

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CHEMTRONICS USA, INC.,
Petitioner,

v.

FLATFROG LABORATORIES AB,
Patent Owner.

IPR2024-00014
Patent 11,281,335 B2

Before DANIEL J. GALLIGAN, SHEILA F. McSHANE, and
JOHN R. KENNY, *Administrative Patent Judges*.

McSHANE, *Administrative Patent Judge*.

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314

I. INTRODUCTION

Chemtronics USA, Inc. (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting *inter partes* review of claims 1–5 (the “challenged claims”) of U.S. Patent No. 11,281,335 B2 (Ex. 1031, “the ’335 patent”). FlatFrog Laboratories AB (“Patent Owner”) filed a Preliminary Response (Paper 6, “Prelim. Resp.”). Pursuant to the Board’s authorization, Petitioner filed a Petitioner Reply to Patent Owner’s Preliminary Response (Paper 8, “Pet. Prelim. Reply”) and Patent Owner filed a Sur-reply (Paper 10, “PO Prelim. Sur-reply”).

The Board has authority to determine whether to institute an *inter partes* review. *See* 35 U.S.C. § 314; 37 C.F.R. § 42.4(a). Under 35 U.S.C. § 314(a), we may not authorize an *inter partes* review unless the information in the petition and the preliminary response “shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.”

For the reasons stated below, we determine that Petitioner has established a reasonable likelihood that it would prevail with respect to at least one claim, and we institute *inter partes* review as to all of the challenged claims of the ’335 patent and all of the asserted grounds of unpatentability in the Petition.

II. BACKGROUND

A. Related Matters

The ’335 patent is a subject of civil action *Flatfrog Laboratories AB v. Chemtronics Co., Ltd.*, Case No. 2:23-cv-00306 (E.D. Tex.), and was previously the subject of litigation in *FlatFrog Laboratories AB v. Chemtronics Co. Ltd.*, Case No. 3-23-cv-00121 (S.D. Cal.). Pet. 123; Paper 4, 1.

B. The '335 Patent

The '335 patent is titled “Touch Device” and issued on March 22, 2022 from an application filed on May 3, 2019. Ex. 1031, codes (22), (45), (54). The application was a continuation of Application No. 16/190,907 (now issued as U.S. Patent No. 10,282,035) and Application No. PCT/SE2017/051233. *Id.*, code (63).

The '335 patent is directed to “[a]n assembly for holding and controlling curvature of a glass plate for an optical touch sensitive system.” Ex. 1031, code (57). “More particularly, the invention relates to a curved plate assembly for holding a plate of the system, such as a glass plate” and also “a method for assembling a plate of an optical touch sensitive system with a panel (such as a display panel) in a way such that curvature is controlled.” *Id.* at 1:15–22. Light emitters are distributed around the periphery of the touch plate and propagate light across the touch surface to detectors located at the periphery. *Id.* at 14:11–15. The emitters and detectors are used to detect touch on the touch surface. *Id.* at 14:21–15:34. Advantages of the improved frame assembly for controlled curvature of the touch screen include “improved precision” with “a shape conductive to transmitting as much light from the emitters as possible to the detectors.” *Id.* at 2:18–25; *see also id.* at 17:48–18:44.

Figure 7, reproduced below, is a schematic sideview of an embodiment of the invention for providing curvature of the touch plate. Ex. 1031, 4:15–16.

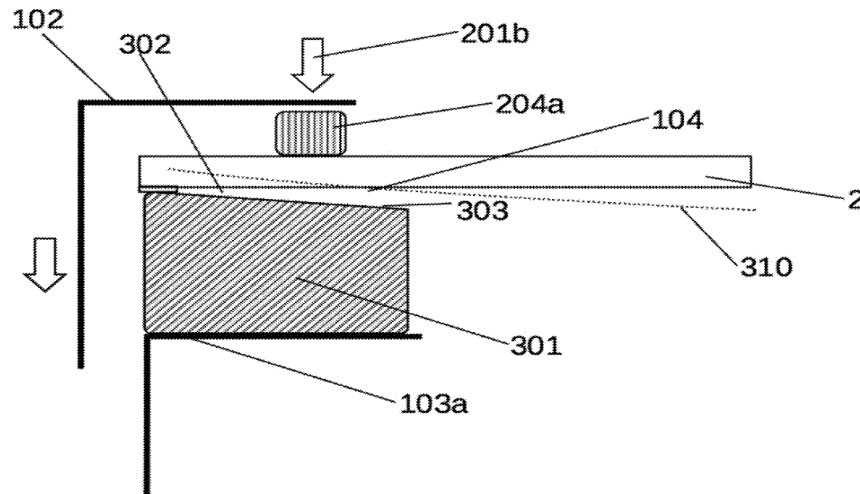


Figure 7

Figure 7, above, is a schematic sideview showing plate 2, frame element 102, sealing component 204a, and support block 301 with tapered edge 303, with pressure 201b applied. Ex. 1031, 13:20–33. When pressure 201b is applied, plate 2 is pressed against the top surface of support block 301 and causes plate 2 to follow the contour of the top surface 303 where plate 2 “is forced into a curving plane at an angle to the plane of second frame element 103[a].” *Id.* at 13:34–39. “The resulting path of plate 2 is shown by curvature path 310.” *Id.* at 13:39–40. The touch plate can be curved in two axes, as shown in Figure 12b, reproduced below, which is an isometric view of a touch surface of an optical touch system. *Id.* at 4:39–40.

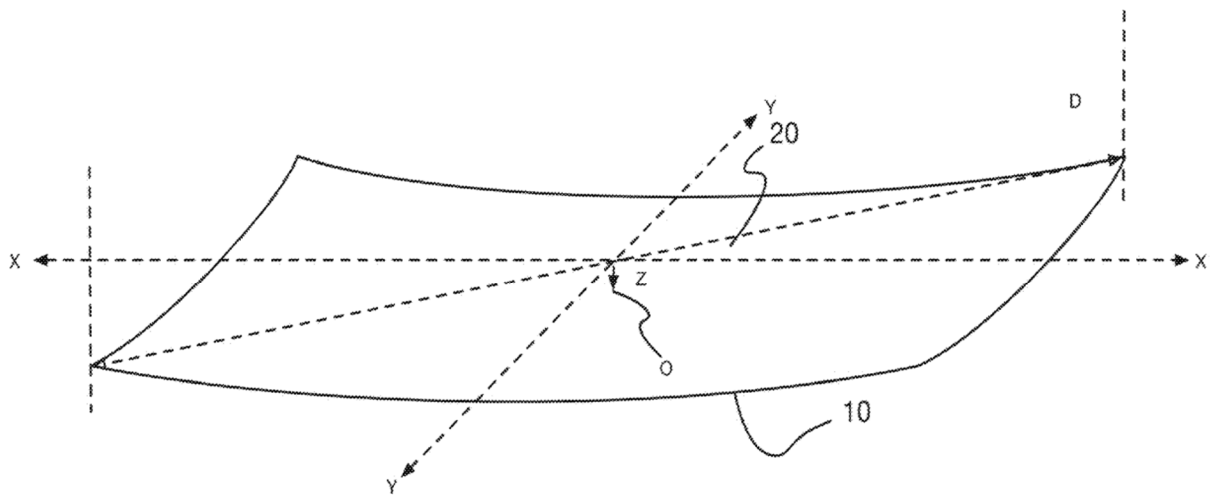


Figure 12b

Figure 12b, above depicts the isometric view of a touch surface of an optical touch system with a curved profile in the x-axis and a curved profile in the y-axis. Ex. 1031, 4:39–41; *see also id.* at 16:63–17:47.

C. Illustrative Claim

Claims 1–5 of the '335 patent are challenged. Claim 1 is the only independent claim, and is reproduced below, with bracketed designations added for reference purposes.

[a] A touch sensing apparatus having a long edge and a short edge, the touch sensing apparatus comprising:

[b] a display panel:

[c] a plate including a top surface that comprises a touch surface;

[d] a plurality of emitters arranged around a portion of the periphery of the plate and configured to emit light across the touch surface of the plate;

[e] a plurality of detectors arranged around a portion of the periphery of the plate and configured to receive light from the plurality of emitters; and

[f] a frame assembly, the frame assembly comprising;

a first frame element configured to support the display panel;
 a second frame element arranged around the periphery of the plate and configured to support the plurality of emitters and plurality of detectors;

[g] wherein the second frame element includes a first surface portion extending over an edge portion of the plate and a second surface portion arranged substantially parallel to a surface of the plate that defines the plate thickness;

[h] wherein the touch surface is curved relative to a flat plane defined in part by the short edge and the long edge;

[i] wherein a distance between a first curved line drawn on the touch surface and a second straight line drawn on the flat plane varies according to a concave curve function; and

[j] wherein all of the edges of the top surface of the plate are curved.

Ex. 1031, 21:27–22:20.

D. Asserted Grounds of Unpatentability

Petitioner challenges the patentability of claims 1–5 of the ’335 patent on the following grounds:

Claims Challenged	35 U.S.C. §¹	Reference(s)
1–5	103	Cheng ² , Han ³ , Zhao ⁴
1–5	103	Cao ⁵ , Han, Zhao
1–4	103	Cheng, Han, Shin ⁶

¹ The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), amended 35 U.S.C. § 103, effective March 16, 2013. Because the earliest date to which the ’335 patent claims priority is after this date, the AIA version of § 103 applies. *See* Ex. 1031, code (63).

² CN 203386188 U, published January 8, 2014 (Ex. 1003). We refer to the English translation of the document, which is Exhibit 1004.

³ US 2019/0235701 A1, published August 1, 2019 (Ex. 1005).

⁴ US 2017/0123257 A1, published May 4, 2017 (Ex. 1012).

⁵ U.S. Patent No. 9,983,626 B2, issued May 29, 2018 (Ex. 1010).

⁶ U.S. Patent No. 9,291,845 B2, issued March 22, 2016 (Ex. 1011).

III. ANALYSIS

A. Level of Ordinary Skill in the Art

Petitioner asserts that a person of ordinary skill in the art:

is someone having at least a bachelor-of-science or comparable degree in mechanical engineering or an equivalent discipline and at least five years of experience designing touch sensors, provided that the educational level can offset the experience level, and vice versa. For example, a POSA [person of ordinary skill in the art] includes a person with at least a master's degree in those disciplines and at least two years of design experience in the field.

Pet. 23 (citing Ex. 1033 ¶¶ 23–25).

Patent Owner has not provided any proposed qualifications for a person of ordinary skill in the art. *See* Prelim. Resp.

For the purposes of this Decision, we adopt the assessment offered by Petitioner, except for the inclusion of “at least,” because that articulation is consistent with the ’335 patent and the prior art before us. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001).

B. Claim Construction

In this *inter partes* review, claims are construed using the same claim construction standard that would be used to construe the claims in a civil action under 35 U.S.C. § 282(b). 37 C.F.R. § 42.100(b) (2022). Under the principles set forth by our reviewing court, the “words of a claim ‘are generally given their ordinary and customary meaning,’” as would be understood by a person of ordinary skill in the art in question at the time of the invention. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312 (Fed. Cir. 2005) (en banc) (quoting *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed. Cir. 1996)). “In determining the meaning of the disputed claim

limitation, we look principally to the intrinsic evidence of record, examining the claim language itself, the written description, and the prosecution history, if in evidence.” *DePuy Spine, Inc. v. Medtronic Sofamor Danek, Inc.*, 469 F.3d 1005, 1014 (Fed. Cir. 2006) (citing *Phillips*, 415 F.3d at 1312–17).

Petitioner asserts that its interpretation of the claims is based on Patent Owner’s construction of the terms in the allegations in a co-pending litigation. Pet. 24 (citing Exs. 1017, 1018, 1038). Patent Owner presents no proposed claim constructions. *See* Prelim. Resp.

We determine that we need not expressly construe any claim terms at this juncture. *See Realtime Data, LLC v. Iancu*, 912 F.3d 1368, 1375 (Fed. Cir. 2019) (“The Board is required to construe ‘only those terms . . . that are in controversy, and only to the extent necessary to resolve the controversy.’” (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

C. Principles of Law

A patent claim is unpatentable under 35 U.S.C. § 103 “if the differences between the claimed invention and the prior art are such that the claimed invention as a whole would have been obvious before the effective filing date of the claimed invention to a person having ordinary skill in the art to which the claimed invention pertains.” 35 U.S.C. § 103; *see KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). The question of obviousness is resolved on the basis of underlying factual determinations including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of ordinary skill in the

art; and (4) when in evidence, objective indicia of nonobviousness.⁷

Graham v. John Deere Co., 383 U.S. 1, 17–18 (1966).

D. Obviousness of Claims 1–5 Over Cheng, Han, and Zhao

Petitioner contends that claims 1–5 would have been obvious over the combination of Cheng, Han, and Zhao. Pet. 31–64. To support its contentions, Petitioner provides explanations as to how the combination of the prior art teaches each claim limitation and provides rationale to combine the references. *Id.* Petitioner also relies upon the Declaration of Darran R. Cairns, Ph.D. (Ex. 1033) to support its positions. Patent Owner does not present any arguments on the merits of Petitioner’s showing of obviousness under this ground. *See* Prelim. Resp.

We begin our discussion with brief summaries of Cheng, Han, and Zhao, and then address the evidence and arguments presented.

1. Cheng (Ex. 1004)

Cheng is directed to a touch screen with infrared transmitters located at the screen periphery within the frame. Ex. 1004 ¶ 5. A sectional schematic drawing of the infrared touch screen frame structure is depicted in Figure 1, reproduced below. *Id.* ¶ 11.

⁷ Neither party has submitted any objective evidence of nonobviousness at this juncture.

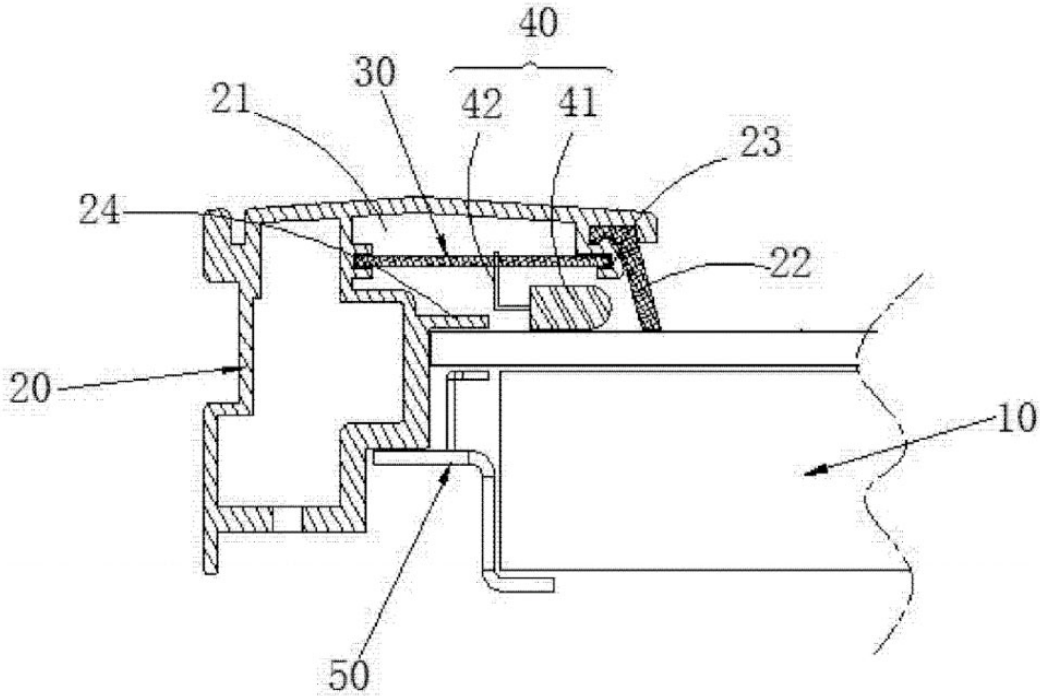


Fig. 1

Figure 1, above, depicts touch panel 10 with support 50, frame 20, and light filter plate 22. Ex. 1004 ¶¶ 13, 16. Infrared touch screen frame 20 has semi-enclosed cavity 21 in which the circuit board 30 and infrared element 40, which includes pin 42 and light tube 41, are located. *Id.* ¶ 13. Lamp tube 41 can extend out of the semi-closed cavity 21 and lie against a surface of the touch panel 10. *Id.* ¶ 18.

2. Han (Ex. 1005)

Han is directed to a display apparatus, which is shown in a perspective and sectional views in Figures 2 and 3, reproduced below. Ex. 1005 ¶¶ 4–5.

FIG. 2

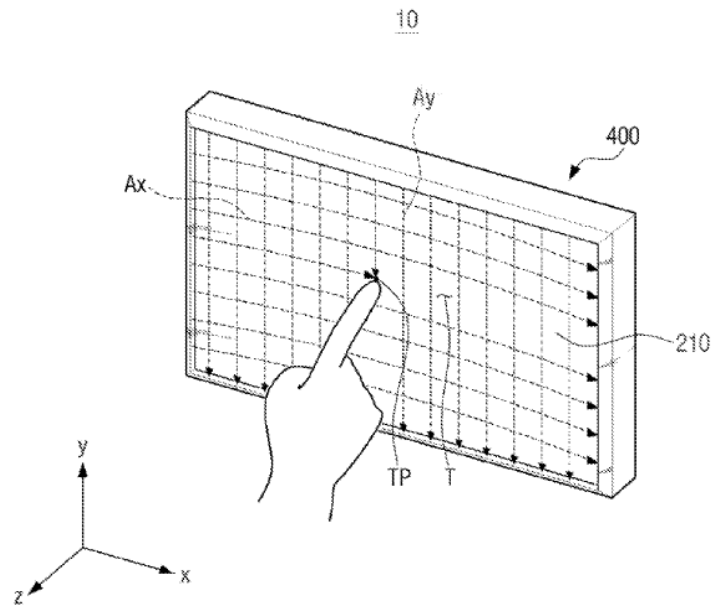
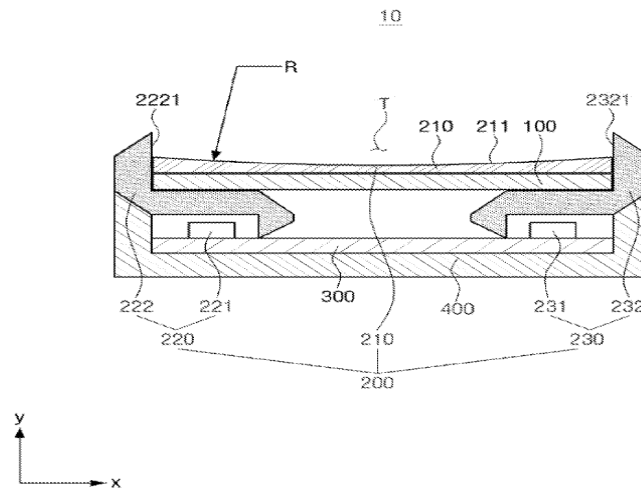


FIG. 3



In Figures 2 and 3, above, display apparatus 10 includes a display and touch detection, with cover glass 210, display panel 100, and with light emitting part 220 and light receiving part 230 disposed along the edges of display

Han's surface 211 of cover glass 210 may be curved along both the first direction Ax and the second direction Ay. Ex. 1005 ¶¶ 74–77. The curvature of Han's touch surface 211 reduces the amount of light lost by reflection and enhances the accuracy of touch recognition. *Id.* ¶¶ 85–86.

Zhao is directed to a curved surface liquid crystal display panel with a frame and a curved cover plate, with cross-section shown in Figure 1, reproduced below. Ex. 1012, code (57), ¶ 32.



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4. Discussion

a. Claim 1

i. Preamble 1[a], Limitations 1[b], [c]

Petitioner asserts that the preamble is taught by Cheng and Han, with Cheng's frame and Han's frame assembly forming long and short edges. Pet. 37–38 (citing, *inter alia*, Ex. 1004 ¶ 2; Ex. 1005, Fig. 2; Ex. 1033 ¶¶ 142–145). Petitioner contends that Cheng, Han, and Zhao teach display panels. *Id.* at 38–39 (citing Ex. 1004 ¶ 5, Fig. 1; Ex. 1005, code (57); Ex. 1012, code (57)). Petitioner argues that Cheng and Han teach a plate with a touch surface. *Id.* at 39–40 (citing Ex. 1005 ¶¶ 19, 38, Fig. 2; Ex. 1033 ¶¶ 149–151).

Patent Owner has not presented any disputes as to the preamble or limitations 1[b] and [c]. We have reviewed Petitioner's evidence and arguments and find they are sufficient at this juncture for the teaching of the preamble⁸ and limitations 1[b] and [c].

ii. Limitations 1[d], [e]

Petitioner asserts that Cheng and Han disclose emitters and detectors distributed around the display area. Pet. 40–42 (citing Ex. 1004 ¶ 2; Ex. 1005 ¶¶ 40–43). Patent Owner has not presented any disputes as to limitations 1[d] and [e]. We have reviewed Petitioner's evidence and arguments and find they are sufficient at this juncture for the teaching of limitations 1[d] and [e].

iii. Limitations 1[f], [g]

Petitioner asserts that Cheng discloses a frame assembly including a first frame element that includes a support that supports the display panel of

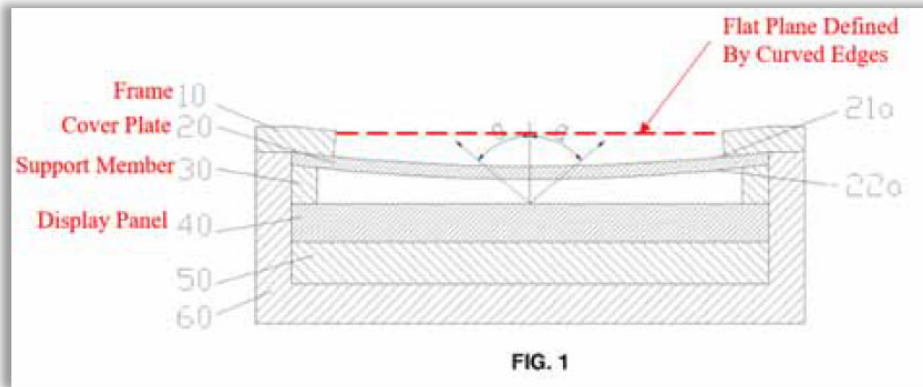
⁸ We make no finding as to whether the preamble is limiting.

the touch panel. Pet. 42–43 (citing Ex. 1004 ¶¶ 7–8, Fig. 1). Petitioner contends that Cheng teaches the second frame element with its protrusion that extends along an edge of the plate that is placed on an upper surface of the touch panel. *Id.* at 43–46 (citing Ex. 1004 ¶ 7, Fig. 1).

Patent Owner has not presented any disputes as to limitations 1[f] and [g]. We have reviewed Petitioner’s evidence and arguments and find they are sufficient at this juncture for the teaching of limitations 1[f] and [g].

iv. Limitation 1[h]

Petitioner asserts that Cheng in view of Han and Zhao discloses this limitation, where it would have been obvious for a person of ordinary skill in the art “to modify Cheng’s plate to incorporate Han’s parabolic touch screen curvature along Ax and Ay directions to improve touch detection accuracy.” Pet. 46 (citing Ex. 1033 ¶ 165). Petitioner contends that it would have been obvious to modify Cheng’s frame with Zhao’s curved mounting surfaces and frame, which would induce curvature into the plate. *Id.* at 47–48 (citing Ex. 1004, Fig. 1; Ex. 1005, Fig. 2; Ex. 1012, Fig. 1; Ex. 1033 ¶¶ 166–167). Petitioner argues that “Cheng’s modified curved plate touch surface would be curved relative to a flat plane defined in part by the short and long edges of frame 20.” *Id.* at 50. Petitioner asserts that “[a] flat plane would be defined (at least in part) by Cheng’s modified curved edges,” as shown in annotated Figure 1 of Zhao, reproduced below. *Id.*



Ex. 1012, Fig. 1.

Annotated Figure 1 of Zhao, above, shows a frame, cover plate, support member, and display panel relative to a depicted flat plane defined by curved edges. Pet. 50.

Petitioner argues that a person of ordinary skill in the art “would have been motivated to modify the Cheng device using the teachings of Zhao to obtain the technical advantages disclosed in Han.” Pet. 32. Petitioner contends that Cheng, Han, and Zhao all relate to similar devices. *Id.* at 32–33. Petitioner asserts that Han teaches that by utilizing the parabolic curve of the front surface of the cover glass and tuning the travel direction of the emitted light, the amount of light lost by reflection is reduced and detection accuracy is increased. *Id.* at 34 (citing Ex. 1005 ¶ 86). Petitioner contends that Zhao teaches inducing curvature in a cover plate, and a person of ordinary skill “combining the teachings of Han and Zhao into the device of Cheng would have expected to achieve the predictable result of a high touch accuracy (Han).” *Id.* at 34–36 (citing Ex. 1012 ¶¶ 45–48, 50–55; Ex. 1033 ¶¶ 138–140).

In its arguments on discretionary denial, Patent Owner asserts that “Han discusses curving just the ‘front’ side of the glass, whereas the claims

require that ‘the touch surface [be] curved relative to a flat plane defined in part by the short edge and the long edge’ and that ‘all of the edges of the top surface of the plate are curved.’” Prelim. Resp. 47 (alteration in original). To the extent that these assertions are arguments on the merits, we do not agree with the assertion to the extent it applies to the teaching of the flat plane limitation on this preliminary record. For the teaching of a “touch surface is curved relative to a flat plane defined in part by the short edge and the long edge,” Petitioner does not rely upon Han alone but rather on the combination of Cheng, Han, and Zhao, as discussed above. As shown in annotated Figure 3 of Zhao above, a flat plane appears to be “defined” by a short and long edges, and the touch surface curved relative to that plane. We address the issue of the edge curvature below in the discussion of limitation 1[j].

We have reviewed Petitioner’s evidence and arguments and find them sufficient for the teaching of limitation 1[h] and rationale to combine Cheng, Han, and Zhao.

v. Limitations 1[i], [j]

Petitioner argues that the combination of Cheng, Han, and Zhao has a parabolically curved touch surface. Pet. 50 (citing Ex. 1005 ¶¶ 74–77, 93–95). Petitioner contends that there is a flat plane across the long and short edges of the modified Cheng frame 20, according to Zhao. *Id.* at 51 (citing Ex. 1033 ¶¶ 176–177). Petitioner asserts that a person of ordinary skill in the art would understand that a distance between the flat plane line and the curved line on Cheng’s modified concave touch surface would be understood to equate to a concave function. *Id.* at 52 (citing Ex. 1033 ¶ 178).

Petitioner asserts that Zhao’s support member and frame “are curved along the full length of contact with Zhao’s curved cover plate 20, up to and including the cover plate 20’s edge.” Pet. 53 (citing Ex. 1012 ¶ 55).

Petitioner further asserts that in the modified Cheng device, “both the long and short sides would be curved according to Zhao, resulting in Cheng’s modified plate also being curved up to edges along both long and short edges,” and would “match the edges of Han’s plate curved along both Ax and Ay directions.” *Id.* (citing Ex. 1005 ¶¶ 87–88; Ex. 1033 ¶ 181).

In its arguments on discretionary denial, Patent Owner refers to Han and asserts that its figures “show[] that its curvature is not along all edges of the top surface.” Prelim. Resp. 47 (citing Ex. 1005, Figs. 3, 7). To the extent that this assertion is an argument on the merits, we do not agree with the assertion to the extent it applies to the teaching of this edge limitation based on this preliminary record. For the teaching of “wherein all of the edges of the top surface of the plate are curved,” Petitioner relies not only on Han, but rather on combination of Cheng, Han, and Zhao, as discussed above. In particular, Petitioner relies upon the curvature of Zhao’s support member and frame in combination with Cheng and Han for this teaching, which we find sufficient at this juncture.

We have reviewed Petitioner’s evidence and arguments and find them sufficient for the teaching of limitations 1[i] and [j].

vi. Conclusion for Claim 1

Accordingly, we are persuaded that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing that claim 1 would have been obvious over Cheng, Han, and Zhao.

b. Claims 2–5

Petitioner provides evidence and argument that claims 2–5 would have been obvious over Cheng, Han, and Zhao. Pet. 55–64. Patent Owner has not presented any disputes specific to these dependent claims. We have reviewed the evidence and arguments and find Petitioner’s evidence and argument on the obviousness of these claims are sufficient at this juncture.

Accordingly, we are persuaded that Petitioner has demonstrated a reasonable likelihood that it would prevail in showing that claims 2–5 would have been obvious over Cheng, Han, and Zhao.

E. Additional Grounds

Petitioner contends that claims 1–5 would have been obvious over the combination of Cao, Han, and Zhao and claims 1–4 would have been obvious over the combination of Cheng, Han, and Shin. Pet. 64–123. Patent Owner presents no arguments on the merits of these grounds in the Preliminary Response. At this stage, we find that Petitioner’s showing as to obviousness under the first ground, as discussed above, is sufficient for institution, and the other grounds will be addressed at trial.

IV. DISCRETIONARY DENIAL

Institution of *inter partes* review is discretionary. *See Harmonic Inc. v. Avid Tech, Inc.*, 815 F.3d 1356, 1367 (Fed. Cir. 2016) (“[T]he PTO is permitted, but never compelled, to institute an IPR proceeding.”); 35 U.S.C. § 314(a). Pursuant to 35 U.S.C. § 325(d), in determining whether to institute an *inter partes* review, “the Director may take into account whether, and reject the petition or request because, the same or substantially the same prior art or arguments previously were presented to the Office.” In evaluating arguments under § 325(d), we use

[a] two-part framework: (1) whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office; and (2) if either condition of first part of the framework is satisfied, whether the petitioner has demonstrated that the Office erred in a manner material to the patentability of challenged claims.

Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH, IPR2019-01469, Paper 6 at 8 (PTAB Feb. 13, 2020) (precedential) (“*Advanced Bionics*”); *see also Becton, Dickinson & Co. v. B. Braun Melsungen AG*, IPR2017-01586, Paper 8 at 17–18 (PTAB Dec. 15, 2017) (precedential as to Section III.C.5, first paragraph) (listing factors to consider in evaluating the applicability of § 325(d)) (“*Becton, Dickinson*”).

The non-exclusive factors set forth in *Becton, Dickinson* “provide useful insight into how to apply the framework” of *Advanced Bionics* under § 325(d). *Advanced Bionics* at 9. Those non-exclusive factors include:

- (a) the similarities and material differences between the asserted art and the prior art involved during examination;
- (b) the cumulative nature of the asserted art and the prior art evaluated during examination;
- (c) the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection;
- (d) the extent of the overlap between the arguments made during examination and the manner in which Petitioner relies on the prior art or Patent Owner distinguishes the prior art;
- (e) whether Petitioner has pointed out sufficiently how the Examiner erred in its evaluation of the asserted prior art; and
- (f) the extent to which additional evidence and facts presented in the Petition warrant reconsideration of the prior art or arguments.

Becton, Dickinson at 17–18. “If, after review of factors (a), (b), and (d), it is determined that the same or substantially the same art or arguments previously were presented to the Office, then factors (c), (e), and (f) relate to whether the petitioner has demonstrated a material error by the Office.” *Advanced Bionics* at 10.

Patent Owner contends that we should deny the Petition under § 325(d) because the same or substantially the same art and arguments were previously presented to the Office and because Petitioner has not demonstrated the Examiner erred in a manner material to the patentability of the challenged claims. Prelim. Resp. 27.

A. Brief Review of the Prosecution History

During prosecution, as discussed in multiple Office Actions, the Examiner rejected claims relying on the prior art references of Wassvik, Kukulj, Ryu, Northcott, Lee, and Liu. *See* Ex. 1032. The applicant made amendments to the claims and presented arguments to the Examiner on patentability. *Id.* The Examiner issued a Notice of Allowability. *Id.* at 452.

The applicant then filed a Request for Continued Examination and filed additional IDSs. *Id.* at 76–82. The applicant provided another amendment to the claims, which amended several limitations of claim 1 as follows:

wherein the second frame element ~~including~~ includes a first surface portion arranged against extending over an edge portion of the plate and a second surface portion arranged substantially parallel to a surface of the plate that defines the plate thickness, ~~the touch surface,~~

~~the touch surface including:~~

~~a first edge and a second edge adjacent to the short edge;
and a third edge and a fourth edge adjacent to the long edge;~~

wherein the touch surface is curved relative to a flat plane defined in part by the short edge and the long edge;

wherein a distance between a first curved line drawn on the touch surface and a second straight line drawn on the flat plane varies according to a concave curve function; and

wherein all of the first, second, third, and fourth edges of the top surface of the plate are curved.

Ex. 1032, 92–93. The Examiner allowed the claims, and in the Reasons of Allowance stated that the subject matter not found in the prior art was a touch screen including:

“ . . . the second frame element includes a first surface portion extending over an edge portion of the plate and a second surface portion arranged substantially parallel to a surface of the plate that defines the plate thickness . . .

. . . wherein a distance between a first curved line drawn on the touch surface and a second straight line drawn on the flat plane varies according to a concave curve function; and

wherein all of the edges of the top surface of the plate are curved.” (Claim 1).

Ex. 1032, 26–27.

B. Analysis

Turing to the first prong of *Advanced Bionics* and to factor (a) of *Becton, Dickinson*, the similarities and material differences between the asserted art and the prior art involved during examination, Petitioner acknowledges Cao, Han, and Shin had been included in an Information Disclosure Statement (IDS) submitted during the prosecution of the ’335 patent. Pet. 23 (citing Ex. 1032, 76). Patent Owner asserts that Zhao was identified in an IDS filed in the prosecution of the ’335 patent as part of invalidity contentions for a litigation as prior art against a related patent. Prelim. Resp. 39–40 (citing Ex. 1001, 5). Although Petitioner argues that

Zhao was identified as part of many references, Petitioner does not dispute that Zhao was referenced in an IDS. *See* Pet. Prelim. Reply 3.

As to factor (a) and to factor (b), the cumulative nature of the asserted art, Petitioner asserts that Cheng is a new non-cumulative reference. Pet. Prelim. Reply 2–3. More specifically, Petitioner asserts that Cheng teaches the limitation that the Examiner used as the basis for allowance over the prior art reference Kukulj during prosecution, that is, “the second frame element includes a first surface portion extending over an edge portion of the plate and a second surface portion arranged substantially parallel to a surface of the plate that defines the plate thickness.” *Id.* at 2–3. Patent Owner argues that Cao, which was considered during prosecution, is substantially the same as Cheng, and, in particular, Cao teaches the claim limitation of a first surface portion extending over the edge portion of the plate. PO Prelim. Sur-reply 3–4.

As to factor (d), the extent of the overlap between the arguments made during examination and those Petitioner relies on, Patent Owner asserts that Han, and the arguments concerning Han, were considered by the Patent Office during prosecution. Prelim. Resp. 31–37. Patent Owner contends that Han is relied upon by Petitioner for its alleged teachings of “parabolically curved touch screen elements,” which Petitioner uses in its assertions for limitations 1[h], [i], and [j]. Patent Owner argues that the claim limitations on the curvature of touch surface “were part of the Examiner’s focus throughout prosecution.” *Id.* at 33–34. Patent Owner contends that the arguments made in the invalidity contentions from a litigation for a related patent that were referenced in an IDS in the prosecution of the ’335 patent contain the same arguments that Petitioner includes in the Petition. *Id.* at 35–37 (citing Ex. 1032, 80–82, 59; Ex. 2002,

2); *see also* Prelim. Resp. 41–42. Petitioner responds that Patent Owner’s cited claim chart and invalidity contentions relate to a different patent with different limitations. Pet. Prelim. Reply 4–5 (*comparing* Exs. 2001, 2002 *with* Ex. 1031).

The prosecution history record shows that of the prior art references relied on by Petitioner, only Cheng was not listed in IDSs. As to Cheng, we agree with Patent Owner that Cao, which was before the Patent Office during prosecution, has substantial similarities with Cheng. Although some of the details of the configurations differ, Petitioner nonetheless relies on Cao for the teachings of the same limitations as those which Cheng is asserted to teach. *Compare* Pet. 37–64 *with* 69–97. Further, Petitioner itself asserts that the alleged point of distinction of Cheng, that is, the teaching of limitation 1[g], is also taught by Cao. *See* Pet. 79–80. Accordingly, Cheng is similar in material aspects to Cao, which was before the Patent Office during prosecution.

Factor (d) is directed to the arguments made during examination, and *Advanced Bionics* states that these are arguments that are presented to the Office. *Advanced Bionics* at 10. Here, we do not find that factor (d) applies because the “arguments” that Patent Owner asserts are relevant are invalidity contentions from a litigation concerning a different patent. Nevertheless, because all of the asserted prior art references are identified or are cumulative to those in the record, when considering all the factors, we find that the first prong of *Advanced Bionics* is satisfied.

Turning to the second prong of *Advanced Bionics*, Petitioner asserts that Han, Cao, Shin, and Zhao were not mentioned or substantively considered by the Patent Office and were only cited in IDSs. Pet. Prelim Reply 3. Petitioner contends that “Han, Cao, Shin, and Zhao were buried in

a single IDS containing 129 additional references,” among 810 total documents that appear on the ’335 patent. *Id.* at 3–4 (citing Ex. 1032, 76–82).

Petitioner additionally argues that “[t]he Examiner’s boilerplate ‘all references considered’ stamp of this IDS does not establish substantive consideration of these references.” Pet. Prelim Reply 4. Petitioner asserts that the absence of any mentions in Office Actions “is further telling that the Examiner failed to adequately consider those references.” *Id.* at 5. Petitioner argues that, as evidenced by the arguments presented and the testimony of Dr. Cairns, “a substantive consideration of Han, Cao, Zhao, and Shin by the Examiner should have resulted in an Office Action citing those references.” *Id.* Petitioner asserts that “[d]espite Han, Cao, Zhao, and Shin’s clear disclosure of the ’335 claimed subject matter, none of those references were cited in any Office Action.” *Id.*

Although Patent Owner asserts that Petitioner fails to address material error by the Examiner and does not meet its burden, we disagree. *See* Prelim. Resp. 52–53; PO Prelim. Sur-reply 7–8.

Factors (c), (e), and (f) of *Becton, Dickinson* are used as part of the assessment of *Advanced Bionics*. *Advanced Bionics* states

Factor (c) focuses on the record developed by the Office in previously reviewing the art or arguments. It informs, therefore, the petitioner’s showing under factors (e) and (f), which focus on the petitioner’s evidence of previous Office error regardless of the context in which the same or substantially the same art or arguments were previously presented. For example, if the record of the Office’s previous consideration of the art is not well developed or silent, then a petitioner may show the Office erred by overlooking something persuasive under factors (e) and (f). On the other hand, if the alleged error is a disagreement with a specific finding of record by the Office, then ordinarily the

petitioner's required showing of material error must overcome persuasively that specific finding of record.

Advanced Bionics at 10–11.

As stated in the assessment under prong 2, the Patent Office record is the “focus” of factor (c) and “informs” the petitioner's showing under factors (e) and (f). As to factor (c), Petitioner asserts, and the record shows, Han, Cao, Shin, and Zhao were only listed or cited to in IDSs and were not addressed in any Office Actions. *See* Ex. 1032. Further, as Petitioner notes, there were 810 total references, and these references were cited in a single IDS containing 129 additional references. *Id.* at 76–82; Ex. 1031, code (56). Petitioner further points out that the record reflects that the Examiner only initialed the IDSs, which contained these many references, and did not issue Office Actions, which is sufficient to demonstrate that there is no evidence that the asserted art was substantively evaluated during examination. *See* Pet. Prelim Reply 3–5.

As *Advanced Bionics* recognizes, a showing of material error varies depending on the degree to which the previously-presented art was substantively addressed by the Office. *Advanced Bionics* at 10–11. Turning to factor (e), as Petitioner notes, the record is silent as to how the Examiner viewed the prior art listed in IDSs which is asserted here. We recognize that it is difficult to characterize error in a silent record. In this light, we find that Petitioner's assertion that the Examiner failed to adequately consider the references, which should have resulted in an Office Action because the references clearly disclose the '335 patent claimed subject matter, serves as sufficient identification of error under factor (e). Pet. Prelim. Reply 5. Moreover, as discussed above and relevant to factor (f), the evidence

presented in the Petition is meritorious, which further demonstrates that the combination of the cited prior art was overlooked during prosecution.

Accordingly, under the second part of the *Advanced Bionics* framework, we decline to exercise our discretion to deny institution of trial under § 325(d).

V. CONCLUSION

For the foregoing reasons, we have determined that there is a reasonable likelihood that the Petitioner would prevail with respect to at least one of the claims challenged in the Petition, and we institute trial as to all challenged claims on all grounds stated in the Petition.

VI. ORDER

Upon consideration of the record before us, it is:

ORDERED that *inter partes* review of claims 1–5 of the '335 patent is instituted on all grounds in the Petition; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial; the trial will commence on the entry date of this decision.

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