243416"	(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	2024/12/16 04:18 PM
L3034	74	"11183269"	(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,	OR	ON	ON	2024/12/16 04:18 PM

L3035	29	"10628831"	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) (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	2024/12/16 04:18 PM
L3036	74	"10310296"	(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	2024/12/16 04:18 PM
L3037	37	"9122082"	(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	2024/12/16 04:18 PM

L3038	84	"9124796"	(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	2024/12/16 04:20 PM
L3039	44	(Artificial Intelligence) More like doc: US-20070046887-A1 Text: (NL-8700968-A OR US-6542081-B2 OR US-6898550-B1 OR US-7376238-B1 OR US-6409333-B1 OR US-6871951-B2 OR US-6769767-B2 OR US-7013009-B2 OR JP-2003033328-A OR DE-10249705-A1 OR US-6853303-B2 OR US-7312699-B2 OR US-7760898-B2 OR US-7922321-B2 OR US-20050230596-A1 OR US-20050248719-A1 OR US-7792552-B2 OR US-7192136-B2 OR US-7265358-B2 OR US-7059717-B2).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	2024/12/16 04:32 PM
L3040	44	(Artificial Intelligence) More like doc: US-20090296044-A1 Text: (US-4882769-A OR JP-3000621-B2 OR CA-2059597-A1 OR US-5359444-A OR US-6132881-A OR US-7023594-B2 OR DE-10103922-A1 OR KR-100420024-B1 OR DE-10222375-A1 OR US-20040096078-A1 OR US-8142015-B2 OR JP-4496354-B2 OR US-9137309-B2 OR US-	(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	2024/12/16 04:32 PM

L3041	35	7648236-B1 OR EP-2082281-A4 OR US-20090296044-A1 OR US-20220011603-A1 OR US-20110187990-A1 OR US-20070046887-A1 OR US-20170131575-A1).did. (Artificial Intelligence) More like doc: US-20120050668-A1 Text: (US-5835185-A OR US-7059717-B2 OR TW-200804887-A OR US-8430507-B2 OR US-20170068117-A9 OR US-20140268013-A1 OR US-20120050668-A1 OR US-20230236444-A1 OR US-20190278110-A1 OR US-20070030442-A1 OR US-20160246075-A9 OR US-20230359266-A1 OR US-8434863-B2 OR US-11630331-B2 OR US-20060023158-A1 OR US-11829518-B1 OR US-11513371-B2 OR US-20110187990-A1 OR US-20230033660-A1 OR US-7806525-B2).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	2024/12/16 04:32 PM
L3042	36	(Artificial Intelligence) More like doc: US-20020140899-A1 Text: (US-2576581-A OR US-2437642-A OR US-3161718-A OR US-3245315-A OR US-3614215-A OR US-3738734-A OR FR-2369583-A1 OR US-4181408-A OR US-4190330-A OR US-4300818-A OR US-4264154-A OR US-4279474-A OR FR-2487566-A1 OR US-4373218-A OR US-4418990-A OR US-4457585-A OR JP-S58118618-A OR US-	(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	2024/12/16 04:33 PM

L3043	39	4466706-A OR US-4572616-A OR US-4529268-A).did. (Artificial Intelligence) More like doc: <u>US-20130329183-A1</u> Text: (JP-S49114285-A OR JP-S5466098-A OR US-5471658-A OR US-6115482-A OR US-20120105740-A1 OR US-7661818-B2 OR US-7806525-B2 OR WO-2007005938-A2 OR US-7810750-B2 OR US-20080144854-A1 OR US-7631968-B1 OR US-20080207275-A1 OR SG-172914-A1 OR JP-2010226660-A OR JP-5389493-B2 OR JP-2010231119-A OR GB-0912608-D0 OR US-20110213664-A1 OR KR-200459922-Y1 OR WO-2013188343-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	2024/12/16 04:33 PM
L3044	33	"20050201585"	(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	2024/12/16 04:43 PM
L3045	52	"20050264752"	(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	2024/12/16 04:43 PM

L3046	13	"2005167902"	VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) (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	2024/12/16 04:43 PM
L3047	21	"20050278446"	(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	2024/12/16 04:43 PM
L3048	8	"20050052537"	(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; JPO)	OR	ON	ON	2024/12/16 04:43 PM
L3049	23	"2005086522"	(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,	OR	ON	ON	2024/12/16 04:43 PM

L3050	17	"20050090295"	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) (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	2024/12/16 04:43 PM
L3051	174	"7278734"	(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	2024/12/16 04:57 PM
L3052	243	"7192136"	(US-PGPUB; USPAT)	OR	ON	ON	2024/12/16 04:57 PM
L3054	146	"7150526"	(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	2024/12/16 04:57 PM

L3055	190	"7760898"	VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) (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	2024/12/16 04:58 PM
L3056	182	"7922321"	(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	2024/12/16 04:59 PM
L3057	307	"7380936"	(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	2024/12/16 04:59 PM
L3058	40	(Artificial Intelligence) More like doc: <u>US-20050052537-A1</u> Text: (US-5610678-A OR JP-	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA,	OR	ON	ON	2024/12/16 05:22 PM

L3059	35	H10304234-A OR JP-H11164186-A OR US-7046279-B2 OR US-7474335-B2 OR US-6717737-B1 OR US-20050052537-A1 OR JP-3159530-U OR US-7991275-B2 OR KR-970028786-A OR JP-WO2005091620-A1 OR JP-4551475-B2 OR JP-2007097199-A OR JP-2005086522-A OR US-20110141295-A1 OR WO-2005091620-A1 OR US-8131142-B2 OR US-20100214449-A1 OR US-20220303465-A1 OR JP-2009124761-A).did. (Artificial Intelligence) More like doc: US-20030030597-A1 Text: (US-5539422-A OR TW-422965-B OR US-20030030597-A1 OR US-6771423-B2 OR US-20030184868-A1 OR US-20050078378-A1 OR US-7145726-B2 OR WO-9619746-A2 OR EP-0799435-A2 OR US-6094181-A OR US-5684497-A OR US-6356392-B1 OR US-5625372-A OR US-20180003985-A1 OR JP-5059272-B2 OR US-5905478-A OR US-20010050817-A1 OR WO-2014116615-A1 OR US-5991084-A OR US-8873149-B2).did.	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) (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	2024/12/16 05:22 PM
L3060	50	(Artificial Intelligence) More like doc: US-20140049831-A1 Text: (DE-10103922-A1 OR JP-4022921-B2 OR JP-2005107038-A OR AT-E398296-T1 OR JP-2007178939-A OR JP-4929878-B2 OR JP-5235341-B2 OR JP-5201015-B2 OR US-8547618-B2 OR JP-	(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	2024/12/16 05:22 PM

L3061	36	5195707-B2 OR US-9239462-B2 OR US-20140049831-A1 OR EP-2698662-A1 OR JP-2014038239-A OR JP-6069946-B2 OR JP-2014191007-A OR JP-6065694-B2 OR JP-4006179-B2 OR CN-110954018-A OR JP-2002311361-A).did. (Artificial Intelligence) More like doc: US-20240036361-A1 Text: (US-12044901-B2 OR US-12140819-B1 OR US-20240377657-A1 OR US-11644693-B2 OR US-20230273464-A1 OR US-20220011603-A1 OR US-11921355-B2 OR US-20110187990-A1 OR US-20240036361-A1 OR US-20230359266-A1 OR US-7581833-B2 OR US-20170131575-A1 OR US-20220357599-A1 OR US-20180335650-A1 OR US-20170090219-A1 OR US-20130201440-A1 OR US-20200218094-A1 OR US-20120133885-A1 OR US-20150085245-A1 OR US-20190187492-A1).did.	VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) (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	2024/12/16 05:22 PM
L3062	36	(Artificial Intelligence) More like doc: US-20230273464-A1 Text: (US-20230273464-A1 OR US-11644693-B2 OR US-11921355-B2 OR US-7760898-B2 OR US-20070147630-A1 OR US-20220011603-A1 OR US-20200218094-A1 OR US-20110187990-A1 OR US-7590233-B2 OR US-20220357599-A1 OR US-12025855-B2 OR US-9967682-B2 OR	(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	2024/12/16 05:22 PM

L3063	7	US-12140819-B1 OR US-20040160572-A1 OR US-10284972-B2 OR US-20040160573- A1 OR US-7216973-B2 OR US-20060034478- A1 OR EP-1547434-B1 OR US-20130308089- A1).did. "20240036361"	(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	2024/12/16 05:38 PM
L3064	12	"20230017635"	(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	2024/12/16 05:38 PM
L3065	27	"20200012127"	(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	2024/12/16 05:38 PM

L3066	79	"20170289323"	(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	2024/12/16 05:38 PM
L3067	18	"20140049831"	(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	2024/12/16 05:38 PM
L3068	20	"20130329183"	(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))	OR	ON	ON	2024/12/16 05:38 PM
L3069	54	"20120050668"	(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	2024/12/16 05:38 PM

L3070	58	"6911172"	SG, SI, SK, SU, TH, TN, TR, TW, UA, VN, WO); FPRS; EPO; JPO; DERWENT; IBM_TDB) (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	2024/12/16 05:44 PM
L3071	627	"6349001"	(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	2024/12/16 05:44 PM
L3072	116	"6771423"	(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	2024/12/16 05:44 PM
L3073	125	"5835185"	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY,	OR	ON	ON	2024/12/16 05:44 PM

L3074	130	"5671037"	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) (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	2024/12/16 05:44 PM
L3075	165	"5020150"	(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	2024/12/16 05:45 PM
L3076	5	"12044901"	(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	2024/12/17 08:52 AM

L3077	8	"20010043266"	TH, TN, TR, TW, UA, VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) (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	2025/01/23 12:29 PM
L3078	6	"20020089469"	(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	2025/01/23 12:30 PM
L3079	5	"20020101510"	(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	2025/01/23 12:30 PM
L3080	3	"20040178970"	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU,	OR	ON	ON	2025/01/23 12:31 PM

L3081	5	"20050275714"	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) (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	2025/01/23 12:32 PM
L3082	27	"20060115130"	(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	2025/01/23 12:33 PM
L3083	255	"20070081123"	(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	2025/01/23 12:33 PM

L3084	129	"4902120"	VN); FPRS; EPO; JPO; DERWENT; IBM_TDB) (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	2025/01/23 12:34 PM
L3085	76	"5455638"	(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	2025/01/23 12:35 PM
L3086	45	"6181304"	(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	2025/01/23 12:35 PM
L3087	171082	(G02C11/10 OR G02C5/143 OR G02C5/146 OR G02C11/06 OR H02J7/0045 OR	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA,	OR	ON	ON	2025/03/02 04:10 PM

		G02C2200/08 OR G02C5/14 OR G02C11/00 OR H02J7/00).cpc.	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)				
L3103	3986	3087 AND 54	(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; JPO)	OR	ON	ON	2025/03/02 04:12 PM
L3104	2710	3087 AND 56	(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; JPO)	OR	ON	ON	2025/03/02 04:12 PM
L3105	663	3087 AND 61	(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; JPO)	OR	ON	ON	2025/03/02 04:12 PM
L3106	138	3087 AND 65	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY,	OR	ON	ON	2025/03/02 04:12 PM

L3107	20	3087 AND 49	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; JPO) (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; JPO)	OR	ON	ON	2025/03/02 04:12 PM
L3108	3	3087 AND 52	(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; JPO)	OR	ON	ON	2025/03/02 04:12 PM
L3109	104	"2856466"	(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; JPO)	OR	ON	ON	2025/03/02 04:13 PM
L3110	98	"3104290"	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY,	OR	ON	ON	2025/03/02 04:13 PM

L3111	70	"3665122"	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; JPO)	OR	ON	ON	2025/03/02 04:15 PM
L3112	40	(Artificial Intelligence) More like doc: <u>US-2856466-A</u> Text: (US-2168781-A OR US-2613282-A OR US-2856466-A OR US-3789163-A OR CN-110099347-A OR JP-2006162879-A OR DE-102008052682-A1 OR JP-H02135000-A OR US-3297832-A OR DE-2625654-A1 OR JP-S60105400-A OR US-4137431-A OR EP-1847868-B1 OR DE-8706344-U1 OR DE-1837151-U OR EP-1483938-B1 OR DE-2312250-A1 OR US-2830132-A OR DE-102013204153-B4 OR CN-101953175-A).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; JPO)	OR	ON	ON	2025/03/02 04:28 PM
L3113	237	"4904078"	(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	2025/03/02 04:33 PM

L3114	334	(US-20050520-\$ US-20050524-\$ US-10013976-\$ US-10042186-\$ US-10113837-\$ US-10180572-\$ US-10222617-\$ US-10310296-\$ US-10410535-\$ US-10438106-\$ US-10484649-\$ US-10540907-\$ US-10624790-\$ US-10645348-\$ US-10742913-\$ US-10753709-\$ US-10777048-\$ US-10791783-\$ US-10796860-\$ US-10801813-\$ US-10827249-\$ US-10921578-\$ US-10976574-\$ US-10976575-\$ US-11048103-\$ US-11079202-\$ US-11103025-\$ US-11109137-\$ US-11112622-\$ US-11122698-\$ US-11143838-\$ US-11397337-\$ US-11425486-\$ US-11513371-\$ US-11562711-\$ US-11630331-\$ US-11644693-\$ US-11733549-\$ US-11829518-\$ US-11852901-\$ US-12044901-\$ US-12124116-\$ US-12171293-\$ US-20020098877-\$ US-20020111197-\$ US-20020118825-\$ US-20020176330-\$ US-20020186180-\$ US-20030003969-\$ US-	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	2025/03/02 04:38 PM
-------	-----	---	--	----	----	----	---------------------

		20030022690-\$ US-					
		20030067585-\$ US-					
		20030068057-\$ US-					
		20040000733-\$ US-					
		20040015403-\$ US-					
		20040086141-\$ US-					
		20040132509-\$ US-					
		20040156012-\$ US-					
		20040160572-\$ US-					
		20040160573-\$ US-					
		20050185815-\$ US-					
		20050239502-\$ US-					
		20060072067-\$ US-					
		20060088171-\$ US-					
		20060205449-\$ US-					
		20070003093-\$ US-					
		20070110256-\$ US-					
		20070173293-\$ US-					
		20070223748-\$ US-					
		20070248238-\$ US-					
		20080055194-\$ US-					
		20080130910-\$ US-					
		20080144264-\$ US-					
		20080144854-\$ US-					
		20080154337-\$ US-					
		20080181435-\$ US-					
		20080234847-\$ US-					
		20080304683-\$ US-					
		20090059381-\$ US-					
		20090080667-\$ US-					
		20090196443-\$ US-					
		20090209205-\$ US-					
		20090251409-\$ US-					
		20090303430-\$ US-					
		20100061533-\$ US-					
		20100202627-\$ US-					
		20100309427-\$ US-					
		20110084900-\$ US-					
		20110250958-\$ US-					
		20120249797-\$ US-					
		20120316455-\$ US-					
		20120316456-\$ US-					
		20130141313-\$ US-					
		20130180033-\$ US-					
		20130201440-\$ US-					
		20130346168-\$ US-					
		20140010389-\$ US-					
		20140233753-\$ US-					
		20140268008-\$ US-					
		20150181010-\$ US-					
		20150309316-\$ US-					
		20170078022-\$ US-					
		20170102558-\$ US-					
		20180060613-\$ US-					
		20220187609-\$ US-					
		2424935-\$ US-					
		2856466-\$ US-					
		2882348-\$ US-					

		2999136-\$ US-					
		3104290-\$ US-					
		3119903-\$ US-					
		3495898-\$ US-					
		3588384-\$ US-					
		3665122-\$ US-					
		3769663-\$ US-					
		3883701-\$ US-					
		3943925-\$ US-					
		39931702-\$ US-					
		46015403-\$ US-					
		4636048-\$ US-					
		4683587-\$ US-					
		4806011-\$ US-					
		4856086-\$ US-					
		4882769-\$ US-					
		4902120-\$ US-					
		4904078-\$ US-					
		5020150-\$ US-					
		5159639-\$ US-					
		5327178-\$ US-					
		5335285-\$ US-					
		5353378-\$ US-					
		5367345-\$ US-					
		5446788-\$ US-					
		5533130-\$ US-					
		5579400-\$ US-					
		5606743-\$ US-					
		5608808-\$ US-					
		5634201-\$ US-					
		5671037-\$ US-					
		5694475-\$ US-					
		5703670-\$ US-					
		5715323-\$ US-					
		5717479-\$ US-					
		5737436-\$ US-					
		5781272-\$ US-					
		5892564-\$ US-					
		5988812-\$ US-					
		6010216-\$ US-					
		6012812-\$ US-					
		6057966-\$ US-					
		6091832-\$ US-					
		6176576-\$ US-					
		6218958-\$ US-					
		6233344-\$ US-					
		6233345-\$ US-					
		6252970-\$ US-					
		6301050-\$ US-					
		6301367-\$ US-					
		6311155-\$ US-					
		6325507-\$ US-					
		6349001-\$ US-					
		6356392-\$ US-					
		6392798-\$ US-					
		6409338-\$ US-					
		6421031-\$ US-					
		6456721-\$ US-					

L3115	179	6474816-\$ US- 6490362-\$ US- 6582075-\$ US- 6629076-\$ US- 6650894-\$ US- 6690807-\$ US- 6978162-\$ US- 7013009-\$ US- 7150526-\$ US- 7158096-\$ US- 7278734-\$).DID. (US-7289767-\$ US- 7321785-\$ US- 7461936-\$ US- 7512414-\$ US- 7581833-\$ US- 7661818-\$ US- 7699486-\$ US- 7814903-\$ US- 7988283-\$ US- 8184983-\$ US- 8235524-\$ US- 8323188-\$ US- 8323189-\$ US- 8328718-\$ US- 8388164-\$ US- 8449471-\$ US- 8461988-\$ US- 8467133-\$ US- 8472120-\$ US- 8477425-\$ US- 8482488-\$ US- 8482859-\$ US- 8488246-\$ US- 8491118-\$ US- 8500636-\$ US- 8538058-\$ US- 8540364-\$ US- 8543061-\$ US- 8593795-\$ US- 8684900-\$ US- 8684922-\$ US- 8686871-\$ US- 8736516-\$ US- 8750971-\$ US- 8825468-\$ US- 8855719-\$ US- 8862186-\$ US- 8905542-\$ US- 8929954-\$ US- 8964980-\$ US- 8968195-\$ US- 8979295-\$ US- 9033493-\$ US- 9060683-\$ US- 9069380-\$ US- 9081212-\$ US-	(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	2025/03/02 04:38 PM
-------	-----	--	---	----	----	----	------------------------

L3116	158	9089761-\$ US- 9091851-\$ US- 9097890-\$ US- 9097891-\$ US- 9128281-\$ US- 9129295-\$ US- 9134534-\$ US- 9134793-\$ US- 9160064-\$ US- 9182596-\$ US- 9217868-\$ US- 9223134-\$ US- 9229227-\$ US- 9235262-\$ US- 9264824-\$ US- 9285589-\$ US- 9301085-\$ US- 9316827-\$ US- 9316830-\$ US- 9341843-\$ US- 9366862-\$ US- 9377862-\$ US- 9378028-\$ US- 9402121-\$ US- 9405135-\$ US- 9442290-\$ US- 9488520-\$ US- 9525936-\$ US- 9526287-\$ US- 9526292-\$ US- 9568173-\$ US- 9606375-\$ US- 9609902-\$ US- 9619201-\$ US- 9720258-\$ US- 9720260-\$ US- 9744359-\$ US- 9759917-\$ US- 9808625-\$ US- 9820658-\$ US- 9839274-\$ US- 9861820-\$ US- 9864211-\$ US- 9865176-\$ US- 9910297-\$ US- 9959777-\$ US- 9974954-\$ US- 9991699-\$).DID. (AT-0820100311-\$ DA-1419941122-\$ DA- 1419970304-\$ QR- 1820030624-\$ TY- 2020091223-\$ TO- 20050520-\$ AT- 2120090326-\$ AU- 2005306412-\$ AU- 2008358016-\$ AU-	(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,	OR	ON	ON	2025/03/02 04:38 PM
-------	-----	--	---	----	----	----	------------------------

L3121	63	6549231-\$ US- 6556240-\$ US- 6717737-\$ US- 7324748-\$ US- 7499635-\$ US- 7525596-\$ US- 7576778-\$ US- 7625143-\$ US- 7665912-\$ US- 8259184-\$ US- 8730388-\$ US- 9253378-\$ US- 9451068-\$ US- 9494807-\$ US- 9619201-\$ US- 9720258-\$ US- 9720260-\$ US- 9864211-\$).DID. (EP-2214404-\$ JP- 2000152066-\$ JP- 2000187268-\$ JP- 2003234935-\$ JP- 2003316994-\$ JP- 2005181356-\$ JP- 2006235278-\$ JP- 2008205569-\$ JP- 2022041765-\$ JP- 3843035-\$ JP- 3906586-\$ JP- 4110876-\$ JP- 4433015-\$ JP- 4529810-\$ JP- 4617767-\$ KR- 101005325-\$ KR- 101665510-\$ KR- 101696683-\$ WO- 2014140823-\$ WO- 2016048546-\$ WO- 2020013313-\$).DID.	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	2025/03/02 04:52 PM
L3122	709	3114 3115 3116 3120	(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	2025/03/02 04:52 PM
L3124	43	3122 AND (force near5 sens\$4)	(US-PGPUB; USPAT; USOCR; FIT (AU, AP,	OR	ON	ON	2025/03/02 04:53 PM

L3126	169	3122 AND touch\$4	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) (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	2025/03/02 05:38 PM
L3127	42	3122 AND (touch\$4 WITH switch)	(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	2025/03/02 05:38 PM
L3128	34	"36407830".fmid.	(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,	OR	ON	ON	2025/03/02 05:41 PM

L3129	54	"2006055884"	RS, SE, SG, SI, SK, TH, TN, TR, TW, UA, VN); FPRS; JPO) (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; JPO)	OR	ON	ON	2025/03/02 05:47 PM
L3130	34	"36407830".fmid.	(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; JPO)	OR	ON	ON	2025/03/02 05:47 PM
L3131	39	(Artificial Intelligence) More like doc: <u>WO-2006055884-A2</u> Text: (US-4902120-A OR JP-H08298694-A OR AU-759466-B2 OR US-6311155-B1 OR CN-2583696-Y OR CN-2735373-Y OR WO-2006055884-A2 OR EP-1828833-A2 OR CA-2932965-A1 OR CA-2588650-A1 OR US-20080089545-A1 OR CA-2932965-C OR US-7278734-B2 OR AU-2005306412-A1 OR US-20050201585-A1 OR KR-101231026-B1 OR EP-1828833-B1 OR AU-2005306412-A2 OR KR-20120090097-A OR KR-20070103367-A).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	2025/03/02 05:50 PM

L3132	79	"6717737"	(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	2025/03/03 08:09 AM
L3133	1	"32033316".fmid.	(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; JPO)	OR	ON	ON	2025/03/03 08:09 AM
L3134	41	(Artificial Intelligence) More like doc: US-6717737-B1 Text: (GB-2143948-B OR US-6046712-A OR JP-3962115-B2 OR JP-H10240491-A OR JP-H10304234-A OR JP-2002116404-A OR US-20020171604-A1 OR US-6717737-B1 OR US-20110304704-A1 OR JP-2004328700-A OR US-5818733-A OR KR-102681095-B1 OR JP-2010081557-A OR DE-69720215-T2 OR JP-2023054260-A OR US-7477283-B2 OR US-20050162510-A1 OR US-7885681-B2 OR EP-1681852-B1 OR KR-20020021534-A).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	2025/03/03 08:09 AM
L3135	79	"20070273611"	(US-PGPUB; USPAT; USOCR; FIT (AU, AP,	OR	ON	ON	2025/03/03 08:47 AM

L3136	49	"34972808".fmid.	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	2025/03/03 08:47 AM
L3137	35	(Artificial Intelligence) More like doc: <u>US-20070273611-A1</u> Text: (US-3689135-A OR US-3966310-A OR US-4102564-A OR JP-S6332624-A OR US-4815839-A OR US-4836670-A OR JP-H01312902-A OR US-4852988-A OR JP-H02164335-A OR JP-H02309925-A OR US-5231674-A OR GB-8916206-D0 OR US-4967186-A OR US-5778893-A OR US-5189512-A OR US-5183512-A OR WO-9518565-A1 OR US-5293187-A OR US-5468239-A OR US-5341181-A).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; JPO)	OR	ON	ON	2025/03/03 08:47 AM
L3138	180935	2911 2917	(US-PGPUB; USPAT; USOCR; FIT (AU, AP, AT, BE, BG, BR, BY, CA, CH, CN, CS, CU, CZ, DD, DE, DK, EA,	OR	ON	ON	2025/03/03 09:09 AM

L3140	3464	3138 AND (force near3 sens\$4)	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) (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	2025/03/03 09:10 AM
L3141	553	3138 AND (force near3 sens\$4) AND eyewear	(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	2025/03/03 09:11 AM
L3142	169	3138 AND (force near5 sens\$4) AND (radiation near3 (detector OR sensor)) AND eyewear	(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;	OR	ON	ON	2025/03/03 09:13 AM

L3143	22	"20050248719"	JPO; DERWENT; IBM_TDB) (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	2025/03/03 09:15 AM
L3144	10	"60303263".fmid.	(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; JPO)	OR	ON	ON	2025/03/03 09:15 AM
L3145	37	(Artificial Intelligence) More like doc: US-12120477-B2 Text: (US-2904639-A OR US- 5272757-A OR US- 6729726-B2 OR US- 7313246-B2 OR US- 20050248719-A1 OR US-7792552-B2 OR CN-101390438-A OR US-20090216070-A1 OR US-9020168-B2 OR US-20130329183-A1 OR US-9395543-B2 OR US-9100732-B1 OR US-9261700-B2 OR US-9301040-B2 OR US-11825257-B2 OR US-20240056714-A1 OR US-20220078535- A1 OR US-11350196- B2 OR US-12120477- B2 OR US-10757495- B2).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	2025/03/03 09:15 AM

PE2E SEARCH - Search History (Interference)

Ref #	Hits	Search Query	DBs	Default Operator	Plurals	British Equivalents	Time Stamp
N1	13414	((("HOWELL") near3 ("Thomas")) OR ((("CHAO") near3 ("David")) OR ((("THOMAS") near3 ("C")) OR ((("TONG") near3 ("Peter")))).INV.	(US-PGPUB; USPAT)	OR	ON	ON	2024/02/05 01:06 PM
N2	143	((("HOWELL") near3 ("Thomas")) OR ((("CHAO") near3 ("David")) OR ((("THOMAS") near3 ("C")) OR ((("TONG") near3 ("Peter")))).INV. AND (eyewear\$4 OR glasses\$4 OR spetac\$4 OR eyegalss\$4) AND frame AND circuit AND control\$4 AND (memor\$4 OR stor\$4) AND batter\$4 AND connect\$4	(US-PGPUB; USPAT)	OR	ON	ON	2024/02/05 01:06 PM
N3	129	((("HOWELL") near3 ("Thomas")) OR ((("CHAO") near3 ("David")) OR ((("THOMAS") near3 ("C")) OR ((("TONG") near3 ("Peter")))).INV. AND (eyewear\$4 OR glasses\$4 OR spetac\$4 OR eyegalss\$4) AND frame AND circuit AND control\$4 AND (memor\$4 OR stor\$4) AND batter\$4 AND connect\$4 AND communicat\$4 AND (audio OR speak\$4)	(US-PGPUB; USPAT)	OR	ON	ON	2024/02/05 01:06 PM
N4	125	((("HOWELL") near3 ("Thomas")) OR ((("CHAO") near3 ("David")) OR ((("THOMAS") near3 ("C")) OR ((("TONG") near3 ("Peter")))).INV. AND (eyewear\$4 OR glasses\$4 OR spetac\$4 OR	(US-PGPUB; USPAT)	OR	ON	ON	2024/02/05 01:06 PM

N5	103	eyegals\$4) AND frame AND circuit AND control\$4 AND (memor\$4 OR stor\$4) AND batter\$4 AND connect\$4 AND (communicat\$4 near10 wireless\$4) AND (audio OR speak\$4) AND embed\$4 (((("HOWELL") near3 ("Thomas")) OR ((("CHAO") near3 ("David")) OR ((("THOMAS") near3 ("C")) OR ((("TONG") near3 ("Peter")))).INV. AND (eyewear\$4 OR glasses\$4 OR spetac\$4 OR eyegals\$4) AND frame AND circuit AND control\$4 AND (memor\$4 OR stor\$4) AND batter\$4 AND connect\$4 AND communicat\$4 AND (audio OR speak\$4) AND wireless\$4 AND embed\$4 AND microphone	(US-PGPUB; USPAT)	OR	ON	ON	2024/02/05 01:06 PM
N379	91	(((("HOWELL") near3 ("Thomas")) OR ((("CHAO") near3 ("David")) OR ((("THOMAS") near3 ("C")) OR ((("TONG") near3 ("Peter")))).INV. AND (eyewear\$4 OR glasses\$4 OR spetac\$4 OR eyegals\$4) AND frame AND circuit AND control\$4 AND (memor\$4 OR stor\$4) AND batter\$4 AND connect\$4 AND communicat\$4 AND (audio OR speak\$4) AND wireless\$4 AND embed\$4 AND microphone AND left AND right AND first AND second AND bridge	(US-PGPUB; USPAT)	OR	ON	ON	2024/09/04 11:10 AM
N406	97	(((("HOWELL") near3 ("Thomas")) OR	(US-PGPUB; USPAT)	OR	ON	ON	2024/12/13 04:44 PM

		("CHAO") near3 ("David")) OR ("THOMAS") near3 ("C")) OR ("TONG") near3 ("Peter"))).INV. AND (eyewear\$4 OR glasses\$4 OR spetac\$4 OR eyegalss\$4) AND frame AND circuit AND control\$4 AND (memor\$4 OR stor\$4) AND batter\$4 AND connect\$4 AND communicat\$4 AND (audio OR speak\$4) AND wireless\$4 AND embed\$4 AND microphone AND left AND right AND first AND second					
N410	875	((eyewear\$4 OR glasses\$4 OR spetac\$4 OR eyegalss\$4) AND frame AND control\$4 AND (memor\$4 OR stor\$4)).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2024/12/13 05:01 PM
N411	170	((eyewear\$4 OR glasses\$4 OR spetac\$4 OR eyegalss\$4) AND frame AND circuit AND control\$4 AND (memor\$4 OR stor\$4)).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2024/12/13 05:01 PM
N412	132	((eyewear\$4 OR glasses\$4 OR spetac\$4 OR eyegalss\$4) AND frame AND circuit AND control\$4 AND (memor\$4 OR stor\$4) AND connect\$4).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2024/12/13 05:01 PM
N413	44	((eyewear\$4 OR glasses\$4 OR spetac\$4 OR eyegalss\$4) AND frame AND circuit AND control\$4 AND (memor\$4 OR stor\$4) AND batter\$4 AND connect\$4).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2024/12/13 05:38 PM
N414	44	((eyewear\$4 OR glasses\$4 OR spetac\$4 OR	(US-PGPUB; USPAT)	OR	ON	ON	2024/12/13 05:38 PM

N415	15	eyegalss\$4) AND (temple SAME (speakers WITH audio))).clm. ((eyewear\$4 OR glasses\$4 OR spetac\$4 OR eyegalss\$4) AND frame AND circuit AND control\$4 AND (memor\$4 OR stor\$4) AND batter\$4 AND connect\$4 AND communicat\$4 AND (audio OR speak\$4)).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2024/12/13 05:38 PM
N416	10	((eyewear\$4 OR glasses\$4 OR spetac\$4 OR eyegalss\$4) AND frame AND circuit AND control\$4 AND (memor\$4 OR stor\$4) AND batter\$4 AND connect\$4 AND communicat\$4 AND (audio OR speak\$4) AND wireless\$4).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2024/12/16 02:57 PM
N417	6	((eyewear\$4 OR glasses\$4 OR spetac\$4 OR eyegalss\$4) AND temple AND ((speaker\$2 OR audio) SAME (sound WITH guid\$4))).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2024/12/16 02:57 PM
N418	6	((eyewear\$4 OR glasses\$4 OR spetac\$4 OR eyegalss\$4) AND frame AND circuit AND control\$4 AND (memor\$4 OR stor\$4) AND batter\$4 AND connect\$4 AND communicat\$4 AND (audio OR speak\$4) AND wireless\$4 AND embed\$4).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2024/12/16 02:57 PM
N419	5	((eyewear\$4 OR glasses\$4 OR spetac\$4 OR eyegalss\$4) AND frame AND circuit AND control\$4 AND (memor\$4 OR stor\$4)	(US-PGPUB; USPAT)	OR	ON	ON	2024/12/16 03:41 PM

N420	5	AND batter\$4 AND connect\$4 AND (communicat\$4 near10 wireless\$4) AND (audio OR speak\$4) AND embed\$4).clm. ((eyewear\$4 OR glasses\$4 OR spetac\$4 OR eyegalss\$4) AND frame AND circuit AND control\$4 AND (memor\$4 OR stor\$4) AND batter\$4 AND connect\$4 AND communicat\$4 AND (audio OR speak\$4) AND wireless\$4 AND embed\$4 AND microphone).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2024/12/16 03:41 PM
N421	4	((eyewear\$4 OR glasses\$4 OR spetac\$4 OR eyegalss\$4) AND frame AND circuit AND control\$4 AND (memor\$4 OR stor\$4) AND batter\$4 AND connect\$4 AND communicat\$4 AND (audio OR speak\$4) AND wireless\$4 AND embed\$4 AND microphone AND left AND right AND first AND second).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2024/12/16 03:41 PM
N422	1	((eyewear\$4 OR glasses\$4 OR spetac\$4 OR eyegalss\$4) AND frame AND circuit AND control\$4 AND (memor\$4 OR stor\$4) AND batter\$4 AND connect\$4 AND communicat\$4 AND (audio OR speak\$4) AND wireless\$4 AND embed\$4 AND microphone AND left AND right AND first AND second AND bridge AND partial\$4).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2024/12/16 04:17 PM
N423	1	((eyewear\$4 OR glasses\$4 OR	(US-PGPUB; USPAT)	OR	ON	ON	2024/12/16 04:17 PM

N424	1	spetac\$4 OR eyegalss\$4) AND frame AND (circuit near10 board) AND control\$4 AND (memor\$4 OR stor\$4) AND batter\$4 AND connect\$4 AND communicat\$4 AND (audio OR speak\$4) AND wireless\$4 AND embed\$4 AND microphone AND left AND right AND first AND second AND bridge AND partial\$4).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2024/12/16 04:17 PM
N425	1	((eyewear\$4 OR glasses\$4 OR spetac\$4 OR eyegalss\$4) AND frame AND (circuit near10 board) AND (electric\$4 WITH control\$4) AND (memor\$4 OR stor\$4) AND batter\$4 AND connect\$4 AND communicat\$4 AND (audio OR speak\$4) AND wireless\$4 AND embed\$4 AND microphone AND left AND right AND first AND second AND bridge AND partial\$4).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2024/12/16 05:00 PM
N426	0	((eyewear\$4 OR glasses\$4 OR	(US-PGPUB; USPAT)	OR	ON	ON	2024/12/16 05:00 PM

N429	0	spetac\$4 OR eyegalss\$4) AND frame AND (circuit near10 board) AND (electric\$4 WITH control\$4) AND (memor\$4 OR stor\$4) AND (batter\$4 near10 rechargeable) AND connect\$4 AND communicat\$4 AND (audio OR speak\$4) AND wireless\$4 AND embed\$4 AND microphone AND left AND right AND first AND second AND bridge AND partial\$4 AND impair\$4 AND compensat\$4 AND amplif\$6 AND customiz\$4).clm. ((eyewear\$4 OR glasses\$4 OR spetac\$4 OR eyegalss\$4) AND frame AND (circuit near10 board) AND (electric\$4 WITH control\$4) AND (memor\$4 OR stor\$4) AND (batter\$4 near10 rechargeable) AND connect\$4 AND communicat\$4 AND (audio OR speak\$4) AND wireless\$4 AND embed\$4 AND microphone AND left AND right AND first AND second AND bridge AND partial\$4 AND impair\$4 AND compensat\$4 AND (amplif\$6 WITH customiz\$4)).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2024/12/16 05:23 PM
N430	0	((eyewear\$4 OR glasses\$4 OR spetac\$4 OR eyegalss\$4) AND frame AND (circuit near10 board) AND (electric\$4 WITH control\$4) AND (memor\$4 OR stor\$4) AND (batter\$4 near10 rechargeable) AND connect\$4 AND communicat\$4 AND (audio OR speak\$4)	(US-PGPUB; USPAT)	OR	ON	ON	2024/12/16 05:23 PM

N431	92	AND wireless\$4 AND embed\$4 AND microphone AND left AND right AND first AND second AND bridge AND partial\$4 AND impair\$4 AND compensat\$4 AND (amplif\$6 WITH customiz\$4) AND (detect\$3 WITH infrared)).clm. (((("HOWELL") near3 ("Thomas")) OR (("CHAO") near3 ("David")) OR (("THOMAS") near3 ("C")) OR (("TONG") near3 ("Peter")))).INV. AND (eyewear\$4 OR glasses\$4 OR spetaci\$4 OR eyegalss\$4) AND frame AND circuit AND control\$4 AND (memor\$4 OR stor\$4) AND batter\$4 AND connect\$4 AND communicat\$4 AND (audio OR speak\$4) AND wireless\$4 AND embed\$4 AND microphone AND left AND right AND first AND second AND bridge AND partial\$4	(US-PGPUB; USPAT)	OR	ON	ON	2025/03/02 03:53 PM
N432	88	(((("HOWELL") near3 ("Thomas")) OR (("CHAO") near3 ("David")) OR (("THOMAS") near3 ("C")) OR (("TONG") near3 ("Peter")))).INV. AND (eyewear\$4 OR glasses\$4 OR spetaci\$4 OR eyegalss\$4) AND frame AND circuit AND control\$4 AND (memor\$4 OR stor\$4) AND batter\$4 AND connect\$4 AND communicat\$4 AND (audio OR speak\$4) AND wireless\$4 AND embed\$4 AND microphone AND left	(US-PGPUB; USPAT)	OR	ON	ON	2025/03/02 03:53 PM

N433	82	AND right AND first AND second AND (motion near3 sensor) (((("HOWELL") near3 ("Thomas")) OR (("CHAO") near3 ("David")) OR (("THOMAS") near3 ("C")) OR (("TONG") near3 ("Peter")))).INV. AND (eyewear\$4 OR glasses\$4 OR spetac\$4 OR eyegalss\$4) AND frame AND circuit AND control\$4 AND (memor\$4 OR stor\$4) AND batter\$4 AND connect\$4 AND communicat\$4 AND (audio OR speak\$4) AND wireless\$4 AND embed\$4 AND microphone AND left AND right AND first AND second AND bridge AND partial\$4 AND (motion near3 sensor)	(US-PGPUB; USPAT)	OR	ON	ON	2025/03/02 03:53 PM
N437	0	((eyewear\$4 OR glasses\$4 OR spetac\$4 OR eyegalss\$4) AND frame AND (circuit near10 board) AND (electric\$4 WITH control\$4) AND (memor\$4 OR stor\$4) AND (batter\$4 near10 rechargeable) AND connect\$4 AND communicat\$4 AND (audio OR speak\$4) AND wireless\$4 AND embed\$4 AND microphone AND left AND right AND first AND second AND bridge AND partial\$4 AND (force near5 sens\$4)).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2025/03/02 04:54 PM
N438	0	((eyewear\$4 OR glasses\$4 OR spetac\$4 OR eyegalss\$4) AND frame AND (circuit near10 board) AND (electric\$4 WITH control\$4) AND	(US-PGPUB; USPAT)	OR	ON	ON	2025/03/02 05:51 PM

N439	0	(memor\$4 OR stor\$4) AND (batter\$4 near10 rechargeable) AND connect\$4 AND communicat\$4 AND (audio OR speak\$4) AND wireless\$4 AND embed\$4 AND microphone AND left AND right AND first AND second AND bridge AND partial\$4 AND impair\$4 AND compensat\$4 AND amplif\$6 AND customiz\$4 AND (force near5 sens\$4)).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2025/03/02 05:51 PM
N441	0	((eyewear\$4 OR glasses\$4 OR spetac\$4 OR eyegalss\$4) AND frame AND (circuit near10 board) AND (electric\$4 WITH control\$4) AND (memor\$4 OR stor\$4) AND (batter\$4 near10 rechargeable) AND connect\$4 AND communicat\$4 AND (audio OR speak\$4) AND wireless\$4 AND embed\$4 AND microphone AND left AND right AND first AND second AND bridge AND partial\$4 AND impair\$4 AND compensat\$4 AND (amplif\$6 WITH customiz\$4) AND (force near5 sens\$4)).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2025/03/03 08:07 AM

N442	0	AND second AND bridge AND partial\$4 AND (force near5 sens\$4)).clm. ((eyewear\$4 OR glasses\$4 OR spetac\$4 OR eyegalss\$4) AND frame AND (circuit near10 board) AND (electric\$4 WITH control\$4) AND (memor\$4 OR stor\$4) AND (batter\$4 near10 rechargeable) AND connect\$4 AND communicat\$4 AND (audio OR speak\$4) AND wireless\$4 AND embed\$4 AND microphone AND left AND right AND first AND second AND bridge AND partial\$4 AND impair\$4 AND compensat\$4 AND (amplif\$6 WITH customiz\$4) AND (detect\$3 WITH infrared) AND (force near5 sens\$4)).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2025/03/03 08:07 AM
N443	0	((eyewear\$4 OR glasses\$4 OR spetac\$4 OR eyegalss\$4) AND frame AND circuit AND control\$4 AND (memor\$4 OR stor\$4) AND batter\$4 AND connect\$4 AND communicat\$4 AND (audio OR speak\$4) AND wireless\$4 AND embed\$4 AND microphone AND left AND right AND first AND second AND bridge AND partial\$4 AND (force near5 sens\$4)).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2025/03/03 08:07 AM
N445	0	((eyewear\$4 OR glasses\$4 OR spetac\$4 OR eyegalss\$4) AND frame AND (circuit near10 board) AND (electric\$4 WITH control\$4) AND (memor\$4 OR stor\$4)	(US-PGPUB; USPAT)	OR	ON	ON	2025/03/03 08:51 AM

N446	0	AND batter\$4 AND connect\$4 AND communicat\$4 AND (audio OR speak\$4) AND wireless\$4 AND embed\$4 AND microphone AND left AND right AND first AND second AND bridge AND partial\$4 AND (force near5 sens\$4) AND (radiation near3 (detector OR sensor))).clm. ((eyewear\$4 OR glasses\$4 OR spetacl\$4 OR eyegalss\$4) AND frame AND circuit AND control\$4 AND (memor\$4 OR stor\$4) AND batter\$4 AND connect\$4 AND communicat\$4 AND (audio OR speak\$4) AND wireless\$4 AND embed\$4 AND microphone AND left AND right AND first AND second AND bridge AND partial\$4 AND (force near5 sens\$4) AND (radiation near3 (detector OR sensor)))).clm.	(US-PGPUB; USPAT)	OR	ON	ON	2025/03/03 08:51 AM
------	---	---	-------------------	----	----	----	---------------------

PE2E SEARCH - Search History (Similarity Search)

Ref #	Sort and Retrieval Information	Text Selections	CPC Selections
L2784	Sort results by: Similarity to Application # 18/597,874 Retrieve results by: Application # 18/597,874	No selections	No selections
L2785	Sort results by: Similarity to Application # 18/597,874 Retrieve results by: Application # 18/597,874	(Abstract) Techniques for providing eyewear or other head-worn personal electronic apparatus with electrical components are disclosed. The electrical components can provide electrical technology to eyewear or other head-worn personal electronic apparatus without having to substantially compromise	No selections

		aesthetic design principles. The electrical components can be partially or completely internal to eyewear or other head-worn personal electronic apparatus. The electrical components can operate independently or together with other electrical components provided elsewhere. Apparatus for presenting after-market electrical components are also disclosed. (Claims) 1. A system, comprising: a head-worn personal electronic apparatus, including at least: a head-worn structure configured to be worn by a user; a speaker at least partially contained within the head-worn structure, the speaker being configured to be worn proximate to an ear of the user when the head-worn structure is being worn by the user; a motion detector at least partially contained within the head-worn structure and configured to provide motion data pertaining to the head-worn personal electronic apparatus; a first microphone at least partially contained within the head-worn structure, the first microphone being positioned to pick up at least audio input from at least the user; a second microphone at least partially contained within the head-worn structure; a piezoelectric device configured to receive a user input based on a force	
--	--	---	--

		induced on the piezoelectric device, the piezoelectric device being at least partially contained within the head-worn structure, wherein the received user input operating to at least alter operation of the head-worn electronic personal audio apparatus; a rechargeable battery contained within the head-worn structure; electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the rechargeable battery; wireless communication circuitry at least partially contained within the head-worn structure, the wireless communication circuitry being electrically connected to at least the rechargeable battery; and at least one conductive element at least partially included within the head-worn structure, the at least one conductive element being at least partially exposed to enable interconnection therewith, the at least one conductive element being electrically connected to at least the rechargeable battery; and a charging apparatus having at least a charging connector, wherein on placement of the head-worn personal electronic apparatus in the charging apparatus, electrical connection results at least from the at least one conductive element connecting with the charging connector, and thereby the rechargeable battery of the head-worn personal electronic apparatus is able to be	
--	--	--	--

		recharged while the head-worn personal electronic apparatus is placed in the charging apparatus. (Claims) 2. A head-worn personal electronic apparatus, comprising: a head-worn structure configured to be worn by a user; a speaker at least partially contained within the head-worn structure, the speaker being configured to be worn proximate to an ear of the user when the head-worn structure is being worn by the user; a motion detector at least partially contained within the head-worn structure and configured to provide motion data pertaining to the head-worn personal electronic apparatus; a first microphone at least partially contained within the head-worn structure, the first microphone being positioned to pick up at least audio input from at least the user; a second microphone at least partially contained within the head-worn structure; a piezoelectric device configured to receive a user input based on a force induced on the piezoelectric device, the piezoelectric device being at least partially contained within the head-worn structure, wherein the received user input operating to at least alter operation of the head-worn electronic personal audio apparatus; a rechargeable battery contained within the head-worn structure;	
--	--	---	--

L2786	Sort results by: Similarity to Application # 18/597,874 Retrieve results by: Application # 18/597,874	electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the rechargeable battery; and wireless communication circuitry at least partially contained within the head-worn structure. (Abstract) Techniques for providing eyewear or other head-worn personal electronic apparatus with electrical components are disclosed. The electrical components can provide electrical technology to eyewear or other head-worn personal electronic apparatus without having to substantially compromise aesthetic design principles. The electrical components can be partially or completely internal to eyewear or other head-worn personal electronic apparatus. The electrical components can operate independently or together with other electrical components provided elsewhere. Apparatus for presenting after-market electrical components are also disclosed. (Claims) 1. A system, comprising: a head-worn personal electronic apparatus, including at least: a head-worn structure configured to be worn by a user; a speaker at least partially contained within the head-worn structure, the speaker being configured to be worn proximate to an ear of the user when the head-worn structure is being worn by the user;	(G02C11/10) Electronic devices other than hearing aids (G02C11/06) Hearing aids
-------	---	---	---

		a motion detector at least partially contained within the head-worn structure and configured to provide motion data pertaining to the head-worn personal electronic apparatus; a first microphone at least partially contained within the head-worn structure, the first microphone being positioned to pick up at least audio input from at least the user; a second microphone at least partially contained within the head-worn structure; a piezoelectric device configured to receive a user input based on a force induced on the piezoelectric device, the piezoelectric device being at least partially contained within the head-worn structure, wherein the received user input operating to at least alter operation of the head-worn electronic personal audio apparatus; a rechargeable battery contained within the head-worn structure; electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the rechargeable battery; wireless communication circuitry at least partially contained within the head-worn structure, the wireless communication circuitry being electrically connected to at least the rechargeable battery; and at least one conductive element at least partially included within the head-worn structure, the at least one conductive element being at	
--	--	--	--

		least partially exposed to enable interconnection therewith, the at least one conductive element being electrically connected to at least the rechargeable battery; and a charging apparatus having at least a charging connector, wherein on placement of the head-worn personal electronic apparatus in the charging apparatus, electrical connection results at least from the at least one conductive element connecting with the charging connector, and thereby the rechargeable battery of the head-worn personal electronic apparatus is able to be recharged while the head-worn personal electronic apparatus is placed in the charging apparatus. (Claims) 2. A head-worn personal electronic apparatus, comprising: a head-worn structure configured to be worn by a user; a speaker at least partially contained within the head-worn structure, the speaker being configured to be worn proximate to an ear of the user when the head-worn structure is being worn by the user; a motion detector at least partially contained within the head-worn structure and configured to provide motion data pertaining to the head-worn personal electronic apparatus; a first microphone at least partially contained within the head-worn structure, the first microphone being positioned to pick up at least audio input	
--	--	--	--

L2787	Sort results by: Similarity to Application # 18/597,874 Retrieve results by: Application # 18/597,874	from at least the user; a second microphone at least partially contained within the head-worn structure; a piezoelectric device configured to receive a user input based on a force induced on the piezoelectric device, the piezoelectric device being at least partially contained within the head-worn structure, wherein the received user input operating to at least alter operation of the head-worn electronic personal audio apparatus; a rechargeable battery contained within the head-worn structure; electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the rechargeable battery; and wireless communication circuitry at least partially contained within the head-worn structure. (Abstract) Techniques for providing eyewear or other head-worn personal electronic apparatus with electrical components are disclosed. The electrical components can provide electrical technology to eyewear or other head-worn personal electronic apparatus without having to substantially compromise aesthetic design principles. The electrical components can be partially or completely internal to eyewear or other head-worn personal electronic apparatus. The electrical components can operate independently or together with other electrical components provided elsewhere. Apparatus for presenting after-market electrical components	(G02C5/143) Side-members having special ear pieces (G02C5/146) Side-members having special front end
-------	---	--	--

		are also disclosed. (Claims) 1. A system, comprising: a head-worn personal electronic apparatus, including at least: a head-worn structure configured to be worn by a user; a speaker at least partially contained within the head-worn structure, the speaker being configured to be worn proximate to an ear of the user when the head-worn structure is being worn by the user; a motion detector at least partially contained within the head-worn structure and configured to provide motion data pertaining to the head-worn personal electronic apparatus; a first microphone at least partially contained within the head-worn structure, the first microphone being positioned to pick up at least audio input from at least the user; a second microphone at least partially contained within the head-worn structure; a piezoelectric device configured to receive a user input based on a force induced on the piezoelectric device, the piezoelectric device being at least partially contained within the head-worn structure, wherein the received user input operating to at least alter operation of the head-worn electronic personal audio apparatus; a rechargeable battery contained within the head-	
--	--	--	--

		worn structure; electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the rechargeable battery; wireless communication circuitry at least partially contained within the head-worn structure, the wireless communication circuitry being electrically connected to at least the rechargeable battery; and at least one conductive element at least partially included within the head-worn structure, the at least one conductive element being at least partially exposed to enable interconnection therewith, the at least one conductive element being electrically connected to at least the rechargeable battery; and a charging apparatus having at least a charging connector, wherein on placement of the head-worn personal electronic apparatus in the charging apparatus, electrical connection results at least from the at least one conductive element connecting with the charging connector, and thereby the rechargeable battery of the head-worn personal electronic apparatus is able to be recharged while the head-worn personal electronic apparatus is placed in the charging apparatus. (Claims) 2. A head-worn personal electronic apparatus, comprising: a head-worn structure configured to be worn by a user;	
--	--	--	--

		a speaker at least partially contained within the head-worn structure, the speaker being configured to be worn proximate to an ear of the user when the head-worn structure is being worn by the user; a motion detector at least partially contained within the head-worn structure and configured to provide motion data pertaining to the head-worn personal electronic apparatus; a first microphone at least partially contained within the head-worn structure, the first microphone being positioned to pick up at least audio input from at least the user; a second microphone at least partially contained within the head-worn structure; a piezoelectric device configured to receive a user input based on a force induced on the piezoelectric device, the piezoelectric device being at least partially contained within the head-worn structure, wherein the received user input operating to at least alter operation of the head-worn electronic personal audio apparatus; a rechargeable battery contained within the head-worn structure; electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the rechargeable battery; and wireless communication circuitry at least partially contained within the head-worn structure.	
--	--	--	--

L2788	Sort results by: Similarity to Application # 18/597,874 Retrieve results by: Application # 18/597,874	(Abstract) Techniques for providing eyewear or other head-worn personal electronic apparatus with electrical components are disclosed. The electrical components can provide electrical technology to eyewear or other head-worn personal electronic apparatus without having to substantially compromise aesthetic design principles. The electrical components can be partially or completely internal to eyewear or other head-worn personal electronic apparatus. The electrical components can operate independently or together with other electrical components provided elsewhere. Apparatus for presenting after-market electrical components are also disclosed. (Claims) 1. A system, comprising: a head-worn personal electronic apparatus, including at least: a head-worn structure configured to be worn by a user; a speaker at least partially contained within the head-worn structure, the speaker being configured to be worn proximate to an ear of the user when the head-worn structure is being worn by the user; a motion detector at least partially contained within the head-worn structure and configured to provide motion data pertaining to the head-worn personal electronic apparatus; a first microphone at least partially contained within the head-worn structure, the first	(G02C5/143) Side-members having special ear pieces (G02C5/146) Side-members having special front end (G02C11/06) Hearing aids (G02C11/10) Electronic devices other than hearing aids
-------	---	---	--

		microphone being positioned to pick up at least audio input from at least the user; a second microphone at least partially contained within the head-worn structure; a piezoelectric device configured to receive a user input based on a force induced on the piezoelectric device, the piezoelectric device being at least partially contained within the head-worn structure, wherein the received user input operating to at least alter operation of the head-worn electronic personal audio apparatus; a rechargeable battery contained within the head-worn structure; electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the rechargeable battery; wireless communication circuitry at least partially contained within the head-worn structure, the wireless communication circuitry being electrically connected to at least the rechargeable battery; and at least one conductive element at least partially included within the head-worn structure, the at least one conductive element being at least partially exposed to enable interconnection therewith, the at least one conductive element being electrically connected to at least the rechargeable battery; and a charging apparatus having at least a charging connector, wherein on placement of the	
--	--	---	--

		head-worn personal electronic apparatus in the charging apparatus, electrical connection results at least from the at least one conductive element connecting with the charging connector, and thereby the rechargeable battery of the head-worn personal electronic apparatus is able to be recharged while the head-worn personal electronic apparatus is placed in the charging apparatus. (Claims) 2. A head-worn personal electronic apparatus, comprising: a head-worn structure configured to be worn by a user; a speaker at least partially contained within the head-worn structure, the speaker being configured to be worn proximate to an ear of the user when the head-worn structure is being worn by the user; a motion detector at least partially contained within the head-worn structure and configured to provide motion data pertaining to the head-worn personal electronic apparatus; a first microphone at least partially contained within the head-worn structure, the first microphone being positioned to pick up at least audio input from at least the user; a second microphone at least partially contained within the head-worn structure; a piezoelectric device configured to receive a user input based on a force induced on the piezoelectric device, the piezoelectric device being at least partially	
--	--	--	--

L2789	Sort results by: Similarity to Application # 18/597,874 Retrieve results by: Application # 18/597,874	contained within the head-worn structure, wherein the received user input operating to at least alter operation of the head-worn electronic personal audio apparatus; a rechargeable battery contained within the head-worn structure; electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the rechargeable battery; and wireless communication circuitry at least partially contained within the head-worn structure. (Abstract) Techniques for providing eyewear or other head-worn personal electronic apparatus with electrical components are disclosed. The electrical components can provide electrical technology to eyewear or other head-worn personal electronic apparatus without having to substantially compromise aesthetic design principles. The electrical components can be partially or completely internal to eyewear or other head-worn personal electronic apparatus. The electrical components can operate independently or together with other electrical components provided elsewhere. Apparatus for presenting after-market electrical components are also disclosed. (Claims) 1. A system, comprising: a head-worn personal electronic apparatus, including at least: a head-worn structure	(G02C5/143) Side-members having special ear pieces (G02C5/146) Side-members having special front end (G02C11/06) Hearing aids (G02C11/10) Electronic devices other than hearing aids (G02C2200/08) Modular frames, easily exchangeable frame parts and lenses (H02J7/0045) Circuit arrangements for charging or depolarising batteries or for supplying loads from batteries characterised by the mechanical construction concerning the insertion or the connection of the batteries
-------	---	---	---

		configured to be worn by a user; a speaker at least partially contained within the head-worn structure, the speaker being configured to be worn proximate to an ear of the user when the head-worn structure is being worn by the user; a motion detector at least partially contained within the head-worn structure and configured to provide motion data pertaining to the head-worn personal electronic apparatus; a first microphone at least partially contained within the head-worn structure, the first microphone being positioned to pick up at least audio input from at least the user; a second microphone at least partially contained within the head-worn structure; a piezoelectric device configured to receive a user input based on a force induced on the piezoelectric device, the piezoelectric device being at least partially contained within the head-worn structure, wherein the received user input operating to at least alter operation of the head-worn electronic personal audio apparatus; a rechargeable battery contained within the head-worn structure; electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the rechargeable battery; wireless communication circuitry at least partially contained within the head-	
--	--	---	--

		worn structure, the wireless communication circuitry being electrically connected to at least the rechargeable battery; and at least one conductive element at least partially included within the head-worn structure, the at least one conductive element being at least partially exposed to enable interconnection therewith, the at least one conductive element being electrically connected to at least the rechargeable battery; and a charging apparatus having at least a charging connector, wherein on placement of the head-worn personal electronic apparatus in the charging apparatus, electrical connection results at least from the at least one conductive element connecting with the charging connector, and thereby the rechargeable battery of the head-worn personal electronic apparatus is able to be recharged while the head-worn personal electronic apparatus is placed in the charging apparatus. (Claims) 2. A head-worn personal electronic apparatus, comprising: a head-worn structure configured to be worn by a user; a speaker at least partially contained within the head-worn structure, the speaker being configured to be worn proximate to an ear of the user when the head-worn structure is being worn by the user; a motion detector at least partially contained within the	
--	--	--	--

		head-worn structure and configured to provide motion data pertaining to the head-worn personal electronic apparatus; a first microphone at least partially contained within the head-worn structure, the first microphone being positioned to pick up at least audio input from at least the user; a second microphone at least partially contained within the head-worn structure; a piezoelectric device configured to receive a user input based on a force induced on the piezoelectric device, the piezoelectric device being at least partially contained within the head-worn structure, wherein the received user input operating to at least alter operation of the head-worn electronic personal audio apparatus; a rechargeable battery contained within the head-worn structure; electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the rechargeable battery; and wireless communication circuitry at least partially contained within the head-worn structure.	
L2901	Sort results by: Similarity to Application # 18/597,874 Retrieve results by: Application # 18/597,874	(Abstract) Techniques for providing eyewear or other head-worn personal electronic apparatus with electrical components are disclosed. The electrical components can provide electrical technology to eyewear or other head-worn personal electronic apparatus without having to substantially compromise aesthetic design principles.	No selections

		The electrical components can be partially or completely internal to eyewear or other head-worn personal electronic apparatus. The electrical components can operate independently or together with other electrical components provided elsewhere. Apparatus for presenting after-market electrical components are also disclosed. (Claims) a head-worn personal electronic apparatus, including at least: a head-worn structure configured to be worn by a user; a speaker at least partially contained within the head-worn structure, the speaker being configured to be worn proximate to an ear of the user when the head-worn structure is being worn by the user; a motion detector at least partially contained within the head-worn structure and configured to provide motion data pertaining to the head-worn personal electronic apparatus; a first microphone at least partially contained within the head-worn structure, the first microphone being positioned to pick up at least audio input from at least the user; a second microphone at least partially contained within the head-worn structure; a piezoelectric device configured to receive a user input based on a force induced on the piezoelectric device, the piezoelectric device being contained within the head-worn structure, wherein the received user input operating to at least alter	
--	--	--	--

		an operation of the head-worn personal electronic apparatus; a rechargeable battery contained within the head-worn structure; electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the rechargeable battery; 1. (Previously Presented) A system, comprising: wireless communication circuitry at least partially contained within the head-worn structure, the wireless communication circuitry being electrically connected to at least the rechargeable battery; and (Claims) at least one conductive element at least partially included within the head-worn structure, the at least one conductive element being at least partially exposed to enable interconnection therewith, the at least one conductive element being electrically connected to at least the rechargeable battery; and a charging apparatus having at least a charging connector, wherein on placement of the head-worn personal electronic apparatus at least partially in the charging apparatus, electrical connection is configured to result at least from the at least one conductive element connecting with the charging connector, and thereby the rechargeable battery of the head-worn personal electronic apparatus is able to be recharged while the head-worn personal electronic apparatus is placed at least	
--	--	--	--

		partially in the charging apparatus. a head-worn structure configured to be worn by a user; a speaker at least partially contained within the head-worn structure, the speaker being configured to be worn proximate to an ear of the user when the head-worn structure is being worn by the user; a motion detector at least partially contained within the head-worn structure and configured to provide motion data pertaining to the head-worn personal electronic apparatus; a first microphone at least partially contained within the head-worn structure, the first microphone being positioned to pick up at least audio input from at least the user; a second microphone at least partially contained within the head-worn structure; 2. (Previously Presented) A head-worn personal electronic apparatus, comprising: a piezoelectric device configured to receive a user input based on a force induced on the piezoelectric device, the piezoelectric device being contained within the head-worn structure, wherein the received user input operating to at least alter an operation of the head-worn personal electronic apparatus; a rechargeable battery contained within the head-worn structure; electronic circuitry contained within the head-worn structure, the electronic	
--	--	--	--

		circuitry being electrically connected to at least the rechargeable battery; and wireless communication circuitry at least partially contained within the head-worn structure. (Claims) 72. (New) A head-worn personal electronic apparatus, comprising: a rechargeable battery contained within the head-worn structure; electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the rechargeable battery; wireless communication circuitry at least partially contained within the head-worn structure; at least one conductive element at least partially included within the head-worn structure, the at least one conductive element being at least partially exposed to enable interconnection therewith, the at least one conductive element being electrically connected to at least the rechargeable battery; and a radiation detector contained within the head-worn structure and configured to capture radiation data, wherein the head-worn personal electronic apparatus is configured to determine whether the head-worn personal electronic apparatus is being worn by the user based on the radiation data captured by the radiation detector, and wherein the second	
--	--	---	--

		microphone is configured to at least pick-up an environmental audio input. the head-worn structure, wherein the received user input operating to at least alter an operation of the head-worn personal electronic apparatus; (Claims) 95. (New) A head-worn personal electronic apparatus, comprising: a motion sensor at least partially contained within the head-worn structure and configured to provide motion data pertaining to the head-worn personal electronic apparatus; a first microphone at least partially contained within the head-worn structure, the first microphone being positioned to pick up at least audio input from at least the user; a second microphone at least partially contained within the head-worn structure; a display at least partially contained within the head-worn structure, the display configured to present information to the user of the head-worn personal electronic apparatus; a rechargeable battery contained within the head-worn structure; electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the rechargeable battery; and wireless communication circuitry at least partially contained within the head-worn structure. (Claims) a head-worn	
--	--	---	--

		structure configured to be worn by a user, the head-worn structure including a front section and first and second temples; a first speaker at least partially contained within the first temple of the head- worn structure; a second speaker at least partially contained within the second temple of the head- worn structure; a motion sensor at least partially contained within the head-worn structure and configured to provide motion data pertaining to the head-worn personal electronic apparatus; a microphone at least partially contained within the head-worn structure, the microphone being positioned to pick up at least audio input from at least the user; a display at least partially contained within the head-worn structure, the display configured to present information to the user of the head-worn personal electronic apparatus; electronic circuitry contained within the head-worn structure and configured to control the display to present the information to the user of the head-worn personal electronic apparatus; and data communication circuitry at least partially contained within the head-worn structure. 100. (New) A head-worn personal electronic apparatus, comprising: (Claims) 08. (New) A head-worn personal electronic	
--	--	--	--

		apparatus, comprising: a first microphone at least partially contained within the head-worn structure, the first microphone being positioned to pick up at least audio input from at least the user; a second microphone at least partially contained within the head-worn structure; a first optical sensor at least partially contained within the first extended endpiece; a second optical sensor at least partially contained within the second extended endpiece; a rechargeable battery contained within the head-worn structure; electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the rechargeable battery; and wireless communication circuitry at least partially contained within the head-worn structure. a processor at least partially contained within the head-worn structure and configured to control operation of the head-worn personal electronic apparatus;	
L2902	Sort results by: Similarity to Application # 18/597,874 Retrieve results by: Application # 18/597,874	(Abstract) Techniques for providing eyewear or other head-worn personal electronic apparatus with electrical components are disclosed. The electrical components can provide electrical technology to eyewear or other head-worn personal electronic apparatus without having to substantially compromise aesthetic design principles. The electrical components can	(G02C5/146) Side-members having special front end (G02C5/143) Side-members having special ear pieces

		be partially or completely internal to eyewear or other head-worn personal electronic apparatus. The electrical components can operate independently or together with other electrical components provided elsewhere. Apparatus for presenting after-market electrical components are also disclosed. (Claims) a head-worn personal electronic apparatus, including at least: a head-worn structure configured to be worn by a user; a speaker at least partially contained within the head-worn structure, the speaker being configured to be worn proximate to an ear of the user when the head-worn structure is being worn by the user; a motion detector at least partially contained within the head-worn structure and configured to provide motion data pertaining to the head-worn personal electronic apparatus; a first microphone at least partially contained within the head-worn structure, the first microphone being positioned to pick up at least audio input from at least the user; a second microphone at least partially contained within the head-worn structure; a piezoelectric device configured to receive a user input based on a force induced on the piezoelectric device, the piezoelectric device being contained within the head-worn structure, wherein the received user input operating to at least alter an operation of the head-worn	
--	--	--	--

		personal electronic apparatus; a rechargeable battery contained within the head-worn structure; electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the rechargeable battery; 1. (Previously Presented) A system, comprising: wireless communication circuitry at least partially contained within the head-worn structure, the wireless communication circuitry being electrically connected to at least the rechargeable battery; and (Claims) at least one conductive element at least partially included within the head-worn structure, the at least one conductive element being at least partially exposed to enable interconnection therewith, the at least one conductive element being electrically connected to at least the rechargeable battery; and a charging apparatus having at least a charging connector, wherein on placement of the head-worn personal electronic apparatus at least partially in the charging apparatus, electrical connection is configured to result at least from the at least one conductive element connecting with the charging connector, and thereby the rechargeable battery of the head-worn personal electronic apparatus is able to be recharged while the head-worn personal electronic apparatus is placed at least partially in the charging	
--	--	--	--

		apparatus. a head-worn structure configured to be worn by a user; a speaker at least partially contained within the head-worn structure, the speaker being configured to be worn proximate to an ear of the user when the head-worn structure is being worn by the user; a motion detector at least partially contained within the head-worn structure and configured to provide motion data pertaining to the head-worn personal electronic apparatus; a first microphone at least partially contained within the head-worn structure, the first microphone being positioned to pick up at least audio input from at least the user; a second microphone at least partially contained within the head-worn structure; 2. (Previously Presented) A head-worn personal electronic apparatus, comprising: a piezoelectric device configured to receive a user input based on a force induced on the piezoelectric device, the piezoelectric device being contained within the head-worn structure, wherein the received user input operating to at least alter an operation of the head-worn personal electronic apparatus; a rechargeable battery contained within the head-worn structure; electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically	
--	--	---	--

		connected to at least the rechargeable battery; and wireless communication circuitry at least partially contained within the head-worn structure. (Claims) 72. (New) A head-worn personal electronic apparatus, comprising: a rechargeable battery contained within the head-worn structure; electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the rechargeable battery; wireless communication circuitry at least partially contained within the head-worn structure; at least one conductive element at least partially included within the head-worn structure, the at least one conductive element being at least partially exposed to enable interconnection therewith, the at least one conductive element being electrically connected to at least the rechargeable battery; and a radiation detector contained within the head-worn structure and configured to capture radiation data, wherein the head-worn personal electronic apparatus is configured to determine whether the head-worn personal electronic apparatus is being worn by the user based on the radiation data captured by the radiation detector, and wherein the second microphone is configured to at	
--	--	---	--

		least pick-up an environmental audio input. the head-worn structure, wherein the received user input operating to at least alter an operation of the head-worn personal electronic apparatus; (Claims) 95. (New) A head-worn personal electronic apparatus, comprising: a motion sensor at least partially contained within the head-worn structure and configured to provide motion data pertaining to the head-worn personal electronic apparatus; a first microphone at least partially contained within the head-worn structure, the first microphone being positioned to pick up at least audio input from at least the user; a second microphone at least partially contained within the head-worn structure; a display at least partially contained within the head-worn structure, the display configured to present information to the user of the head-worn personal electronic apparatus; a rechargeable battery contained within the head-worn structure; electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the rechargeable battery; and wireless communication circuitry at least partially contained within the head-worn structure. (Claims) a head-worn structure configured to be	
--	--	---	--

		worn by a user, the head-worn structure including a front section and first and second temples; a first speaker at least partially contained within the first temple of the head- worn structure; a second speaker at least partially contained within the second temple of the head- worn structure; a motion sensor at least partially contained within the head-worn structure and configured to provide motion data pertaining to the head- worn personal electronic apparatus; a microphone at least partially contained within the head- worn structure, the microphone being positioned to pick up at least audio input from at least the user; a display at least partially contained within the head- worn structure, the display configured to present information to the user of the head-worn personal electronic apparatus; electronic circuitry contained within the head-worn structure and configured to control the display to present the information to the user of the head-worn personal electronic apparatus; and data communication circuitry at least partially contained within the head-worn structure. 100. (New) A head-worn personal electronic apparatus, comprising: (Claims) 08. (New) A head- worn personal electronic apparatus, comprising:	
--	--	--	--

		a first microphone at least partially contained within the head-worn structure, the first microphone being positioned to pick up at least audio input from at least the user; a second microphone at least partially contained within the head-worn structure; a first optical sensor at least partially contained within the first extended endpiece; a second optical sensor at least partially contained within the second extended endpiece; a rechargeable battery contained within the head-worn structure; electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the rechargeable battery; and wireless communication circuitry at least partially contained within the head-worn structure. a processor at least partially contained within the head-worn structure and configured to control operation of the head-worn personal electronic apparatus;	
L2903	Sort results by: Similarity to Application # 18/597,874 Retrieve results by: Application # 18/597,874	(Abstract) Techniques for providing eyewear or other head-worn personal electronic apparatus with electrical components are disclosed. The electrical components can provide electrical technology to eyewear or other head-worn personal electronic apparatus without having to substantially compromise aesthetic design principles. The electrical components can be partially or completely	(G02C5/146) Side-members having special front end (G02C5/143) Side-members having special ear pieces (G02C11/06) Hearing aids (G02C11/10) Electronic devices other than hearing aids

		internal to eyewear or other head-worn personal electronic apparatus. The electrical components can operate independently or together with other electrical components provided elsewhere. Apparatus for presenting after-market electrical components are also disclosed. (Claims) a head-worn personal electronic apparatus, including at least: a head-worn structure configured to be worn by a user; a speaker at least partially contained within the head-worn structure, the speaker being configured to be worn proximate to an ear of the user when the head-worn structure is being worn by the user; a motion detector at least partially contained within the head-worn structure and configured to provide motion data pertaining to the head-worn personal electronic apparatus; a first microphone at least partially contained within the head-worn structure, the first microphone being positioned to pick up at least audio input from at least the user; a second microphone at least partially contained within the head-worn structure; a piezoelectric device configured to receive a user input based on a force induced on the piezoelectric device, the piezoelectric device being contained within the head-worn structure, wherein the received user input operating to at least alter an operation of the head-worn personal electronic apparatus;	
--	--	---	--

		a rechargeable battery contained within the head-worn structure; electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the rechargeable battery; 1. (Previously Presented) A system, comprising: wireless communication circuitry at least partially contained within the head-worn structure, the wireless communication circuitry being electrically connected to at least the rechargeable battery; and (Claims) at least one conductive element at least partially included within the head-worn structure, the at least one conductive element being at least partially exposed to enable interconnection therewith, the at least one conductive element being electrically connected to at least the rechargeable battery; and a charging apparatus having at least a charging connector, wherein on placement of the head-worn personal electronic apparatus at least partially in the charging apparatus, electrical connection is configured to result at least from the at least one conductive element connecting with the charging connector, and thereby the rechargeable battery of the head-worn personal electronic apparatus is able to be recharged while the head-worn personal electronic apparatus is placed at least partially in the charging apparatus.	
--	--	---	--

		a head-worn structure configured to be worn by a user; a speaker at least partially contained within the head-worn structure, the speaker being configured to be worn proximate to an ear of the user when the head-worn structure is being worn by the user; a motion detector at least partially contained within the head-worn structure and configured to provide motion data pertaining to the head-worn personal electronic apparatus; a first microphone at least partially contained within the head-worn structure, the first microphone being positioned to pick up at least audio input from at least the user; a second microphone at least partially contained within the head-worn structure; 2. (Previously Presented) A head-worn personal electronic apparatus, comprising: a piezoelectric device configured to receive a user input based on a force induced on the piezoelectric device, the piezoelectric device being contained within the head-worn structure, wherein the received user input operating to at least alter an operation of the head-worn personal electronic apparatus; a rechargeable battery contained within the head-worn structure; electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the	
--	--	---	--

		rechargeable battery; and wireless communication circuitry at least partially contained within the head-worn structure. (Claims) 72. (New) A head-worn personal electronic apparatus, comprising: a rechargeable battery contained within the head-worn structure; electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the rechargeable battery; wireless communication circuitry at least partially contained within the head-worn structure; at least one conductive element at least partially included within the head-worn structure, the at least one conductive element being at least partially exposed to enable interconnection therewith, the at least one conductive element being electrically connected to at least the rechargeable battery; and a radiation detector contained within the head-worn structure and configured to capture radiation data, wherein the head-worn personal electronic apparatus is configured to determine whether the head-worn personal electronic apparatus is being worn by the user based on the radiation data captured by the radiation detector, and wherein the second microphone is configured to at least pick-up an environmental	
--	--	--	--

		audio input. the head-worn structure, wherein the received user input operating to at least alter an operation of the head-worn personal electronic apparatus; (Claims) 95. (New) A head-worn personal electronic apparatus, comprising: a motion sensor at least partially contained within the head-worn structure and configured to provide motion data pertaining to the head-worn personal electronic apparatus; a first microphone at least partially contained within the head-worn structure, the first microphone being positioned to pick up at least audio input from at least the user; a second microphone at least partially contained within the head-worn structure; a display at least partially contained within the head-worn structure, the display configured to present information to the user of the head-worn personal electronic apparatus; a rechargeable battery contained within the head-worn structure; electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the rechargeable battery; and wireless communication circuitry at least partially contained within the head-worn structure. (Claims) a head-worn structure configured to be worn by a user, the head-worn	
--	--	--	--

		structure including a front section and first and second temples; a first speaker at least partially contained within the first temple of the head- worn structure; a second speaker at least partially contained within the second temple of the head- worn structure; a motion sensor at least partially contained within the head-worn structure and configured to provide motion data pertaining to the head-worn personal electronic apparatus; a microphone at least partially contained within the head-worn structure, the microphone being positioned to pick up at least audio input from at least the user; a display at least partially contained within the head-worn structure, the display configured to present information to the user of the head-worn personal electronic apparatus; electronic circuitry contained within the head-worn structure and configured to control the display to present the information to the user of the head-worn personal electronic apparatus; and data communication circuitry at least partially contained within the head-worn structure. 100. (New) A head-worn personal electronic apparatus, comprising: (Claims) 08. (New) A head-worn personal electronic apparatus, comprising:	
--	--	--	--

L2904	Sort results by: Similarity to Application # 18/597,874 Retrieve results by: Application # 18/597,874	a first microphone at least partially contained within the head-worn structure, the first microphone being positioned to pick up at least audio input from at least the user; a second microphone at least partially contained within the head-worn structure; a first optical sensor at least partially contained within the first extended endpiece; a second optical sensor at least partially contained within the second extended endpiece; a rechargeable battery contained within the head-worn structure; electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the rechargeable battery; and wireless communication circuitry at least partially contained within the head-worn structure. a processor at least partially contained within the head-worn structure and configured to control operation of the head-worn personal electronic apparatus; (Abstract) Techniques for providing eyewear or other head-worn personal electronic apparatus with electrical components are disclosed. The electrical components can provide electrical technology to eyewear or other head-worn personal electronic apparatus without having to substantially compromise aesthetic design principles. The electrical components can be partially or completely internal to eyewear or other	(G02C5/146) Side-members having special front end (G02C5/143) Side-members having special ear pieces (G02C11/06) Hearing aids (G02C11/10) Electronic devices other than hearing aids (G02C2200/08) Modular frames, easily exchangeable frame parts and lenses (H02J7/0045) Circuit arrangements for
-------	---	--	---

		head-worn personal electronic apparatus. The electrical components can operate independently or together with other electrical components provided elsewhere. Apparatus for presenting after-market electrical components are also disclosed. (Claims) a head-worn personal electronic apparatus, including at least: a head-worn structure configured to be worn by a user; a speaker at least partially contained within the head-worn structure, the speaker being configured to be worn proximate to an ear of the user when the head-worn structure is being worn by the user; a motion detector at least partially contained within the head-worn structure and configured to provide motion data pertaining to the head-worn personal electronic apparatus; a first microphone at least partially contained within the head-worn structure, the first microphone being positioned to pick up at least audio input from at least the user; a second microphone at least partially contained within the head-worn structure; a piezoelectric device configured to receive a user input based on a force induced on the piezoelectric device, the piezoelectric device being contained within the head-worn structure, wherein the received user input operating to at least alter an operation of the head-worn personal electronic apparatus;	charging or depolarising batteries or for supplying loads from batteries characterised by the mechanical construction concerning the insertion or the connection of the batteries
--	--	---	--

		a rechargeable battery contained within the head-worn structure; electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the rechargeable battery; 1. (Previously Presented) A system, comprising: wireless communication circuitry at least partially contained within the head-worn structure, the wireless communication circuitry being electrically connected to at least the rechargeable battery; and (Claims) at least one conductive element at least partially included within the head-worn structure, the at least one conductive element being at least partially exposed to enable interconnection therewith, the at least one conductive element being electrically connected to at least the rechargeable battery; and a charging apparatus having at least a charging connector, wherein on placement of the head-worn personal electronic apparatus at least partially in the charging apparatus, electrical connection is configured to result at least from the at least one conductive element connecting with the charging connector, and thereby the rechargeable battery of the head-worn personal electronic apparatus is able to be recharged while the head-worn personal electronic apparatus is placed at least partially in the charging apparatus.	
--	--	---	--

		a head-worn structure configured to be worn by a user; a speaker at least partially contained within the head-worn structure, the speaker being configured to be worn proximate to an ear of the user when the head-worn structure is being worn by the user; a motion detector at least partially contained within the head-worn structure and configured to provide motion data pertaining to the head-worn personal electronic apparatus; a first microphone at least partially contained within the head-worn structure, the first microphone being positioned to pick up at least audio input from at least the user; a second microphone at least partially contained within the head-worn structure; 2. (Previously Presented) A head-worn personal electronic apparatus, comprising: a piezoelectric device configured to receive a user input based on a force induced on the piezoelectric device, the piezoelectric device being contained within the head-worn structure, wherein the received user input operating to at least alter an operation of the head-worn personal electronic apparatus; a rechargeable battery contained within the head-worn structure; electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the rechargeable battery; and	
--	--	---	--

		wireless communication circuitry at least partially contained within the head-worn structure. (Claims) 72. (New) A head-worn personal electronic apparatus, comprising: a rechargeable battery contained within the head-worn structure; electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the rechargeable battery; wireless communication circuitry at least partially contained within the head-worn structure; at least one conductive element at least partially included within the head-worn structure, the at least one conductive element being at least partially exposed to enable interconnection therewith, the at least one conductive element being electrically connected to at least the rechargeable battery; and a radiation detector contained within the head-worn structure and configured to capture radiation data, wherein the head-worn personal electronic apparatus is configured to determine whether the head-worn personal electronic apparatus is being worn by the user based on the radiation data captured by the radiation detector, and wherein the second microphone is configured to at least pick-up an environmental audio input.	
--	--	--	--

		the head-worn structure, wherein the received user input operating to at least alter an operation of the head-worn personal electronic apparatus; (Claims) 95. (New) A head-worn personal electronic apparatus, comprising: a motion sensor at least partially contained within the head-worn structure and configured to provide motion data pertaining to the head-worn personal electronic apparatus; a first microphone at least partially contained within the head-worn structure, the first microphone being positioned to pick up at least audio input from at least the user; a second microphone at least partially contained within the head-worn structure; a display at least partially contained within the head-worn structure, the display configured to present information to the user of the head-worn personal electronic apparatus; a rechargeable battery contained within the head-worn structure; electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the rechargeable battery; and wireless communication circuitry at least partially contained within the head-worn structure. (Claims) a head-worn structure configured to be worn by a user, the head-worn structure including a front	
--	--	--	--

		section and first and second temples; a first speaker at least partially contained within the first temple of the head- worn structure; a second speaker at least partially contained within the second temple of the head- worn structure; a motion sensor at least partially contained within the head-worn structure and configured to provide motion data pertaining to the head-worn personal electronic apparatus; a microphone at least partially contained within the head-worn structure, the microphone being positioned to pick up at least audio input from at least the user; a display at least partially contained within the head-worn structure, the display configured to present information to the user of the head-worn personal electronic apparatus; electronic circuitry contained within the head-worn structure and configured to control the display to present the information to the user of the head-worn personal electronic apparatus; and data communication circuitry at least partially contained within the head-worn structure. 100. (New) A head-worn personal electronic apparatus, comprising: (Claims) 08. (New) A head-worn personal electronic apparatus, comprising: a first microphone at least	
--	--	---	--

		partially contained within the head-worn structure, the first microphone being positioned to pick up at least audio input from at least the user; a second microphone at least partially contained within the head-worn structure; a first optical sensor at least partially contained within the first extended endpiece; a second optical sensor at least partially contained within the second extended endpiece; a rechargeable battery contained within the head-worn structure; electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the rechargeable battery; and wireless communication circuitry at least partially contained within the head-worn structure. a processor at least partially contained within the head-worn structure and configured to control operation of the head-worn personal electronic apparatus;	
--	--	--	--

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: HOWELL et al. Attorney Docket No.: IPVCP003X1C4X1C2
Application No.: 18/597,874 Examiner: LEI, JIE
Filed: March 6, 2024 Group: 2872
Title: SYSTEM FOR POWERING
HEAD-WORN PERSONAL
ELECTRONIC APPARATUS

AMENDMENT C

Mail Stop _____
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Notice of Allowance dated January 13, 2025, please amend the above-identified patent application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 38 of this paper.

AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Presented) A system, comprising:
 - a head-worn personal electronic apparatus, including at least:
 - a head-worn structure configured to be worn by a user;
 - a speaker at least partially contained within the head-worn structure, the speaker being configured to be worn proximate to an ear of the user when the head-worn structure is being worn by the user;
 - a motion detector at least partially contained within the head-worn structure and configured to provide motion data pertaining to the head-worn personal electronic apparatus;
 - a first microphone at least partially contained within the head-worn structure, the first microphone being positioned to pick up at least audio input from at least the user;
 - a second microphone at least partially contained within the head-worn structure;
 - a piezoelectric device configured to receive a user input based on a force induced on the piezoelectric device, the piezoelectric device being contained within the head-worn structure, wherein the received user input operating to at least alter an operation of the head-worn personal electronic apparatus;
 - a rechargeable battery contained within the head-worn structure;
 - electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the rechargeable battery;

wireless communication circuitry at least partially contained within the head-worn structure, the wireless communication circuitry being electrically connected to at least the rechargeable battery; and

at least one conductive element at least partially included within the head-worn structure, the at least one conductive element being at least partially exposed to enable interconnection therewith, the at least one conductive element being electrically connected to at least the rechargeable battery; and

a charging apparatus having at least a charging connector,

wherein on placement of the head-worn personal electronic apparatus at least partially in the charging apparatus, electrical connection is configured to result at least from the at least one conductive element connecting with the charging connector, and thereby the rechargeable battery of the head-worn personal electronic apparatus is able to be recharged while the head-worn personal electronic apparatus is placed at least partially in the charging apparatus.

2. (Previously Presented) A head-worn personal electronic apparatus, comprising:

a head-worn structure configured to be worn by a user;

a speaker at least partially contained within the head-worn structure, the speaker being configured to be worn proximate to an ear of the user when the head-worn structure is being worn by the user;

a motion detector at least partially contained within the head-worn structure and configured to provide motion data pertaining to the head-worn personal electronic apparatus;

a first microphone at least partially contained within the head-worn structure, the first microphone being positioned to pick up at least audio input from at least the user;

a second microphone at least partially contained within the head-worn structure;

a force sensing device configured to receive a user input based on a force induced on the force sensing device, the force sensing device being contained within the head-worn structure, wherein the received user input operating to at least alter an operation of the head-worn personal electronic apparatus;

a rechargeable battery contained within the head-worn structure;

electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the rechargeable battery; and

wireless communication circuitry at least partially contained within the head-worn structure.

3. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 2, wherein the head-worn personal electronic apparatus comprises:

at least one conductive element at least partially included within the head-worn structure, the at least one conductive element being at least partially exposed to enable interconnection therewith, the at least one conductive element being electrically connected to at least the rechargeable battery.

4. (Canceled).

5. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 2, wherein the head-worn personal electronic apparatus is configured to support audio output to the user via the speaker, and

wherein the operation of the head-worn personal electronic apparatus being altered concerns control of the audio output being provided to the user.

6. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 2, wherein the head-worn personal electronic apparatus is configured to support voice calls to the user, and

wherein the operation of the head-worn personal electronic apparatus being altered concerns at least accepting or declining a voice call to the user.

7. (Previously Presented) A system as recited in claim 1, wherein the head-worn personal electronic apparatus is configured to support audio output to the user via the speaker, and

wherein the operation of the head-worn personal electronic apparatus being altered concerns control of the audio output being provided to the user.

8. (Previously Presented) A system as recited in claim 1, wherein the head-worn personal electronic apparatus is configured to support voice calls to the user, and

wherein the operation of the head-worn personal electronic apparatus being altered concerns at least accepting or declining a voice call to the user.

9. (Previously Presented) A system as recited in claim 1,
wherein the system comprises:

a mobile communication device at least for supporting audio output, the mobile communication device configured to store at least a hearing profile associated with the user, the stored hearing profile associated with the user at least characterizes hearing impairment regarding the user's ability to hear, the mobile communication device configured to produce audio output signals customized for the user based on at least the stored hearing profile associated with the user such that the customized audio output signals at least compensate for the hearing impairment regarding the user's ability to hear, and the mobile communication device configured to transmit the customized audio output signals to the head-worn personal electronic apparatus,

wherein the speaker is configured to generate at least a portion of the customized audio output for the user in accordance with at least the portion of

the customized audio output signals being received by the head-worn personal electronic apparatus.

10. (Previously Presented) A system as recited in claim 9, wherein the mobile communication device is configured to support establishment of the hearing profile for the user.

11. (Previously Presented) A system as recited in claim 10, wherein the hearing profile for the user is established by the mobile communication device at least via generating audio tones and outputting such to at least the speaker and receiving a user indication corresponding to the user's ability to hear the generated audio tones.

12. (Previously Presented) A system as recited in claim 9, wherein the mobile communication device is configured to produce the customized audio output signals using frequency-dependent amplification.

13. (Previously Presented) A system as recited in claim 9,
wherein the mobile communication device is or includes a mobile phone,
and
wherein the customized audio output includes music.

14. (Previously Presented) A system as recited in claim 9,
wherein the mobile communication device is or includes a mobile phone,
and
wherein the customized audio output includes a voice conversation.

15. (Previously Presented) A system as recited in claim 9, wherein the customized audio output signals are produced based on amplifying or attenuating different frequency bands differently according to at least the stored hearing profile.

16. (Previously Presented) A system as recited in claim 9,

wherein the mobile communication device includes computing capabilities and a storage device, the storage device storing at least a software program executed by the mobile communication device to enable the user to establish the hearing profile associated with the user, and

wherein the mobile communication device is configured to establish the hearing profile associated with the user via the software program executed by the mobile communication device based on the user interacting with the software program via the mobile communication device.

17. (Previously Presented) A system as recited in claim 16, wherein the software program at least interactively guides the user to establish the hearing profile for the user.

18. (Previously Presented) A system as recited in claim 17, wherein the software program at least interactively guides the user to establish the hearing profile for the user by at least causing various audio tones to be output to the user via at least the speaker, prompting the user to provide a hearing input with respect to one or more of the various audio tones being output, and receiving the hearing input pertaining to one or more of the various audio tones being output.

19. (Previously Presented) A system as recited in claim 18, wherein the mobile communication device is configured to wirelessly communicate with the head-worn personal electronic apparatus over a wireless network using the wireless communication circuitry.

20. (Previously Presented) A system as recited in claim 9, wherein the head-worn personal electronic apparatus includes a plurality of circuit boards, each of the plurality of circuit boards including at least one integrated circuit mounted thereto.

21. (Previously Presented) A system as recited in claim 20, wherein at least one of the plurality of circuit boards is a flexible printed circuit board.

22. (Previously Presented) A system as recited in claim 20, wherein at least one of the plurality of circuit boards has at least one integrated circuit mounted on a first side of the at least one of the plurality of circuit boards, and at least one integrated circuit mounted on a second side of the at least one of the plurality of circuit boards.

23. (Previously Presented) A system as recited in claim 9, wherein the head-worn structure comprises:

an infrared emitter configured to at least direct infrared signals towards the user when at least the head-worn structure of the head-worn personal electronic apparatus is being worn; and

an infrared detector configured to detect infrared radiation reflected back from the user when at least the head-worn structure of the head-worn personal electronic apparatus is being worn.

24. (Previously Presented) A system as recited in claim 23, wherein the electronic circuitry within the head-worn structure is configured to facilitate determining whether the head-worn structure is being worn by the user based on at least the detected infrared radiation.

25. (Previously Presented) A system as recited in claim 9, wherein the head-worn structure comprises:

a physical condition sensor configured to acquire data pertaining to at least a physical condition of the user, the physical condition sensor being provided at least partially internal to the head-worn structure.

26. (Previously Presented) A system as recited in claim 25, wherein the acquired data by the physical condition sensor includes data regarding temperature of the user.

27. (Previously Presented) A system as recited in claim 25, wherein the acquired data by the physical condition sensor includes data regarding vital signs of the user.

28. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 2,

wherein the second microphone is configured to pick-up an environmental audio input, and

wherein the environmental audio input picked-up from at least the second microphone is used at least for noise cancelation, and at least a portion of the environmental audio input picked-up from the second microphone is subtracted from the audio input picked-up from the first microphone.

29. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 2,

wherein the second microphone is configured to pick-up an environmental audio input, and

wherein the electronic circuitry is configured to receive audio output signals to be output to the user via the speaker, and modify the audio output signals to be output to the user via the speaker to cancel at least a portion of noise associated with the environment, the modification of the audio output signals being dependent at least in part on the environmental audio input picked-up via the second microphone.

30. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 29, wherein the head-worn personal electronic apparatus comprises:

a physical condition sensor configured to acquire data pertaining to at least a physical condition of the user, the physical condition sensor being provided at least partially internal to the head-worn structure,

wherein the acquired data by the physical condition sensor includes data regarding vital signs or temperature of the user.

31. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 29, wherein the environmental audio input picked-up from at least the second microphone is used at least for noise cancelation, and at least a portion of the environmental audio input picked-up from the second microphone is used to remove undesired noise from the audio input picked-up from the first microphone.

32. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 2, wherein the electronic circuitry is configured to:

determine an ambient noise level based on at least signals picked-up from at least the second microphone; and

modify at least a portion of audio output signals to be output to the user via the speaker, with the modification being at least in part dependent on the ambient noise level.

33. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 2, wherein the first microphone faces the user when the head-worn personal electronic apparatus is being worn.

34. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 33, wherein the second microphone faces away from the user when the head-worn personal electronic apparatus is being worn.

35. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 34,

wherein the second microphone is configured to pick-up an environmental audio input, and

wherein the electronic circuitry is configured to receive audio output signals to be output to the user via the speaker, and modify the audio output signals to be output to the user via the speaker to cancel at least a portion of noise associated with the environment, the modification of the audio output signals being dependent at least in part on the environmental audio input picked-up via the second microphone.

36. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 34,

wherein the second microphone is configured to pick-up an environmental audio input, and

wherein the environmental audio input picked-up from at least the second microphone is used at least for noise cancelation, and at least a portion of the environmental audio input picked-up from the second microphone is used to remove undesired noise from the audio input picked-up from the first microphone.

37. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 34, wherein the electronic circuitry is configured to:

determine an ambient noise level based on at least signals picked-up from at least the second microphone; and

modify at least a portion of audio output signals to be output to the user via the speaker, with the modification being at least in part dependent on the ambient noise level.

38. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 2, wherein the head-worn personal electronic apparatus is configured to receive a voice input from the user via at least the first microphone,

support or receive determination of a requested operation from the voice input using voice recognition, and control operation by the head-worn personal electronic apparatus based on the requested operation.

39. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 2,

wherein the head-worn personal electronic apparatus comprises:

an optical sensor contained within the head-worn structure and configured to capture optical sensor data,

wherein the head-worn personal electronic apparatus is configured to determine whether the head-worn personal electronic apparatus is being worn by the user based on the optical sensor data captured by the optical sensor.

40. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 39, wherein the optical sensor is configured to sense at least infrared radiation, and wherein the optical sensor data captured includes at least infrared radiation data.

41. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 2, wherein the head-worn personal electronic apparatus comprises:

a radiation emitter at least partially contained within the head-worn structure and configured to at least direct radiation towards the user when the head-worn personal electronic apparatus is being worn; and

a radiation detector at least partially contained within the head-worn structure and configured to detect a portion of the radiation directed towards the user that is reflected back from the user when the head-worn personal electronic apparatus is being worn.

42. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 41, wherein the radiation detector comprises a photodetector.

43. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 2, wherein the head-worn personal electronic apparatus comprises:

an optical sensor at least partially contained within the head-worn structure and configured to capture data, the captured data being indicative of whether the head-worn personal electronic apparatus is being worn by the user,

wherein the head-worn personal electronic apparatus is configured to at least alter operation of the head-worn personal electronic apparatus based at least in part on the captured data.

44. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 43, wherein the optical sensor is configured to sense at least infrared radiation.

45. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 2, wherein the head-worn personal electronic apparatus comprises:

an infrared emitter contained within the head-worn structure and configured to emit infrared radiation towards the user when the head-worn personal electronic apparatus is being worn.

46. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 2, wherein the head-worn personal electronic apparatus comprises:

at least a portion of a Hall effect detector at least partially contained within the head-worn structure, the Hall effect detector being configured to capture data associated with a magnetic characteristic.

47. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 2,

wherein the head-worn personal electronic apparatus is operable to at least output customized audio output,

wherein the wireless communication circuitry includes at least a wireless receiver configured to wirelessly receive audio output signals to be output to the user via the speaker,

wherein the electronic circuitry including at least an integrated circuit, the electronic circuitry being configured to (i) store hearing characteristics associated with the user; (ii) customize the received audio output signals to produce customized audio output signals for the user based on at least a portion of the stored hearing characteristics associated with the user such that the customized audio output signals at least compensate for hearing impairment regarding the user's ability to hear; and (iii) output the customized audio output signals to the speaker, and

wherein the speaker is configured to generate at least a portion of the customized audio output for the user in accordance with at least the portion of the customized audio output signals.

48. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 47, wherein the received audio output signals are wirelessly received from a mobile communication device associated with the user.

49. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 2,

wherein the head-worn personal electronic apparatus is operable to at least output customized audio output,

wherein the wireless communication circuitry includes at least a wireless receiver configured to wirelessly receive audio output signals to be output to the user via the speaker,

wherein the electronic circuitry including at least an integrated circuit, the electronic circuitry being configured to (i) store attributes associated with the user; (ii) customize the received audio output signals to produce customized audio output signals for the user based on at least a portion of the stored attributes associated with the user; and (iii) output the customized audio output signals to the speaker, and

wherein the speaker is configured to generate at least a portion of the customized audio output for the user in accordance with at least the portion of the customized audio output signals.

50. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 49, wherein the received audio output signals are wirelessly received from a mobile communication device associated with the user.

51. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 2,

wherein the head-worn personal electronic apparatus is operable to at least output customized audio output,

wherein the wireless communication circuitry includes at least a wireless receiver configured to wirelessly receive customized audio output signals for the user, the customized audio output signals having been customized based on at least predetermined hearing characteristics associated with the user such that the customized audio output signals at least compensate for hearing impairment regarding the user's ability to hear, and

wherein the speaker is configured to generate at least a portion of the customized audio output for the user in accordance with at least the portion of the customized audio output signals.

52. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 51, wherein the customized audio output signals are wirelessly received from a mobile communication device associated with the user.

53. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 51,

wherein the first microphone is positioned to be directed towards the user when the head-worn personal electronic apparatus is being worn by the user; and

wherein the second microphone is configured to pick up at least ambient sound input associated with an environment in the vicinity of the head-worn personal electronic apparatus, the second microphone being positioned to be directed away from the user when the head-worn personal electronic apparatus is being worn by the user.

54. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 51,

wherein the second microphone is configured to pick up at least ambient sound input associated with an environment in the vicinity of the head-worn personal electronic apparatus, and

wherein the second microphone is positioned to be further away from mouth of the user than the first microphone when the head-worn personal electronic apparatus is being worn.

55. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 51,

wherein the second microphone is configured to pick up at least environmental audio input associated with an environment in the vicinity of the head-worn personal electronic apparatus, and

wherein the electronic circuitry is configured to process the audio input from at least the user picked-up via the first microphone to remove at least a portion of the environmental audio input associated with the environment picked-up via the second microphone.

56. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 54,

wherein the first microphone is positioned so as to be directed towards the user of the head-worn personal electronic apparatus, and

wherein the second microphone is positioned so as to be directed away from the user of the head-worn personal electronic apparatus, relative to the first microphone.

57. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 56, wherein the head-worn personal electronic apparatus comprises:

a physical condition sensor configured to acquire data pertaining to at least a physical condition of the user, the physical condition sensor being provided at least partially internal to the head-worn structure, the acquired data by the physical condition sensor includes (i) data regarding temperature of the user, or (ii) data regarding vital signs of the user.

58. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 50,

wherein the second microphone is configured to pick up at least ambient noise associated with an environment in the vicinity of the head-worn personal electronic apparatus, and

wherein the electronic circuitry is configured to:

determine an ambient noise level based on at least the ambient noise;
and

modify at least a portion of the audio input picked-up via the first microphone, with the modification being at least in part dependent on the ambient noise level.

59. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 50, wherein the head-worn personal electronic apparatus comprises:

a radiation emitter at least partially contained within the head-worn personal electronic apparatus and configured to at least direct radiation towards the user when at least the head-worn personal electronic apparatus of the head-worn personal electronic apparatus is being worn; and

a radiation detector at least partially contained within the head-worn personal electronic apparatus and configured to detect a portion of the radiation directed towards the user that is reflected back from the user when the head-worn structure of the head-worn personal electronic apparatus is being worn,

wherein the radiation detector is operatively connected to the electronic circuitry, and wherein the electronic circuitry is configured to facilitate determining whether the head-worn personal electronic apparatus is being worn by the user based on at least the detected radiation.

60. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 59, wherein the detected radiation is at least infrared radiation.

61. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 60, wherein the speaker is configured to be at least partially inserted into the ear of the user.

62. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 50, wherein the head-worn personal electronic apparatus is configured to receive a voice input, support a determination of a requested

operation from the voice input using voice recognition, and control operation by the head-worn personal electronic apparatus based on the requested operation.

63. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 50, wherein the customized audio output includes music that was wirelessly received via the wireless receiver.

64. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 50, wherein the customized audio output signals result from amplifying or attenuating different frequency bands differently according to at least the predetermined hearing characteristics associated with the user.

65. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 64,

wherein the second microphone is positioned to pick up at least environmental audio input associated with an environment around the head-worn personal electronic apparatus, and

wherein the electronic circuitry is configured to modify the customized audio output signals to be output to the user via the at least one speaker to cancel at least a portion of noise associated with the environment, the modification of the customized audio output signals being dependent at least in part on the environmental audio input picked-up via the second microphone.

66. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 2, wherein the head-worn personal electronic apparatus comprises:

a bone conducting electronic element at least partially contained within the head-worn structure.

67. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 66,

wherein the bone conducting electronic element associated with vibrations,
and

wherein the bone conducting electronic element having electrical signals
associated with the vibration.

68. (Previously Presented) A head-worn personal electronic apparatus as
recited in claim 2, wherein the motion detector includes at least an
accelerometer.

69. (Previously Presented) A head-worn personal electronic apparatus as
recited in claim 2, wherein the wireless receiver is configured to operate with a
Bluetooth network.

70. (Previously Presented) A head-worn personal electronic apparatus as
recited in claim 2, wherein the electronic circuitry includes at least a
microprocessor.

71. (Previously Presented) A head-worn personal electronic apparatus as
recited in claim 2, wherein the head-worn personal electronic apparatus
comprises:

an antenna contained within the head-worn structure of the head-worn
personal electronic apparatus.

72. (Previously Presented) A head-worn personal electronic apparatus,
comprising:

a head-worn structure configured to be worn by a user;

a speaker at least partially contained within the head-worn structure, the
speaker being configured to be worn proximate to an ear of the user when the
head-worn structure is being worn by the user;

a motion detector at least partially contained within the head-worn structure and configured to provide motion data pertaining to the head-worn personal electronic apparatus;

a first microphone at least partially contained within the head-worn structure, the first microphone being positioned to pick up at least audio input from at least the user;

a second microphone at least partially contained within the head-worn structure;

a force sensing device configured to receive a user input based on a force induced on the force sensing device, the force sensing device being contained within the head-worn structure, wherein the received user input operating to at least alter an operation of the head-worn personal electronic apparatus;

a rechargeable battery contained within the head-worn structure;

electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the rechargeable battery;

wireless communication circuitry at least partially contained within the head-worn structure;

at least one conductive element at least partially included within the head-worn structure, the at least one conductive element being at least partially exposed to enable interconnection therewith, the at least one conductive element being electrically connected to at least the rechargeable battery; and

a radiation detector contained within the head-worn structure and configured to capture radiation data,

wherein the head-worn personal electronic apparatus is configured to determine whether the head-worn personal electronic apparatus is being worn by the user based on the radiation data captured by the radiation detector, and

wherein the second microphone is configured to at least pick-up an environmental audio input.

73. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 72, wherein the head-worn personal electronic apparatus is configured to receive a voice input from the user via at least the first microphone, support or receive determination of a requested operation from the voice input using voice recognition, and control operation by the head-worn personal electronic apparatus based on the requested operation.

74. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 73,

wherein the wireless communication circuitry includes at least a wireless receiver configured to wirelessly receive audio output signals to be output to the user via the speaker, and

wherein the electronic circuitry is configured to modify the audio output signals to be output to the user via the speaker to cancel at least a portion of environmental noise, the modification of the audio output signals being dependent at least in part on the environmental audio input picked-up via the second microphone.

75. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 74,

wherein the head-worn personal electronic apparatus is operable to at least output customized audio output,

wherein the electronic circuitry includes at least an integrated circuit, and the electronic circuitry being configured to (i) store hearing characteristics associated with the user; (ii) customize the received audio output signals to produce customized audio output signals for the user based on at least a portion of the stored hearing characteristics associated with the user such that the customized audio output signals at least compensate for hearing impairment regarding the user's ability to hear; and (iii) output the customized audio output signals to the speaker, and

wherein the speaker is configured to generate at least a portion of the customized audio output for the user in accordance with at least the portion of the customized audio output signals.

76. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 75,

wherein the head-worn personal electronic apparatus comprises:

a radiation emitter at least partially contained within the head-worn structure and configured to at least direct radiation towards the user when the head-worn personal electronic apparatus is being worn, and

wherein the radiation detector at least partially contained within the head-worn structure and configured to detect a portion of the radiation directed towards the user by the radiation emitter that is reflected back from the user when the head-worn personal electronic apparatus is being worn.

77. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 76,

wherein the head-worn personal electronic apparatus is configured to support control of (i) audio output to the user via the speaker and (ii) voice calls to the user, and

wherein the operation of the head-worn personal electronic apparatus being altered concerns at least control of the audio output being provided to the user and/or accepting or declining a voice call to the user.

78. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 77, wherein the head-worn personal electronic apparatus comprises:

at least a portion of a Hall effect detector at least partially contained within the head-worn personal electronic apparatus, the Hall effect detector being configured to capture data associated with a magnetic characteristic.

79. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 78, wherein the head-worn personal electronic apparatus comprises:

a bone conducting electronic element at least partially contained within the head-worn structure, the bone conducting electronic element being associated with vibrations, and the bone conducting electronic element utilizing electrical signals associated with the vibration.

80. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 72,

wherein the wireless communication circuitry includes at least a wireless receiver configured to wirelessly receive audio output signals to be output to the user via the speaker, and

wherein the electronic circuitry is configured to modify the audio output signals to be output to the user via the speaker to cancel at least a portion of environmental noise, the modification of the audio output signals being dependent at least in part on the environmental audio input picked-up via the second microphone.

81. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 80,

wherein the head-worn personal electronic apparatus is operable to at least output customized audio output,

wherein the electronic circuitry includes at least an integrated circuit, and the electronic circuitry being configured to (i) store attributes associated with the user; (ii) customize the received audio output signals to produce customized audio output signals for the user based on at least a portion of the stored attributes associated with the user; and (iii) output the customized audio output signals to the speaker, and

wherein the speaker is configured to generate at least a portion of the customized audio output for the user in accordance with at least the portion of the customized audio output signals.

82. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 81,

wherein the head-worn personal electronic apparatus comprises:

a radiation emitter at least partially contained within the head-worn structure and configured to at least direct radiation towards the user when the head-worn personal electronic apparatus is being worn, and

wherein the radiation detector at least partially contained within the head-worn structure and configured to detect a portion of the radiation directed towards the user by the radiation emitter that is reflected back from the user when the head-worn personal electronic apparatus is being worn.

83. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 82, wherein the head-worn personal electronic apparatus comprises:

at least a portion of a Hall effect detector at least partially contained within the head-worn personal electronic apparatus, the Hall effect detector being configured to capture data associated with a magnetic characteristic; and

a plurality of circuit boards, each of the plurality of circuit boards including at least one electrical component mounted thereto, at least one of the plurality of circuit boards being a flexible printed circuit board, at least one of the plurality of circuit boards has at least one integrated circuit mounted on a first side of the at least one of the plurality of circuit boards, and at least one integrated circuit mounted on a second side of the at least one of the plurality of circuit boards.

84. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 82,

wherein the head-worn personal electronic apparatus is configured to support control of (i) audio output to the user via the speaker and (ii) voice calls to the user, and

wherein the operation of the head-worn personal electronic apparatus being altered concerns at least control of the audio output being provided to the user and/or accepting or declining a voice call to the user.

85. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 84, wherein the head-worn personal electronic apparatus comprises:

at least a portion of a Hall effect detector at least partially contained within the head-worn personal electronic apparatus, the Hall effect detector being configured to capture data associated with a magnetic characteristic.

86. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 84, wherein the head-worn personal electronic apparatus comprises:

a bone conducting electronic element at least partially contained within the head-worn structure, the bone conducting electronic element being associated with vibrations, and the bone conducting electronic element utilizing electrical signals associated with the vibration.

87. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 86, wherein the head-worn personal electronic apparatus comprises:

at least a portion of a Hall effect detector at least partially contained within the head-worn personal electronic apparatus, the Hall effect detector being configured to capture data associated with a magnetic characteristic.

88. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 84, wherein the head-worn personal electronic apparatus comprises:

a plurality of circuit boards, each of the plurality of circuit boards including at least one electrical component mounted thereto.

89. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 88, wherein at least one of the plurality of circuit boards is a flexible printed circuit board.

90. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 88, wherein at least one of the plurality of circuit boards has at least one integrated circuit mounted on a first side of the at least one of the plurality of circuit boards, and at least one integrated circuit mounted on a second side of the at least one of the plurality of circuit boards.

91. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 82, wherein the head-worn personal electronic apparatus comprises:

a touch sensitive surface at least partially contained within the head-worn structure and configured to sense a touch input associated with the user,

wherein at least the electronic circuitry is configured to facilitate determination at least whether the touch input associated with the user pertains to a first sliding direction or a second sliding direction with respect to the touch sensitive surface.

92. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 91, wherein the touch input by the touch sensitive surface operates to at least control audio volume level of the customized audio output for the user via the speaker.

93. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 72, wherein the head-worn personal electronic apparatus comprises:

a touch sensitive surface at least partially contained within the head-worn structure and configured to sense a touch input associated with the user,

wherein at least the electronic circuitry is configured to facilitate determination at least whether the touch input associated with the user pertains to a first sliding direction or a second sliding direction with respect to the touch sensitive surface.

94. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 93,

wherein the touch sensitive surface senses the touch input by at least sensing capacitance, and

wherein the touch input by the touch sensitive surface operates to at least control audio volume level of audio output configured to be provided to the user via the speaker.

Claims 95-120 (Canceled).

121. (New) A system, comprising:

a head-worn personal electronic apparatus, including at least:

a head-worn structure configured to be worn by a user;

a speaker at least partially contained within the head-worn structure, the speaker being configured to be worn proximate to an ear of the user when the head-worn structure is being worn by the user;

a motion detector at least partially contained within the head-worn structure and configured to provide motion data pertaining to the head-worn personal electronic apparatus;

a first microphone at least partially contained within the head-worn structure, the first microphone being positioned to pick up at least audio input from at least the user;

a second microphone at least partially contained within the head-worn structure;

a force sensing device configured to receive a user input based on a force induced on the force sensing device, the force sensing device being contained within the head-worn structure, wherein the received user input operating to at least alter an operation of the head-worn personal electronic apparatus;

a rechargeable battery contained within the head-worn structure;

electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the rechargeable battery;

wireless communication circuitry at least partially contained within the head-worn structure, the wireless communication circuitry being electrically connected to at least the rechargeable battery; and

at least one conductive element at least partially included within the head-worn structure, the at least one conductive element being at least partially exposed to enable interconnection therewith, the at least one conductive element being electrically connected to at least the rechargeable battery;

a charging apparatus having at least a charging connector; and

a mobile communication device at least for supporting audio output, the mobile communication device configured to store at least a hearing profile associated with the user, the stored hearing profile associated with the user at least characterizes hearing impairment regarding the user's ability to hear, the mobile communication device configured to produce audio output signals customized for the user based on at least the stored hearing profile associated with the user such that the customized audio output signals at least compensate for the hearing impairment regarding the user's ability to hear, and the mobile

communication device configured to wirelessly transmit the customized audio output signals to the head-worn personal electronic apparatus,

wherein the speaker is configured to generate at least a portion of the customized audio output for the user in accordance with at least the portion of the customized audio output signals being received by the head-worn personal electronic apparatus,

wherein on placement of the head-worn personal electronic apparatus at least partially in the charging apparatus, electrical connection is configured to result at least from the at least one conductive element connecting with the charging connector, and thereby the rechargeable battery of the head-worn personal electronic apparatus is able to be recharged while the head-worn personal electronic apparatus is placed at least partially in the charging apparatus, and

wherein the customized audio output signals are produced based on amplifying or attenuating different frequency bands differently according to at least the stored hearing profile.

122. (New) A system as recited in claim 121,

wherein the mobile communication device includes computing capabilities and a storage device, the storage device storing at least a software program executed by the mobile communication device to enable the user to establish the hearing profile associated with the user, and

wherein the mobile communication device is configured to establish the hearing profile associated with the user via the software program executed by the mobile communication device based on the user interacting with the software program via the mobile communication device.

123. (New) A system as recited in claim 122, wherein the software program at least interactively guides the user to establish the hearing profile for the user by at least causing various audio tones to be output to the user via at least the speaker, prompting the user to provide a hearing input with respect to one or more of the

various audio tones being output, and receiving the hearing input pertaining to one or more of the various audio tones being output.

124. (New) A system as recited in claim 122, wherein the head-worn structure comprises:

an infrared emitter configured to at least direct infrared signals towards the user when at least the head-worn structure of the head-worn personal electronic apparatus is being worn; and

an infrared detector configured to detect infrared radiation reflected back from the user when at least the head-worn structure of the head-worn personal electronic apparatus is being worn,

125. (New) A system as recited in claim 124, wherein the electronic circuitry within the head-worn structure is configured to facilitate determining whether the head-worn structure is being worn by the user based on at least the detected infrared radiation.

126. (New) A system as recited in claim 124,

wherein the second microphone is configured to pick-up an environmental audio input, and

wherein the environmental audio input picked-up from at least the second microphone is used at least for noise cancelation, and at least a portion of the environmental audio input picked-up from the second microphone is canceled from the audio input picked-up from the first microphone.

127. (New) A system as recited in claim 124,

wherein the second microphone is configured to pick-up an environmental audio input, and

wherein the electronic circuitry is configured to receive audio output signals to be output to the user via the speaker, and modify the audio output signals to be

output to the user via the speaker to cancel at least a portion of noise associated with the environment, the modification of the audio output signals being dependent at least in part on the environmental audio input picked-up via the second microphone.

128. (New) A system as recited in claim 122,

wherein the second microphone is configured to pick-up an environmental audio input, and

wherein the environmental audio input picked-up from at least the second microphone is used at least for noise cancelation, and at least a portion of the environmental audio input picked-up from the second microphone is used to remove undesired noise from the audio input picked-up from the first microphone.

129. (New) A system as recited in claim 122, wherein the head-worn structure comprises:

a radiation emitter at least partially contained within the head-worn structure and configured to at least direct radiation towards the user when the head-worn structure is being worn, and

a radiation detector at least partially contained within the head-worn structure and configured to detect a portion of the radiation directed towards the user by the radiation emitter that is reflected back from the user when the head-worn structure is being worn.

130. (New) A system as recited in claim 122, wherein the head-worn structure comprises:

at least a portion of a Hall effect detector at least partially contained within the head-worn structure, the Hall effect detector being configured to capture data associated with a magnetic characteristic.

131. (New) A system as recited in claim 122, wherein the head-worn structure comprises:

a bone conducting electronic element at least partially contained within the head-worn structure, the bone conducting electronic element being associated with vibrations, and the bone conducting electronic element utilizing electrical signals associated with the vibration.

132. (New) A system as recited in claim 122, wherein the head-worn structure comprises:

a touch sensitive surface at least partially contained within the head-worn structure and configured to sense a touch input associated with the user,

wherein at least the electronic circuitry is configured to facilitate determination at least whether the touch input associated with the user pertains to a first sliding direction or a second sliding direction with respect to the touch sensitive surface, and

wherein the touch input by the touch sensitive surface operates to at least control audio volume level of the customized audio output for the user via the speaker.

133. (New) A system as recited in claim 132, wherein the head-worn structure comprises:

a radiation emitter at least partially contained within the head-worn structure and configured to at least direct radiation towards the user when the head-worn structure is being worn, and

a radiation detector at least partially contained within the head-worn structure and configured to detect a portion of the radiation directed towards the user by the radiation emitter that is reflected back from the user when the head-worn structure is being worn.

134. (New) A system as recited in claim 133, wherein the system comprises:

a Hall effect detector configured to capture data associated with a magnetic characteristic.

135. (New) A system as recited in claim 134, wherein the head-worn structure comprises:

a bone conducting electronic element at least partially contained within the head-worn structure, the bone conducting electronic element being associated with vibrations, and the bone conducting electronic element utilizing electrical signals associated with the vibration.

136. (New) A head-worn personal electronic apparatus, comprising:

a head-worn structure configured to be worn by a user;

a speaker at least partially contained within the head-worn structure, the speaker being configured to be worn proximate to an ear of the user when the head-worn structure is being worn by the user;

a motion detector at least partially contained within the head-worn structure and configured to provide motion data pertaining to the head-worn personal electronic apparatus;

a first microphone at least partially contained within the head-worn structure, the first microphone being positioned to pick up at least audio input from at least the user;

a second microphone at least partially contained within the head-worn structure;

a piezoelectric device configured to receive a user input based on a force induced on the piezoelectric device, the piezoelectric device being contained within the head-worn structure, wherein the received user input operating to at least alter an operation of the head-worn personal electronic apparatus;

a rechargeable battery contained within the head-worn structure;

electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the rechargeable battery;

wireless communication circuitry at least partially contained within the head-worn structure;

at least one conductive element at least partially included within the head-worn structure, the at least one conductive element being at least partially exposed to enable interconnection therewith, the at least one conductive element being electrically connected to at least the rechargeable battery; and

a radiation detector contained within the head-worn structure and configured to capture radiation data,

wherein the head-worn personal electronic apparatus is configured to determine whether the head-worn personal electronic apparatus is being worn by the user based on the radiation data captured by the radiation detector, and

wherein the second microphone is configured to at least pick-up an environmental audio input.

137. (New) A head-worn personal electronic apparatus as recited in claim 136, wherein the head-worn personal electronic apparatus comprises:

a touch sensitive surface at least partially contained within the head-worn structure and configured to sense a touch input associated with the user,

wherein at least the electronic circuitry is configured to facilitate determination at least whether the touch input associated with the user pertains to a first sliding direction or a second sliding direction with respect to the touch sensitive surface.

138. (New) A head-worn personal electronic apparatus as recited in claim 137,

wherein the touch sensitive surface senses the touch input by at least sensing capacitance, and

wherein the touch input by the touch sensitive surface operates to at least control audio volume level of audio output configured to be provided to the user via the speaker.

139. (New) A head-worn personal electronic apparatus as recited in claim 138, wherein the head-worn personal electronic apparatus comprises:

a radiation emitter at least partially contained within the head-worn structure and configured to at least direct radiation towards the user when the head-worn personal electronic apparatus is being worn, and

wherein the radiation detector at least partially contained within the head-worn structure and configured to detect a portion of the radiation directed towards the user by the radiation emitter that is reflected back from the user when the head-worn personal electronic apparatus is being worn.

140. (New) A head-worn personal electronic apparatus as recited in claim 139, wherein the head-worn personal electronic apparatus comprises:

at least a portion of a Hall effect detector at least partially contained within the head-worn personal electronic apparatus, the Hall effect detector being configured to capture data associated with a magnetic characteristic; and

a plurality of circuit boards, each of the plurality of circuit boards including at least one electrical component mounted thereto, at least one of the plurality of circuit boards being a flexible printed circuit board, at least one of the plurality of circuit boards has at least one integrated circuit mounted on a first side of the at least one of the plurality of circuit boards, and at least one integrated circuit mounted on a second side of the at least one of the plurality of circuit boards.

141. (New) A head-worn personal electronic apparatus as recited in claim 139,

wherein the head-worn personal electronic apparatus is configured to support control of (i) audio output to the user via the speaker and (ii) voice calls to the user, and

wherein the operation of the head-worn personal electronic apparatus being altered concerns at least control of the audio output being provided to the user and/or accepting or declining a voice call to the user.

142. (New) A head-worn personal electronic apparatus as recited in claim 141, wherein the head-worn personal electronic apparatus comprises:

a bone conducting electronic element at least partially contained within the head-worn structure, the bone conducting electronic element being associated with vibrations, and the bone conducting electronic element utilizing electrical signals associated with the vibration.

143. (New) A head-worn personal electronic apparatus as recited in claim 138, wherein the head-worn personal electronic apparatus comprises:

an infrared radiation emitter at least partially contained within the head-worn structure and configured to at least direct infrared radiation towards the user when the head-worn personal electronic apparatus is being worn, and

wherein the radiation detector at least partially contained within the head-worn structure and configured to detect a portion of the infrared radiation directed towards the user by the infrared radiation emitter that is reflected back from the user when the head-worn personal electronic apparatus is being worn.

REMARKS

Further to the Notice of Allowance and the prior Amendment filed February 21, 2025, claims 121-143 have been added to the application. Claims 1-3, 5-94 and 121-143 are currently pending.

Entry of this Amendment is respectfully requested. If there are any issues remaining which the Examiner believes could be resolved through either a Supplemental Response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned representative at the telephone number listed below.

Applicants hereby petition for an extension of time which may be required to maintain the pendency of this case, and any required fee for such extension or any further fee required in connection with the filing of this Amendment is to be charged to Deposit Account No. 503874 (Order No. IPVCP003X1C4X1C2).

Respectfully submitted,

/C. Douglass Thomas/

C. Douglass Thomas
Reg. No. 32,947

(650) 903-9200, x103

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: HOWELL et al.

Attorney Docket No.: IPVCP003X1C4X1C2

Application No.: 18/597,874

Examiner: LEI, JIE

Filed: March 6, 2024

Group: 2872

Title: SYSTEM FOR POWERING
HEAD-WORN PERSONAL
ELECTRONIC APPARATUS

AMENDMENT C TRANSMITTAL

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Transmitted herewith is an Amendment in the above-identified application.

The fee has been calculated as shown below.

	Claims After Amendment		Highest Previously Paid For	Present Extra	Small Entity Rate Fee	Large Entity Rate Fee
Total Claims	116	MINUS	119	0	x 80 =	x 200 =
Independent Claims	5	MINUS	6	0	x 240 =	x 600 =
Multiple Dependent Claim Present and Fee Not Previously Paid					\$	\$
Total					\$0.00	\$0.00

- ☐ Applicant(s) hereby petition for a _____ - month extension(s) of time to respond to the aforementioned Office Action.
- ☒ Applicant(s) believe that no (additional) Extension of Time is required; however, if it is determined that such an extension is required, Applicant(s) hereby petition that such an extension be granted and authorize the Commissioner to charge the required fees for an Extension of Time under 37 CFR 1.136 to Deposit Account No. 50-3874 (Order No. IPVCP003X1C4X1C2).
- ☒ Any fees due are being paid electronically herewith.
- ☒ Please charge any additional fees required to facilitate filing the enclosed response, to Deposit Account No. 50-3874 (Order No. IPVCP003X1C4X1C2).

Respectfully submitted,

/C. Douglass Thomas/

C. Douglass Thomas
Reg. No. 32,947

Appln. No. 18/597,874

Atty. Docket No. IPVCP003X1C4X1C2



UNITED STATES
PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, VA 22313 - 1450
www.uspto.gov

ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #

18/597,874

RECEIPT DATE / TIME

03/03/2025 01:57:40 PM Z ET

ATTORNEY DOCKET #

IPVCP003X1C4X1C2

Title of Invention

SYSTEM FOR CHARGING EMBEDDED BATTERY IN WIRELESS HEAD-WORN PERSONAL ELECTRONIC APPARATUS

Application Information

APPLICATION TYPE Utility - Nonprovisional Application
under 35 USC 111(a)

PATENT # -

CONFIRMATION # 7223

FILED BY Angela Nijim

PATENT CENTER # 69408918

FILING DATE 03/06/2024

CUSTOMER # 34071

FIRST NAMED
INVENTOR Thomas A. Howell

CORRESPONDENCE
ADDRESS -

AUTHORIZED BY Peter Tong

Documents

TOTAL DOCUMENTS: 4

DOCUMENT		PAGES	DESCRIPTION	SIZE (KB)
IPVCP003X1C4X1C2_AmdC _AsFiled_2-28-final.pdf		38	-	140 KB
IPVCP003X1C4X1C2_Amd C_AsFiled_2-28-final- AMSB.pdf	(1-1)	1	Amendment Submitted/Entered with Filing of Continued Prosecution Application (CPA)/Request for Continued Examination(RCE)	17 KB
IPVCP003X1C4X1C2_Amd C_AsFiled_2-28-final- CLM.pdf	(2-37)	36	Claims	128 KB
IPVCP003X1C4X1C2_Amd C_AsFiled_2-28-final- REM.pdf	(38-38)	1	Applicant Arguments/Remarks Made in an Amendment	14 KB

IPVCP003X1C4X1C2_AmdC
Trans_3-25.pdf

1

Transmittal Letter

16 KB

Digest

DOCUMENT

MESSAGE DIGEST(SHA-512)

IPVCP003X1C4X1C2_AmdC_A
sFiled_2-28-final.pdf

EC4E19C1576B59F689AEE08E795457DE26F3A6D60A5CB4657
0CAD0BB3F076731FFC5D44ECC5AED6ADC84F8C2FEC28C77
020EFD29420AF78A54E468A6E5D2629

IPVCP003X1C4X1C2_AmdC_A
sFiled_2-28-final-AMSB.pdf

5FA4491ECD78D471EDD8B38A1F21B54ADEFBAA4E035CADD
A428AF867C780257D4C8E7F9AD913AF888C2DEDA8701B38E
6BE01622271ED9EC533B73907A9CBC028

IPVCP003X1C4X1C2_AmdC_A
sFiled_2-28-final-CLM.pdf

ED33608124BDEDDBB27C6FA9958E63C165DFA9AE55956F4D2
7B5185844AE542AB695D84F8DFB6C2A49CCD36DD944289F5
F7EBD1C3CDE263301BD17675A9910D47

IPVCP003X1C4X1C2_AmdC_A
sFiled_2-28-final-REM.pdf

D0A54ABF9F3B8B0B207DBFBEB392AB822B2356E34AED60C2
DBF3438F8D92A472E885810441D647D730122103D379BA302D
A98C2E3C17AB4E2CCF71F552058D42

IPVCP003X1C4X1C2_AmdCTr
ans_3-25.pdf

DAA448957E50CD63B111A54B7761C25F23FE704ED6477359C
5FADC39A16EACA4E58E0AA0D5B161223A24BBC8F5BF9C7B
F9F784EA991DF0782E62DCB3FDE0EB85

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.



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.
18/597,874	03/06/2024	Thomas A. Howell	IPVCP003X1C4X1C2	7223
34071	7590	02/28/2025	EXAMINER	
IPVENTURE, INC.			LEI, JIE	
4010 Moorpark Avenue			ART UNIT	
Suite 211			PAPER NUMBER	
San Jose, CA 95117			2872	
			MAIL DATE	DELIVERY MODE
			02/28/2025	PAPER

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.

Response to Rule 312 Communication	Application No.	Applicant(s)	
	18/597,874	Howell et al.	
	Examiner	Art Unit	AIA (FITF) Status
	JIE LEI	2872	Yes

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

1. ☒ The amendment filed on 21 February 2025 under 37 CFR 1.312 has been considered, and has been:

a) ☐ entered.

b) ☐ entered as directed to matters of form not affecting the scope of the invention.

c) ☐ disapproved because the amendment was filed after the payment of the issue fee.
Any amendment filed after the date the issue fee is paid must be accompanied by a petition under 37 CFR 1.313(c)(1) and the required fee to withdraw the application from issue.

d) ☐ disapproved. See explanation below.

e) ☒ entered in part. See explanation below.

f) ☐ not entered because the supplemental or corrected Application Data sheet (ADS)

☐ was not accompanied by a petition to accept an unintentionally delayed claim under 37 CFR 1.55 or 27 CFR 1.78;
☐ did not identify the information being changed in accordance with 37 CFR 1.76(c)(2);
☐ was not properly signed in accordance with 37 CFR 1.76(e) (or 37 CFR 1.33(b) for applications filed prior to September 16, 2012).

Amendments of claims 94 and 95-120 are OK to enter. Amendments of claims 2 and 7 are not entered.

/JIE LEI/ Primary Examiner, Art Unit 2872	
--	--

Issue Classification 	Application/Control No. 18/597,874	Applicant(s)/Patent Under Reexamination Howell et al.
	Examiner JIE LEI	Art Unit 2872

CPC						
Symbol					Type	Version
G02C	/	11	/	10	F	2013-01-01
G02C	/	5	/	143	I	2013-01-01
G02C	/	5	/	146	I	2013-01-01
H02J	/	7	/	0045	I	2013-01-01
G02C	/	11	/	06	I	2013-01-01
G02C	/	2200	/	08	A	2013-01-01

CPC Combination Sets						
Symbol			Type	Set	Ranking	Version
	/		/			

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	93	
/JIE LEI/ Primary Examiner, Art Unit 2872	27 February 2025	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

U.S. Patent and Trademark Office

Part of Paper No.: 20250227

Issue Classification 	Application/Control No. 18/597,874	Applicant(s)/Patent Under Reexamination Howell et al.
	Examiner JIE LEI	Art Unit 2872

INTERNATIONAL CLASSIFICATION					
CLAIMED					
G02C	/	11	/	00	
G02C	/	5	/	14	
G02C	/	11	/	06	
H02J	/	7	/	00	
NON-CLAIMED					
	/		/		

US ORIGINAL CLASSIFICATION	
CLASS	SUBCLASS
351	158

CROSS REFERENCES(S)						
CLASS	SUBCLASS (ONE SUBCLASS PER BLOCK)					

NONE		Total Claims Allowed:	
(Assistant Examiner)	(Date)	93	
/JIE LEI/ Primary Examiner, Art Unit 2872	27 February 2025	O.G. Print Claim(s)	O.G. Print Figure
(Primary Examiner)	(Date)	1	1

Issue Classification 	Application/Control No. 18/597,874	Applicant(s)/Patent Under Reexamination Howell et al.
	Examiner JIE LEI	Art Unit 2872

☐ 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
1	1	11	16	30	31	45	46	53	61	75	76	90	91	-	106
23	2	12	17	31	32	46	47	54	62	76	77	91	92	-	107
24	3	13	18	32	33	47	48	55	63	77	78	92	93	-	108
-	4	14	19	33	34	48	49	56	64	78	79	93	94	-	109
25	5	15	20	34	35	49	50	57	65	79	80	-	95	-	110
26	6	16	21	35	36	58	51	65	66	80	81	-	96	-	111
2	7	17	22	36	37	59	52	66	67	81	82	-	97	-	112
3	8	18	23	37	38	60	53	67	68	82	83	-	98	-	113
4	9	19	24	38	39	61	54	68	69	83	84	-	99	-	114
5	10	20	25	39	40	64	55	69	70	84	85	-	100	-	115
6	11	21	26	40	41	62	56	70	71	85	86	-	101	-	116
7	12	22	27	41	42	63	57	71	72	86	87	-	102	-	117
8	13	27	28	42	43	50	58	72	73	87	88	-	103	-	118
9	14	28	29	43	44	51	59	73	74	88	89	-	104	-	119
10	15	29	30	44	45	52	60	74	75	89	90	-	105	-	120

NONE (Assistant Examiner) (Date)		Total Claims Allowed: 93	
/JIE LEI/ Primary Examiner, Art Unit 2872 (Primary Examiner) (Date)		27 February 2025 O.G. Print Claim(s)	O.G. Print Figure 1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: HOWELL et al. Attorney Docket No.: IPVCP003X1C4X1C2

Application No.: 18/597,874 Examiner: LEI, JIE

Filed: March 6, 2024 Group: 2872

Title: SYSTEM FOR POWERING
HEAD-WORN PERSONAL
ELECTRONIC APPARATUS

AMENDMENT UNDER 37 CFR 1.312

Mail Stop _____
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Notice of Allowance dated January 13, 2025, please amend the above-identified patent application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 29 of this paper.



UNITED STATES
PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, VA 22313 - 1450
www.uspto.gov

ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #
18/597,874

RECEIPT DATE / TIME
02/27/2025 05:14:26 PM Z ET

ATTORNEY DOCKET #
IPVCP003X1C4X1C2

Title of Invention

SYSTEM FOR CHARGING EMBEDDED BATTERY IN WIRELESS HEAD-WORN PERSONAL ELECTRONIC APPARATUS

Application Information

APPLICATION TYPE Utility - Nonprovisional Application
under 35 USC 111(a)

PATENT # -

CONFIRMATION # 7223

FILED BY Angela Nijim

PATENT CENTER # 69360714

FILING DATE 03/06/2024

CUSTOMER # 34071

FIRST NAMED
INVENTOR Thomas A. Howell

CORRESPONDENCE
ADDRESS -

AUTHORIZED BY Peter Tong

Documents

TOTAL DOCUMENTS: 1

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
IPVCP003X1C4X1C2_RCE_ 2-27-25.pdf	3	Request for Continued Examination (RCE)	1628 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
IPVCP003X1C4X1C2_RCE_2- 27-25.pdf	72A18D05C2048A064247D61FD201F8C928E0325B257DFF4B7 6C2B3062F0D1D79973C1A3BA76F0A343A77FF1F8A52A32856 13FAE99B49314C1B53700BDD6831C4

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.



UNITED STATES
PATENT AND TRADEMARK OFFICE

P.O. Box 1450
Alexandria, VA 22313 - 1450
www.uspto.gov

ELECTRONIC PAYMENT RECEIPT

APPLICATION #
18/597,874

RECEIPT DATE / TIME
02/27/2025 05:14:26 PM Z ET

ATTORNEY DOCKET #
IPVCP003X1C4X1C2

Title of Invention

SYSTEM FOR CHARGING EMBEDDED BATTERY IN WIRELESS HEAD-WORN PERSONAL ELECTRONIC APPARATUS

Application Information

APPLICATION TYPE	Utility - Nonprovisional Application under 35 USC 111(a)	PATENT #	-
CONFIRMATION #	7223	FILED BY	Angela Nijim
PATENT CENTER #	69360714	AUTHORIZED BY	Peter Tong
CUSTOMER #	34071	FILING DATE	03/06/2024
CORRESPONDENCE ADDRESS	-	FIRST NAMED INVENTOR	Thomas A. Howell

Payment Information

PAYMENT METHOD CARD / 6752	PAYMENT TRANSACTION ID E20252QH15456968	PAYMENT AUTHORIZED BY Angela Nijim
PRE-AUTHORIZED ACCOUNT 503874	PRE-AUTHORIZED CATEGORY 37 CFR 1.21 (Miscellaneous fees and charges)	

FEE CODE	DESCRIPTION	ITEM PRICE(\$)	QUANTITY	ITEM TOTAL(\$)
1820	REQUEST FOR CONTINUED EXAMINATION (RCE)- 2ND AND SUBSEQUENT REQUEST (SEE 37 CFR 1.114)	2860.00	1	2860.00
TOTAL AMOUNT:				\$2,860.00

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.

Doc code: RCEX

Doc description: Request for Continued Examination (RCE)

PTO/SB/30EFS (01-22)

Approved for use through 05/31/2024. 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.

REQUEST FOR CONTINUED EXAMINATION(RCE)TRANSMITTAL (Submitted Only via EFS-Web)							
Application Number	18597874	Filing Date	2024-03-06	Docket Number (if applicable)	IPVCP003X1C4X1C2	Art Unit	2872
First Named Inventor	HOWELL et al.			Examiner Name	LEI, JIE		
This is a Request for Continued Examination (RCE) under 37 CFR 1.114 of the above-identified application. Request for Continued Examination (RCE) practice under 37 CFR 1.114 does not apply to any utility or plant application filed prior to June 8, 1995, or to any design application. The Instruction Sheet for this form is located at WWW.USPTO.GOV							
SUBMISSION REQUIRED UNDER 37 CFR 1.114							
Note: If the RCE is proper, any previously filed unentered amendments and amendments enclosed with the RCE will be entered in the order in which they were filed unless applicant instructs otherwise. If applicant does not wish to have any previously filed unentered amendment(s) entered, applicant must request non-entry of such amendment(s).							
☒ Previously submitted. If a final Office action is outstanding, any amendments filed after the final Office action may be considered as a submission even if this box is not checked. ☐ Consider the arguments in the Appeal Brief or Reply Brief previously filed on _____ ☒ Other <u>Amendment Under 37 CFR 1.312 filed February 21, 2025</u> ☐ Enclosed ☐ Amendment/Reply ☐ Information Disclosure Statement (IDS) ☐ Affidavit(s)/ Declaration(s) ☐ Other _____							
MISCELLANEOUS							
☐ Suspension of action on the above-identified application is requested under 37 CFR 1.103(c) for a period of months _____ (Period of suspension shall not exceed 3 months; Fee under 37 CFR 1.17(i) required) ☐ Other _____							
FEES							
☒ The RCE fee under 37 CFR 1.17(e) is required by 37 CFR 1.114 when the RCE is filed. The Director is hereby authorized to charge any underpayment of fees, or credit any overpayments, to Deposit Account No <u>503874</u>							
SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT REQUIRED							
☒ Patent Practitioner Signature ☐ Applicant Signature							

Doc code: RCEX

Doc description: Request for Continued Examination (RCE)

PTO/SB/30EFS (01-22)

Approved for use through 05/31/2024. 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.

Signature of Registered U.S. Patent Practitioner			
Signature	/C. Douglass Thomas/	Date (YYYY-MM-DD)	2025-02-27
Name	C. Douglass Thomas	Registration Number	32947

This collection of information is required by 37 CFR 1.114. 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.

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 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 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.

PATENT APPLICATION FEE DETERMINATION RECORD Substitute for Form PTO-875				Application or Docket Number 18/597,874	Filing Date 03/06/2024	☐ To be Mailed	
ENTITY: ☒ LARGE ☐ SMALL ☐ MICRO							
APPLICATION AS FILED - PART I							
	(Column 1)	(Column 2)					
FOR	NUMBER FILED	NUMBER EXTRA		RATE (\$)	FEE (\$)		
☐ BASIC FEE (37 CFR 1.16(a), (b), or (c))	N/A	N/A		N/A			
☐ SEARCH FEE (37 CFR 1.16(k), (i), or (m))	N/A	N/A		N/A			
☐ EXAMINATION FEE (37 CFR 1.16(o), (p), or (q))	N/A	N/A		N/A			
TOTAL CLAIMS (37 CFR 1.16(j))	minus 20 = *			x \$100 =			
INDEPENDENT CLAIMS (37 CFR 1.16(h))	minus 3 = *			x \$480 =			
☐ 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							
AMENDMENT	02/27/2025	CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(j))	* 93	Minus	** 20	= 73	x \$200 =	14600
	Independent (37 CFR 1.16(h))	* 3	Minus	*** 3	= 0	x \$600 =	0
	☐ Application Size Fee (37 CFR 1.16(s))						
	☐ FIRST PRESENTATION OF MULTIPLE DEPENDENT CLAIM (37 CFR 1.16(j))						
						TOTAL ADD'L FEE	14600
AMENDMENT		CLAIMS REMAINING AFTER AMENDMENT		HIGHEST NUMBER PREVIOUSLY PAID FOR	PRESENT EXTRA	RATE (\$)	ADDITIONAL FEE (\$)
	Total (37 CFR 1.16(j))	*	Minus	**	=	x \$0 =	
	Independent (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".						/JAMES T WASHINGTON/	
*** 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.**

If you need assistance in completing the form, call 1-800-PTO-9199 and select option 2.

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: HOWELL et al. Attorney Docket No.: IPVCP003X1C4X1C2
Application No.: 18/597,874 Examiner: LEI, JIE
Filed: March 6, 2024 Group: 2872
Title: SYSTEM FOR POWERING
HEAD-WORN PERSONAL
ELECTRONIC APPARATUS

AMENDMENT UNDER 37 CFR 1.312

Mail Stop _____
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Notice of Allowance dated January 13, 2025, please amend the above-identified patent application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 29 of this paper.

AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Previously Presented) A system, comprising:
 - a head-worn personal electronic apparatus, including at least:
 - a head-worn structure configured to be worn by a user;
 - a speaker at least partially contained within the head-worn structure, the speaker being configured to be worn proximate to an ear of the user when the head-worn structure is being worn by the user;
 - a motion detector at least partially contained within the head-worn structure and configured to provide motion data pertaining to the head-worn personal electronic apparatus;
 - a first microphone at least partially contained within the head-worn structure, the first microphone being positioned to pick up at least audio input from at least the user;
 - a second microphone at least partially contained within the head-worn structure;
 - a piezoelectric device configured to receive a user input based on a force induced on the piezoelectric device, the piezoelectric device being contained within the head-worn structure, wherein the received user input operating to at least alter an operation of the head-worn personal electronic apparatus;
 - a rechargeable battery contained within the head-worn structure;
 - electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the rechargeable battery;

wireless communication circuitry at least partially contained within the head-worn structure, the wireless communication circuitry being electrically connected to at least the rechargeable battery; and

at least one conductive element at least partially included within the head-worn structure, the at least one conductive element being at least partially exposed to enable interconnection therewith, the at least one conductive element being electrically connected to at least the rechargeable battery; and

a charging apparatus having at least a charging connector,

wherein on placement of the head-worn personal electronic apparatus at least partially in the charging apparatus, electrical connection is configured to result at least from the at least one conductive element connecting with the charging connector, and thereby the rechargeable battery of the head-worn personal electronic apparatus is able to be recharged while the head-worn personal electronic apparatus is placed at least partially in the charging apparatus.

2. (Currently Amended) A head-worn personal electronic apparatus, comprising:

a head-worn structure configured to be worn by a user;

a speaker at least partially contained within the head-worn structure, the speaker being configured to be worn proximate to an ear of the user when the head-worn structure is being worn by the user;

a motion detector at least partially contained within the head-worn structure and configured to provide motion data pertaining to the head-worn personal electronic apparatus;

a first microphone at least partially contained within the head-worn structure, the first microphone being positioned to pick up at least audio input from at least the user;

a second microphone at least partially contained within the head-worn structure;

a force sensing piezoelectric device configured to receive a user input based on a force induced on the force sensing piezoelectric device, the force sensing piezoelectric device being contained within the head-worn structure, wherein the received user input operating to at least alter an operation of the head-worn personal electronic apparatus;

a rechargeable battery contained within the head-worn structure;

electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the rechargeable battery; and

wireless communication circuitry at least partially contained within the head-worn structure.

3. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 2, wherein the head-worn personal electronic apparatus comprises:

at least one conductive element at least partially included within the head-worn structure, the at least one conductive element being at least partially exposed to enable interconnection therewith, the at least one conductive element being electrically connected to at least the rechargeable battery.

4. (Canceled).

5. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 2, wherein the head-worn personal electronic apparatus is configured to support audio output to the user via the speaker, and

wherein the operation of the head-worn personal electronic apparatus being altered concerns control of the audio output being provided to the user.

6. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 2, wherein the head-worn personal electronic apparatus is configured to support voice calls to the user, and

wherein the operation of the head-worn personal electronic apparatus being altered concerns at least accepting or declining a voice call to the user.

7. (Previously Presented) A system as recited in claim 1, wherein the head-worn personal electronic apparatus is configured to support audio output to the user via the speaker, and

wherein the operation of the head-worn personal electronic apparatus being altered concerns control of the audio output being provided to the user.

8. (Previously Presented) A system as recited in claim 1, wherein the head-worn personal electronic apparatus is configured to support voice calls to the user, and

wherein the operation of the head-worn personal electronic apparatus being altered concerns at least accepting or declining a voice call to the user.

9. (Previously Presented) A system as recited in claim 1,

wherein the system comprises:

a mobile communication device at least for supporting audio output, the mobile communication device configured to store at least a hearing profile associated with the user, the stored hearing profile associated with the user at least characterizes hearing impairment regarding the user's ability to hear, the mobile communication device configured to produce audio output signals customized for the user based on at least the stored hearing profile associated with the user such that the customized audio output signals at least compensate for the hearing impairment regarding the user's ability to hear, and the mobile communication device configured to transmit the customized audio output signals to the head-worn personal electronic apparatus,

wherein the speaker is configured to generate at least a portion of the customized audio output for the user in accordance with at least the portion of

the customized audio output signals being received by the head-worn personal electronic apparatus.

10. (Previously Presented) A system as recited in claim 9, wherein the mobile communication device is configured to support establishment of the hearing profile for the user.

11. (Previously Presented) A system as recited in claim 10, wherein the hearing profile for the user is established by the mobile communication device at least via generating audio tones and outputting such to at least the speaker and receiving a user indication corresponding to the user's ability to hear the generated audio tones.

12. (Previously Presented) A system as recited in claim 9, wherein the mobile communication device is configured to produce the customized audio output signals using frequency-dependent amplification.

13. (Previously Presented) A system as recited in claim 9,
wherein the mobile communication device is or includes a mobile phone,
and
wherein the customized audio output includes music.

14. (Previously Presented) A system as recited in claim 9,
wherein the mobile communication device is or includes a mobile phone,
and
wherein the customized audio output includes a voice conversation.

15. (Previously Presented) A system as recited in claim 9, wherein the customized audio output signals are produced based on amplifying or attenuating different frequency bands differently according to at least the stored hearing profile.

16. (Previously Presented) A system as recited in claim 9,

wherein the mobile communication device includes computing capabilities and a storage device, the storage device storing at least a software program executed by the mobile communication device to enable the user to establish the hearing profile associated with the user, and

wherein the mobile communication device is configured to establish the hearing profile associated with the user via the software program executed by the mobile communication device based on the user interacting with the software program via the mobile communication device.

17. (Previously Presented) A system as recited in claim 16, wherein the software program at least interactively guides the user to establish the hearing profile for the user.

18. (Previously Presented) A system as recited in claim 17, wherein the software program at least interactively guides the user to establish the hearing profile for the user by at least causing various audio tones to be output to the user via at least the speaker, prompting the user to provide a hearing input with respect to one or more of the various audio tones being output, and receiving the hearing input pertaining to one or more of the various audio tones being output.

19. (Previously Presented) A system as recited in claim 18, wherein the mobile communication device is configured to wirelessly communicate with the head-worn personal electronic apparatus over a wireless network using the wireless communication circuitry.

20. (Previously Presented) A system as recited in claim 9, wherein the head-worn personal electronic apparatus includes a plurality of circuit boards, each of the plurality of circuit boards including at least one integrated circuit mounted thereto.

21. (Previously Presented) A system as recited in claim 20, wherein at least one of the plurality of circuit boards is a flexible printed circuit board.

22. (Previously Presented) A system as recited in claim 20, wherein at least one of the plurality of circuit boards has at least one integrated circuit mounted on a first side of the at least one of the plurality of circuit boards, and at least one integrated circuit mounted on a second side of the at least one of the plurality of circuit boards.

23. (Previously Presented) A system as recited in claim 9, wherein the head-worn structure comprises:

an infrared emitter configured to at least direct infrared signals towards the user when at least the head-worn structure of the head-worn personal electronic apparatus is being worn; and

an infrared detector configured to detect infrared radiation reflected back from the user when at least the head-worn structure of the head-worn personal electronic apparatus is being worn.

24. (Previously Presented) A system as recited in claim 23, wherein the electronic circuitry within the head-worn structure is configured to facilitate determining whether the head-worn structure is being worn by the user based on at least the detected infrared radiation.

25. (Previously Presented) A system as recited in claim 9, wherein the head-worn structure comprises:

a physical condition sensor configured to acquire data pertaining to at least a physical condition of the user, the physical condition sensor being provided at least partially internal to the head-worn structure.

26. (Previously Presented) A system as recited in claim 25, wherein the acquired data by the physical condition sensor includes data regarding temperature of the user.

27. (Previously Presented) A system as recited in claim 25, wherein the acquired data by the physical condition sensor includes data regarding vital signs of the user.

28. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 2,

wherein the second microphone is configured to pick-up an environmental audio input, and

wherein the environmental audio input picked-up from at least the second microphone is used at least for noise cancelation, and at least a portion of the environmental audio input picked-up from the second microphone is subtracted from the audio input picked-up from the first microphone.

29. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 2,

wherein the second microphone is configured to pick-up an environmental audio input, and

wherein the electronic circuitry is configured to receive audio output signals to be output to the user via the speaker, and modify the audio output signals to be output to the user via the speaker to cancel at least a portion of noise associated with the environment, the modification of the audio output signals being dependent at least in part on the environmental audio input picked-up via the second microphone.

30. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 29, wherein the head-worn personal electronic apparatus comprises:

a physical condition sensor configured to acquire data pertaining to at least a physical condition of the user, the physical condition sensor being provided at least partially internal to the head-worn structure,

wherein the acquired data by the physical condition sensor includes data regarding vital signs or temperature of the user.

31. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 29, wherein the environmental audio input picked-up from at least the second microphone is used at least for noise cancelation, and at least a portion of the environmental audio input picked-up from the second microphone is used to remove undesired noise from the audio input picked-up from the first microphone.

32. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 2, wherein the electronic circuitry is configured to:

determine an ambient noise level based on at least signals picked-up from at least the second microphone; and

modify at least a portion of audio output signals to be output to the user via the speaker, with the modification being at least in part dependent on the ambient noise level.

33. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 2, wherein the first microphone faces the user when the head-worn personal electronic apparatus is being worn.

34. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 33, wherein the second microphone faces away from the user when the head-worn personal electronic apparatus is being worn.

35. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 34,

wherein the second microphone is configured to pick-up an environmental audio input, and

wherein the electronic circuitry is configured to receive audio output signals to be output to the user via the speaker, and modify the audio output signals to be output to the user via the speaker to cancel at least a portion of noise associated with the environment, the modification of the audio output signals being dependent at least in part on the environmental audio input picked-up via the second microphone.

36. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 34,

wherein the second microphone is configured to pick-up an environmental audio input, and

wherein the environmental audio input picked-up from at least the second microphone is used at least for noise cancelation, and at least a portion of the environmental audio input picked-up from the second microphone is used to remove undesired noise from the audio input picked-up from the first microphone.

37. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 34, wherein the electronic circuitry is configured to:

determine an ambient noise level based on at least signals picked-up from at least the second microphone; and

modify at least a portion of audio output signals to be output to the user via the speaker, with the modification being at least in part dependent on the ambient noise level.

38. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 2, wherein the head-worn personal electronic apparatus is configured to receive a voice input from the user via at least the first microphone,

support or receive determination of a requested operation from the voice input using voice recognition, and control operation by the head-worn personal electronic apparatus based on the requested operation.

39. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 2,

wherein the head-worn personal electronic apparatus comprises:

an optical sensor contained within the head-worn structure and configured to capture optical sensor data,

wherein the head-worn personal electronic apparatus is configured to determine whether the head-worn personal electronic apparatus is being worn by the user based on the optical sensor data captured by the optical sensor.

40. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 39, wherein the optical sensor is configured to sense at least infrared radiation, and wherein the optical sensor data captured includes at least infrared radiation data.

41. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 2, wherein the head-worn personal electronic apparatus comprises:

a radiation emitter at least partially contained within the head-worn structure and configured to at least direct radiation towards the user when the head-worn personal electronic apparatus is being worn; and

a radiation detector at least partially contained within the head-worn structure and configured to detect a portion of the radiation directed towards the user that is reflected back from the user when the head-worn personal electronic apparatus is being worn.

42. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 41, wherein the radiation detector comprises a photodetector.

43. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 2, wherein the head-worn personal electronic apparatus comprises:

an optical sensor at least partially contained within the head-worn structure and configured to capture data, the captured data being indicative of whether the head-worn personal electronic apparatus is being worn by the user,

wherein the head-worn personal electronic apparatus is configured to at least alter operation of the head-worn personal electronic apparatus based at least in part on the captured data.

44. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 43, wherein the optical sensor is configured to sense at least infrared radiation.

45. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 2, wherein the head-worn personal electronic apparatus comprises:

an infrared emitter contained within the head-worn structure and configured to emit infrared radiation towards the user when the head-worn personal electronic apparatus is being worn.

46. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 2, wherein the head-worn personal electronic apparatus comprises:

at least a portion of a Hall effect detector at least partially contained within the head-worn structure, the Hall effect detector being configured to capture data associated with a magnetic characteristic.

47. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 2,

wherein the head-worn personal electronic apparatus is operable to at least output customized audio output,

wherein the wireless communication circuitry includes at least a wireless receiver configured to wirelessly receive audio output signals to be output to the user via the speaker,

wherein the electronic circuitry including at least an integrated circuit, the electronic circuitry being configured to (i) store hearing characteristics associated with the user; (ii) customize the received audio output signals to produce customized audio output signals for the user based on at least a portion of the stored hearing characteristics associated with the user such that the customized audio output signals at least compensate for hearing impairment regarding the user's ability to hear; and (iii) output the customized audio output signals to the speaker, and

wherein the speaker is configured to generate at least a portion of the customized audio output for the user in accordance with at least the portion of the customized audio output signals.

48. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 47, wherein the received audio output signals are wirelessly received from a mobile communication device associated with the user.

49. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 2,

wherein the head-worn personal electronic apparatus is operable to at least output customized audio output,

wherein the wireless communication circuitry includes at least a wireless receiver configured to wirelessly receive audio output signals to be output to the user via the speaker,

wherein the electronic circuitry including at least an integrated circuit, the electronic circuitry being configured to (i) store attributes associated with the user; (ii) customize the received audio output signals to produce customized audio output signals for the user based on at least a portion of the stored attributes associated with the user; and (iii) output the customized audio output signals to the speaker, and

wherein the speaker is configured to generate at least a portion of the customized audio output for the user in accordance with at least the portion of the customized audio output signals.

50. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 49, wherein the received audio output signals are wirelessly received from a mobile communication device associated with the user.

51. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 2,

wherein the head-worn personal electronic apparatus is operable to at least output customized audio output,

wherein the wireless communication circuitry includes at least a wireless receiver configured to wirelessly receive customized audio output signals for the user, the customized audio output signals having been customized based on at least predetermined hearing characteristics associated with the user such that the customized audio output signals at least compensate for hearing impairment regarding the user's ability to hear, and

wherein the speaker is configured to generate at least a portion of the customized audio output for the user in accordance with at least the portion of the customized audio output signals.

52. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 51, wherein the customized audio output signals are wirelessly received from a mobile communication device associated with the user.

53. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 51,

wherein the first microphone is positioned to be directed towards the user when the head-worn personal electronic apparatus is being worn by the user; and

wherein the second microphone is configured to pick up at least ambient sound input associated with an environment in the vicinity of the head-worn personal electronic apparatus, the second microphone being positioned to be directed away from the user when the head-worn personal electronic apparatus is being worn by the user.

54. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 51,

wherein the second microphone is configured to pick up at least ambient sound input associated with an environment in the vicinity of the head-worn personal electronic apparatus, and

wherein the second microphone is positioned to be further away from mouth of the user than the first microphone when the head-worn personal electronic apparatus is being worn.

55. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 51,

wherein the second microphone is configured to pick up at least environmental audio input associated with an environment in the vicinity of the head-worn personal electronic apparatus, and

wherein the electronic circuitry is configured to process the audio input from at least the user picked-up via the first microphone to remove at least a portion of the environmental audio input associated with the environment picked-up via the second microphone.

56. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 54,

wherein the first microphone is positioned so as to be directed towards the user of the head-worn personal electronic apparatus, and

wherein the second microphone is positioned so as to be directed away from the user of the head-worn personal electronic apparatus, relative to the first microphone.

57. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 56, wherein the head-worn personal electronic apparatus comprises:

a physical condition sensor configured to acquire data pertaining to at least a physical condition of the user, the physical condition sensor being provided at least partially internal to the head-worn structure, the acquired data by the physical condition sensor includes (i) data regarding temperature of the user, or (ii) data regarding vital signs of the user.

58. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 50,

wherein the second microphone is configured to pick up at least ambient noise associated with an environment in the vicinity of the head-worn personal electronic apparatus, and

wherein the electronic circuitry is configured to:

determine an ambient noise level based on at least the ambient noise;
and

modify at least a portion of the audio input picked-up via the first microphone, with the modification being at least in part dependent on the ambient noise level.

59. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 50, wherein the head-worn personal electronic apparatus comprises:

a radiation emitter at least partially contained within the head-worn personal electronic apparatus and configured to at least direct radiation towards the user when at least the head-worn personal electronic apparatus of the head-worn personal electronic apparatus is being worn; and

a radiation detector at least partially contained within the head-worn personal electronic apparatus and configured to detect a portion of the radiation directed towards the user that is reflected back from the user when the head-worn structure of the head-worn personal electronic apparatus is being worn,

wherein the radiation detector is operatively connected to the electronic circuitry, and wherein the electronic circuitry is configured to facilitate determining whether the head-worn personal electronic apparatus is being worn by the user based on at least the detected radiation.

60. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 59, wherein the detected radiation is at least infrared radiation.

61. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 60, wherein the speaker is configured to be at least partially inserted into the ear of the user.

62. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 50, wherein the head-worn personal electronic apparatus is configured to receive a voice input, support a determination of a requested

operation from the voice input using voice recognition, and control operation by the head-worn personal electronic apparatus based on the requested operation.

63. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 50, wherein the customized audio output includes music that was wirelessly received via the wireless receiver.

64. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 50, wherein the customized audio output signals result from amplifying or attenuating different frequency bands differently according to at least the predetermined hearing characteristics associated with the user.

65. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 64,

wherein the second microphone is positioned to pick up at least environmental audio input associated with an environment around the head-worn personal electronic apparatus, and

wherein the electronic circuitry is configured to modify the customized audio output signals to be output to the user via the at least one speaker to cancel at least a portion of noise associated with the environment, the modification of the customized audio output signals being dependent at least in part on the environmental audio input picked-up via the second microphone.

66. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 2, wherein the head-worn personal electronic apparatus comprises:

a bone conducting electronic element at least partially contained within the head-worn structure.

67. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 66,

wherein the bone conducting electronic element associated with vibrations,
and

wherein the bone conducting electronic element having electrical signals
associated with the vibration.

68. (Previously Presented) A head-worn personal electronic apparatus as
recited in claim 2, wherein the motion detector includes at least an
accelerometer.

69. (Previously Presented) A head-worn personal electronic apparatus as
recited in claim 2, wherein the wireless receiver is configured to operate with a
Bluetooth network.

70. (Previously Presented) A head-worn personal electronic apparatus as
recited in claim 2, wherein the electronic circuitry includes at least a
microprocessor.

71. (Previously Presented) A head-worn personal electronic apparatus as
recited in claim 2, wherein the head-worn personal electronic apparatus
comprises:

an antenna contained within the head-worn structure of the head-worn
personal electronic apparatus.

72. (Currently Amended) A head-worn personal electronic apparatus,
comprising:

a head-worn structure configured to be worn by a user;

a speaker at least partially contained within the head-worn structure, the
speaker being configured to be worn proximate to an ear of the user when the
head-worn structure is being worn by the user;

a motion detector at least partially contained within the head-worn structure and configured to provide motion data pertaining to the head-worn personal electronic apparatus;

a first microphone at least partially contained within the head-worn structure, the first microphone being positioned to pick up at least audio input from at least the user;

a second microphone at least partially contained within the head-worn structure;

a force sensing piezoelectric device configured to receive a user input based on a force induced on the force sensing piezoelectric device, the force sensing piezoelectric device being contained within the head-worn structure, wherein the received user input operating to at least alter an operation of the head-worn personal electronic apparatus;

a rechargeable battery contained within the head-worn structure;

electronic circuitry contained within the head-worn structure, the electronic circuitry being electrically connected to at least the rechargeable battery;

wireless communication circuitry at least partially contained within the head-worn structure;

at least one conductive element at least partially included within the head-worn structure, the at least one conductive element being at least partially exposed to enable interconnection therewith, the at least one conductive element being electrically connected to at least the rechargeable battery; and

a radiation detector contained within the head-worn structure and configured to capture radiation data,

wherein the head-worn personal electronic apparatus is configured to determine whether the head-worn personal electronic apparatus is being worn by the user based on the radiation data captured by the radiation detector, and

wherein the second microphone is configured to at least pick-up an environmental audio input.

73. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 72, wherein the head-worn personal electronic apparatus is configured to receive a voice input from the user via at least the first microphone, support or receive determination of a requested operation from the voice input using voice recognition, and control operation by the head-worn personal electronic apparatus based on the requested operation.

74. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 73,

wherein the wireless communication circuitry includes at least a wireless receiver configured to wirelessly receive audio output signals to be output to the user via the speaker, and

wherein the electronic circuitry is configured to modify the audio output signals to be output to the user via the speaker to cancel at least a portion of environmental noise, the modification of the audio output signals being dependent at least in part on the environmental audio input picked-up via the second microphone.

75. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 74,

wherein the head-worn personal electronic apparatus is operable to at least output customized audio output,

wherein the electronic circuitry includes at least an integrated circuit, and the electronic circuitry being configured to (i) store hearing characteristics associated with the user; (ii) customize the received audio output signals to produce customized audio output signals for the user based on at least a portion of the stored hearing characteristics associated with the user such that the

customized audio output signals at least compensate for hearing impairment regarding the user's ability to hear; and (iii) output the customized audio output signals to the speaker, and

wherein the speaker is configured to generate at least a portion of the customized audio output for the user in accordance with at least the portion of the customized audio output signals.

76. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 75,

wherein the head-worn personal electronic apparatus comprises:

a radiation emitter at least partially contained within the head-worn structure and configured to at least direct radiation towards the user when the head-worn personal electronic apparatus is being worn, and

wherein the radiation detector at least partially contained within the head-worn structure and configured to detect a portion of the radiation directed towards the user by the radiation emitter that is reflected back from the user when the head-worn personal electronic apparatus is being worn.

77. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 76,

wherein the head-worn personal electronic apparatus is configured to support control of (i) audio output to the user via the speaker and (ii) voice calls to the user, and

wherein the operation of the head-worn personal electronic apparatus being altered concerns at least control of the audio output being provided to the user and/or accepting or declining a voice call to the user.

78. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 77, wherein the head-worn personal electronic apparatus comprises:

at least a portion of a Hall effect detector at least partially contained within the head-worn personal electronic apparatus, the Hall effect detector being configured to capture data associated with a magnetic characteristic.

79. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 78, wherein the head-worn personal electronic apparatus comprises:

a bone conducting electronic element at least partially contained within the head-worn structure, the bone conducting electronic element being associated with vibrations, and the bone conducting electronic element utilizing electrical signals associated with the vibration.

80. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 72,

wherein the wireless communication circuitry includes at least a wireless receiver configured to wirelessly receive audio output signals to be output to the user via the speaker, and

wherein the electronic circuitry is configured to modify the audio output signals to be output to the user via the speaker to cancel at least a portion of environmental noise, the modification of the audio output signals being dependent at least in part on the environmental audio input picked-up via the second microphone.

81. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 80,

wherein the head-worn personal electronic apparatus is operable to at least output customized audio output,

wherein the electronic circuitry includes at least an integrated circuit, and the electronic circuitry being configured to (i) store attributes associated with the user; (ii) customize the received audio output signals to produce customized audio output signals for the user based on at least a portion of the stored attributes associated with the user; and (iii) output the customized audio output signals to the speaker, and

wherein the speaker is configured to generate at least a portion of the customized audio output for the user in accordance with at least the portion of the customized audio output signals.

82. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 81,

wherein the head-worn personal electronic apparatus comprises:

a radiation emitter at least partially contained within the head-worn structure and configured to at least direct radiation towards the user when the head-worn personal electronic apparatus is being worn, and

wherein the radiation detector at least partially contained within the head-worn structure and configured to detect a portion of the radiation directed towards the user by the radiation emitter that is reflected back from the user when the head-worn personal electronic apparatus is being worn.

83. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 82, wherein the head-worn personal electronic apparatus comprises:

at least a portion of a Hall effect detector at least partially contained within the head-worn personal electronic apparatus, the Hall effect detector being configured to capture data associated with a magnetic characteristic; and

a plurality of circuit boards, each of the plurality of circuit boards including at least one electrical component mounted thereto, at least one of the plurality of circuit boards being a flexible printed circuit board, at least one of the plurality of

circuit boards has at least one integrated circuit mounted on a first side of the at least one of the plurality of circuit boards, and at least one integrated circuit mounted on a second side of the at least one of the plurality of circuit boards.

84. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 82,

wherein the head-worn personal electronic apparatus is configured to support control of (i) audio output to the user via the speaker and (ii) voice calls to the user, and

wherein the operation of the head-worn personal electronic apparatus being altered concerns at least control of the audio output being provided to the user and/or accepting or declining a voice call to the user.

85. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 84, wherein the head-worn personal electronic apparatus comprises:

at least a portion of a Hall effect detector at least partially contained within the head-worn personal electronic apparatus, the Hall effect detector being configured to capture data associated with a magnetic characteristic.

86. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 84, wherein the head-worn personal electronic apparatus comprises:

a bone conducting electronic element at least partially contained within the head-worn structure, the bone conducting electronic element being associated with vibrations, and the bone conducting electronic element utilizing electrical signals associated with the vibration.

87. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 86, wherein the head-worn personal electronic apparatus comprises:

at least a portion of a Hall effect detector at least partially contained within the head-worn personal electronic apparatus, the Hall effect detector being configured to capture data associated with a magnetic characteristic.

88. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 84, wherein the head-worn personal electronic apparatus comprises:

a plurality of circuit boards, each of the plurality of circuit boards including at least one electrical component mounted thereto.

89. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 88, wherein at least one of the plurality of circuit boards is a flexible printed circuit board.

90. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 88, wherein at least one of the plurality of circuit boards has at least one integrated circuit mounted on a first side of the at least one of the plurality of circuit boards, and at least one integrated circuit mounted on a second side of the at least one of the plurality of circuit boards.

91. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 82, wherein the head-worn personal electronic apparatus comprises:

a touch sensitive surface at least partially contained within the head-worn structure and configured to sense a touch input associated with the user,

wherein at least the electronic circuitry is configured to facilitate determination at least whether the touch input associated with the user pertains to a first sliding direction or a second sliding direction with respect to the touch sensitive surface.

92. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 91, wherein the touch input by the touch sensitive surface operates to at least control audio volume level of the customized audio output for the user via the speaker.

93. (Previously Presented) A head-worn personal electronic apparatus as recited in claim 72, wherein the head-worn personal electronic apparatus comprises:

a touch sensitive surface at least partially contained within the head-worn structure and configured to sense a touch input associated with the user,

wherein at least the electronic circuitry is configured to facilitate determination at least whether the touch input associated with the user pertains to a first sliding direction or a second sliding direction with respect to the touch sensitive surface.

94. (Currently Amended) A head-worn personal electronic apparatus as recited in claim 93,

wherein the touch sensitive surface senses the touch input by at least sensing capacitance, and

wherein the touch input by the touch sensitive surface operates to at least control audio volume level of audio output configured to be provided to the user via the speaker.

Claims 95-120 (Canceled).

REMARKS

Further to the Notice of Allowance, claims 95-120 have been canceled from the application without prejudice or disclaimer. Applicant reserves the right to present such claims in another patent application. In addition, claims 2, 72 and 94 have been amended to further clarify the subject matter regarded as the invention. Claims 1-3 and 5-94 are currently pending.

Entry of this Amendment is respectfully requested. If there are any issues remaining which the Examiner believes could be resolved through either a Supplemental Response or an Examiner's Amendment, the Examiner is respectfully requested to contact the undersigned representative at the telephone number listed below.

Applicants hereby petition for an extension of time which may be required to maintain the pendency of this case, and any required fee for such extension or any further fee required in connection with the filing of this Amendment is to be charged to Deposit Account No. 503874 (Order No. IPVCP003X1C4X1C2).

Respectfully submitted,

/C. Douglass Thomas/

C. Douglass Thomas
Reg. No. 32,947

(650) 903-9200, x103



UNITED STATES
PATENT AND TRADEMARK OFFICE

Page 1 of 2
P.O. Box 1450
Alexandria, VA 22313 - 1450
www.uspto.gov

ELECTRONIC ACKNOWLEDGEMENT RECEIPT

APPLICATION #
18/597,874

RECEIPT DATE / TIME
02/21/2025 09:22:38 PM Z ET

ATTORNEY DOCKET #
IPVCP003X1C4X1C2

Title of Invention

SYSTEM FOR CHARGING EMBEDDED BATTERY IN WIRELESS HEAD-WORN PERSONAL ELECTRONIC APPARATUS

Application Information

APPLICATION TYPE Utility - Nonprovisional Application
 under 35 USC 111(a)

PATENT # -

CONFIRMATION # 7223

FILED BY Angela Nijim

PATENT CENTER # 69292981

FILING DATE 03/06/2024

CUSTOMER # 34071

FIRST NAMED
INVENTOR Thomas A. Howell

CORRESPONDENCE
ADDRESS -

AUTHORIZED BY Peter Tong

Documents

TOTAL DOCUMENTS: 2

DOCUMENT	PAGES	DESCRIPTION	SIZE (KB)
IPVCP003X1C4X1C2_312A mdB_AsFiled_2-25-final- APP.TEXT.docx	29	Application body structured text document	43 KB
IPVCP003X1C4X1C2_312A mdB_AsFiled_2-25-final.pdf	29	Auxiliary PDF of Application	106 KB

Digest

DOCUMENT	MESSAGE DIGEST(SHA-512)
IPVCP003X1C4X1C2_312Amd B_AsFiled_2-25-final- APP.TEXT.docx	3012E517A6BB001D4481F3DC33F7666F850A636A65BF926870 D978DA69493208C0CFB5E5DBCE774044792FADB9AB003606 CB2E5DBB41263675070C8B08F585B8

IPVCP003X1C4X1C2_312Amd
B_AsFiled_2-25-final.pdf

2CB4F0E5160EC416067BCB8CC7D1DF43D88D9A6F00AB2114
960BACD767560C19A854B6C0D607188ADBF851BD706228996
4684B105AA7177DFCD3715DFBDF43E

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

In re application of: HOWELL et al. Attorney Docket No.: IPVCP003X1C4X1C2
Application No.: 18/597,874 Examiner: LEI, JIE
Filed: March 6, 2024 Group: 2872
Title: SYSTEM FOR POWERING
HEAD-WORN PERSONAL
ELECTRONIC APPARATUS

AMENDMENT UNDER 37 CFR 1.312

Mail Stop _____
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

In response to the Notice of Allowance dated January 13, 2025, please amend the above-identified patent application as follows:

Amendments to the Claims are reflected in the listing of claims which begins on page 2 of this paper.

Remarks/Arguments begin on page 29 of this paper.