

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Chemtronics USA, Inc.
Petitioner,

v.

FlatFrog Laboratories AB
Patent Owner

IPR2024-00015
Patent 10,775,935

**PETITIONER'S REPLY TO
PATENT OWNER'S PRELIMINARY RESPONSE**

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I. INTRODUCTION

Patent Owner (“PO”) does not challenge the substance of Chemtronics’s arguments, but instead spends nearly 30 pages manufacturing procedural defects and arguing for discretionary denial under 35 U.S.C. § 325(d). These arguments are meritless, even to the point of misreading the plain language of ’935 Patent’s claims. Chemtronics’s Petition presents new combinations of references and new arguments not previously considered by the Office. Thus, the Board should decline Patent Owner’s request for discretionary denial under § 325(d).

II. NO BASIS EXISTS FOR DISCRETIONARY DENIAL BASED ON GROUNDS 1 OR 2 UNDER 35 U.S.C. § 325 (d)

A. Grounds 1 And 2 Assert New, Non-Cumulative Prior Art Not Previously Presented Or Considered By The Office

The Petition presents four new, non-cumulative references not previously considered by the Examiner and which disclose every limitation of the ’935 Patent’s claims. PO attempts to argue that “[a]ll of Petitioner’s Grounds rely on the Han reference, which was expressly considered by the Examiner below allowance.” POPR at 1. PO further characterizes Han as the “main” reference—whatever that means. *Id.* at 18. But PO’s arguments completely ignore the fact that Grounds 1 and 2 both include new, non-cumulative references not considered by the Examiner: Cheng, Zhao, Cao, and Shin.

Even a single new, non-cumulative reference, regardless of if presented in combination with references discussed during prosecution, is enough to decline a

§ 325(d) denial. *Samsung Elecs. Co. v. Dodots Licensing Sols. LLC*, IPR2023-00756, Paper 9 at 21-22 (PTAB Oct. 11, 2023); *Oticon Medical AB v. Cochlear Ltd.*, IPR2019-00975, Paper 15 at 16, 19-20 (PTAB Oct. 16, 2019). Not only do Grounds 1 and 2 include a single new, non-cumulative reference, they each include *two* new, non-cumulative references. To be clear, Grounds 1 and 2 (together) present *four* new, non-cumulative references that were never considered (much less included in an Office Action) in the '935 Patent's prosecution history. *See generally* Ex. 1013. PO has no convincing answer to these new references, and thus cannot satisfy part one of the *Advanced Bionics* test. Thus, § 325(d) discretionary denial should be denied.

B. Grounds 1 And 2 Further Present New, Non-Cumulative Arguments Not Considered By The Office

Not only do Grounds 1 and 2 present new, non-cumulative references, they present new arguments not previously considered by the Examiner, which are directly relevant to the patentability of the '935 Patent's claims. PO has no answer to the Petition's new arguments, but instead attempts to shoe-horn the arguments into those the Examiner considered during prosecution. POPR at 24-30. Discussed below, PO's arguments are misleading and unpersuasive.

First, the Examiner's previously considered Christiannson and Kukulj references do not disclose a touch screen parabolically curved in both an Ax and Ay direction. Han does. And that is what the '935 Patent's claims require. Indeed,

Han's multi-axis touch screen parabolic curvature embodies *the very same limitations* PO approved in an Examiner's Amendment to overcome Christiannson and Kukulj and which were cited in the Notice of Allowance:

The subject matter of the independent claims could either not be found or was not suggested in the prior art of record. The subject matter not found was a touch sensitive device including

"...a first edge extending between a first end point and an opposite second end point; and

a second edge extending between the second end point and a third end point;

...wherein configuring the frame assembly to support the plate includes inducing a parabolic curvature in the touch surface relative to a first axis and relative to a second axis perpendicular to the first axis, said first axis is parallel to a line between the first end point and the second end point and said second axis is parallel to a line between the second end point and the third end point " (Claim 1)

"...wherein the plate has a first curvature in the touch surface when not installed in the frame assembly, and wherein the plate has a second curvature along the width and along the length in the touch surface greater than the first curvature when the plate is installed in the frame assembly, said second curvature is parabolic..." (Claim 10),

Ex. 1013 at 100-01, 103-04; POPR at 15.

In contrast, the Examiner identified that Christiannson only discloses a glass that "may be planar or curved." See Ex. 1013 at 507; Ex. 1016 at [0071]. Han discloses substantially more than Christiannson, including a touch screen

parabolically curved along both an Ax and Ay direction. Petition at 42; Ex. 1005, Fig 2.

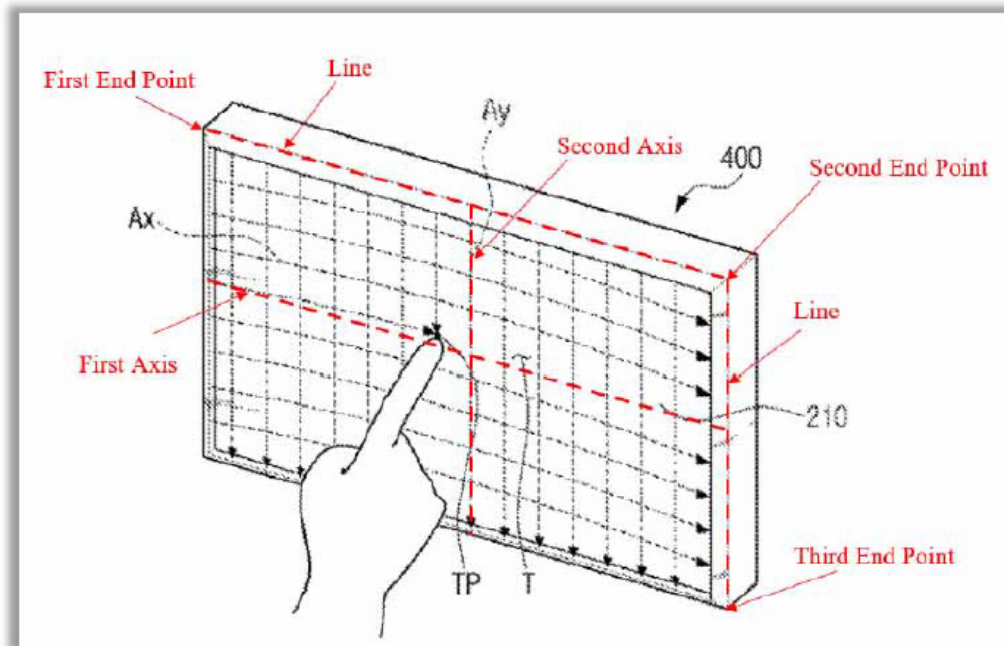
PO's Han-related arguments further rely on a *fundamental misreading* of the '935 Patent's claim limitations. For example, PO argues "like Christiannson, Han discusses curving just the "front" side of the glass, whereas the claims require that the parabolic curvature is 'induced' in the touch surface 'relative to a first axis **and relative to a second axis perpendicular to the first axis...**'" POPR at 26. Apparently, PO misunderstands the touch surface curvature in the '935 Patent claims to require the second axis to extend perpendicular relative to the first axis *through the thickness of the plate*. That's simply wrong. Instead, and as the claim language clearly reads, the second axis is oriented perpendicular to the first axis *along the same dimensional plane* (e.g. length and width of a rectangular plate).

1. A method for assembling a touch sensing apparatus, the touch sensing apparatus comprising a display panel, a plate including a touch surface, and a frame assembly, wherein the frame assembly includes:
 a first edge extending between a first end point and an opposite second end point; and
 a second edge extending between the second end point and a third end point;
 the method comprising:
 configuring the frame assembly to support the display panel;
 arranging a plurality of emitters adjacent to a periphery of the plate, said plurality of emitters configured to emit light to propagate over the touch surface;
 arranging a plurality of detectors arranged adjacent to the periphery of the plate, said plurality of detectors configured to receive light from the set of emitters; and
 configuring the frame assembly to support the plate;
 wherein configuring the frame assembly to support the plate includes inducing a parabolic curvature in the touch surface relative to a first axis and relative to a second axis perpendicular to the first axis, said first axis is parallel to a line between the first end point and the second end point and said second axis is parallel to a line between the second end point and the third end point.

7. A touch sensing apparatus comprising:
 a display panel;
 a plate having a width, a length and a periphery, the plate further including a touch surface;
 one or more emitters arranged adjacent to the periphery of the plate and configured to emit light across the touch surface of the plate;
 a set of detectors arranged adjacent to the periphery of the plate and configured to receive light from the set of emitters, and
 a frame assembly, the frame assembly comprising:
 a first frame element configured to support the display panel; and
 a second frame element arranged around at least a portion of the periphery of the plate, the second frame element having a first portion extending along an edge of the plate and a second portion opposed to the touch surface;
 wherein the plate has a first curvature in the touch surface when not installed in the frame assembly, and wherein the plate has a second curvature along the width and along the length in the touch surface when the plate is installed in the frame assembly, said second curvature is parabolic; and
 wherein the first curvature is concave.

Ex. 1001 at 72.

Indeed, this is precisely the curvature that Han (both independently and in combination with the references of Grounds 1 and 2) discloses and which Christiannson and Kukulj do not:



Petition at 42; Ex. 1005, Fig 2 (annotated); POPR at 28 (“Han’s parabolic touch screen curvature along Ax and Ay directions”). POPR at 29.

PO’s misreading of Han and the ’935 Patent’s claims¹ perhaps explains its

¹ Confusingly, even under PO’s incorrect reading of the plain language of the ’935 Patent’s claims, Han *still discloses* what PO alleges it does not. Ex. 1005 at Fig. 7 (showing curvature along a first axis and a second axis extending perpendicularly through the glass); Petition at 52.

conclusion that “the Petition even admits that Han is a cumulative disclosure to Christiannson.” POPR at 26. Han is clearly not cumulative, as explained above.

PO next mischaracterizes what the Petition's new references disclose. For example, PO asserts that Cheng (Ground 1) or Cao (Ground 2) disclose “a touch screen device with a frame supporting a display panel and method of assembling it.” *Id.* at 24. PO then asserts that the arguments presented by Cheng and Cao are the “same” as those previously considered by the Examiner. *Id.* at 25. Specifically, PO alleges that Kukulj, like Cheng and Cao, also includes “a touch screen device with a frame assembly having multiple edges and supporting a display panel.” *Id.* But both Cheng and Cao are significantly different from Kukulj. As one example, in response to an Office Action, the Applicant argued that the Examiner's claim rejections should be withdrawn because “Kukulj is directed to using ‘parabolic reflectors’” Ex. 1013 at 606-08 (citing Ex. 1014 at [0009]). Neither Cheng nor Cao are directed to “parabolic reflectors.” Further, both Cheng and Cao disclose frame elements not disclosed by Kukulj but which, alone or in obvious combination with the Petition's other references, are present in the '935 Patent's claims. *See generally* Petition at Sections V.B and C. Thus, PO's assertion that Cheng and Cao are somehow the “same” as Kukulj simply does not hold together.

PO next argues that Han combined with Zhao (Ground 1) or Shin (Ground 2) discloses a “parabolic curvature induced by [a] frame assembly.” POPR at 24. PO

then argues that the Examiner already considered this argument by combining Christiannson with Kukulj “for its alleged teaching that its frame assembly induces a curvature on the touch surface” and “such curvature is parabolic concave in view of Kuklj’s teachings of parabolic reflectors.”² POPR at 25. But PO’s substantive argument here focuses only on Han and pays little more than lip service to the Zhao or Shin references (much less to Cao and Cheng). For example, PO argues “no part of the [Han] frame is inducing any curve.” POPR at 26. PO further argues “Christiannson does not teach...[a] frame assembly to support the plate includ[ing] inducing a parabolic curvature in the touch surface. Neither does Han.” POPR at 26 (citations omitted). But that is not the argument presented in either of Grounds 1 or 2. As the Petition clearly shows and as Dr. Cairns confirmed, Han *in combination with* i) Cheng and Zhao and ii) Cao and Shin (each of (i) and (ii) comprising completely new references) discloses the very elements PO concedes Christiannson does not: “...[a] frame assembly to support the plate includ[ing] inducing a parabolic curvature in the touch surface.” Petition at Sections V.B. and C.

Thus, Grounds 1 and 2 of the Petition each present new, non-cumulative arguments that are “stronger” and simply not the same as references previously

² PO again fails to appreciate that none of Grounds 1 or 2 references are directed toward Kukulj’s “parabolic reflectors.”

before the Examiner, and which are directly relevant to the patentability of '935 Patent's claims. *Masimo Corp. v. Apple Inc.*, IPR2023-00634, Paper 14 at 18 (PTAB Sept. 25, 2023). Accordingly, part one of the *Advanced Bionics* test cannot be satisfied and PO's request for discretionary denial under § 325(d) should be denied.

III. CONCLUSION

Despite the compelling merits of the Petition's Grounds 1 and 2, PO fails to offer any substantive rebuttal, aside from procedural arguments predicated on misleading characterizations of the art and incorrect readings of the claims. On the basis of the Petition, un rebutted on substance, and the reasons provided above, trial should be instituted.

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Respectfully submitted,

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that a copy of the foregoing Petitioner's Reply to Patent Owner Preliminary Response to of U.S. Patent No. 10,775,935, was served on March 6, 2024 via electronic mail on Patent Owner's lead and backup counsel at the following email addresses:

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