

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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TEKNI-PLEX, INC.,  
Petitioner,

v.

CONVERTER MANUFACTURING, LLC,  
Patent Owner.

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IPR2021-00919  
Patent 10,562,680 B2

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Before GRACE KARAFFA OBERMANN, JAMES A. TARTAL, and  
AVELYN M. ROSS, *Administrative Patent Judges*.

TARTAL, *Administrative Patent Judge*.

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

## I. INTRODUCTION

Tekni-Plex, Inc. (“Petitioner”) filed a Petition pursuant to 35 U.S.C. §§ 311–319 requesting an *inter partes* review of claims 1–5, 7–12, and 15–24 (“the Challenged Claims”) of U.S. Patent No. 10,562,680 B2 (Ex. 1001, “the ’680 patent”). Paper 1 (“Pet.”). Converter Manufacturing, LLC (“Patent Owner”) waived filing a preliminary response to the Petition. Paper 6.

We have authority to determine whether to institute an *inter partes* review. 35 U.S.C. § 314(b) (2018); 37 C.F.R. § 42.4(a) (2019). An *inter partes* review may not be instituted “unless . . . the information presented in the petition . . . 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.” 35 U.S.C. § 314(a). Moreover, a decision to institute under 35 U.S.C. § 314 may not institute on fewer than all claims challenged in the petition. *SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1359–60 (2018).

Upon consideration of the Petition and the evidence presented in the Petition, we conclude that the information presented shows a reasonable likelihood that Petitioner would prevail in showing the unpatentability of at least one of the Challenged Claims. Accordingly, we authorize an *inter partes* review to be instituted as to the Challenged Claims of the ’680 patent on the grounds raised in the Petition. Our factual findings and conclusions at this stage of the proceeding are based on the evidentiary record developed thus far (prior to Patent Owner’s Response). This is not a final decision as to patentability of claims for which *inter partes* review is instituted. Any final decision will be based on the record, as fully developed during trial.

## II. BACKGROUND

### A. The '680 Patent

The '680 patent issued February 18, 2020, from an application filed on December 7, 2018, and is directed to articles processed according to “methods of displacing a sharp edge away from the periphery of an article made from a thermoplastic material, where the sharp edge might otherwise damage surfaces that contact the periphery of the article.” Ex. 1001, 4:66–5:5, codes (21), (22), (45). According to the '680 patent, “[f]ormation of shaped article from thermoplastic materials is well known,” and “[o]ne common use for shaped thermoplastics is to form containers that can be sealed with thin plastic films.” *Id.* at 1:23–24, 1:44–47. However, if the trimmed edge of the articles sharp, “it can cut or break the film.” *Id.* at 1:50–56. Thus, the '680 patent recognizes that “[i]t would be beneficial if the sharp edges of shaped thermoplastic articles could be displaced in such a way that the risk of injury or damage to sealing films could be reduced,” and “[i]t would be further beneficial if such individual shaped articles could be used with multiple known sealing technologies.” *Id.* at 3:48–54.

The '680 patent includes over 70 figures, many with multiple drawings further labeled alphabetically. Figure 1 of the '680 patent is reproduced below.

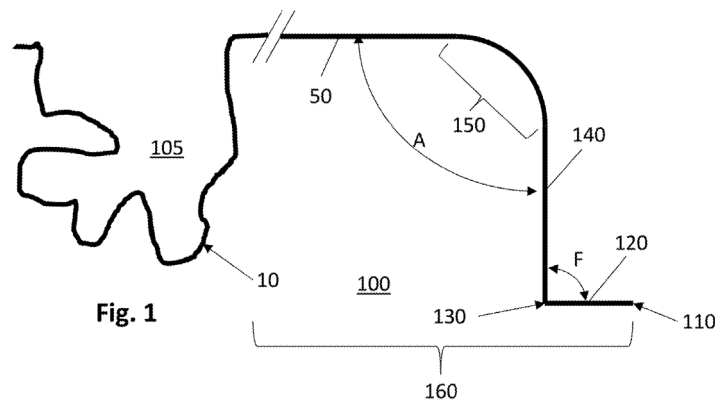
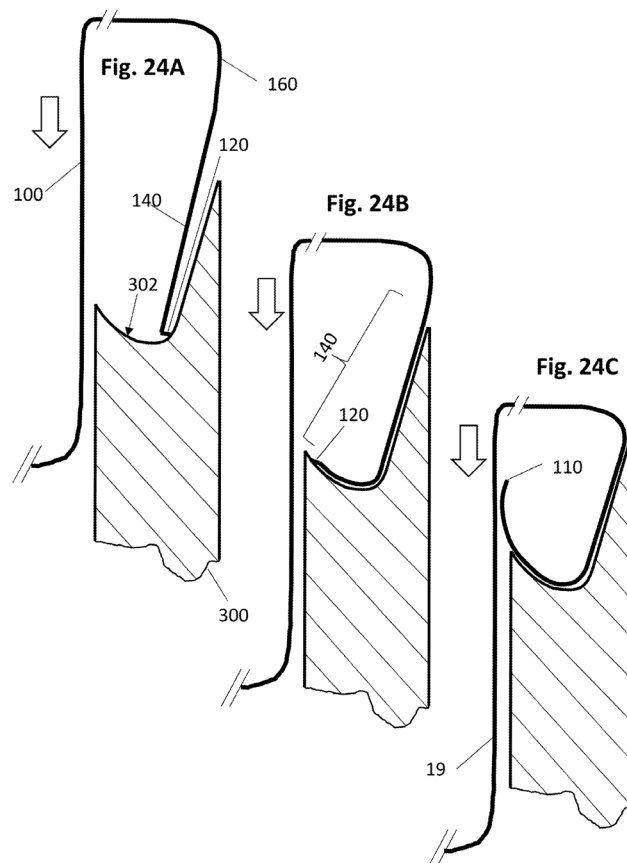


Figure 1 illustrates “a sectional view of a thermoplastic article 100 having a deflectable flange 160 formed at an edge thereof.” *Id.* at 6:37–39.

Deflectable flange 160 includes bend region 150, peripheral edge 110, and, optionally, spacer 140. *Id.* at 19:46–48. The angle “A” formed by the bend region, between extension 50 and spacer 140, is preferably about ninety degrees. *Id.* at 13:40–44, 13:57–63, 19:52–58.

Petitioner draws attention in the Petition to Figure 25C of the ’680 patent. Pet 3. Reproduced below are Figures 24A, 24B, and 24C of the ’680 patent.



Figures 24A, 24B, and 24C sequentially “illustrate deflection and rolling over of the deflectable flange 160, including the sharp peripheral edge 110,” using ram 300. *Id.* at 9:21–23, 32:53–56. The ’680 patent explains that “the

same deflection and rolling over of the edge can be performed on multiple edges (e.g., all edges) of the article simply by using multiple rams or a ram that contacts all edges to be so treated.” *Id.* at 9:23–28. To roll and shape the edge of article 100, deflectable flange 160 is urged (in the direction indicated by the open arrows) against upper heated surface 302 of heated ram 300. *Id.* at 30:24–35. Deflectable flange 160 includes peripheral flange 120 at the peripheral end of spacer 140. *Id.* at 32:53–58. “[T]he peripheral flange 120 deflects . . . during bending of the deflectable flange 160 to the extent that it becomes completely bent over the spacer 140, forming a ‘hook’-like structure.” *Id.* at 32:59–63.

*B. Illustrative Claim*

Petitioner challenges claims 1–5, 7–12, and 15–24 of the ’680 patent. Pet. 1. Claim 1, the only independent claim of the ’680 patent, is illustrative of the claimed subject matter and is reproduced below.

1. An article having a smooth, non-circular periphery, the article comprising a shaped thermoplastic substrate sheet, the shape of the substrate sheet including
  - a body including a bottom surrounded by sidewalls and
  - a deflectable flange joined at a junction to the sidewalls at at least a portion of the periphery, the deflectable flange including
    - a peripheral edge of the substrate sheet at a position distal from the junction;
    - a smoothly-curved bend region interposed between the junction and the peripheral edge wherein a proximal portion of the bend region is offset from a distal portion thereof by an angle A of from 85 to 135 degrees;
    - a substantially planar extension interposed between the junction and the proximal portion of the bend region, the plane of the extension being substantially parallel to the bottom, and the distal portion of the bend region

and the body extending away from the same face of the extension;  
a peripheral flange bearing the peripheral edge and being connected to the rest of the deflectable flange by way of an elbow; and  
a curved bent portion interposed between the elbow and the bend region,  
wherein the curvatures of the bend region and the bent portion position the peripheral edge away from the periphery.

Ex. 1001, 72:57–73:17.

*C. Asserted Grounds of Unpatentability*

Petitioner asserts that the Challenged Claims are unpatentable based on the following grounds:

| <b>Claim(s) Challenged</b>  | <b>35 U.S.C. §</b> | <b>Reference(s)/Basis</b>    |
|-----------------------------|--------------------|------------------------------|
| 1–3, 5, 7, 8, 10, 11, 15–23 | 102                | Portelli <sup>1</sup>        |
| 1–5, 7–12, 20–23            | 102                | Meadors <sup>2</sup>         |
| 1–5, 7–12, 15–24            | 103                | Portelli, Long <sup>3</sup>  |
| 1–5, 7–12, 15–24            | 103                | Long, Meadors                |
| 4, 9, 24                    | 103                | Portelli                     |
| 9                           | 103                | Portelli, Brown <sup>4</sup> |

Pet. 1–2. Petitioner relies on the supporting Declaration of Glenn May, dated May 9, 2021. Ex. 1002 (“the May Declaration”).

*D. Related Proceedings*

The parties identify the ’680 patent as a subject of *Clearly Clean Prods., LLC, et al. v. Tekni-Plex, Inc., et al.*, No. 2:20-cv-04723-AB (E.D.

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<sup>1</sup> WO 96/01179, published Jan. 18, 1996 (Ex. 1003, “Portelli”).

<sup>2</sup> U.S. Patent No. 4,228,121 (issued Oct. 14, 1980) (Ex. 1005, “Meadors”).

<sup>3</sup> WO 2012/064203 A1, published May 18, 2012 (Ex. 1004, “Long”).

<sup>4</sup> U.S. Patent No. 6,960,316 B2 (issued Nov. 1, 2005) (Ex. 1006, “Brown”).

Pa.); *Clearly Clean Prods. LLC, et al. v. Eco Food Pak USA Inc., et al.*, No. 5:20-cv-01054 (C.D. Cal.); and *In re Certain Rolled-Edge Rigid Plastic Food Trays*, No. 337-TA-1203 (ITC). Pet. 142–43; Paper 5, 1–2. Petitioner also states that it concurrently filed petitions for *inter partes* review of U.S. Patent Nos. 9,908,281 (IPR2021-00916) and 10,189,624 (IPR2021-00918), which share a priority chain with the '680 patent. Pet. 142.

#### *E. Real Parties in Interest*

Petitioner identifies itself and Dolco LLC as real parties in interest. *Id.* Patent Owner identifies no additional real parties in interest. Paper 5, 1.

### III. ANALYSIS

#### *A. Legal Standards*

A claim is anticipated if a single prior art reference either expressly or inherently discloses every limitation of the claim. *Orion IP, LLC v. Hyundai Motor Am.*, 605 F.3d 967, 975 (Fed. Cir. 2010). “A single prior art reference may anticipate without disclosing a feature of the claimed invention if such feature is necessarily present, or inherent, in that reference.” *Allergan, Inc. v. Apotex Inc.*, 754 F.3d 952, 958 (Fed. Cir. 2014) (citing *Schering Corp. v. Geneva Pharm.*, 339 F.3d 1373, 1377 (Fed. Cir. 2003)).

A patent claim is unpatentable under 35 U.S.C. § 103 if the differences between the claimed subject matter and the prior art are such that the subject matter, as a whole, would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 406 (2007). In *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1 (1966), the Supreme Court set out a framework for assessing obviousness under § 103 that requires consideration of four factors: (1) the “level of

ordinary skill in the pertinent art,” (2) the “scope and content of the prior art,” (3) the “differences between the prior art and the claims at issue,” and (4) “secondary considerations” of nonobviousness such as “commercial success, long felt but unsolved needs, failure of others, etc.” *Id.* at 17–18; *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 407 (2007). At this stage of the proceeding, neither party presents evidence or argument directed to secondary considerations.

*B. Level of Ordinary Skill in the Art*

In determining the level of ordinary skill in the art, various factors may be considered, including the “type of problems encountered in the art; prior art solutions to those problems; rapidity with which innovations are made; sophistication of the technology; and educational level of active workers in the field.” *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995) (citation omitted). Petitioner contends that a person of ordinary skill in the art at the time of the invention would have had “either (1) a Bachelor of Science degree in packaging science, mechanical engineering, material science, or chemistry and two years of experience designing and manufacturing thermoformed plastic items, or (2) three years of experience designing and manufacturing thermoformed plastic items.” Pet. 6–7 (citing Ex. 1002 ¶ 35).

For purposes of this Decision, we find that the ’680 patent and the cited prior art references reflect the appropriate level of skill at the time of the claimed invention and that the level of appropriate skill reflected in these references and in the ’680 patent is consistent with the definition of a person of ordinary skill in the art proposed by Petitioner. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). Accordingly, for purposes of this

decision on institution, we adopt Petitioner’s asserted level of ordinary skill in the art.

*C. Claim Construction*

“In an *inter partes* review proceeding, a claim of a patent . . . shall be construed using the same claim construction standard that would be used to construe the claim in a civil action under 35 U.S.C. 282(b).” 37 C.F.R. § 42.100(b). That standard “includ[es] construing the claim in accordance with the ordinary and customary meaning of such claim as understood by one of ordinary skill in the art and the prosecution history pertaining to the patent.” *Id.*; see also *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). “When a patentee explicitly defines a claim term in the patent specification, the patentee’s definition controls.” *Martek Biosciences Corp. v. Nutrinova, Inc.*, 579 F.3d 1363, 1380 (Fed. Cir. 2009). Petitioner does not identify any claim term as requiring an express construction. Pet. 9. In the absence of any preliminary response from Patent Owner and in view of the issues we address below, we determine that it is not necessary to address the express interpretation of any claim term. See *Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017); *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) (“[O]nly those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy.”).

*D. Scope and Content of the Prior Art*

Petitioner relies on Portelli, Long, Meadors, and Brown, each of which we briefly summarize in relevant part below. Pet. 9–12.

1. *Summary of Portelli*

Portelli generally relates to “trays for packaging which are wrapped in plastic film or plastic wrap,” as well methods and apparatus for producing such trays. Ex. 1003, 1:2–5. Portelli states that such plastic trays are formed by a thermoforming operation, but “have a sharp terminal edge forming the periphery thereof with an unfortunate tendency to tear or cut through plastic film within which the trays are wrapped.” *Id.* at 1:29–2:2. Portelli suggests it would be advantageous to disclose “trays with a peripheral edge region which reduced the tendency of the wrap to tear.” *Id.* at 2:16–18.

Figure 13 of Portelli is reproduced below.

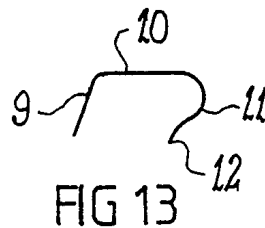


Figure 13 illustrates a schematic sectional view of the edge of a tray “after it has been deformed out of the wrap path.” *Id.* at 8:11–13; *see also* Pet. 9–10 (discussing Figure 13 of Portelli). The tray in Figure 13 includes sidewall 9, rim 10, peripheral edge region 11, and terminal edge 12, providing “the finished tray product a more rounded peripheral edge region.” *Id.* at 8:28–9:1, 14:10–17.

2. *Summary of Long*

Long “relates to an open mouthed container (eg. tray, cup or the like) having a profiled periphery outwardly of the mouth, there being a return of the edge in the under part of the profiled periphery.” Ex. 1004, 1:4–6. Long discloses the use of a trimming procedure applied to “a thermoformed precursor or preform” to provide a container with “a ‘concealed-from-above’ in-turned edge.” *Id.* at 1:19–25.

Figure 4, 5A, 5B, and 5C of Long are reproduced below.

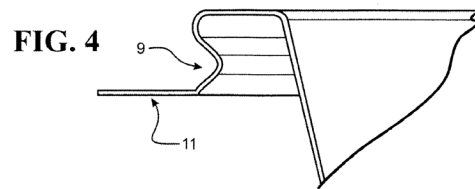


**FIG. 5A**

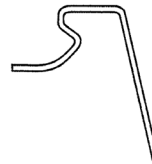


**FIG. 5B**

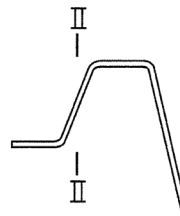


**FIG. 5C**

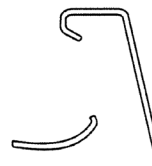


Figure 4 illustrates the edge region of a preform or precursor container prior to trimming. *Id.* at 6:4–6. Long further explains as follows in regard to Figures 5A, 5B, and 5C:

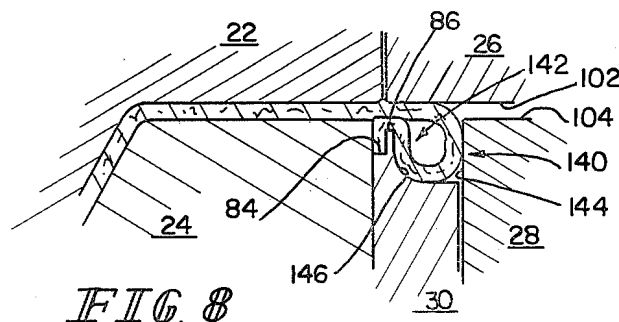
Figures 5A, 5B and 5C show, as three stages, the features of Figure 4, the distortion, deforming, stretching, blowing or the like of the form of Figure 5A sufficiently to provide a cut line shown by the broken lines II-II in Figure 5B which is outwardly of the final profile periphery and Figure 5C shows how the resilience allows the under turn of the preform or precursor of Figure 5A to be reassumed after the cut has been made on the broken line as shown in Figure 5B.

*Id.* at 6:7–12.

### 3. *Summary of Meadors*

Meadors generally relates to methods and apparatus for forming “a multiple-thickness bead in a sheet or blank of a flexible material, such as thermoplastic material,” in the process of making a container or lid.

Ex. 1005, 1:5–9. Figure 8 of Meadors is reproduced below.



In Figure 8, an apparatus with elements including vertically upper die member 22, vertically lower die member 24, vertically upper draw pad 26, vertically lower draw pad 28, and ring 30 work in conjunction to form a blank of flexible material into a desired configuration. *Id.* at 2:59–3:2, 3:57–58, 4:67–5:3. Petitioner describes the article formed in Figure 8 of Meadors as a tray with “an extension which is bent down, then in, and then up such

that the edge is displaced from the periphery of the tray, giving the tray a smooth periphery.” Pet. 11–12 (citing Ex. 1002 ¶ 46).

4. *Summary of Brown*

Brown generally pertains to improvements in an extended rim of an injection-molded container. Ex. 1006, 1:8–13. Figure 6 of Brown is reproduced below.

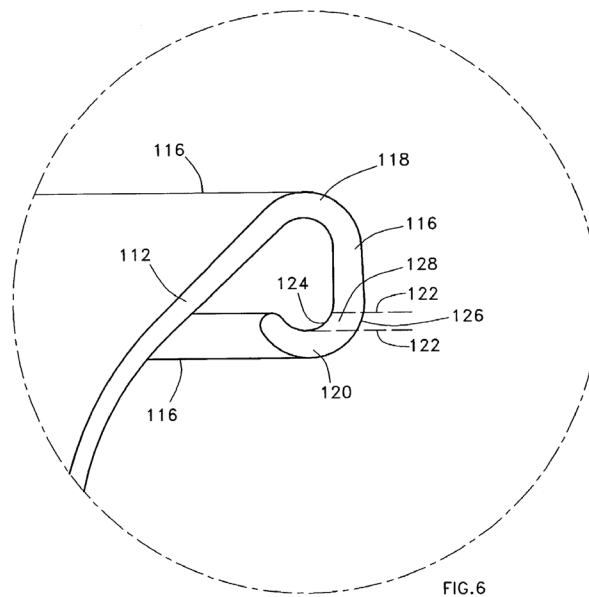


Figure 6 illustrates the rim portion of a container with rim wall 116 having an upper portion 118, lower portion 120, and inner surface 124, and an outer surface 126. *Id.* at 2:55–57, 5:7–21. Upper portion 118 extends outward and downward, and lower portion 120 extends downward and inward, then “further extends with both an inward directional component and an upward directional component.” *Id.*

E. *Alleged Anticipation by Portelli*

Petitioner contends that claims 1–3, 5, 7, 8, 10, 11, and 15–23 of the ’680 patent are anticipated by Portelli. Pet. 13–55. Petitioner provides a detailed explanation of its contentions in the Petition, including a clause-by-

clause analysis specifying how Portelli discloses each limitation, frequently accompanied by annotated figures from Portelli, and those contentions are supported by the testimony of Mr. May. *Id.*; Ex. 1002 ¶¶ 24–103.

*1. Independent Claim 1*

With regard to claim 1, Petitioner contends that Portelli discloses a rectangular tray made of thermoplastic, including a body with a bottom surrounded by sidewalls. Pet. 13–18 (citing Ex. 1002 ¶¶ 49, 52–54; Ex. 1003, 1:1–5, 1:7–8, 5:25, 10:17–18, 18:6, 8:28–29, 9:17–24, 14:10, 15:13–14, 15:27–30, 16:15–17, Figs. 2–8, 13–15). According to Petitioner, Portelli discloses a rim, illustrated as rim 10 in Figure 13 and rim 58 in Figure 14, with “peripheral edge region 11” and “terminal edge 12” together corresponding to “a deflectable flange which is joined at a junction to the sidewalls.” *Id.* at 18–21 (citing Ex. 1002 ¶¶ 57, 58; Ex. 1003, 9:1–28, 14:10–14, 15:28–30, Figs. 13, 14). Petitioner further identifies terminal edge 12 shown in Figure 13 of Portelli as corresponding to the “peripheral edge of the substrate sheet at a position distal from the junction.” *Id.* at 21–22 (citing Ex. 1002 ¶¶ 59, 60; Ex. 1003 14:11–13, Fig. 13). With regard to the “bend region,” the “substantially planar extension,” “an elbow,” and “a curved bent portion” of claim 1, Petitioner relies primarily on multiple annotated versions of Figure 13 of Portelli to show how Portelli discloses each of these limitations. Pet. 22–37 (citing Ex. 1002 ¶¶ 62, 63, 67–75; Ex. 1003, 3:1–3, 5:1–2, 5:12, 5:25–28, 5:29–6:3, 8:28–30, 14:10–17, 15:20–23, 18:3–5, 20:11–16, 20:24–27, 21:17–23, Figs. 1–8, 13).

As noted above, Patent Owner did not file a preliminary response, and we have not been directed to any contrary evidence in the record before us. The Petition and uncontroverted evidence provides the requisite showing, for purposes of this Decision, that Portelli discloses every limitation of

claim 1 of the '680 patent. Accordingly, based on the current record, we conclude that the Petition establishes a reasonable likelihood of prevailing in establishing that claim 1 is anticipated by Portelli.

2. *Dependent Claims 2, 3, 5, 7, 8, 10, 11, and 15–23*

We have reviewed the evidence and argument presented in the Petition, including relevant portions of the May Declaration, and determine, on this record, that Petitioner's challenges of claims 2, 3, 5, 7, 8, 10, 11, and 15–23 based on anticipation by Portelli are adequately supported for institution purposes. *See* Pet. 37–55.

F. *Additional Grounds*

Petitioner contends that claims 1–5, 7–12, and 20–23 of the '680 patent are anticipated by Meadors. Pet. 56–90. Petitioner's contentions are supported by the testimony of Mr. May. Ex. 1002 ¶¶ 104–148.

Petitioner contends that the subject matter of claims 1–5, 7–12, and 15–24 would have been obvious over Portelli and Long. Pet. 96–132. Petitioner reasons that a person of ordinary skill in the art would have sufficient reason to combine the teachings of Portelli and Long, including that the asserted combination simply arranges old elements performing the same known function to yield predictable results. *Id.* at 90 (citing *KSR*, 550 U.S. at 417). Petitioner's contentions are supported by the testimony of Mr. May. Ex. 1002 ¶¶ 149–230. We note that although the Petition suggests that claim 8 would have been obvious over Portelli and Long, no analysis is provided of claim 8. Pet. 96, 117 (including claim 8 in the listing of claims challenged as obvious over Portelli and Long, but providing no analysis and further stating that “[c]laim 9 depends from [c]laim 8, which is anticipated by Portelli”).

Petitioner contends that the subject matter of claims 1–5, 7–12, and 15–24 would have been obvious over Long and Meadors. Pet. 132–134. Petitioner generally argues that Long teaches certain limitations of claims 2, 3, 5, 7, 10–12, and 15–23 for the same reasons provided by Petitioner in its analysis of the obviousness of claims over Portelli and Long; that “every element” of claims 1–5, 7–12, and 20–23 is taught by Meadors for the same reasons provided by Petitioner in its analysis of the anticipation of claims by Meadors; and that a person of ordinary skill in the art would have had reason to combine Long and Meadors for substantially the same reasons supporting the combination Portelli and Long. *Id.* at 132. Petitioner’s contentions are supported by Mr. May. Ex. 1002 ¶¶ 231–235.

Petitioner contends that the subject matter of claims 4, 9, and 24 would have been obvious over Portelli. Pet. 134–137. Petitioner’s contentions are supported by Mr. May. Ex. 1002 ¶¶ 236–244. Petitioner also contends that the subject matter of claim 9 would have been obvious over Portelli and Brown. Pet. 138–140. Petitioner’s contentions are supported by Mr. May. Ex. 1002 ¶¶ 245–249.

#### IV. CONCLUSION

For the foregoing reasons, we determine that Petitioner demonstrates a reasonable likelihood of prevailing with respect to at least one of the claims challenged in the Petition. Accordingly, *inter partes* review of the ’680 patent shall proceed in this case on all of the grounds raised in the Petition. *See SAS Inst.*, 138 S. Ct. at 1359–60 (holding that a decision to institute under 35 U.S.C. § 314 may not institute on fewer than all claims challenged in the petition); *PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1360 (Fed. Cir. 2018) (stating that the decision whether to institute *inter*

*partes* review requires “a simple yes-or-no institution choice respecting a petition, embracing all challenges included in the petition”).

Our determination in this Decision is not a final determination on either the patentability of any challenged claims or the construction of any claim term. The factual findings set forth in this Decision are preliminary and provided for the sole purpose of deciding whether to institute a review. Any final findings will be based on the full trial record, including any information presented in a timely filed response to the Petition. *See Trivascular, Inc. v. Samuels*, 812 F.3d 1056, 1068 (Fed. Cir. 2016) (noting that “there is a significant difference between a petitioner’s burden to establish a ‘reasonable likelihood of success’ at institution, and actually proving invalidity by a preponderance of the evidence at trial”) (quoting 35 U.S.C. § 314(a) and comparing *id.* with § 316(e)).

#### IV. ORDER

Upon consideration of the record before us, it is:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–5, 7–12, and 15–24 of U.S. Patent No. 10,562,680 B2 is instituted with respect to all grounds set forth in the Petition; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), *inter partes* review of U.S. Patent No. 10,562,680 B2 shall commence on the entry date of this Order, and notice is hereby given of the institution of a trial.

IPR2021-00919  
Patent 10,562,680 B2

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