

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

I4F LICENSING NV,
Petitioner,

v.

VILOX AB,
Patent Owner.

IPR2024-00602
Patent 11,421,425 B2

Before BENJAMIN D. M. WOOD, NEIL T. POWELL, and
SEAN P. O'HANLON, *Administrative Patent Judges*.

POWELL, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. BACKGROUND

Petitioner, i4F Licensing NV, filed a Petition for *inter partes* review of claims 1–15 of U.S. Patent No. 11,421,425 B2 (Ex. 1001, “the ’425 patent”). Paper 1 (“Pet.”). Patent Owner, VILOX AB, filed a Preliminary Response. Paper 8 (“Prelim. Resp.”).

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). For the reasons explained below, we do not institute an *inter partes* review.

B. RELATED PROCEEDINGS

The Parties indicate they do not know of any related matters. Pet. 1; Paper 4, 2.

C. THE ’425 PATENT

The ’425 patent discloses “[a] joining system for floor panels [that] includes a groove and a tongue on opposite floor panel sides.” Ex. 1001, code (57). Figure 1, which is reproduced below, shows an embodiment of a floor panel. *Id.* at 3:42–47.

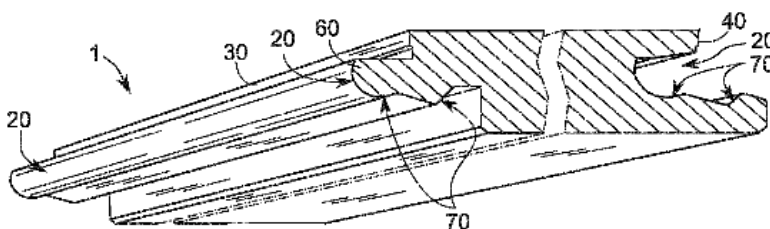


FIG. 1

The ’425 patent explains that “[Figure] 1 is a broken perspective- and cross-sectional view of a typical floor panel 1 according to a first embodiment.”

Ex. 1001, 4:44–45. Floor panel 1 has coupling parts 20 on opposite sides 30, 40. *Id.* at 4:49–51. The '425 patent shows two examples of floor panel 1 joined to one another in Figure 3, which is reproduced below. *Id.* at 3:52–53, 4:59–61.

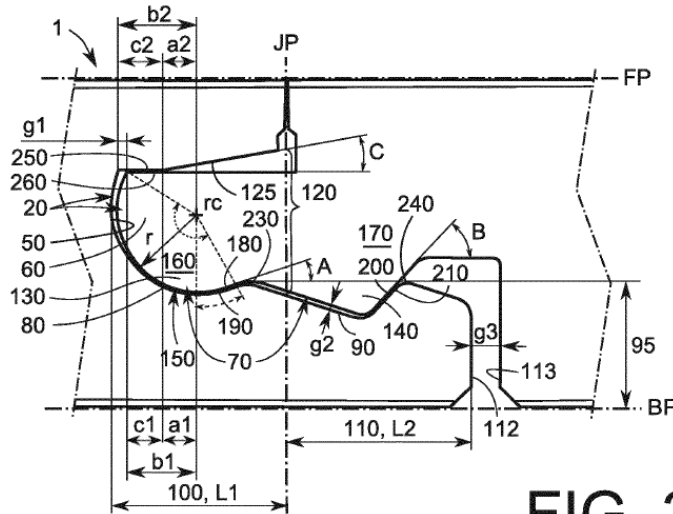


FIG. 3

Figure 3 is “an enlarged, side view of two joined floor panels 1.”

Id. at 4:59–60.

Coupling parts 20 of each panel 1 include tongue 60 and groove 50. Ex. 1001, 4:49–54. “[G]roove 50 is shaped for insertion of a tongue 60 on an adjoining floor panel 1.” *Id.* at 4:53–54. “[T]ongue 60 is shaped for locking engagement by means of integrated locking means 70 with the groove 50.” *Id.* at 4:63–65.

Locking means 70 includes features in groove 50 and on tongue 60. Ex. 1001, 5:5–20. In a lower part of groove 50, locking means 70 includes dual consecutive locking recesses, specifically first locking recess 80 and second locking recess 90. *Id.* at 5:5–11. First locking recess 80 is “in an internally extending portion 100” of groove 50. *Id.* at 5:7–9. Second

locking recess 90 is “located in a lip portion 110 protruding from an entrance opening 120 of the groove 50.” *Id.* at 5:9–11.

Tongue 60’s locking means 70 includes dual consecutive locking lugs, specifically first locking lug 130 and second locking lug 140.

Ex. 1001, 5:12–20. First locking lug 130 protrudes from tongue 60’s tip portion 160. *Id.* at 5:16–18. Second locking lug 140 protrudes from tongue 60’s root portion 170. *Id.* at 5:18–20.

“[T]he first locking recess 80 and the first locking lug 130 are provided with matching curved horizontal locking surfaces 180, 190.”

Ex. 1001, 5:21–23. The ’425 patent explains that “[b]y the term horizontal locking surfaces is here meant locking surfaces intended to lock the floor panels 1 together in a horizontal direction, i.e. the direction of the floor plane FP and the parallel bottom plane BP as indicated in [Figure 3].”

Id. at 5:42–46. In Figure 3, dashed lines and a dashed sector angle arrow show the extension of matching curved horizontal locking surfaces 180, 190.

Id. at 5:38–42. Groove 50’s “curved horizontal locking surface 180 extends from a point located essentially directly below a radial center rc of the curved first locking recess 80 in a direction towards the second locking recess 90.” *Id.* at 6:5–8. First locking recess 80’s curved horizontal locking surface 180 has exit tangent inclination angle A . *Id.* at 5:66–67.

“[T]he second locking recess 90 and the second locking lug 140 are provided with matching inclined horizontal locking surfaces 200, 210.”

Ex. 1001, 5:24–26. Second locking recess 90 has inclined locking angle B .

Id. at 6:1–2. This geometry is also shown in Figure 4, which is reproduced below.

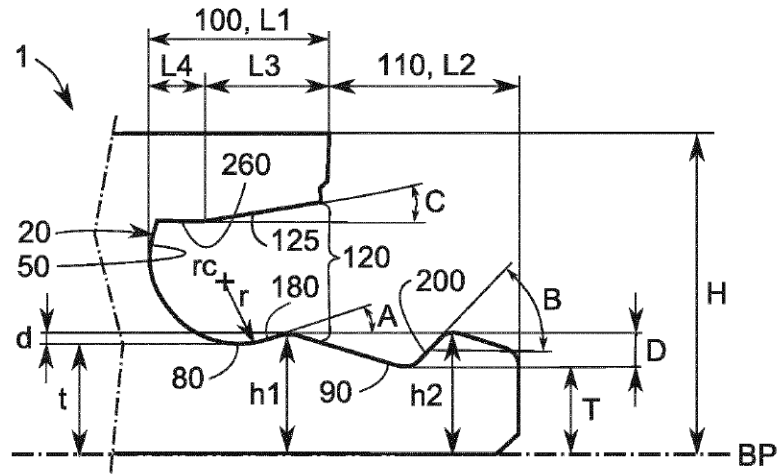


FIG. 4

The '425 patent describes Figure 4 as “a simplified side view of a floor panel demonstrating the profile contours of the groove according to the first embodiment of the invention as previously shown in [Figures] 1 and 3.”

Ex. 1001, 6:32–35.

In addition to the embodiment shown in Figures 3 and 4, the '425 discloses other embodiments. *E.g.* Ex. 1001, 7:11–25. For example, the '425 patent shows another embodiment in Figure 11, which is reproduced below.

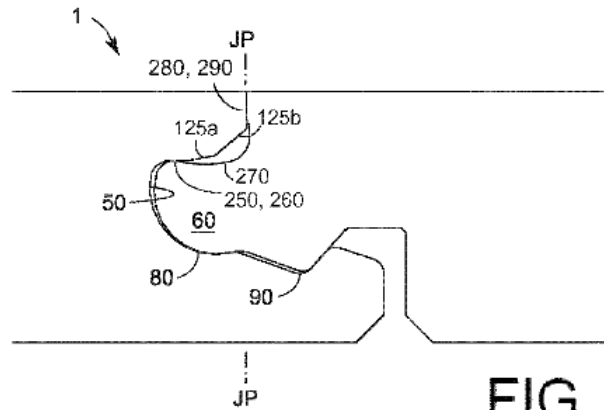


FIG. 11

“Figure 11 is a side view of two joined floor panels of a fourth optional embodiment of the invention.” Ex. 1001, 4:27–28.

The '425 patent discloses certain aspects of the Figure 11 embodiment that differ from the Figure 3 embodiment. *E.g.*, Ex. 1001, 7:28–53. For example, in the Figure 11 embodiment, “groove 50 comprises a stepped inclined introduction guiding chamfer, forming a first inclined introduction guiding chamfer 125a and a second inclined introduction chamfer 125b.” *Id.* at 7:33–36. Additionally, tongue 60 has a concavely shaped upper side with recess 270. *Id.* at 7:46–50.

D. ILLUSTRATIVE CLAIMS

Of the challenged claims, claim 1 is independent. Each of claims 2–15 depends, directly or indirectly, from independent claim 1.

Independent claim 1 is reproduced below with certain reformatting:¹

1. [1.1] A joining system for floor panels,
[1.2] said floor panels comprising coupling parts on at least two opposite sides for joining floor panel together,
[1.3] said coupling parts including a groove and a tongue, where the groove is shaped for insertion of the tongue of an

¹ We have added returns, along with the same labels that Petitioner applies to identify particular portions of claim 1.

adjoining floor panel, said tongue of the adjoining floor panel being shaped for locking engagement with the groove in a direction perpendicular to said sides and parallel to a horizontal floor plane defined by the joined panels,

[1.4] said coupling parts exerting a tension force towards each other in a mutually engaged position, the tension force being achieved by elastic compression of the material of the coupling parts,

[1.5] locking means for locking the tongue of the adjoining floor panel within the groove, wherein the locking means comprises dual consecutive locking recesses arranged in a lower portion of the groove,

[1.6] a first locking recess located in an internally extending portion within the groove and a second locking recess located in a lip portion protruding from an entrance opening of the groove,

[1.7] the locking means further comprises dual consecutive locking lugs arranged in a lower portion of the tongue for horizontally interlocking engagement in the groove,

[1.8] a first locking lug extending downwardly from a lower tip portion of the tongue and a second locking lug extending downwardly from a root portion of the tongue,

[1.9] the first locking recess and the first locking lug are provided with matching curved horizontal locking surfaces and the second locking recess and the second locking lug are provided with matching inclined horizontal locking surfaces.

Ex. 1001, 8:54–9:14.

E. ASSERTED GROUNDS OF UNPATENTABILITY

Claims 1–15 are challenged based on the following grounds:

Claims Challenged	35 U.S.C. § ²	Reference(s)
1, 2, 5–12, 15	102	Miller ³
1–15	103	Miller
1–15	103	Miller, Roy ⁴

In support of its challenges, Petitioner also relies on the Declaration of Eddy Boucké (Ex. 1002).

II. ANALYSIS

A. LEVEL OF ORDINARY SKILL IN THE ART

We review the grounds of unpatentability in view of the understanding of a person of ordinary skill in the art at the time of the invention. *Graham v. John Deere Co.*, 383 U.S. 1, 13, 17 (1966). In assessing 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) (citing *Custom Accessories, Inc. v. Jeffrey-Allan Indus., Inc.*, 807 F.2d 955, 962–63 (Fed. Cir. 1986)).

² The Leahy-Smith America Invents Act (“AIA”), Pub. L. No. 112-29, 125 Stat. 284, 287–88 (2011), revised 35 U.S.C. §§ 102 and 103, effective March 16, 2013. Because the application for the ’425 patent has an effective filing date after March 16, 2013, the AIA versions of §§ 102 and 103 apply. *See* Ex. 1001, codes (22), (30).

³ U.S. Patent No. 7,441,384 B2, issued Oct. 28, 2008 (Ex. 1004, “Miller”).

⁴ U.S. Patent No. 6,216,409 B1, issued Apr. 17, 2001 (Ex. 1005, “Roy”).

Petitioner defines the level of skill as follows:

As of May 4, 2018, the education level and work experience of a person of ordinary skill in the art (POSITA) relevant to the '425 Patent was at least an undergraduate degree in the mechanical, materials, or engineering arts or equivalent experience, and a minimum of 2 years of practical experience in the design, analysis or manufacturing of flooring technologies.

Pet. 6. “For the purposes only of [its] Preliminary Response, Patent Owner applies Petitioner’s definition of a [person of ordinary skill in the art].”

Prelim. Resp. 14.

We apply Petitioner’s proposed level of skill, which appears to be consistent with the '425 patent and the asserted prior art. *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001) (the prior art, itself, can reflect appropriate level of ordinary skill in art).

B. CLAIM INTERPRETATION

We apply the same claim construction standard used in district courts, namely that articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). *See* 37 C.F.R. § 42.100(b) (2022). In applying that standard, claim terms generally are given their ordinary and customary meaning as would have been understood by a person of ordinary skill in the art at the time of the invention and in the context of the entire patent disclosure. *Phillips*, 415 F.3d at 1312–13.

Both Parties contend that all terms in the challenged claims of the '425 patent have their “plain and ordinary meaning.” Pet. 6; Prelim. Resp. 14. We do not need to construe expressly any of the challenged claims’ language to resolve the Parties’ dispute regarding whether the Petition warrants institution of *inter partes* review. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed.

Cir. 2017) (holding that only claim terms in controversy need to be construed, and only to the extent necessary to resolve the controversy (citing *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999))).

C. ALLEGED ANTICIPATION BY MILLER

1. *Overview of Miller*

Miller discloses that “[t]his invention relates generally to floor covering panels” and “[m]ore particularly . . . to a floor covering panel having complementary coupling members with an adhesive composition applied to at least one location on at least one coupling member.”

Ex. 1004, 1:7–12. Miller discloses such a floor covering panel with a first coupling member having a protrusion and a second coupling member having “a recess sized and shaped to receive the . . . protrusion.” *Id.* at 1:63–2:6.

“In use, a first coupling member of a first panel is received within a second coupling member of a second panel,” joining panels to one another.

Id. at 2:10–16.

Miller shows a floor covering panel in Figure 2, which is reproduced below. Ex. 1004, 2:40–41.

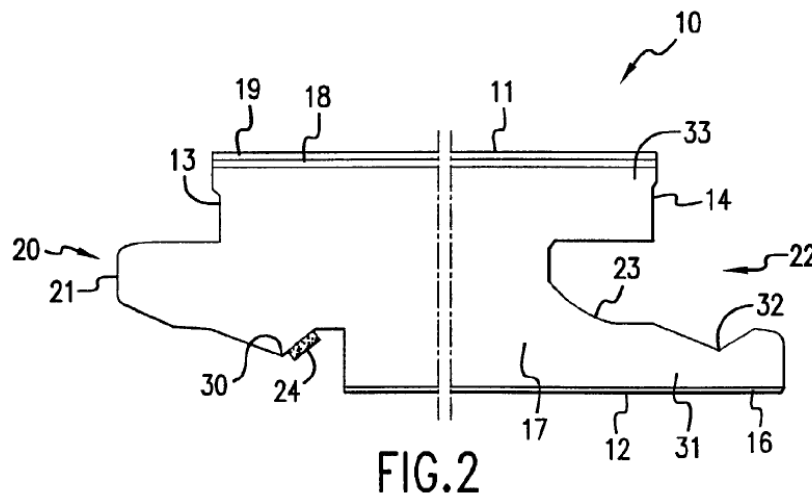


Figure 2 shows “a cross-sectional side view” of floor covering panel 10. Ex. 1004, 2:40–41, 2:60–61. Floor covering panel 10 has first generally planar surface 11, second generally planar surface 12, first side edge 13, and second side edge 14. *Id.* at 2:60–65.

“Defined within the first side edge 13 is a first coupling member 20, which includes a protrusion 21 extending therefrom.” Ex. 1004, 2:66–3:1. Protrusion 21 includes rib 30 formed on its underside. *Id.* at 4:62–63.

“The second side edge 14 includes a second complementary coupling member 22 defined therein that includes a recess 23 sized and shaped to receive the protrusion 21 of a second one of the floor covering panels therein.” Ex. 1004, 3:1–5. “[S]econd coupling member 22 includes an upper lip 33, a lower lip 31, and a detent 32 formed within the lower lip 31.” *Id.* at 64–65.

First coupling member 20 and second complementary coupling member 22 enable connecting adjacent floor covering panels to one another:

The coupling members 20 and 22 of the present invention provide a means for joining two adjacent floor covering panels 10a, 10b together as illustrated in [Figures] 1 and 3. One non-limiting example of such a means for adjoining adjacent panels is set forth in U.S. Pat. No. 6,006,486 to Moriau et al. (which is incorporated herein in its entirety by the reference).

Ex. 1004, 4:54–59. Figure 3 is reproduced below.

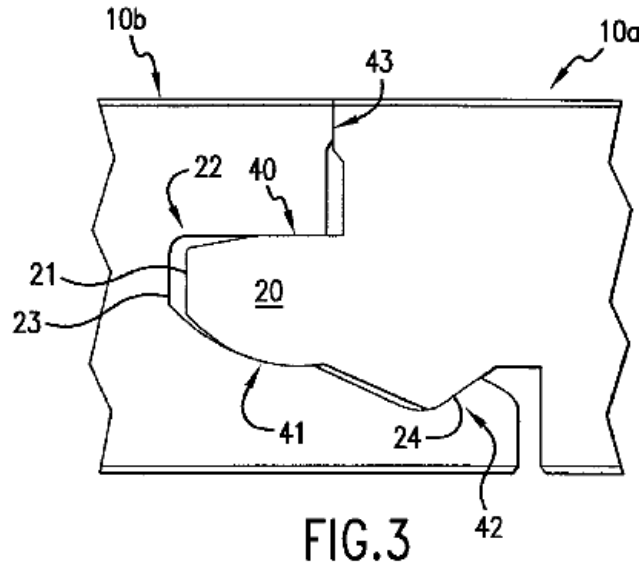


FIG. 3

“[Figure] 3 is a partial cross-sectional side view of a pair of the floor covering panels of [Figure] 2, particularly illustrating a first coupling member engaging a second coupling member.” Ex. 1004, 2:42–44.

Panel 10a and panel 10b contact each other at four contact zones, specifically contact zone 40, contact zone 41, contact zone 42, and contact zone 43. Ex. 1004, 5:13–15. “Contact zones 40 and 41 help locate the panels into substantially the same horizontal plane.” *Id.* at 5:18–19. At contact zone 40, panel 10a’s protrusion 21 contacts panel 10b’s upper lip 33. *Id.* at 5:15–17, Figs. 2, 3. At contact zone 41, panel 10a’s protrusion 21 contacts panel 10b’s lower lip 31. *Id.* Contact zone 43 is “adjacent the first surface 11 of each of the panels 10a, 10b.” *Id.* at 5:35–36.

At contact zone 42, panel 10a’s rib 30 engages panel 10b’s detent 32, urging panel 10a and panel 10b together:

In this embodiment, the contact zone 42 is substantially planar, however, any contact zone may be formed in any shape depending on the profile desired. The angle formed by the substantially planar contact zone 42 and the substantially planar second surface 12 forms an acute angle therebetween, when measured from the second surface 12 counterclockwise to the

plane of the contact zone 42. This configuration ensures that the contact force between the adjacent panels 10a, 10b at the contact zone 42 urges the panels together and promotes a tight joint. This locking structure defined by the rib 30 of panel 10a and the detent 32 of panel 10b prevents substantial separation of the two panels 10a and 10b in a direction perpendicular to the side edges 13, 14 of the panels 10a, 10b and parallel to the respective first surfaces 11.

Id. at 5:19–34, Figs. 2, 3.

At least a portion of at least one of first coupling member 20 and second complementary coupling member 22 has adhesive composition 24 selectively applied to it, as desired. Ex. 1004, 3:5–8. “In the embodiment shown in [Figures] 2 and 3, the adhesive composition 24 may be selectively applied only to the rib 30 at a location corresponding to the contact zone 42.” *Id.* at 6:8–10.

2. Discussion

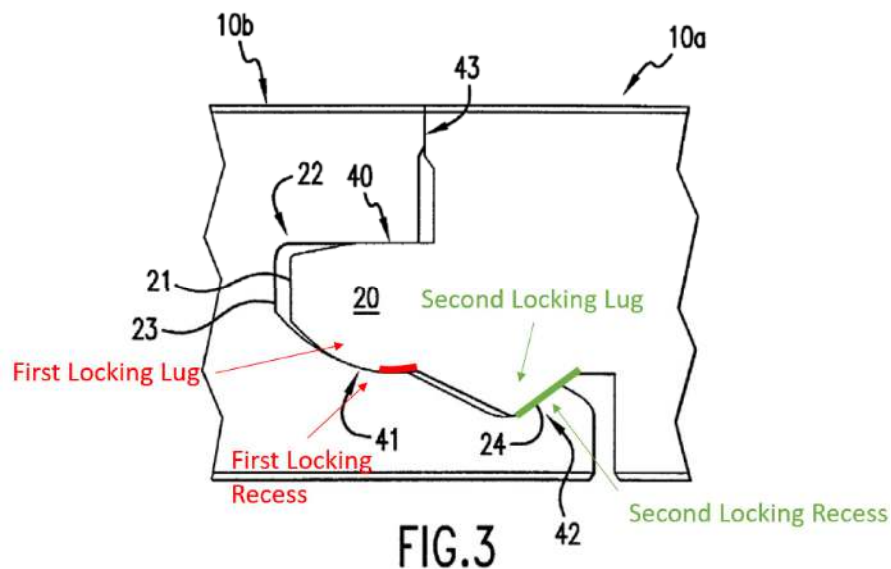
Petitioner asserts that “Miller discloses each and every element of the challenged claims,” after which Petitioner details how it contends Miller discloses each of the challenged claims’ limitations. Pet. 9–34. For example, Petitioner argues that Miller’s first coupling member 20, protrusion 21, second complementary second coupling member 22, and recess 23 correspond to claim 1’s “coupling parts on at least two opposite sides for joining floor panel together.” *Id.* at 10. Then, Petitioner explains its view that Miller’s first coupling member 20 and complementary second coupling member 22 have all of the challenged claims’ features for the claimed “coupling parts.” *Id.* at 10–34.

Patent Owner responds that Miller does not disclose at least limitations 1.5–1.9 of claim 1. Prelim. Resp. 41–50. For example, Patent Owner argues that Miller does not disclose limitation 1.5’s “dual

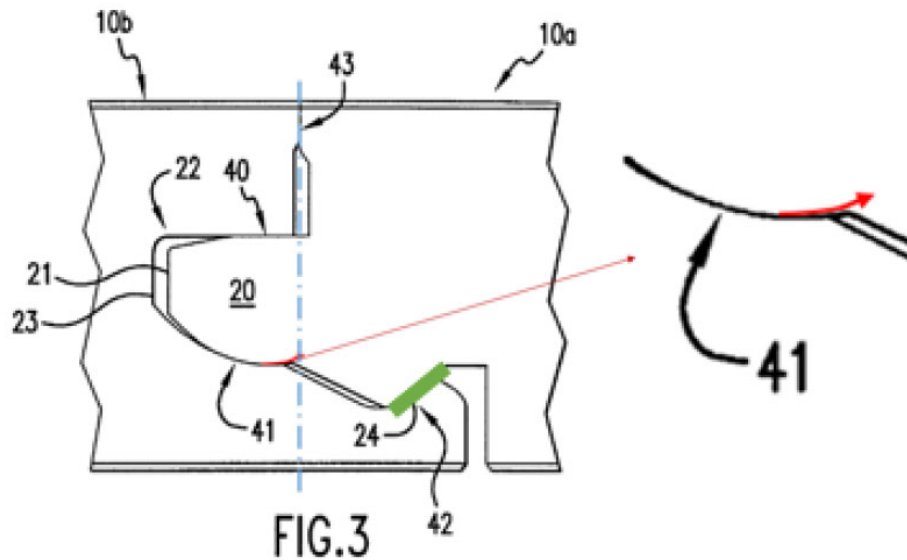
consecutive locking recesses” or limitation 1.9’s further requirement that “the first locking recess and the first locking lug are provided with matching curved horizontal locking surfaces.” *Id.* at 43–49.

Consistent with Patent Owner’s arguments, Petitioner does not support sufficiently its position that Miller discloses all of the challenged claims’ limitations. For example, Petitioner does not support sufficiently its assertion that Miller discloses limitation 1.9’s requirement for a “first locking recess” and a “first locking lug” with “matching curved horizontal locking surfaces.” Pet. 21–23; *see also id.* at 14–21 (arguments and evidence addressing related claim limitations).

To help convey its position, Petitioner uses augmented reproductions of Miller’s Figure 3, one of which is reproduced below. *E.g.*, Pet. 17.



In this reproduction of Miller’s Figure 3, Petitioner’s annotations identify, among other things, the portions of Miller’s structure that Petitioner associates with the claimed “first locking recess” and “first locking lug.” Pet. 17. Another of Petitioner’s augmented reproductions of Miller’s Figure 3 appears below. *Id.* at 22.



In this reproduction of Miller’s Figure 3, Petitioner added an enlarged view of part of the drawing, as well as color annotations to the original drawing and the enlarged view. Pet. 22.

According to Petitioner, “[t]he red . . . surfaces highlighted in the annotated [Figure] 3 of Miller . . . are matching curved horizontal locking surfaces.” Pet. 21. Petitioner contends these surfaces provide horizontal locking force:

The upward curvature, shown . . . in red, to the right of the reference arrow 41 will provide a locking force in the horizontal direction due to engagement of the tongue’s curvature with that of the curvature of the recess represented by red arrow to the right of arrow 41.

Pet. 15–16. Petitioner adds that “the highlighted surfaces in the annotated drawing of Miller . . . is consistent with and virtually identical to the locking surfaces of the [Figure] 11 embodiment of the ’425 Patent as illustrated in [Figure] 11 of the ’425 Patent.” *Id.* at 22.

Patent Owner disputes Petitioner’s position that Miller discloses dual consecutive locking recesses, one of which has a curved horizontal locking

surface. Prelim. Resp. 41–50. Patent Owner contends that “the surface of the alleged locking recess is flat and horizontal, not curved as Petitioner alleges.” *Id.* at 49.

Patent Owner argues that Miller’s text does not mention dual consecutive locking recesses. Prelim. Resp. 43. Instead, Patent Owner suggests, Miller only discloses one locking recess, specifically at detent 32. *Id.* at 17, 43. Patent Owner argues that Miller “refers only to contact zone 42” “regarding mechanical *horizontal* locking/positioning,” while protrusion 21 achieves “the *vertical* locking/positioning . . . at contact zones 40, 41.” *Id.* at 17 (citing Ex. 1004, 5:19–20, 5:23–34). Patent Owner similarly argues “Miller discloses that *mechanical horizontal locking* is achieved by the rib 30 and detent 32 at contact zone 42.” *Id.* at 43 (citing Ex. 1004, 5:19–20, 5:23–34).

Patent Owner further argues that Miller’s drawings do not support Petitioner’s position that Miller discloses dual consecutive locking recesses, one of which has a curved horizontal locking surface. Prelim. Resp. 43–49. Patent Owner notes that “Petitioner bases its contentions on [Miller’s] Figure 3.” *Id.* at 44. Asserting that Miller’s “Figures 2 and 3 . . . show the same embodiment of floor covering panels in a disconnected and in a connected state, respectively,” Patent Owner contends that Figure 2 shows panel contour lines more clearly than Figure 3. *Id.* at 44–45. Patent Owner argues that Figure 2 shows Miller’s recess 23 does not have a horizontal locking recess with a curved horizontal locking surface in the location alleged by Petitioner. *Id.* at 46.

Patent Owner further contends that Miller’s Figure 3 does not clearly show a locking recess with a curved horizontal locking surface in the

location Petitioner alleges. Prelim. Resp. 45–47. Patent Owner argues that Miller’s “Figure 3 illustrates the panels when connected, such that the contour lines for the groove and the tongue intersect/merge in such a way that it cannot be determined which line constitutes the groove and which constitutes the tongue.” *Id.* at 44–45. Thus, Patent Owner explains, “[t]he intersecting and merging lines in Figure 3 . . . do not clearly show the contour of the groove/recess 23.” *Id.* at 47.

According to Patent Owner, omission of a locking recess with a curved horizontal locking surface from Miller’s drawings “is . . . consistent with how Miller describes this embodiment.” Prelim. Resp. 47. Patent Owner explains that Miller’s “[c]ontact zones 41 and 40, which are the lower and upper contact zones between the tongue/protrusion and the groove/recess in Miller are described as being provided to ‘. . . locate the panels into substantially the same horizontal plane,’ i.e. vertical positioning.” *Id.* (citing Ex. 1004, 5:18–20).

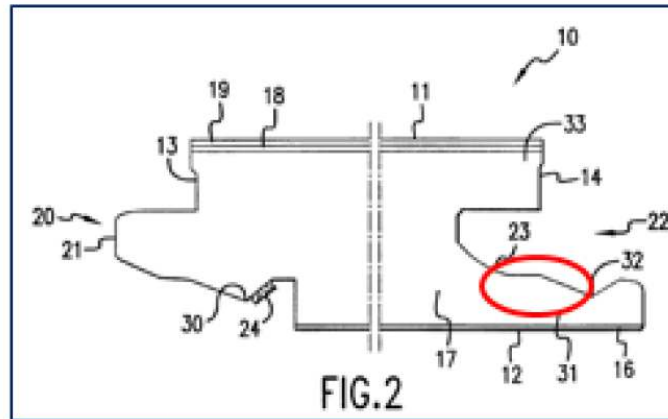
Considering all of the arguments and evidence, we agree with Patent Owner that Petitioner insufficiently supports its position that Miller discloses a locking recess with a curved horizontal locking surface. Petitioner does not cite any text in Miller that discloses a locking recess with a curved horizontal locking surface. *E.g.*, Pet. 7–8, 14–23. Instead, Petitioner relies on Miller’s Figure 3 as allegedly showing a curved horizontal locking surface. *E.g.*, *id.* at 15–18, 21–23.

We do not find that Miller’s Figure 3 shows a locking recess with a curved horizontal locking surface in the location identified by Petitioner, i.e., the location of the curved red arrow that Petitioner added to Miller’s Figure 3. *E.g.*, Pet. 15, 22. Even assuming that this portion of Miller’s

drawing shows a very subtle rise (which we do not find), it does not show clearly a curve, as opposed to, for example, a slightly inclined flat surface. Moreover, we agree with Patent Owner that, at the point of Petitioner's curved red arrow, Figure 3's overlapping representation of the tongue's lower surface and the groove's upper surface prevents distinguishing one from the other. Prelim. Resp. 45 ("In Figure 3, the lines merge so that no conclusion can reasonably be made by a [person of ordinary skill in the art] as to whether a locking recess is present in the groove or not."). Accordingly, Figure 3 does not allow discerning a curve in the groove's upper surface at the point identified by Petitioner.

We also agree with Patent Owner that, in comparison to Miller's Figure 3, Miller's Figure 2 affords a clearer view of the shape of the groove's upper surface, particularly at the part of the surface where Petitioner overlaid the curved red arrow. *E.g.*, Prelim. Resp. 44–45. As Patent Owner notes, the floor covering panel shown in Figure 2 is the same as each of the floor covering panels shown in Figure 3. Ex. 1004, 2:40–44; Prelim. Resp. 16. Figure 2 shows the groove's upper surface without interference from overlapping lines for another panel's tongue, thereby showing the groove's shape clearly. *Compare* Ex. 1004, Fig. 2, *with id.* at Fig. 3. And Figure 2 does not show a curve in the portion of the groove's upper surface where Petitioner alleges a curved horizontal locking surface exists. To the contrary, at the point where Petitioner overlaid a curved red arrow in Figure 3, Figure 2 shows a straight surface, as called out in Patent Owner's annotated reproduction of Figure 2, reproduced below.

Prelim. Resp. 46.



Patent Owner’s annotated reproduction of Miller’s Figure 2 includes a red oval around a portion of recess 23’s upper surface. Prelim. Resp. 46.

Additionally, we agree with Patent Owner that Miller’s text appears consistent with Figure 2’s depiction of a groove that lacks the curved horizontal locking surface alleged by Petitioner. Prelim. Resp. 47. In particular, rather than suggesting any horizontal locking from a curved horizontal locking surface at the location of Petitioner’s curved red arrow, Miller’s text only identifies contact between rib 30 and detent 32 at “planar contact zone 42” as preventing horizontal separation of panels 10a and 10b. Ex. 1004, 5:15–34. Petitioner’s allegations of a curved horizontal locking surface in Miller neither address the flat surface in Miller’s Figure 2 nor identify any suggestion in Miller’s text of a curved horizontal locking surface at the location suggested by Petitioner. *E.g.*, Pet. 14–23.

Additionally, even if Petitioner is correct that the ’425 patent’s Figure 11 shows surfaces “virtually identical” to those in Miller’s Figure 3, that does not salvage Petitioner’s case. Pet. 22. For the reasons explained above, Miller’s Figure 3 does not show clearly a locking recess with a curved horizontal locking surface. If the ’425 patent’s Figure 11 shows the same thing as Miller’s Figure 3, that only establishes that the ’425 patent’s

Figure 11 also lacks a clear illustration of a curved horizontal locking surface, which does not bolster Petitioner’s anticipation challenge.⁵

Because Petitioner has not supported sufficiently its assertion that Miller discloses claim 1’s curved horizontal locking surface, Petitioner does not demonstrate a reasonable likelihood of prevailing on its contention that Miller anticipates independent claim 1. Pet. 7–23. And because Petitioner’s arguments and evidence regarding dependent claims 2, 5–12, and 15 do not remedy the deficiency in Petitioner’s position with respect to independent claim 1, Petitioner also fails to demonstrate a reasonable likelihood of establishing that Miller anticipates any of dependent claims 2, 5–12, and 15. *Id.* at 23–34.

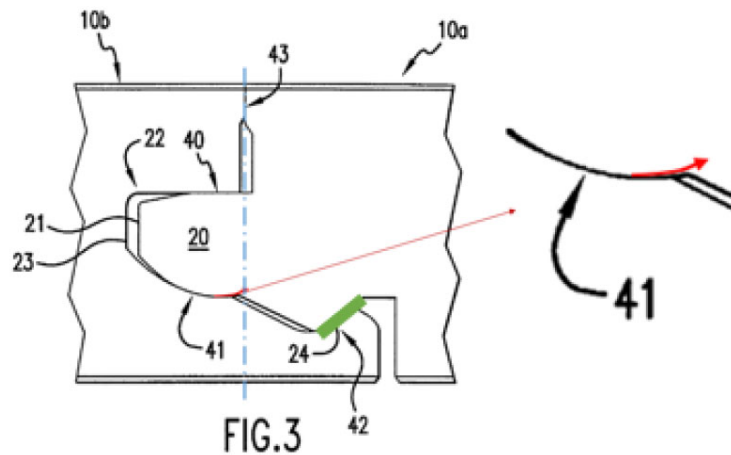
D. ALLEGED OBVIOUSNESS OVER MILLER

Petitioner’s challenge of the ’425 patent’s claims 1–15 as allegedly obvious over Miller builds from its challenge of claims 1, 2, 5–12, and 15 as allegedly anticipated by Miller. *E.g.*, Pet. 34. In its obviousness challenge, Petitioner takes the position that “[t]o the extent the Board or the patentee believe that elements [1.4]-[1.9] of the ’425 Patent are not anticipated by Miller, those elements would have been obvious variants of Miller’s locking profile to a [person of ordinary skill in the art] over Miller alone.” *Id.* at 34–35.

When addressing limitations 1.5–1.9, Petitioner argues that it would have been obvious to modify Miller to include “a more prevalent upward curvature” at the point where Petitioner contends Miller shows a curved

⁵ As an aside, we note that the ’425 patent shows curved horizontal locking surface 180 in at least Figure 4. *E.g.*, Ex. 1001, 5:21–23, 5:38–48, 6:32–35, Fig. 4.

horizontal locking surface in Figure 3. Pet. 39. According to Petitioner, “[a person of ordinary skill in the art] would have recognized that increasing the horizontal locking strength of Miller’s first locking recess would simply require machining the bottom of the groove so that the upward curvature of the red highlighted surface below was more drastic or less shallow,” along with complementary modification of the tongue. *Id.* at 38–39. In this assertion, “the red highlighted surface” refers to the curved red arrow in Petitioner’s augmented reproduction of Miller’s Figure 3, which is reproduced below. *Id.* at 38.



In this reproduction of Miller’s Figure 3, Petitioner added an enlarged view of part of the drawing, as well as color annotations to the original drawing and the enlarged view. Pet. 38.

Petitioner contends that it was well-known and would have been easy to use a curved locking surface. Pet. 37–39. According to Petitioner, “[m]atching curved locking surfaces on the bottom of a tongue and groove profile, such that the tongue includes a locking lug and the groove includes a locking recess, were well known in the art well prior to the invention or priority dates of the ’425 Patent.” *Id.* at 37. Petitioner also contends that floor panels’ locking profiles have “extremely small features,” such that

“adjusting the upward curvature of the first locking surface of Miller and the corresponding locking surface on bottom portion of the tongue or ‘locking lug’ to be more prevalent would require very little in terms of machining the locking profile.” *Id.* at 38–39.

Petitioner further argues that “a [person of ordinary skill in the art] would have been aware that using a double locking recess and lug configuration increases the horizontal locking ability and, thus, horizontal locking strength of the locking profile.” Pet. 37. Similarly, Petitioner argues that “consecutive double locking recess/locking lug/locking surfaces at the bottom portions of tongues and grooves were well known and known to increase strength of a locking profile.” *Id.* at 39.

Patent Owner responds that “Petitioner provides no convincing evidence that challenged claim 1 of the ’425 Patent would have been obvious in view of Miller.” Prelim. Resp. 54. Addressing Petitioner’s assertion that it would have been obvious to make an already-existing curved surface in Miller “more prevalent,” Patent Owner reiterates its position that “Miller is silent regarding any alleged ‘first locking recess.’” Prelim. Resp. 52–53. Patent Owner also argues that Petitioner has not provided a persuasive reason that a person of ordinary skill in the art would have combined prior art teachings from outside Miller in a manner that would have produced the claimed invention:

The Petition further cites various other references as alleged support for its argument that Miller renders claim 1 obvious. Pet., 37. However, Petitioner provides no reasoning as to the motivation why a [person of ordinary skill in the art] would turn to these other, unapplied prior art documents, nor why and how a combination between Miller and any of these references would lead to the invention of the ’425 Patent as recited in claim 1.

Id. at 54.

Considering all of the arguments and evidence, we do not find that Petitioner has provided sufficient support for its position that limitations 1.4–1.9 would have been obvious. Pet. 35–39; Prelim. Resp. 50–55. For example, Petitioner has not shown sufficiently that it would have been obvious to configure Miller’s cladding panel with a locking recess having a curved horizontal locking surface, in addition to a locking recess having an inclined horizontal locking surface, as required by independent claim 1. Pet. 36–39; Prelim. Resp. 50–55.

As noted above, Petitioner’s obviousness position rests on Petitioner’s contention that Miller’s panel already has a recess with a curved surface where Petitioner overlaid a curved red arrow in Miller’s Figure 3. *E.g.*, Pet. 38–39. But Petitioner insufficiently supports this foundational premise of its obviousness position, as explained above in Section II.C.2. *E.g.*, Pet. 7–8, 14–18, 21–23; Prelim. Resp. 41–49.

Additionally, Petitioner does not provide a persuasive reason that a person of ordinary skill in the art would have had to configure Miller’s panel with a curved horizontal locking surface, in addition to an inclined horizontal locking surface, as required by independent claim 1. Pet. 34–39; Prelim. Resp. 54. In support of its argument that it was well-known to use curved locking surfaces, Petitioner provides a vague string cite of evidence that dubiously includes Miller (which has not been shown to disclose a curved horizontal locking surface). Pet. 37 (citing Ex. 1002 ¶¶ 25–26, 56; Ex. 1006, Figs. 2–4, 9, and 10 and associated description; Ex. 1004; Ex. 1006; Ex. 1005; Ex. 1009; Ex. 1010; Ex. 1011; Ex. 1012; Ex. 1013; Ex. 1014).

Moreover, to the extent Petitioner is correct that it was well-known and easy to configure a panel with a curved locking surface, that may show that a person of ordinary skill in the art *could* have added a curved horizontal locking surface to Miller's panel. But that does not show sufficiently that such a modification would have been obvious, as it does not demonstrate why a person of ordinary skill in the art *would* have modified Miller's cladding panel to add a curved horizontal locking surface. *See Belden v. Berk-Tek LLC*, 805 F.3d 1064, 1073 (Fed. Cir. 2015) (stating that "obviousness concerns whether a skilled artisan not only *could have made* but *would have been motivated to make* the combinations or modifications of prior art to arrive at the claimed invention") (citing *InTouch Techs., Inc. v. VGo Commc'ns, Inc.*, 751 F.3d 1327, 1351–1352 (Fed. Cir. 2014)).

Additionally, to the extent that Petitioner is correct that a person of ordinary skill in the art would have recognized a strength benefit of having two locking recesses, that does not explain why a person of ordinary skill in the art would have added a curved locking surface, as opposed to, for example, another substantially planar locking surface like the one at Miller's contact point 42. Pet. 36–39; Ex. 1004, 5:19–34. And Petitioner does not identify, much less substantiate, any other reason that a person of ordinary skill in the art would have had for combining a curved locking surface with an inclined horizontal locking surface in Miller's cladding panel. Pet. 36–39.

Because Petitioner has not persuasively addressed claim 1's requirement that its dual locking recesses include one with a curved horizontal locking surface, Petitioner has not demonstrated a reasonable likelihood of prevailing on its assertion that independent claim 1 would have

been obvious over Miller. *E.g.*, Pet. 7–8, 34–39. Additionally, this deficiency is not remedied in Petitioner’s challenges to dependent claims 2–15 based on Miller. *E.g.*, Pet. 34, 40–50. Accordingly, Petitioner does not establish a reasonable likelihood of prevailing on its position that dependent claims 2–15 would have been obvious over Miller.

E. ALLEGED OBVIOUSNESS OVER MILLER AND ROY

1. *Overview of Roy*

Roy discloses that “[t]he present invention concerns a cladding panel for floors” or other applications. Ex. 1005, 1:5–6. The cladding panel has a tongue and a groove on opposite edges. *Id.* at 1:5–8. “[T]he tongue of one panel is adapted to be inserted into the groove of an adjacent panel.” *Id.* at 1:11–13. “[T]he shaped portions of the tongue inter-engage with the shaped portions of the groove to oppose withdrawal of one panel relative to the other,” the shaped portions having certain features. *Id.* at 1:14–28. According to Roy, one example of such a panel “is known . . . from W097/47834.” *Id.* at 1:31–32. Roy shows cladding panels for floors and other applications in Figures 1 and 2, which are reproduced below. *Id.* at 2:38–42, 2:56–57.

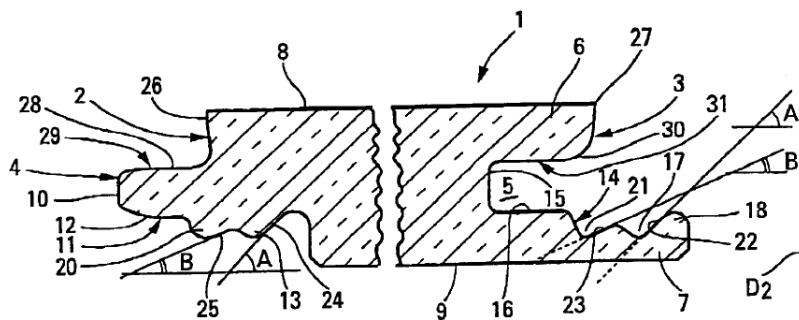


Fig. 1

Id. at 3:38–42. First recess 17 and second recess 21 have substantially rectilinear exterior sides 22 and 23, respectively. *Id.* at 4:25–28. Exterior sides 22, 23 and interior sides 24, 25 extend at angles to cladding panel 1’s bottom face 9:

the exterior sides 22, 23 of the first and second recesses 17, 21 and the interior sides 24, 25 of the first and second raised portions 13, 20 . . . respectively form substantially equal first angles A and substantially equal section angles B with the bottom face 9 of the corresponding panel 1.

Id. at 4:25–30.

Roy touts its configuration as securely engaging adjacent panels to one another:

Means for assembling and clipping two adjacent panels have therefore been described which, compared to the prior art, have a greater resistance to pulling apart and provide a better seal to dust and to liquids at the points of contact 35, 36, which are also clamping points.

At these clamping points the top and bottom lips of a panel apply elastic pressure forces to the corresponding shaped portions of the tongue of an adjacent panel to hold the two panels firmly assembled against each other.

Ex. 1005, 5:21–29.

2. *Discussion*

Petitioner’s obviousness challenge based on Miller and Roy builds from Petitioner’s obviousness challenge based on Miller alone. *E.g.*, Pet. 50. In its challenge based on Miller and Roy, Petitioner takes the position that “[t]o the extent the Board or the patentee believe that elements [1.5]-[1.6] and [1.9] of the ’425 Patent are not disclosed by Miller, those elements would have been obvious variants of Miller’s locking profile over Miller in view of Roy.” *Id.*

Maintaining that Miller discloses claim 1's first locking recess with a curved horizontal locking surface, Petitioner argues that "these features are also disclosed in Roy." Pet. 51–52. Citing Roy's first recess 17, second recess 21, raised portion 13, and second raised portion 20, Petitioner asserts that "Roy discloses the use of dual consecutive locking recess and lug pairs." *Id.* at 52–53.

Arguing that "Roy discloses that its double locking recess/locking lug configuration increases horizontal locking strength," Petitioner contends that "a [person of ordinary skill in the art] would have been motivated to modify Miller to increase the horizontal locking ability of [Miller's surfaces] to create a more pronounced curvature." Pet. 53–54. Petitioner suggests that such a modification would have been easy for a person of ordinary skill in the art. *Id.* at 54–55.

Petitioner also argues that "Miller also provides additional motivation to combine its teachings with other references." Pet. 55. In support of this assertion, Petitioner quotes the following passage of Miller:

It should also be noted that the embodiments shown in FIGS. 2 and 3 are for illustrative purposes only, and that the present invention is equally applicable to other coupling profiles known in the industry or that may be developed in the future. In other embodiments, the quantity, size and location of the contact zones may vary with the profile as desired, but the different profiles still fall within the scope of the present invention. For example, a tongue and groove profile without a locking structure would benefit from, and fall within the scope of the present invention. As a further example, a tongue and groove profile in which substantially full contact is maintained along the entire mating edges of the panels is also contemplated as being within the scope of the invention.

Ex. 1004, 5:45–57; Pet. 55.

Patent Owner responds that Petitioner incorrectly asserts that claim limitations 1.5–1.9 would have been obvious in view of Roy. Prelim. Resp. 55. Patent Owner argues, for example, that “Roy teaches inclined rectilinear surfaces being provided in both recesses as well as on both raised portions,” whereas limitation 1.9 “recites the ‘first locking recess and first locking lug are provided with matching *curved horizontal locking surfaces.*’” *Id.* at 60 (citing Ex. 1005, 4:26–39).

Considering all of the arguments and evidence, we do not find Petitioner has shown sufficiently that it would have been obvious in view of Miller and Roy to configure Miller’s panel with a locking recess having a curved horizontal locking surface, in addition to a locking recess having an inclined horizontal surface. Pet. 7–9, 50–56; Prelim. Resp. 55–60. For the reasons explained above in Section II.C.2, Petitioner has not supported sufficiently its assertion that “Miller discloses a first locking recess and first locking lug with matching curving locking surfaces.” Pet. 51.

Nor has Petitioner provided persuasive support for its assertion that “these features are also disclosed in Roy.” *Id.* at 52. Indeed, rather than a locking recess with a curving locking surface, Roy discloses that its first recess 17 has substantially *rectilinear* exterior side 22, and its second recess 21 has substantially *rectilinear* exterior side 23. Ex. 1005, 4:25–28; Prelim. Resp. 57, 60. Accordingly, even if Petitioner is right in suggesting that Roy’s disclosure would have motivated a person of ordinary skill in the art to modify Miller’s panel with dual locking recesses, that does not provide a persuasive reason that a person of ordinary skill in the art would have had to add a curved horizontal locking surface. Pet. 53–54; Prelim. Resp. 57, 60.

Nor do any of Petitioner's other arguments and evidence persuasively demonstrate a reason that a person of ordinary skill in the art would have had to modify Miller to use a locking recess having a curved horizontal locking surface in combination with a locking recess having an inclined horizontal locking surface, as required by claim 1. For example, Miller's vague, general discussion of "other coupling profiles known in the industry or that may be developed" does not demonstrate a persuasive reason that a person of ordinary skill in the art would have had to add a curved horizontal locking surface to Miller's panel. *See* Ex. 1004, 5:45–57; Pet. 55.

Because Petitioner has not persuasively addressed claim 1's requirement that its dual locking recesses include one recess with a curved horizontal locking surface, Petitioner has not demonstrated a reasonable likelihood of prevailing on its assertion that independent claim 1 would have been obvious over Miller and Roy. *E.g.*, Pet. 7–9, 50–56. Additionally, this deficiency is not remedied in Petitioner's challenges to dependent claims 2, 4–12, 14, and 15 based on Miller and Roy. *E.g.*, Pet. 50, 56–59. Accordingly, Petitioner does not establish a reasonable likelihood of prevailing on its position that dependent claims 2, 4–12, 14, and 15 would have been obvious over Miller and Roy.

III. CONCLUSION

For the foregoing reasons, we do not institute *inter partes* review.

IV. ORDER

It is:

ORDERED that the Petition is *denied*, and no trial is instituted.

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Patent 11,421,425 B2

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