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Paper 36
Entered: March 25, 2019

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

INNOVATIONS4FLOORING NV,
Petitioner,

v.

VÄLINGE INNOVATION AB,
Patent Owner.

Case IPR2017-02130
Patent 7,398,625 B2

Before JILL D. HILL, MITCHELL G. WEATHERLY, and BEVERLY M. BUNTING, *Administrative Patent Judges.*

HILL, *Administrative Patent Judge.*

FINAL WRITTEN DECISION
35 U.S.C. § 318(a) and 37 C.F.R. § 42.73

I. INTRODUCTION

Innovations4Flooring N.V. ("Petitioner") filed a Petition pursuant to 35 U.S.C. §§ 311–319, requesting *inter partes* review of claims 1–12 ("the challenged claims") of U.S. Patent No. 7,398,625 B2 (Ex. 1001, "the '625 Patent"). Paper 2 ("Pet."). Patent Owner, Välinge Innovation AB ("Patent Owner") timely filed a Preliminary Response to the Petition. Paper 6 ("Prelim. Resp."). A Corrected Petition was filed on February 28, 2018, addressing certain issues raised by the Patent Owner. Paper 11 ("Corr. Pet."). We instituted *inter partes* review of all grounds and all claims challenged in the Petition. Paper 13 ("Dec. on Inst."), Paper 19 ("*SAS* Order"). After institution, Patent Owner filed a Patent Owner's Response (Paper 23, "PO Resp."), and Petitioner filed a Reply (Paper 27, "Reply"). An oral hearing was held on December 19, 2018, and a copy of the transcript was entered into the record. Paper 35 ("Tr.").

Petitioner filed a Motion to Exclude certain evidence submitted by Patent Owner (Paper 30), to which Patent Owner filed an Opposition (Paper 31), and Petitioner filed a Reply (Paper 33).

We have jurisdiction under 35 U.S.C. § 6. We issue this Final Written Decision regarding the patentability of claims 1–12, pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73. For the reasons set forth below, we conclude that Petitioner has shown, by a preponderance of the evidence, that claims 1–12 are unpatentable. Additionally, we address the Patent Owner's Motion to Exclude as set forth below.

A. RELATED MATTERS

The parties indicate that the '625 Patent has been asserted in *Välinge Innovation AB v. Halstead New England Corp. and The Home Depot, Inc.*,

Civil Action No. 16-1082-LPS-CJB (D. Del., Nov. 23, 2016). Corr. Pet. 1; Paper 5, 1.

B. REAL PARTY-IN-INTEREST

The Petition identifies the real party-in-interest as Petitioner, Innovations4Flooring N.V. Corr. Pet. 1.

C. THE '625 PATENT (EX. 1001)

The '625 Patent is directed to a locking system for the mechanical joining of floorboards, particularly of a "strip-lock" type, having the strip integral with the core. Ex. 1001, Abstract, 2:60–63, 8:50–52.

Figure 6 of the '625 Patent is reproduced below.

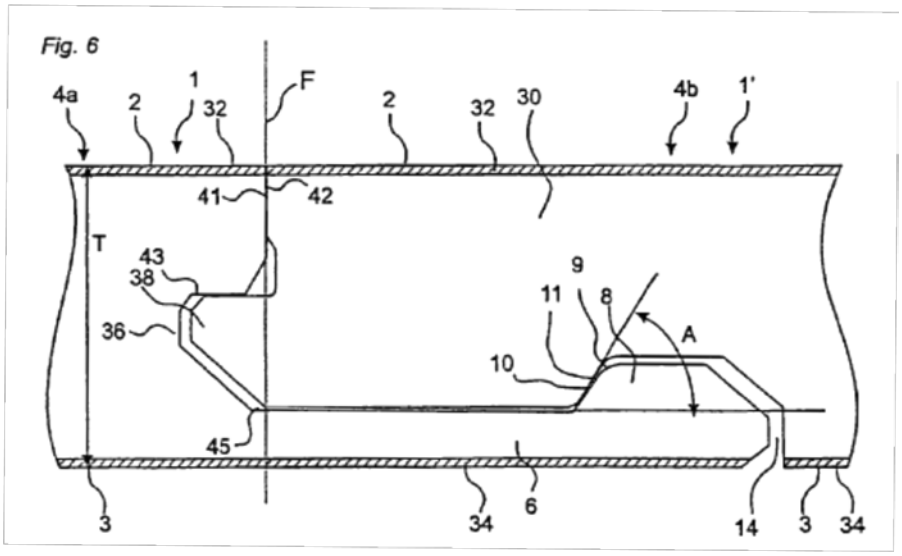


Figure 6 is a cross-section of a "variant of a locking system . . . for which protection is sought." *Id*. at 8:36–38.

According to the '625 Patent, the locking system comprises a tongue 38 and groove 36 for horizontal joining of first and second joint edge surfaces 41, 42 of first floorboard 1 and second floorboard 1′, respectively, at vertical joint plane F. Ex. 1001, 9:49–64. Locking groove 14 is formed in an underside of second floorboard 1′, and is described as extending parallel

with, and at a distance from, vertical joint plane F. *Id.* at 10:27–32, Fig. 6. Strip 6 is integrally formed with a core of first board 1, projects from vertical joint plane F (to the right, along a bottom of Fig. 6), and supports upwardly directed locking element 8 with locking surface 10 for coaction with locking surface 11 in locking groove 14. *Id.* at 10:33–58.

Tongue 38 has an upper tongue surface and a lower tongue surface. *Id.* at Fig. 6, 9:43–45, 13:50–51 (claiming that tongue 38 "extends from" joint plane F). Tongue groove 36 is adapted to receive tongue 38, and has upper tongue groove surface 43 and lower tongue groove surface 45. *Id.* The operative surfaces in a laid floor include: (1) locking surfaces 10, 11; (2) first and second joint edge surfaces 41, 42; and (3) upper contact surfaces 43 between tongue 38 and groove 36. *Id.* at 11:54–60.

The locking system also includes, when the first and the second floorboards are joined horizontally and vertically, (1) first inoperative surfaces between the joint edge surfaces 41, 42 and upper contact surfaces 43 between tongue 38 and groove 36, and (2) second inoperative surfaces in the locking system between locking surfaces 10, 11 and upper contact surfaces 43 between tongue 38 and groove 36. *See id.* at Fig. 6, 11:47–60. According to the Specification, "[i]f the inoperative surfaces in the locking system are spaced from each other, the friction [from] lateral displacement of the joined floorboards along the joint edge will decrease." *Id.* at 11:61–64.

D. ILLUSTRATIVE CLAIM

Of challenged claims 1–12, claims 1 and 11 are independent. Claim 1, reproduced below, illustrates the challenged claims.

1. A locking system for mechanical joining of floorboards, said locking system comprising:

for horizontal joining of a first and a second joint edge portion of a first and a second floorboard respectively at a vertical joint plane:

a locking groove which is formed in the underside of said second board and extends parallel with and at a distance from said vertical joint plane at said second joint edge, a strip integrally formed with a core of said first board, which strip at said first joint edge projects from said vertical joint plane and supports an upwardly directed locking element with a locking surface for coaction with a locking surface in said locking groove, and

first contact surfaces at the vertical joint plane; and

for vertical joining of the first and second joint edge portions:

a tongue which extends from the joint plane and having an upper tongue surface and

a lower tongue surface,

a tongue groove adapted to coact with said tongue, the tongue groove having an upper tongue groove surface and a lower tongue groove surface, and

coacting second contact surfaces positioned in said tongue groove and on said tongue,

wherein the locking surfaces, the coacting second contact surfaces, and the first contact surfaces at the vertical joint plane are configured to be operative surfaces in a laid floor; and

further comprising:

a first inoperative space in the locking system between the first coacting contact surfaces and the second coacting contact surfaces when the first and the second floorboards are joined horizontally and vertically,

a second inoperative space in the locking system between the second coacting contact surfaces and the locking surfaces when the first and the second floorboards are joined horizontally and vertically, and

the lower tongue groove surface and the lower tongue surface are not in direct contact with each other when the first and

the second floorboards are joined horizontally and vertically,

wherein said inoperative spaces are configured to be spaced from each other when the first and the second floorboards are joined horizontally and vertically.

Ex. 1001 13:34–14:9.

E. REFERENCES

Petitioner relies on the following prior art references (Corr. Pet. 3):

Reference	Patent/Publication Number	Date	Exhibit No.
Moriau	WO 97/47834	Dec. 18, 1997	1005
Friedl	DE 4242530 C2	Sept. 9, 1996	1006

F. INSTITUTED GROUNDS OF UNPATENTABILITY

We instituted the instant trial based on the following grounds of unpatentability. Dec. on Inst. 36, *SAS* Order 3.[1]

Reference(s)	Basis	Claim(s) Challenged
Moriau	§ 102	1–12
Moriau Figures 8 and 22–25	§ 103	1–12
Moriau Figures 9 and 22–25	§ 103	1–12
Moriau Figures 8, 9 and 22–25	§ 103	1–12
Friedl	§ 102	1, 11

II. ANALYSIS

A. LEGAL PRINCIPLES

We analyze the instituted grounds of unpatentability in accordance with the principles stated below.

[1] A large portion of the ground based on anticipation by Friedl, and the entirety of certain grounds of (1) unpatentability over Friedl and Moriau and (2) anticipation based on admitted prior art, have been withdrawn as indicated in the Corrected Petition. Corr. Pet. 91–126; Paper 12. Those grounds, which were withdrawn in their entireties, are not addressed herein. *Id.* at 100–125.

1. Burden of Proving Unpatentability

In *inter partes* reviews, petitioner bears the burden of proving unpatentability of the challenged claims, and the burden of persuasion never shifts to the patent owner. *Dynamic Drinkware, LLC v. Nat'l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015). To prevail in this proceeding, Petitioner must support its challenges by a preponderance of the evidence. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). Accordingly, all of our findings and conclusions are based on a preponderance of the evidence.

2. Anticipation

A claim is anticipated if each limitation of the claim is disclosed in a single prior art reference arranged as in the claim. *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008) (holding that "it is not enough [for anticipation] that the prior art reference discloses part of the claimed invention, which an ordinary artisan might supplement to make the whole, or that it includes multiple, distinct teachings that the artisan might somehow combine to achieve the claimed invention.") (citing *In re Arkley*, 455 F.2d 586, 587 (CCPA 1972)). To establish anticipation, Petitioner must demonstrate that a prior art reference shows every element of the claimed invention identically, in the same relationship as in the claim. *In re Bond*, 910 F.2d 831, 832 (Fed. Cir. 1990). All of the elements and limitations of the claim must be shown in a single prior art reference, arranged as in the claim. *Karsten Mfg. Corp. v. Cleveland Golf Co.*, 242 F.3d 1376, 1383 (Fed. Cir. 2001). "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. Inc., v. Union Oil Co.*, 814 F.2d 628, 631 (Fed. Cir. 1987). Moreover, "the prior art reference—in order to

anticipate under 35 U.S.C. § 102—must not only disclose all elements of the claim within the four corners of the document, but must also disclose those elements 'arranged as in the claim.'" *Net MoneyIN*, 545 F.3d at 1369. Anticipation is assessed from the perspective of an ordinarily skilled artisan. *See Dayco Prods., Inc. v. Total Containment, Inc.*, 329 F.3d 1358, 1368 (Fed. Cir. 2003) ("[T]he dispositive question regarding anticipation [i]s whether one skilled in the art would reasonably understand or infer from the [prior art reference's] teaching that every claim element was disclosed in that single reference.").

3. Obviousness

A claim is unpatentable under § 103(a) 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 the subject matter pertains. *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 skill in the art; and (4) where in evidence, so-called secondary considerations of nonobviousness. *Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). The U.S. Court of Appeals for the Federal Circuit has made clear that a petitioner, in an inter partes review proceeding, cannot "satisfy its burden of proving obviousness" by "employ[ing] mere conclusory statements" and "must instead articulate specific reasoning, based on evidence of record" to support an obviousness determination. *In re Magnum Oil Tools Int'l*, 829 F.3d 1364, 1380–81 (Fed. Cir. 2016). We analyze obviousness in

accordance with the above-stated principles. Because Patent Owner does not provide evidence regarding secondary considerations, our determination is based on the first three factors. *See* PO Resp.; Pet. 106; *see also ZUP, LLC v. Nash Mfg., Inc.*, 896 F.3d 1365, 1373 (Fed. Cir. 2018) ("While [the] burden of persuasion remains with the challenger, a patentee bears the burden of production with respect to evidence of secondary considerations of nonobviousness.").

B. CLAIM CONSTRUCTION

The Board interprets claims of an unexpired patent using the broadest reasonable interpretation in light of the specification of the patent in which they appear.[2] 37 C.F.R. § 42.100(b) (2016); *In re Cuozzo Speed Techs., LLC*, 793 F.3d 1268, 1278 (Fed. Cir. 2015) ("We conclude that Congress implicitly approved the broadest reasonable interpretation standard in enacting the [America Invents Act]."), *aff'd*, *Cuozzo Speed Techs., LLC v. Lee*, 136 S. Ct. 2131, 2144–46 (2016); Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,766 (Aug. 14, 2012). Under the broadest reasonable interpretation standard, and absent any special definitions, we generally give claim terms their ordinary and customary meaning, as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech. Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). Any special definitions for claim terms or phrases must be set forth with reasonable clarity, deliberateness, and precision. *In re Paulsen*, 30 F.3d 1475, 1480

[2] The USPTO revised its rules to harmonize the Board's claim construction standard with that used in federal district court. 83 Fed. Reg. 51,340 (Nov. 13, 2018). This rule change applies to petitions filed after November 13, 2018, however, and does not apply to this proceeding. *Id.*

(Fed. Cir. 1994). In the absence of such a definition, limitations are not to be read from the specification into the claims. *See In re Van Geuns*, 988 F.2d 1181, 1184 (Fed. Cir. 1993).

Petitioner initially proposed an explicit construction for the terms "not in direct contact," "inoperative surface," and "inoperative space." Corr. Pet. 7–11.

1. "Not in Direct Contact"

Claim 1 recites that "the lower tongue groove surface and the lower tongue surface are not in direct contact with each other when the first and the second floorboards are joined horizontally and vertically." Ex. 1001, 14:3–6.

In our Decision to Institute, we construed the term "not in direct contact" to require that the *entire* lower tongue groove surface and the entire lower tongue surface do not contact each other. Dec. on Inst. 12.

In its Patent Owner Response, Patent Owner argues that "the proper construction of the 'not in direct contact' limitation is the lower tongue groove surface and the lower tongue surface do not contact each other." PO Resp. 28. According to Patent Owner, the lack of direct contact between the lower tongue groove surface and lower tongue surface "makes each an '*inoperative* surface.'" Patent Owner annotated Figure 6 to illustrate this lack of direct contact, as reproduced below.

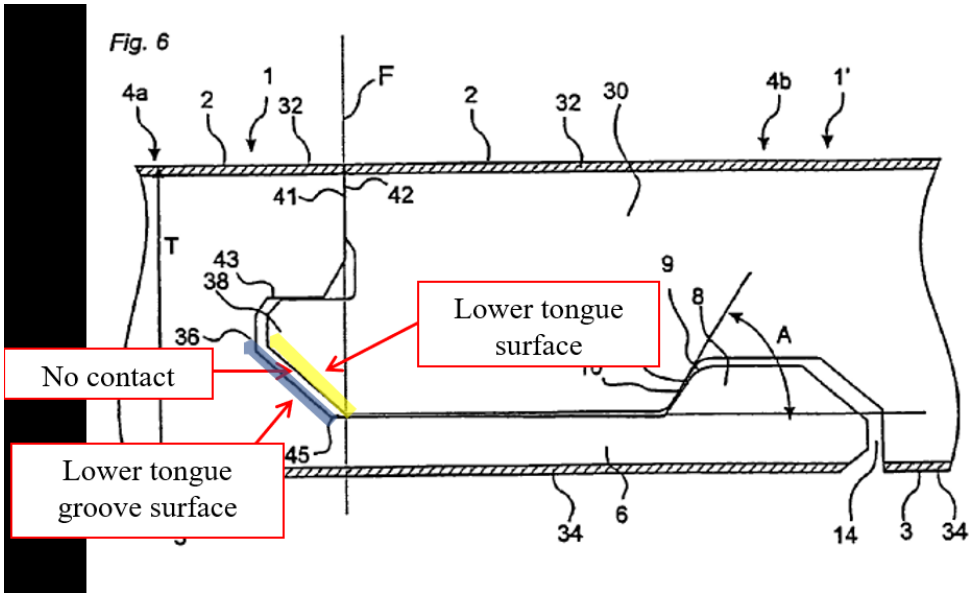


Figure 6 is a locking system variant, as annotated by Patent Owner to illustrate the lack of direct contact between the lower tongue groove surface and lower tongue surface.

Specifically, Patent Owner argues that "[w]hen contrasting the lower tongue groove surface and lower tongue surface interaction with the upper tongue groove surface and upper tongue surface contact, it is clear the plain language of the claims requiring 'not in direct contact with each other' means that the lower tongue groove surface and lower tongue surface do not directly contact each other." PO Resp. 25 (citing Ex. 1001, 14:3–6). Patent Owner also cites to the prosecution history for support. *Id.* at 25–27 (citing Ex. 1002 at 12–14, 46, 47, 55–61, 70–71, 75, 85–88, 122–125). Petitioner does not appear to refute this construction, but argues that "the 'lower tongue groove surface' and the 'lower tongue surface' should not be limited to the specific structure or configuration set forth in Figure 6" of the '625 Patent. Petitioner's Reply to Patent Owner's Response 1 (Paper 27) ("Petitioner's Reply").

On the full record before us, and for the reasons set forth in our Decision on Institution, we maintain our construction of the term "not in direct contact" as requiring that the entire lower tongue groove surface and the entire lower tongue surface do not contact each other.

2. "Inoperative Surface" and "Inoperative Space"

In our Decision on Institution, we determined that "express construction of the claim terms 'inoperative surface' and 'inoperative space'" was not necessary. Dec. on Inst. 8. *See Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999) ("only those terms need be construed that are in controversy, and only to the extent necessary to resolve the controversy"). Petitioner initially contended that the claim terms "inoperative surface" and "inoperative space" should be "construed according to their ordinary and customary meanings as best understood." Corr. Pet. 10. According to Petitioner, the term "inoperative space" is not mentioned in the Specification of the '625 Patent, although the Specification states that "inoperative surfaces," when "spaced from each other," lessen friction at floorboard edges as floorboards are joined by lateral displacement. *Id*.

According to Patent Owner, "[t]he terms 'inoperative space' and 'inoperative surfaces' should receive their broadest reasonable construction in light of the [S]pecification," which is that "'inoperative surfaces' are surfaces that do not engage each other when two floorboards are joined together, and an 'inoperative space' is the space between inoperative surfaces of the first and second floorboards when the first and second floorboards are joined together." PO Resp. 38.

We discern no difference, relevant to the arguments made by Petitioner and Patent Owner regarding patentability in this proceeding, between the ordinary and customary meaning of the terms "inoperative surface" and "inoperative space," and Patent Owner's proposed construction. We conclude that "inoperative surfaces" to refer to surfaces that do not engage each other when two floorboards are joined together and "inoperative space" to refer to the space between inoperative surfaces of the floorboards when joined.

C. LEVEL OF SKILL IN THE ART

In determining the level of skill in the art, various factors may be considered, including the type of problems encountered in the art, the prior art solutions to those problems, the rapidity with which innovations are made, and the sophistication of the technology. *Custom Accessories, Inc. v. Jeffrey-Allan Indus. Inc.*, 807 F.2d 955, 962 (Fed. Cir. 1986).

Petitioner defined the level of ordinary skill in the art as "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." Corr. Pet. 11–12 (citing Ex. 1003 at 10, ¶ 25); Tr. p. 49, ll. 7–14.

In Patent Owner's Response, Patent Owner contends, citing to the Declaration of Dr. McLean, that:

> A person of ordinary skill in the art at the time of invention of the '625 patent would have been a professional who earned at least a bachelor's degree in engineering or science that covered basic information relating to materials science, mechanics, and chemistry (mechanical engineering, chemistry, materials science), as well as two or more years of experience with materials and mechanical systems. . . . A

> person of ordinary skill could alternatively be a professional with no degree, but who has eight to ten years of industry experience with materials and mechanical systems.

PO Resp. 20 (citing Ex. 2010 ¶ 15).

Petitioner counters that "Dr. MacLean makes the self-serving proposition that a skilled artisan need not have any experience in flooring technology, although the '625 Patent focuses on such technology, but instead need only have experience with 'materials and mechanical systems'" (Exhibit 2010 ¶ 15), and contends that we should reject "Dr. MacLean's proposed definition of skilled artisan." Motion 6–7.

Regarding education, the parties appear to generally be in agreement, and we also agree that one skilled in the art would have an undergraduate degree in the mechanical, materials, or engineering arts. Regarding practical experience, a review of the intrinsic evidence, and particularly considering the extensive prior art listing on the second through sixth pages of the '625 Patent, informs us that flooring design and manufacturing is a crowded art in which patents are sought and obtained on, *inter alia*, small physical differences to locking mechanisms that result in meaningful functional differences of the locking mechanism and thus the entire flooring system. In addition, certain issues in this proceeding turn on a skilled artisan's understanding of how certain terms are commonly defined, or how boards are joined, in the flooring art, e.g., "tongue," "tongue groove," facilitation of vertical locking, and "typical" locking profile creation. *See, e.g.*, Ex. 2010 ¶¶ 16, 24–26, 30, 48. Given these two considerations, we agree with Petitioner that the level of ordinary skill in the art includes "a minimum of 2 years of practical experience in the design, analysis or manufacturing" specifically "of flooring technologies," rather than a certain amount of

experience, generally, with materials and mechanical systems. Corr. Pet. 11–12 (citing Ex. 1003 at 10, ¶ 25); Tr. 49:7–14. Based on the complete record, we find that the level of ordinary skill in the art includes an undergraduate degree in the mechanical, materials, or engineering arts, and a minimum of 2 years of practical experience in the design, analysis or manufacturing specifically of flooring technologies.

D. ANTICIPATION BY MORIAU — CLAIMS 1–12

Petitioner challenges claims 1–12 as anticipated under 35 U.S.C. § 102(b) by Moriau. Corr. Pet. 3, 12–35. In support, Petitioner identifies the disclosure in Moriau alleged to describe the subject matter in each of the challenged claims. *Id.* Petitioner further cites the Declaration of Eddy Boucké (Ex. 1003) in support of the analysis advocated in the Petition. *Id.*

Regarding anticipation based on Moriau, Patent Owner counters that Moriau fails to disclose: (1) a lower tongue surface and a lower tongue groove surface that "are not in direct contact with each other" when two floorboards are joined together (PO Resp. 33–39), (2) an "upwardly directed locking element" (*id.* at 39–41), and (3) a "locking groove which is formed in the underside of said second board and extends parallel with and at a distance from said vertical joint plane" (*id.* at 41–43).

We have reviewed the parties' contentions and supporting evidence. Given the evidence of record, we determine that Petitioner has demonstrated by a preponderance of the evidence that challenged claims 1–12 are anticipated by Moriau. We begin our analysis with a brief summary of Moriau, and then address the parties' contentions in turn.

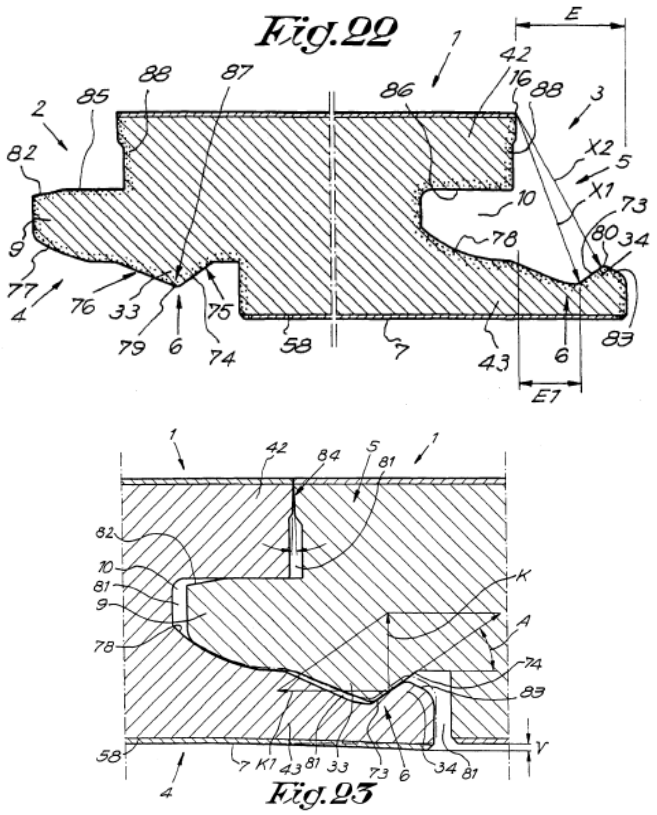
1. Principles of Law

A claim is anticipated if each limitation of the claim is disclosed in a single prior art reference arranged as in the claim. *Net MoneyIN, Inc. v. VeriSign, Inc.*, 545 F.3d 1359, 1369 (Fed. Cir. 2008). As recently reiterated by the Federal Circuit, a reference can anticipate a claim even if it does not expressly spell out all of the limitations arranged or combined as in the claim, if a person of skill in the art, reading the reference, would "'at once envisage' the claimed arrangement or combination." *Kennametal, Inc. v. Ingersoll Cutting Tool Co.*, 780 F.3d 1376, 1381 (Fed. Cir. 2015) (quoting *In re Petering*, 301 F.2d 676, 681 (CCPA 1962)).

2. Overview of Moriau (Ex. 1005)

International Patent Publication No. WO 97/47834 A1 to Moriau was filed June 7, 1997, and published December 18, 1997. Ex. 1005. This Publication claims priority to International Patent Publication No. 96/00527, filed June 11, 1996, and International Patent Publication No. 97/00344, filed April 15, 1997. See *id.*, Priority Data. Moriau is thus prior art to the '625 Patent.

Moriau discloses a floor covering comprising hard floor panels having tongue and groove coupling parts that prevent the drifting apart of coupled floor panels in a vertical or horizontal direction. Ex. 1005, Abstract. Moriau's Figs. 22 and 23, illustrating the embodiment that is relied on by Petitioner to support the anticipation allegation, are reproduced below with a brief relevant summary thereafter.



Figures 22 and 23 illustrate an embodiment of a mating coupling of Moriau's floor panels.

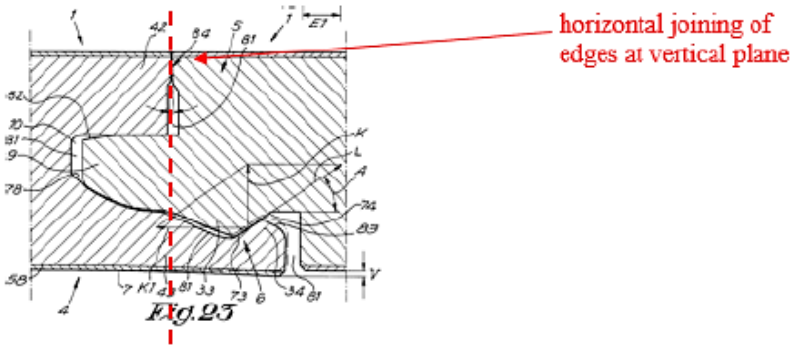
The embodiment of Moriau's Figs. 22–25 includes floor panels 1 (referred to herein as floorboards) having a tongue 9 and a groove 10 for secure but removable mating of adjacent panels. The left floorboard in the illustration of mated floorboards in Fig. 23 has a tongue groove 10 and the right floorboard has a tongue 9 shaped to interlock with the groove 10. *See* Ex. 1005, 10:29–31, 19:31–20:23. A strip (lip 43) is formed from a core 5 of the left board 1 and includes a locking element 6, having a surface 73 that engages complementary surface 74 of a locking element 33 on the tongue 9. Ex. 1005, 20:5–20. A portion of the lower lip 43 extends beyond the upper lip 42. *Id.* at 25, 26–32. The floorboards can be engaged by a turning movement, or by laterally shifting them toward each other. *Id.* at 22:12–33. Moriau also discloses the benefits of "dust chambers" 81 to prevent

"inclusions" from interfering with engagement of the floorboards 1, and also contact surfaces at 84, 85–86, and 77–78. *Id.* at 24:14–25:18. Moriau includes a number of embodiments having tongue and groove mating and a lower lip locking means 6, and contemplates that the features of the embodiments "can also be present separately" or combined. *Id.* at 25:20–24.

1. Discussion

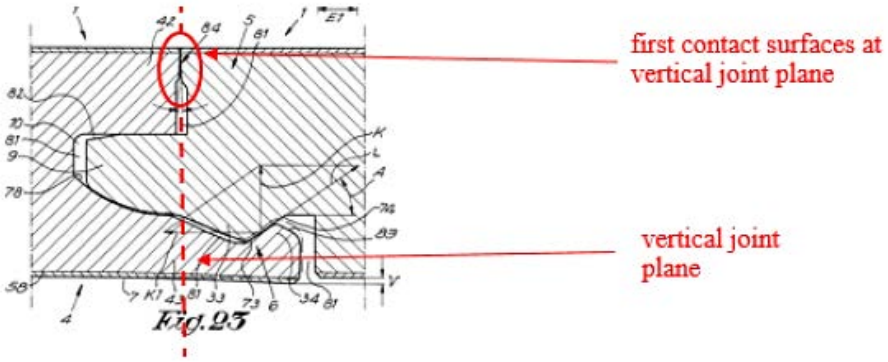
Independent Claim 1

Petitioner contends that the preamble of claim 1, "[a] locking system[] for mechanical joining of floorboards," is disclosed by Moriau. Corr. Pet. 12 (citing Ex. 1005, Abstract). Regarding claim 1's recitation of "for horizontal joining of a first and a second joint edge portion of a first and a second floorboard respectively at a vertical joint plane," Petitioner contends that this limitation is disclosed in the embodiment of Moriau's Fig. 23, annotated as shown below:



Corr. Pet. 13.

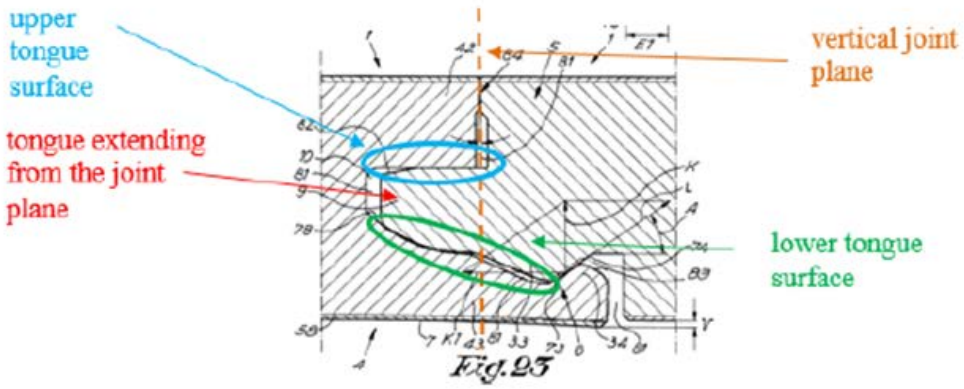
Regarding claim 1's recitation of "first contact surfaces at the vertical joint plane," Petitioner contends that this limitation is disclosed in the embodiment of Moriau's Fig. 23 as follows:



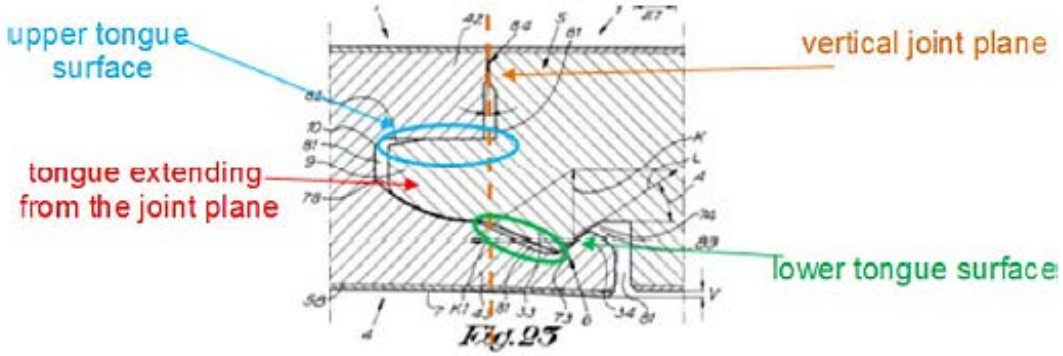
Corr. Pet. 14.

Regarding claim 1's recitation of "for vertical joining of the first and second joint edge portions," Petitioner contends that Moriau achieves vertical joining via tongue 9 and groove 10. Corr. Pet. 15 (citing Ex. 1005, 12:3–11, 24:35–25:5.).

Regarding claim 1's recitation of "a tongue . . . having an upper tongue surface and a lower tongue surface," Petitioner contends that this limitation is disclosed in the embodiment of Moriau's Fig. 23 in two possible ways. Corr. Pet. 15. Either the lower tongue surface can be defined as an entire lower surface of the tongue,

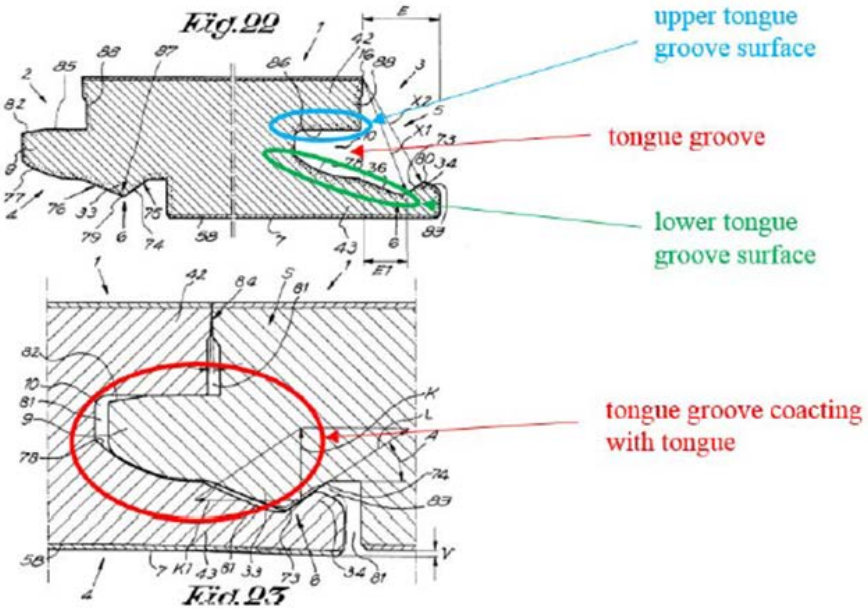


or the lower tongue surface can be defined as a portion of the lower surface of the tongue:



Id. It is Petitioner's contention that either the larger or smaller respective surfaces of the tongue and groove described above discloses the lower surfaces recited in this limitation. *See id.*

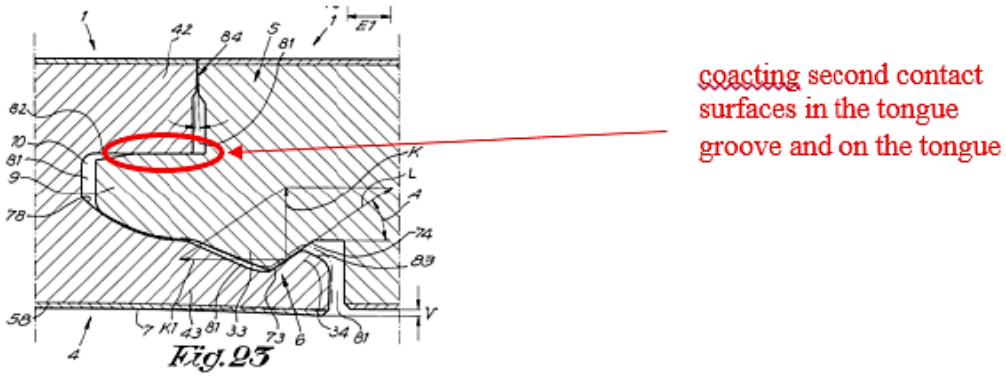
Regarding claim 1's recitation of "a tongue groove adapted to coact with said tongue, the tongue groove having an upper tongue groove surface and a lower tongue groove surface," Petitioner contends that this limitation is disclosed in the embodiment of Moriau's Figs. 22 and 23 as follows:



Corr. Pet. 16. Petitioner's contention above, that either the larger or smaller surfaces of the tongue described above meet the lower tongue surface

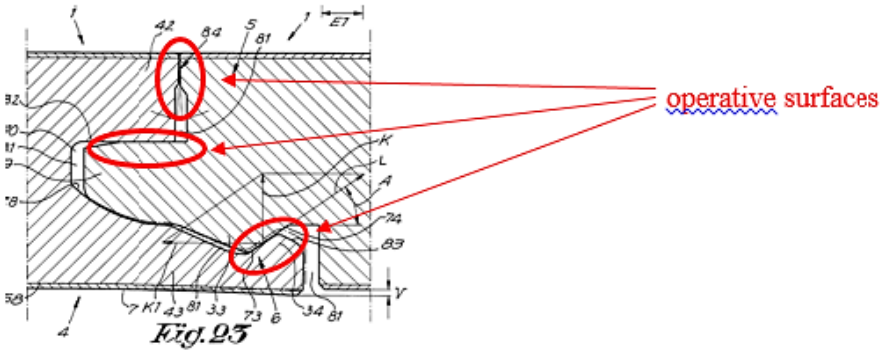
limitation, can be understood as applying to the lower tongue groove surface limitation as well.

Regarding claim 1's recitation of "coacting second contact surfaces positioned in said tongue groove and on said tongue," Petitioner contends that this limitation is disclosed in the embodiment of Moriau's Fig. 23 as follows:



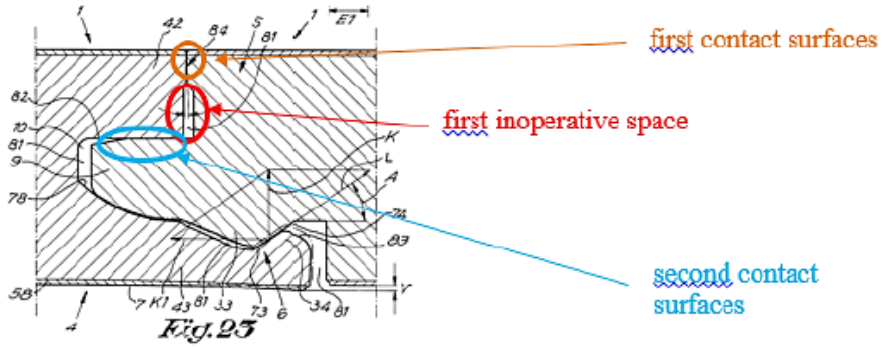
Corr. Pet. 17 (citing Ex. 1005, 25:6–18).

Regarding claim 1's recitation of "wherein the locking surfaces, the coacting second contact surfaces, and the first contact surfaces at the vertical joint plane are configured to be operative surfaces in a laid floor," Petitioner contends that this limitation is disclosed in the embodiment of Moriau's Fig. 23 as follows:



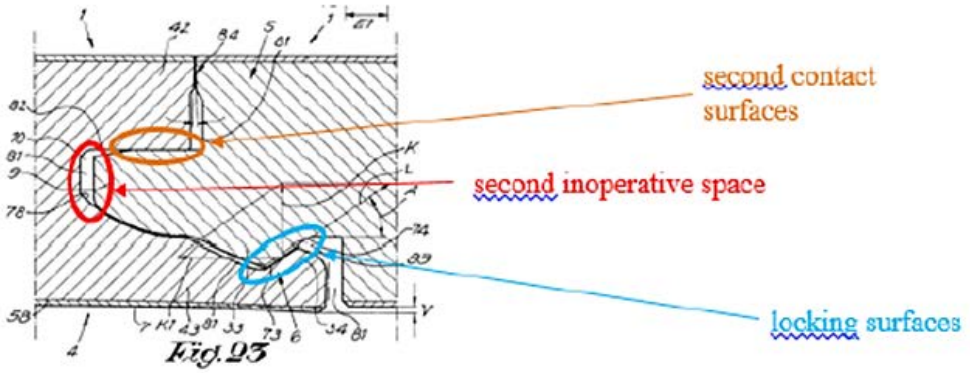
Corr. Pet. 17; *see also* Ex. 1005, 24:35–25:18.

Regarding claim 1's recitation of "a first inoperative space in the locking system between the first coacting contact surfaces and the second coacting contact surfaces when the first and the second floorboards are joined horizontally and vertically," Petitioner contends that this limitation is disclosed in the embodiment of Moriau's Fig. 23 as follows:



Corr. Pet. 18 (citing Ex. 1005, 24:14–19 (describing spaces 81 as dust chambers that avoid adverse influence on locking by inclusions that get between floor panels)).

Regarding claim 1's recitation of "a second inoperative space in the locking system between the second coacting contact surfaces and the locking surfaces when the first and the second floorboards are joined horizontally and vertically," Petitioner contends that this limitation is disclosed in the embodiment of Moriau's Fig. 23 as follows:



Corr. Pet. 18 (citing Ex. 1005, 24:14–19).

Regarding claim 1's recitation of "wherein said inoperative spaces are configured to be spaced from each other when the first and the second floorboards are joined horizontally and vertically," Petitioner contends that this limitation is disclosed in the embodiment of Moriau's Fig. 23 as follows:

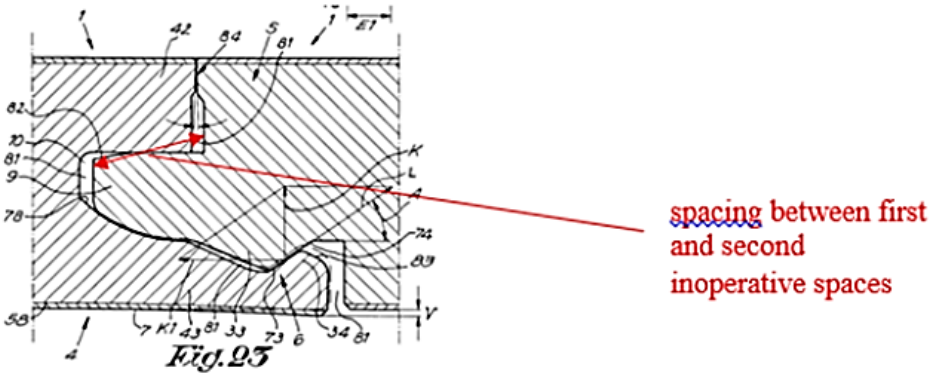


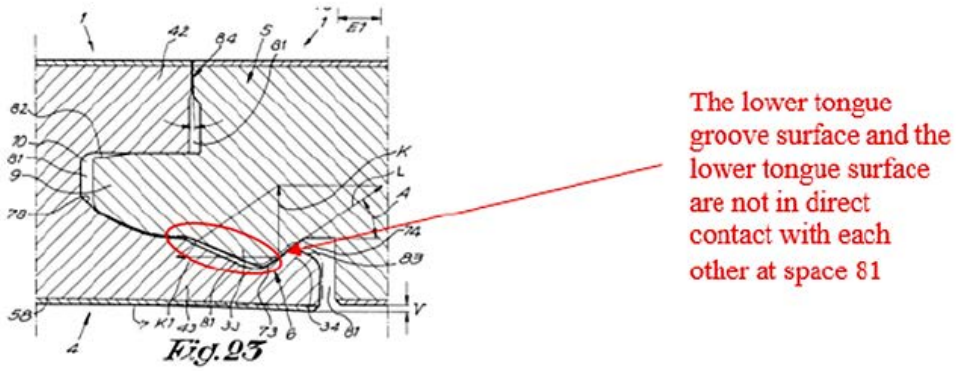
Fig. 23

Corr. Pet. 20.

Patent Owner does not challenge the above assertions, and Petitioner presents sufficient arguments and credible evidence to support a finding that the above assertions are accurate.

Lower Tongue Surface and Lower Tongue Groove Surface Not in Contact

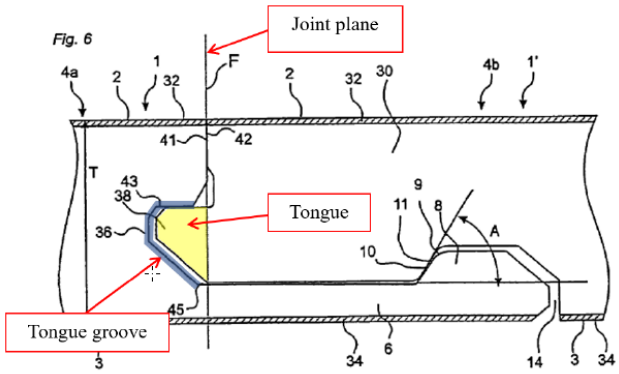
Regarding claim 1's recitation of "the lower tongue groove surface and the lower tongue surface are not in direct contact with each other when the first and the second floorboards are joined horizontally and vertically," Petitioner contends that this limitation is disclosed in the embodiment of Moriau's Fig. 23 as follows:



Corr. Pet. 19.

Referring to annotated Figure 23 above, Petitioner contends that Moriau's complementary lower tongue and groove surfaces can be defined as designated in the above figure such that "[t]he circled surface of [Moriau's] tongue is a lower tongue surface and it is not in contact with the corresponding surface of the lower tongue groove surface." Corr. Pet. 19–20.

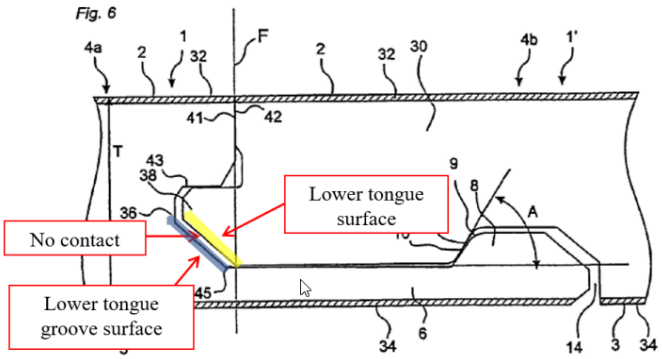
Patent Owner challenges this contention, arguing that the tongue and tongue groove contemplated by the '625 Patent are limited to the structure highlighted below:



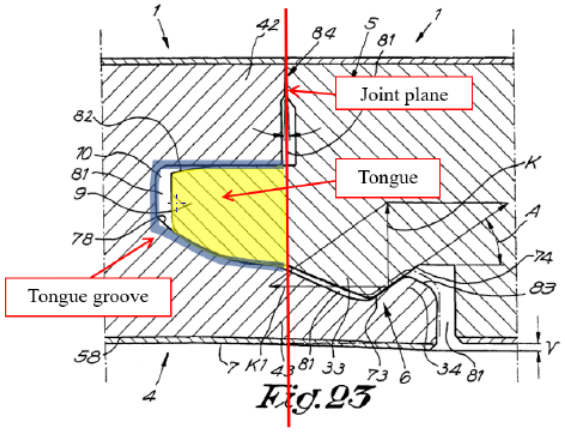
PO Resp. 33–34.

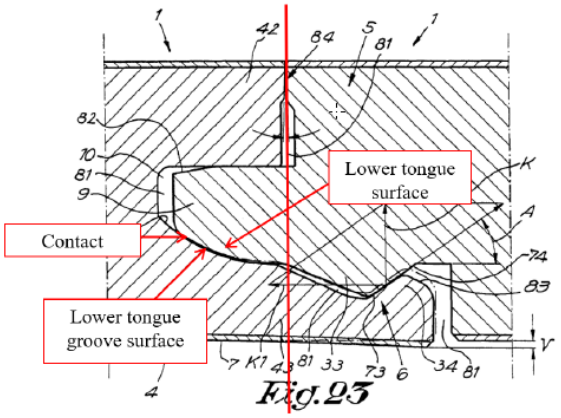
According to Patent Owner, because the claimed tongue (yellow) "extends from" the joint plane F, and the tongue groove (blue) is "adapted to coact with" the tongue, the claimed tongue and tongue groove include only

portions of the locking system that "originate at" the joint plate F. Tr. p. 27, ll. 6 – p. 28, l. 2. According to Patent Owner, the lower tongue surface and lower tongue groove surface of the '625 Patent, specifically, can be identified as shown in the below annotated version of Figure 6 of the '625 Patent:



PO Resp. 25; Ex. 2010 ¶ 39. Patent Owner then provides annotated versions of Moriau's Figure 23 below, and argues that Moriau does not disclose this "no contact" claim limitation because, defining Moriau's tongue as the portion extending beyond the vertical joint plane, Moriau's lower tongue groove surface (blue) and lower tongue surface (yellow) directly contact each other. *Id.* at 35 (citing Ex. 2010 ¶¶ 45, 48).





Id. at 36–37.

Patent Owner continues that Moriau "seeks to have direct contact" in that its lower tongue surface and lower tongue groove surface are disclosed to constitute "'contact surfaces cooperating with each other, formed by curvatures 77-78,'" the contact being "necessary" to prevent floor panel height displacement. *Id.* at 37 (citing Ex. 1005, 25:10–18, 24:1–5; Ex. 2010 ¶ 48). Regarding Petitioner's designation of a portion of the tongue as a lower tongue surface and a portion of the lower tongue groove as a lower tongue groove surface, Patent Owner argues that "there is no indication in the claims or specification that the lower tongue surface and the lower tongue groove surface can be further subdivided, e.g., a lower portion of the lower tongue surface" to satisfy the "not in direct contact" requirement, and that Petitioners designation "invites arbitrary line drawing as to what is the 'lower portion' of the lower tongue groove." *Id.* at 38–39 (citing Ex. 1001, 14:3–6; Ex. 2010 ¶ 45).

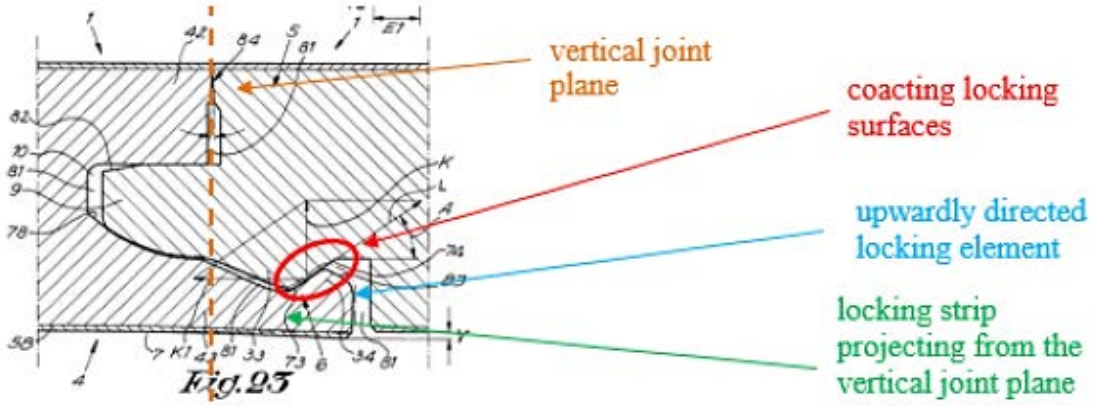
Patent Owner has provided no evidence to support its contention that the claim term "extends from" means "originates from," and we are therefore not persuaded that Moriau's tongue surface fails to satisfy this limitation. *See, e.g.*, Tr. p. 27, l. 6 – p. 28, l. 12. For example, our review of Figures 6 and 7 of the '625 Patent reveals that Patent Owner's tongue appears to extend across the joint plane a small amount, and the Specification states that the invention relates to a locking system comprising, *inter alia*, "a tongue which *at least partly* projects and extends from the joint plane." Ex. 1001, 1:29–30 (emphasis added). This disclosure in the '625 Patent, thus, weighs against Patent Owner's contention that "extends from" a joint plane excludes Moriau's tongue 9 that extends through the joint plane of the joined floorboards.

We are also more persuaded by the testimony of Petitioner's expert, Eddy Boucké, that the tongue of the '625 patent should not be restricted to the tongue portion positioned to the left relative to the joint plane F, citing as evidence that, in Figure 7 of the '625 Patent, "due to the contact surface along length L, [which] justifies, and even requires, that the tongue is interpreted more broadly and in such a way that region 'D2' also is considered to be part of the tongue." Ex. 1003 ¶¶ 28, 29. Although Patent Owner's expert, Dr. MacLean, contends that the claimed "tongue" "is commonly understood by those skilled in the art as the portion extending beyond the joint plane" (Ex. 2010, ¶ 16), Dr. MacLean cites no evidentiary support for this contention and admittedly has no experience specifically with flooring systems and the terminology used therein.

Based on the present record, we determine that Petitioner provides sufficient arguments and credible evidence to support a finding that Moriau discloses a lower tongue groove surface and a lower tongue surface that "are not in direct contact with each other when the first and the second floorboards are joined horizontally and vertically."

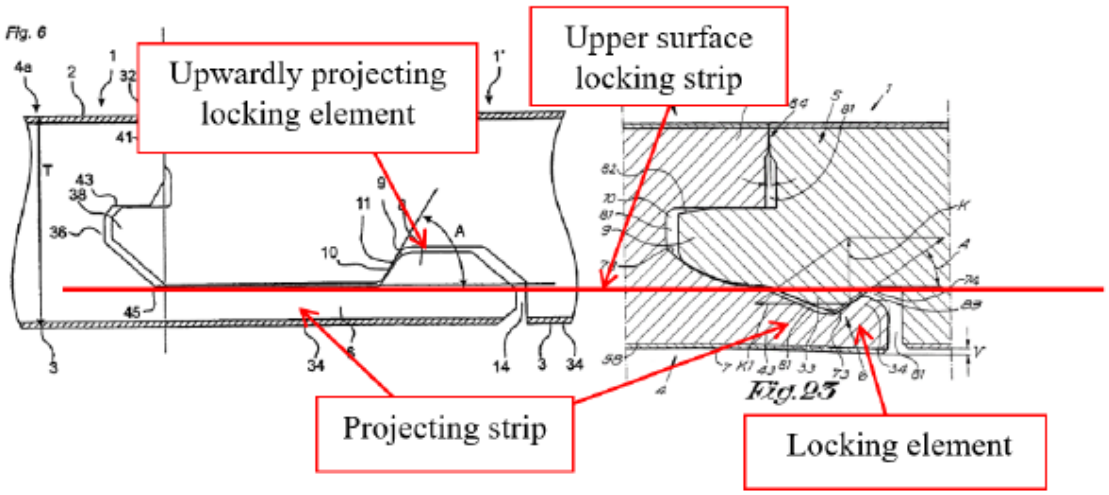
Upwardly Directed Locking Element

Regarding claim 1's recitation of "a strip integrally formed with a core of said first board, which strip at said first joint edge projects from said vertical joint plane and supports an upwardly directed locking element with a locking surface for coaction with a locking surface in said locking groove," Petitioner contends that this limitation is disclosed in the embodiment of Moriau's Fig. 23 as follows:



Corr. Pet. 13–14.

Patent Owner argues that the claim recites a locking strip projecting from the vertical joint plane and supporting an upwardly directed locking element, and Moriau instead discloses a groove carved out of its strip. PO Resp. 39–40 (citing Ex. 1005, Figs. 22–25; Ex. 2010 ¶ 51). Patent Owner provides the following annotated side-by-side comparison of Figure 6 of the '625 Patent and Figure 23 of Moriau, which allegedly "highlights the distinction" between the claimed upwardly directed locking element and Moriau's structure:



Id. at 40.

According to Patent Owner, Moriau's "recess carved into the strip cannot achieve the benefits of the upwardly directed locking element." *Id.* at 41 (citing Ex. 1001 at 10:1–3, 10:27–32). Patent Owner contends that Moriau "weakens its locking strip by cutting into it during manufacturing and places the locking surface in the lower portion of the strip," resulting "in an overall weaker joint." *Id.* (citing Ex. 2010 ¶ 51). Patent Owner has not persuasively explained the "benefits" of its upwardly directed locking element, or why Moriau's strip fails to achieve such "benefits," nor are such "benefits" recited in the claims of the '625 Patent. To the extent that one of the "benefits" is joint strength, Patent Owner's argument that Moriau has an overall weaker joint, even if supported by evidence, would not be persuasive of a patentable distinction, because joint strength is not recited in the claims.

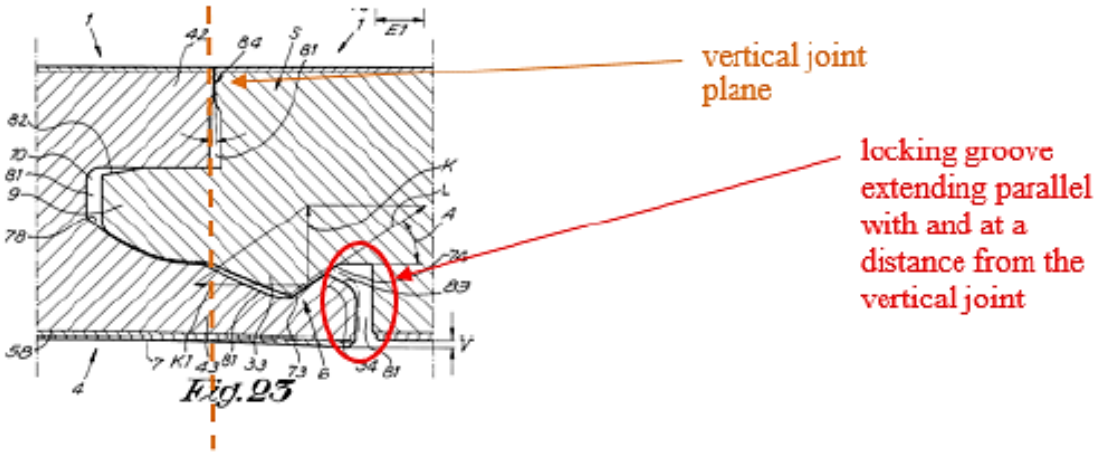
Patent Owner further appears to argue that, to be "upwardly directed" as claimed, a locking element must project above a surface of the locking strip. PO Resp. 39–40. *Id.* This argument is not persuasive, because the claim only recites the direction (upward) *in which* the locking element is directed, not any kind of level, region, or plane *from which* the locking element is directed. Patent Owner's attempt to create a delineating level from which the claimed upward direction is defined is not persuasive because it is not directed to limitations actually recited in the claims.

Based on the present record, we determine that Petitioner provides sufficient arguments and credible evidence to support a finding that Moriau discloses an upwardly directed locking element.

Locking Groove Formed in the Underside

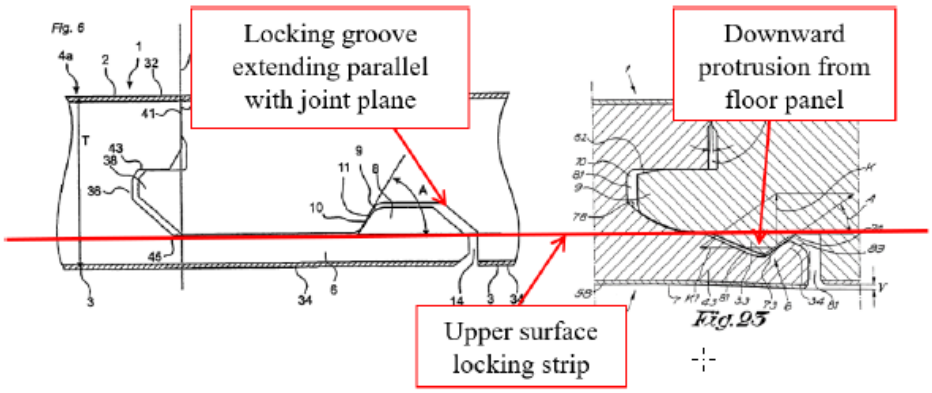
Regarding claim 1's recitation of "a locking groove which is formed in the underside of said second board and extends parallel with and at a

distance from said vertical joint plane at said second joint edge," Petitioner contends that this limitation is disclosed in the embodiment of Moriau's Fig. 23 as follows:



Corr. Pet. 13. The underside of the floorboard can be defined as the side of the floorboard that sits on the strip 43. Tr. p. 8, ll. 1–3.

Patent Owner argues that, instead of disclosing the claimed locking groove formed in an underside of the second board and extending parallel with the vertical joint plane, Moriau discloses "a *downward protrusion* in the second floorboard." PO Resp. 42. Patent Owner supports this argument with the following annotated side-by-side comparison of Figure 6 of the '625 Patent and Figure 23 of Moriau (similar to the above annotated comparison), which shows a portion of Moriau's device below a line drawn along the upper surface of the locking strip of the embodiment of Figure 6 of the '625 Patent.



Id. at 42.

This argument is not persuasive, because the claim only recites the locking element formed in an underside, not any kind of level, region, or plane that defines or delineates the underside. Further, Patent Owner fails to explain how the level, region, or plane annotated above is relevant to defining or delineating the underside of the floorboard. In addition, Patent Owner's argument does not address the portion of Moriau's locking system that Petitioner actually contends is the locking groove, designated in Moriau's Figure 23 as existing at the location of Moriau's dust chamber 81.

As set forth above in Section I(D)(3), the underside of the floorboard can be defined as the side of the floorboard that sits on the strip 43. *See* Tr. p. 8, ll. 1–3. A review of Moriau informs us that Figure 23 indeed includes a groove, beginning at dust chamber 81 on the lower right corner of Figure 23, that is formed in an underside thereof, and which co-acts with locking means 6. Indeed, the groove beginning at dust chamber 81 is formed in a manner to complement strip 43 to facilitate the intended coaction to strip 43 with an underside of a mating floorboard. Patent Owner fails to explain why the existence of a downward protrusion in Moriau, as annotated in the above comparison, prevents the area designated at location 81 on the lower right

corner of Moriau's Figure 23, from being a groove formed in the underside of the floorboard.

Based on the present record, we determine that Petitioner provides sufficient arguments and credible evidence to support a finding that Moriau discloses a locking groove that is formed in the underside of said second board and extends parallel with and at a distance from said vertical joint plane at said second joint edge.

Dependent Claim 2

Regarding dependent claim 2, Petitioner contends that Moriau discloses a core, a "surface layer on the upper side of the core," and a "balancing layer on the rear side of the core." Corr. Pet. 21–25 (citing Ex. 1005, 17:29–18:4, 18:10–15, 17:25–29). Patent Owner does not refute these contentions, and we discern no error in them. We find that Moriau discloses a core, a surface layer on the upper side of a core, and a balancing layer on a rear side of the core.

Dependent Claim 3

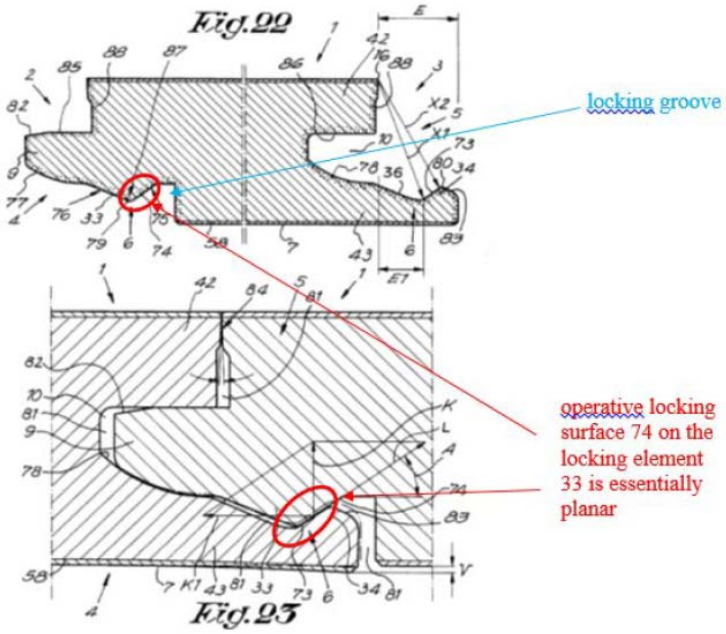
Regarding dependent claim 3, Petitioner contends that Moriau discloses an "essentially planar" operative locking surface 73 on the locking element 34. Corr. Pet. 21 (citing Ex. 1005, 13:10–13, 20:15–23, 23:21–31). Patent Owner does not refute this contention, and we discern no error in it. We find that Moriau discloses an essentially planar operative locking surface on its locking element.

Dependent Claim 4

Regarding dependent claim 4, Petitioner contends that Moriau discloses an operative locking surface of the locking element being located at an upper part of the locking element, at a distance from an upper side of the projecting strip, and facing the joint plane. *See* Corr. Pet. 23. Patent Owner does not refute this contention, and we discern no error in it. We find that Moriau discloses an operative locking surface located at an upper part of its locking element, at a distance from an upper side of the projecting strip, and facing the joint plane.

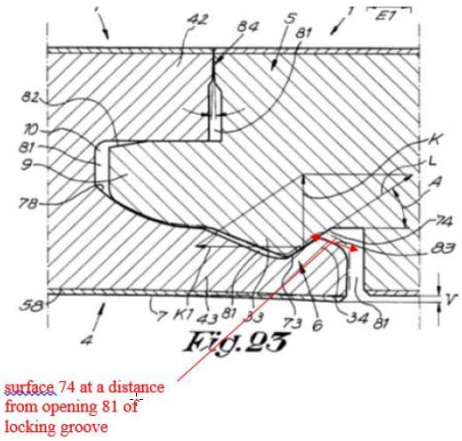
Dependent Claim 5

Regarding dependent claim 5, Petitioner contends that Moriau discloses a locking groove having a planar operative locking surface as illustrated in the annotated version of Moriau's Figures 22 and 23 shown below:



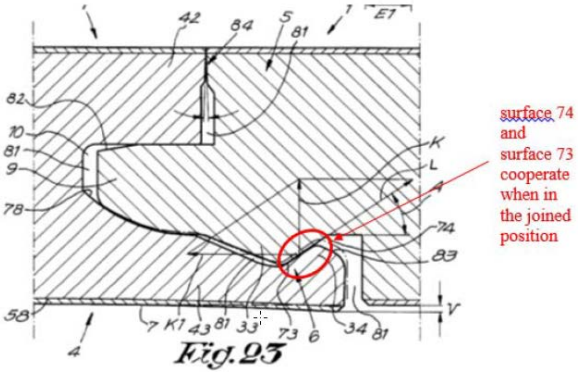
Corr. Pet. 24 (citing Ex. 1005, 23:21–31).

Petitioner contends that Moriau's planar operative locking surface is located in the locking groove and at a distance from an opening of the locking groove, as illustrated in the annotated version of Moriau's Figure 23 shown below:



Id. at 25.

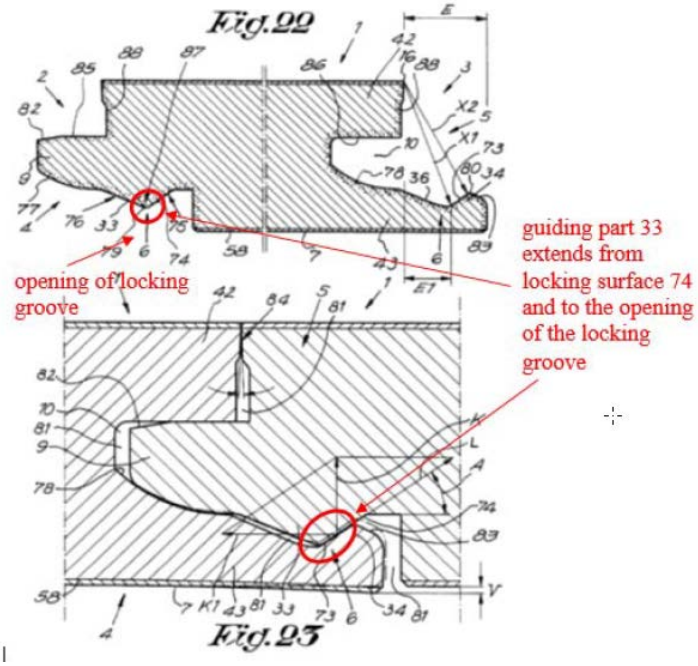
Petitioner also contends that Moriau's locking groove is designed to cooperate with a locking surface 73 of the upwardly directed locking element 34 in the joined position, as shown in the annotated version of Moriau's Figure 23 shown below:



Id. at 25–26.

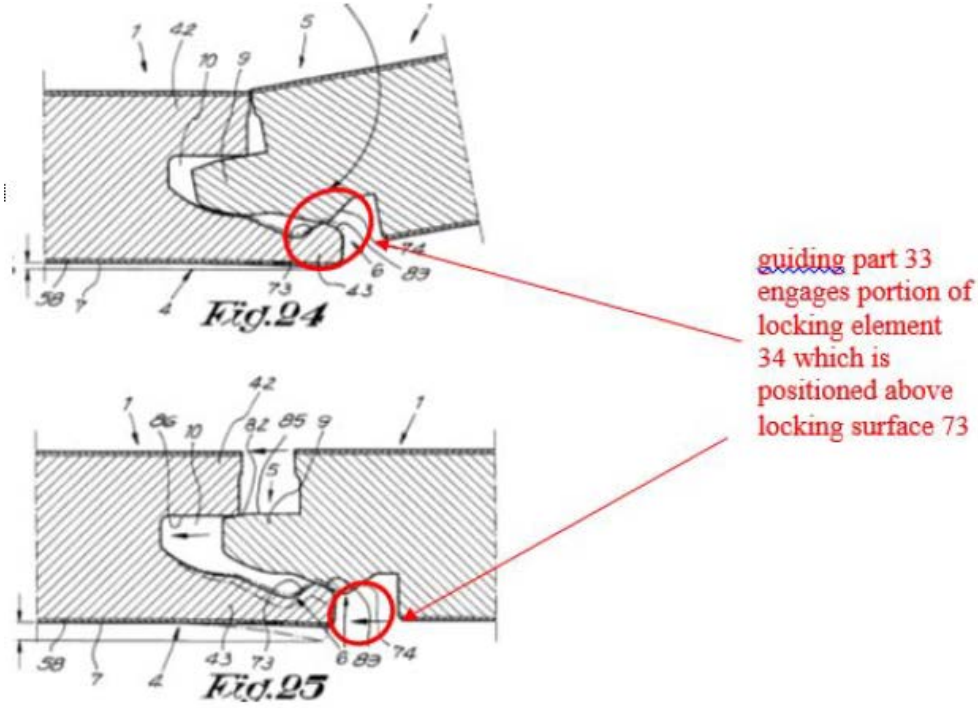
Petitioner next contends that Moriau's locking groove, at a lower edge closest to the joint plane, has an inclined or rounded guiding part 33 that extends from the locking surface of the locking groove to the opening of the

locking groove, as shown in the annotated versions of Moriau's Figures 22 and 23 shown below:



Id. at 26–27 (citing Ex. 1005, 23:21–31).

Petitioner lastly contends that Moriau's locking groove is adapted to guide the locking element into the locking groove by engaging a portion of the locking element positioned above the locking surface of the locking element or adjacent to its upper edge, and provides the following annotated version of Moriau's Figure 24 and 25 in support thereof:



Id. at 27–28 (citing Ex. 1005, 24:6–13).

Patent Owner does not refute these contentions, and we discern no error in them. We find that Moriau discloses the elements recite in claim 5.

Dependent Claims 6 and 7

Claim 6 depends from claim 5. Claim 7 depends from claim 3. Each of claims 6 and 7 recite operative locking surfaces of the locking element and the locking groove make a locking angle of at least 50 degree to the upper side of the boards. Regarding dependent claim 6, Petitioner contends that Moriau discloses the operative locking surfaces of the locking element and the locking groove making a locking angle of at least 50º "to the upper side of the boards." Corr. Pet. 29 (citing Ex. 1005, 20:35–21:1). Petitioner provides the following annotated version of Moriau's Figure 23 to illustrate the locking angle thereof:

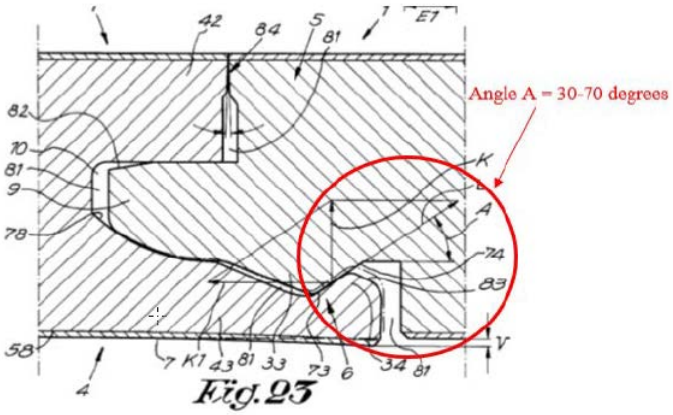


Fig. 23

Id. Patent Owner does not refute this contention, and we discern we no error in it. We find that Moriau discloses its operative locking surfaces and locking groove making a locking angle of at least 50 degree to the upper side of the boards.

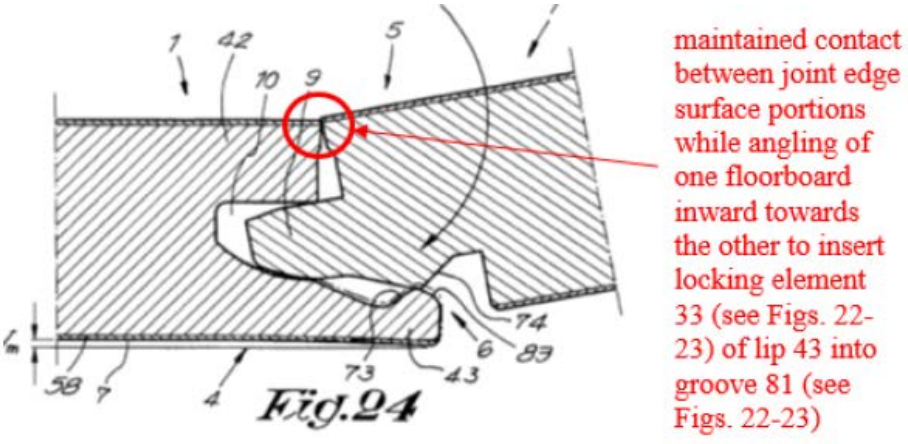
Dependent Claim 8

Claim 8 depends from claim 3, and recites:

> elements of the locking system which cooperate for vertical locking and elements of the locking system which cooperate for horizontal locking have a configuration that allows insertion of the locking element into the locking groove by inward angling of one floorboard towards the other floorboard while maintaining contact between the joint edge surface portions of the two floorboards close to the border between the joint plane and the upper side of the floorboards.

Ex. 1001 14:41–49.

Petitioner provides the following annotated version of Moriau's Figure 24 to show that Moriau discloses these limitations:



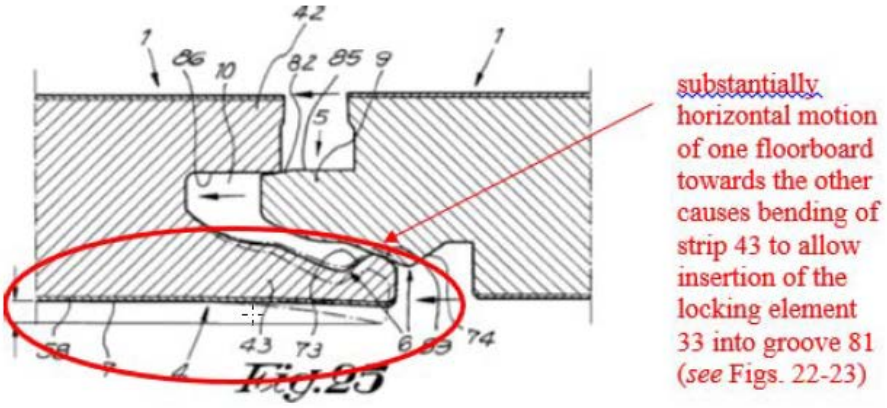
Corr. Pet. 30 (citing Ex. 1005, 22:12–23). Patent Owner does not refute this contention, and we discern no error in it. We find that Moriau discloses the recitations of claim 8.

Dependent Claims 9 and 10

Claim 9 depends from claim 8. Claim 10 depends from claim 3. Each of these claimed recites:

> elements of the locking system which cooperate for vertical locking and elements of the locking system which cooperate for horizontal locking have a configuration which allows insertion of the locking element into the locking groove by a substantially horizontal motion of one floorboard towards the other floorboard during bending of the integrated strip for snapping in the locking element into the locking groove.

Ex. 1001, 14:50–57. Thus, claim 9 requires that floorboard joining can be accomplished by either an angled motion (via dependency on claim 8) or a horizontal motion, and claim 10 requires floorboard joining via horizontal motion. Petitioner refers to the above annotated version of Moriau's Figure 24 to illustrate angled joining, and then refers to the following annotated version of Moriau's Figure 24 to show Moriau's horizontal joining:



Id. at 31.

In addition, Petitioner explains that "Moriau describes that it is possible to engage the floor panels of FIGS. 22–25 by a turning movement, as well as by means of a horizontal shifting resulting in the floorboards being 'snapped' together." *Id.* (citing Ex. 1005, 22:12–31). Petitioner contends that Moriau also discloses the claimed strip bending. *Id.* (citing Ex. 1005, 20:5–14 (discussing bending of strip 43)). Patent Owner does not refute this contention, and we discern no error in it. We find that Moriau discloses the recitations of claim 9.

Independent Claim 11

Petitioner contends, correctly, that the following limitations are common to both independent claim 1 and independent claim 11:

> A locking system for mechanical joining of floorboards, said locking system comprising:
>
> for horizontal joining of a first and a second joint edge portion of a first and a second floorboard respectively at a vertical joint plane:
>
> a locking groove which is formed in the underside of said second board and extends parallel with and at a distance from said vertical joint plane at said second joint edge,
>
> a strip integrally formed with the core of said first board, which strip at said first joint edge projects from said vertical

joint plane and supports an upwardly directed locking element with a locking surface for coaction with a locking surface in said locking groove, and

first coacting contact surfaces at the vertical joint plane,

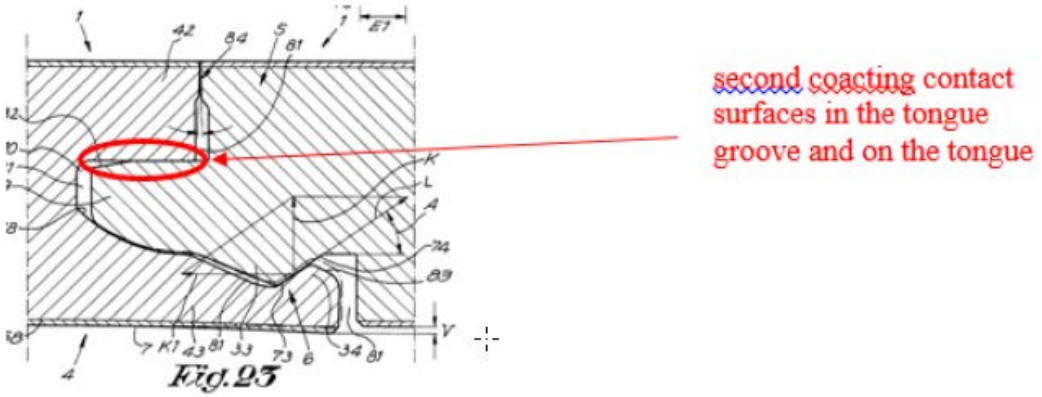
and for vertical joining of the first and second joint edge portions:

a tongue which extends from the joint plane and having an upper tongue surface,

a tongue groove adapted to coact with said tongue and having an upper tongue groove surface,

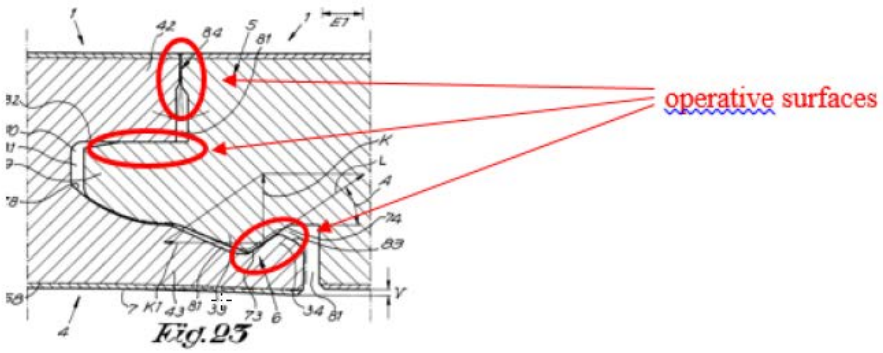
Corr. Pet. 32.

Petitioner then contends that Moriau discloses an upper tongue surface and an upper tongue groove surface comprising "second coacting contact surfaces in said tongue groove and on said tongue," providing the following annotated version of Moriau Figure 23 to support the contention:



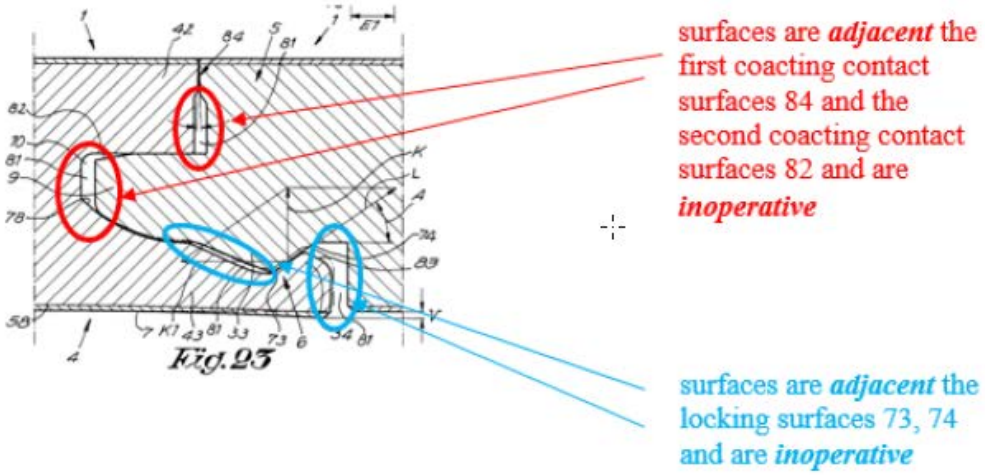
Id. (citing Ex. 1005, 25:6–18).

Petitioner next contends that Moriau discloses the locking surfaces, the first coacting contact surfaces, and the second coacting contact surfaces being "configured to be operative surfaces in a laid floor." *Id.* at 32–33. Petitioner supports this contention with the following annotated version of Moriau's Figure 23:



Id. at 32.

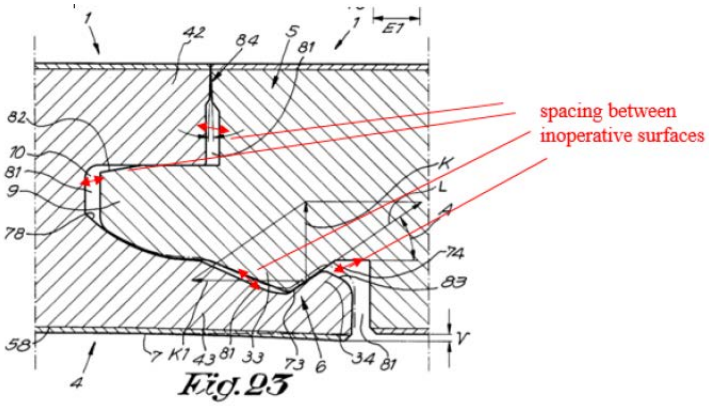
Petitioner next contends that Moriau discloses "all other adjacent surfaces in the locking system [being] inoperative surfaces," supporting the contention with the following annotated version of Moriau's Figure 23:

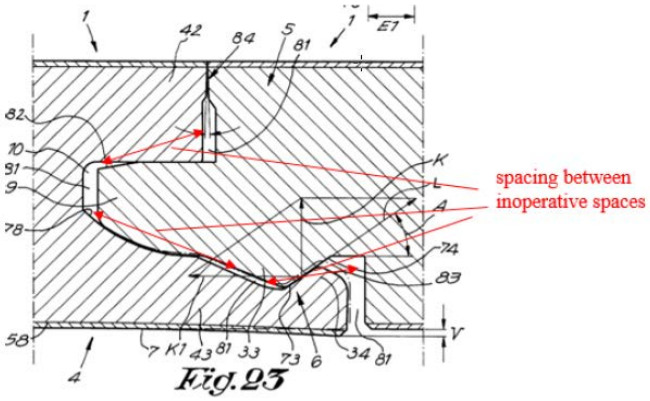


Id. at 33. According to Petitioner, "'[a]ll other adjacent surfaces' are those surfaces adjacent the operative surfaces, namely the first coacting contact surfaces 84, the second coacting contact surfaces 82, and locking surfaces 73, 74. All surfaces adjacent to those operative surfaces are inoperative," for example space 81. *Id.*

Lastly, Petitioner contends that Moriau discloses the inoperative surfaces being "spaced from each other when the first and the second floorboards are joined horizontally and vertically." *Id.* at 34–35. To support

this contention, Petitioner provides two annotated versions of Moriau's Figure 23, which address possible differing interpretations of "spaced from":





Id.

Patent Owner's arguments that independent claim 11 is patentable over Moriau include that (1) Moriau fails to disclose an "upwardly directed locking element" (PO Resp. 39–41), and (2) Moriau fails to disclose a "locking groove which is formed in the underside of said second board and extends parallel with and at a distance from said vertical joint plane" (*id.* at 41–43). These arguments are not persuasive for the reasons set forth above in our analysis of independent claim 1. We find that Moriau discloses the recitations of independent claim 11.

Dependent Claim 12

Petitioner contends that the recitation of claim 12 is substantially the same as the recitation of claim 2, and that Moriau discloses the limitations of claim 12 for the same reasons set forth above regarding claim 2. Corr. Pet. 35; *see also id.* at 21 (citing Ex. 1005, 17:29–18:4, 18:10–15, 17:25–29). Patent Owner does not refute these contentions, and we discern no error in them. We find that Moriau discloses the recitations of claim 12.

Conclusion

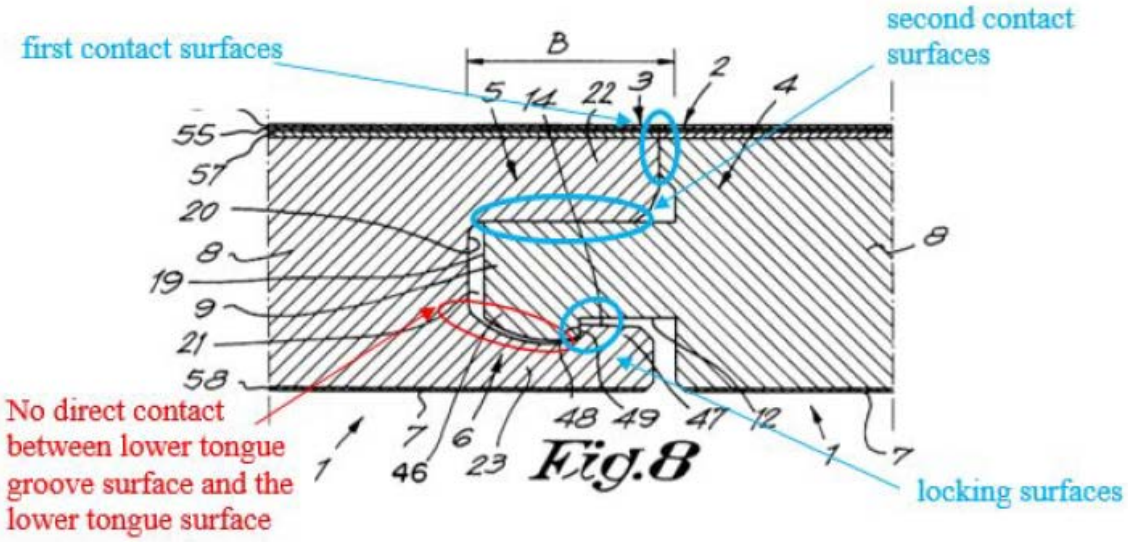
For the reasons set forth above, we determine that Petitioner has demonstrated by a preponderance of the evidence that claims 1–12 are anticipated by Moriau.

E. OBVIOUSNESS OVER EMBODIMENTS OF MORIAU

We next consider Petitioner's alternative contention that claims 1–12 are unpatentable under 35 U.S.C. § 103(a) over various embodiments of Moriau. Corr. Pet. 3. Petitioner's Grounds II – IV present combinations of three embodiments of Moriau — the embodiment of Fig. 8, the embodiment of Fig. 9, and the embodiment of Figs. 22–25. *Id.* In Ground II, Petitioner contends that it would have been obvious to a skilled artisan to modify the embodiment of Moriau's Figure 8 to have (1) the strip shown in the embodiment of Moriau's Figure 23 that projects from the vertical joint plane (Corr. Pet. 37), and (2) the lower tongue surface and lower tongue groove surface of the embodiment of Moriau's Figure 23 that are not in direct contact with each other when the floorboards are joined (*id.* at 40–41 (given our construction of "not in direct contact" as meaning that the entire lower tongue groove surface and the entire lower tongue surface do not contact each other)). Similarly, in Ground III, Petitioner contends that it would have

been obvious to a skilled artisan to modify the embodiment of Moriau's Figure 9 to have (1) the strip shown in the embodiment of Moriau's Figure 23 that projects from the vertical joint plane (Corr. Pet. 60), and (2) the lower tongue surface and lower tongue groove surface of the embodiment of Moriau's Figure 23 that are not in direct contact with each other when the floorboards are joined (*id.* at 66 (again, given our construction of "not in direct contact" as meaning that the entire lower tongue groove surface and the entire lower tongue surface do not contact each other)).

In Ground IV, Petitioner contends that, if we determine that the embodiment of Moriau's Figures 22–25 fails to disclose a lower tongue groove surface that is not in direct contact with the lower tongue surface, it would have been obvious to a skilled artisan to modify the embodiment of Moriau's Figures 22–25 with its "FIGS. 8 and 9 to machine surfaces 77, 78 such that there is no direct contact between the lower tongue groove surface and the lower tongue surface," providing the following annotated version of Moriau's Figure 8 by way of explanation:



Id. at 82. According to Petitioner, there is no direct contact between the lower surface of tongue 9 and the lower groove surface formed on strip 23. Corr. Pet. 83–84 (citing Ex. 1005, 24:14–19). Regarding combinability of the embodiments, Petitioner notes that Moriau "provides express direction to combine features of its various embodiments." Corr. Pet. 85 (Ex. 1005, 25:20–24, 27:34–36).

Patent Owner counters, regarding the various proposed combinations, that: (1) a skilled artisan would not have been motivated to add the extended locking strip shown in Moriau's Figures 22–25 to the embodiment of Moriau's Figure 8 (*id.* at 43–48, 53–57); (2) the proposed combination of Moriau's embodiments fails to disclose a lower tongue groove surface and a lower tongue surface that "are not in direct contact with each other" (*id.* at 49–50, 58–60, 64–66); (3) the proposed combination of Moriau's embodiments fails to disclose "all other adjacent surface in the locking system" being "inoperative surfaces" (*id.* at 51–52, 60–61, 67); (4) the proposed combination of Moriau's embodiments fails to disclose the insertion limitations of dependent claims 8 and 9 (*id.* at 52–52, 61–62); (5) Moriau fails to disclose an "upwardly directed locking element" (*id.* at 62–64); and (6) Moriau fails to disclose a "locking groove which is formed in the underside of said second board and extends parallel with and at a distance from said vertical joint plane" (*id.*). We are not persuaded by counter arguments 3–6 above for the reasons set forth above in our analysis of Ground I. We address Patent Owner's counter arguments (1) and (2) below.

1. Principles of Law

A claim is unpatentable under § 103(a) 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 the subject matter pertains. *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 skill in the art; and (4) when in evidence, so-called secondary considerations. *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17–18 (1966). We analyze obviousness in accordance with the above-stated principles.

2. Discussion

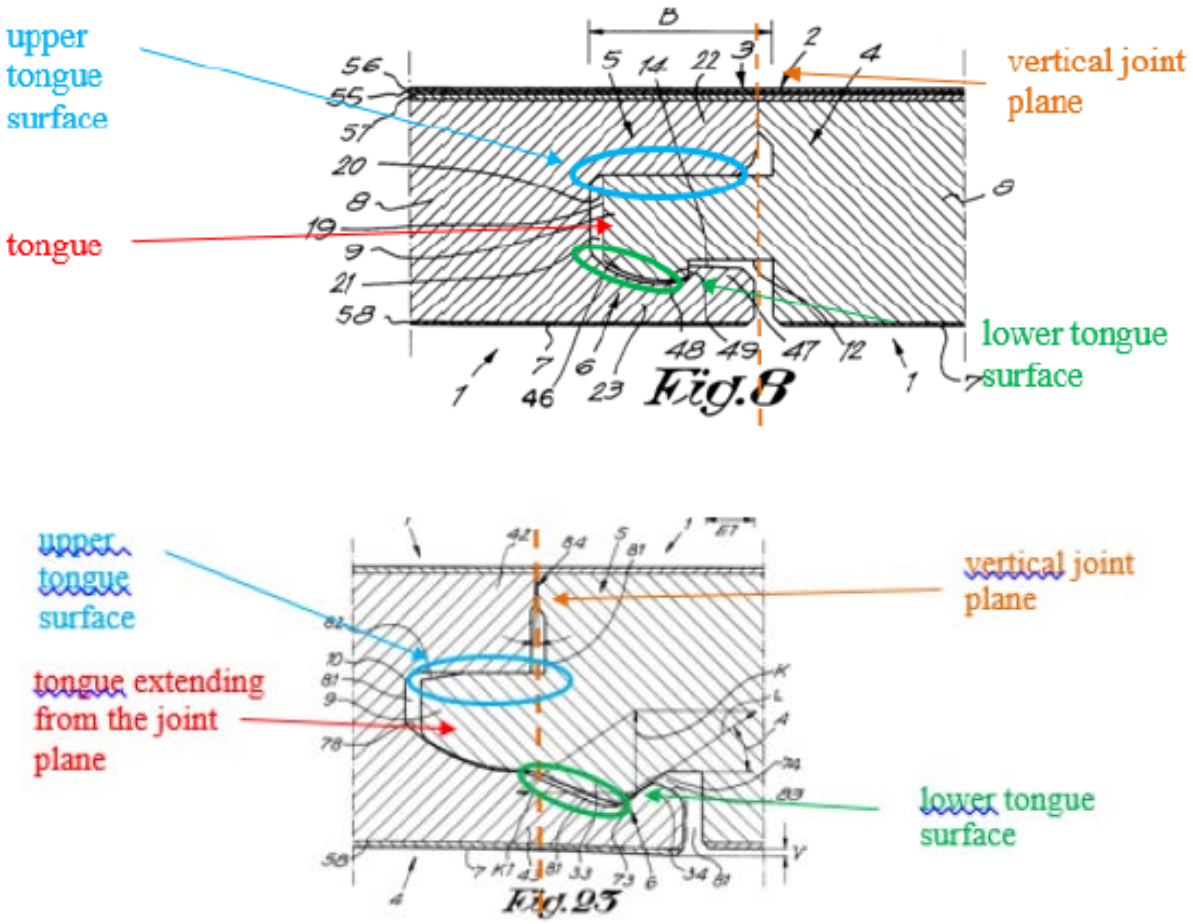
a) Independent Claim 1

(1) Ground II

Petitioner contends that the embodiment of Moriau's Fig. 8 discloses the limitations of independent claim 1, except for the "strip at said first joint edge project[ing] from said vertical joint plane," which Petitioner contends is disclosed by the embodiment of Moriau's Figs. 22–25. Corr. Pet. 36–45. The Petitioner proposes to modify the "strip" or lip of Moriau's Fig. 8 with the "strip" or lip 43 of Moriau's Fig. 23, which projects from the vertical joint plane, reasoning that "Moriau discloses advantages of including an elongated lower strip having a locking element extending from the joint plane" in discussing the advantages of the embodiment of Figs. 22–25. Corr. Pet. 37–38 (citing Ex. 1005, 16:7–17 (discussing the extended lip having the advantage of simplifying engagement and milling of the

floorboard)). Petitioner also reasons that Moriau "provides express direction to combine features of its various embodiments," and that making the proposed combination "would have been a matter of obvious design choice." *Id.* at 39 (citing Ex. 1005, 25:20–24 (disclosing that the FIG. 22–25 features can be combined with features of other embodiments), 27:34–36 (suggesting combination of the disclosed embodiments)). Relying on the testimony of its Declarant, Petitioner further argues that "a PHOSITA would have recognized a reasonable expectation of success in combining FIG. 8 with FIGS. 22-23, especially in view of the suggestions in Moriau to combine embodiments and the express advantages disclosed pertaining to an extended lower lip. For these reasons, it also would have been obvious to try." Pet. 39 (citing Ex. 1003 ¶ 49). Again relying on the testimony of its Declarant, Petitioner concludes that "[a] PHOSITA at the time of invention of the '625 Patent would have found it obvious to combine the teachings of FIG. 8 with those of FIGS. 22-25 to arrive at this claimed feature", namely that the "strip at said first joint edge projects from said vertical joint plane." *Id.* at 40 (citing Ex. 1003 ¶ 50).

Regarding claim 1's limitation of "a tongue which extends from the joint plane and having an upper tongue surface and a lower tongue surface," the lower tongue surface of which is "not in direct contact with" the lower tongue groove surface, in Ground II, Petitioner points to lower tongue surfaces in both the embodiment of Fig. 8 and the embodiment of Fig. 23 for such disclosure, providing alternative assertions intended to cover the alternative possible claim constructions of "not in direct contact":



Corr. Pet. 40–41.

Petitioner must rely on the embodiment of Moriau's Fig. 23 to disclose a lower tongue surface and lower tongue groove surface that are not in direct contact in Ground II. Corr. Pet. 41, 44.

Patent Owner argues, relative to the above combination of the embodiment of Moriau's Figure 8 with the embodiment of Moriau's Figure 23 to remove direct contact between a lower tongue surface and a lower tongue groove surface, that the proposed combination of embodiments fails to disclose a lower tongue groove surface and a lower tongue surface that are "not in direct contact with each other," and that Petitioner fails to provide an explicit reason why one skilled in the art would modify the

embodiment of Moriau's Figure 8 with the non-contact lower tongue surface and lower tongue groove surface designated in the embodiment of Moriau's Fig. 23. PO Resp. 49–50, 58–60.

As set forth above in our analysis of Ground I above, we are more persuaded by Petitioner's arguments and evidence that the embodiment of Moriau's Figs. 22–25 discloses a lower tongue groove surface and a lower tongue surface that "are not in direct contact with each other when the first and the second floorboards are joined."

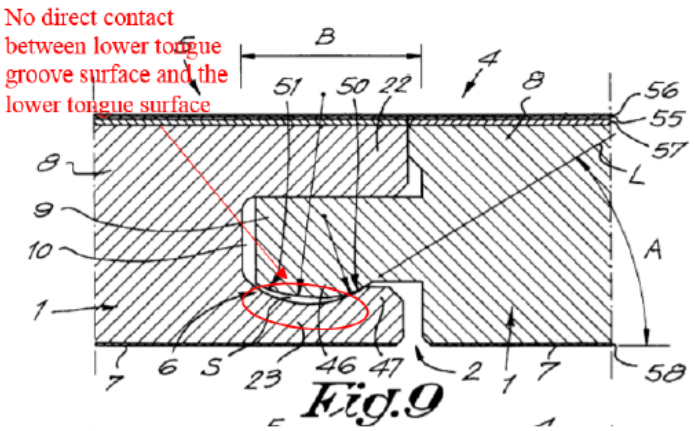
Regarding the Petitioner's reasoning, however, Petitioner provides argument and evidence that (1) "a PHOSITA would have recognized a reasonable expectation of success in combining FIG. 8 with FIGS. 22-23, especially in view of the suggestions in Moriau to combine embodiments and the express advantages disclosed pertaining to an extended lower lip. For these reasons, it also would have been obvious to try" (Pet. 39 (citing Ex. 1003 ¶ 49)); and (2) a "PHOSITA at the time of invention of the '625 Patent would have found it obvious to combine the teachings of FIG. 8 with those of FIGS. 22-25 to arrive at this claimed feature", namely that the "strip at said first joint edge projects from said vertical joint plane" (*Id.* at 40 (citing Ex. 1003 ¶ 50)). Thus, Petitioner indeed provided an explicit reason why a skilled artisan would combine Moriau's embodiment as proposed in Ground II.

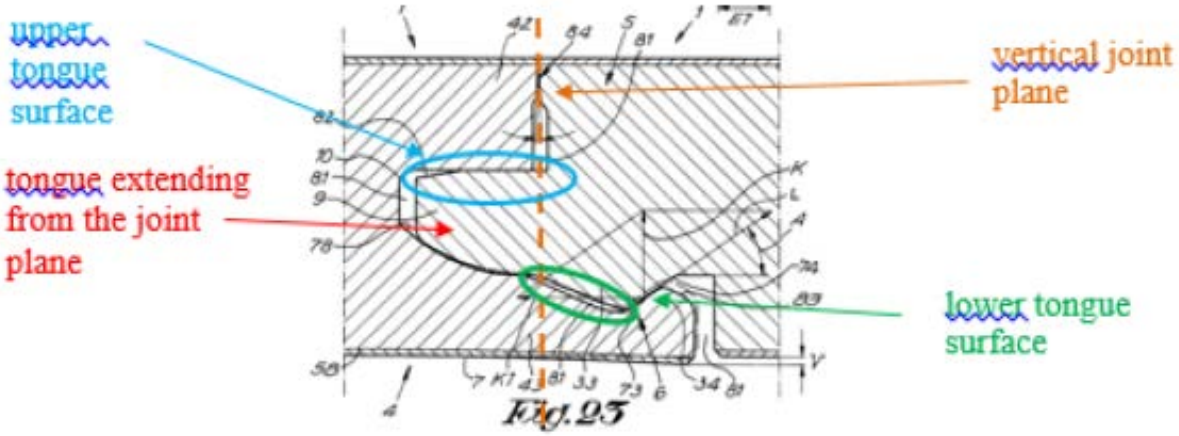
For the reasons set forth above, we determine that, based on the combined embodiments of Moriau set forth in Ground II, Petitioner has demonstrated by a preponderance of the evidence that claims 1–12 are unpatentable as obvious over the embodiments of Moriau.

(2) Ground III

Petitioner contends that the embodiment of Moriau's Fig. 9, which appears to vary from the embodiment of Moriau's Fig. 8 only in the inclination of the locking surfaces 48, 49 with respect to the vertical joint plane, discloses the limitations of independent claim 1 except for the "strip at said first joint edge projects from said vertical joint plane," which Petitioner contends is disclosed by the embodiment of Moriau's Figs. 22–25. Corr. Pet. 58–68. Petitioner proposes to modify the "strip" or lip of Moriau's Fig. 9 with the "strip" or lip 43 of Moriau's Fig, 23, which projects from the vertical joint plane, reasoning again that "Moriau discloses advantages of including an elongated lower strip having a locking element extending from the joint plane" in discussing the advantages of the embodiment of Figs. 22–25. Corr. Pet. 60–61 (citing Ex. 1005, 16:7–17 (discussing that the extended lip has the advantage of simplifying engagement and milling of the floorboard)). Relying on testimony of its Declarant, Petitioner also reasons that Moriau "provides express direction to combine features of its various embodiments," and that making the proposed combination "would have been a matter of obvious design choice." *Id.* at 61 (citing Ex. 1005 25:20–24 (disclosing that features from Figs. 22–25 can be combined with features of other embodiments); 27:34–36 (suggesting combination of the disclosed embodiments)). Again relying on testimony of its Declarant, Petitioner further argues that "a PHOSITA would have recognized a reasonable expectation of success in combining the embodiments of FIG. 9 [and] FIGS. 22-23, especially in view of the suggestions in Moriau to combine embodiments and the express advantages disclosed pertaining to an extended lower lip." *Id.* (citing Ex. 1003 ¶ 53).

In Ground III, regarding the limitation in claim 1 of the lower tongue surface not being "in direct contact with" the lower tongue groove surface, Petitioner points to lower tongue surfaces in both the embodiment of Fig. 9 and the embodiment of Figs. 22–25 for such disclosure, providing alternative assertions intended to cover the alternative possible claim constructions of "not in direct contact":





Corr. Pet. 65–66.

Petitioner must rely on the embodiment of Moriau's Fig. 23 to disclose a lower tongue surface that is not in direct contact with a lower tongue groove surface in Ground III. Corr. Pet. 66–67.

As explained above regarding Ground I, we are more persuaded by Petitioner's arguments and evidence that the embodiment of Moriau's Figs. 22–25 discloses a lower tongue groove surface and a lower tongue surface that are not in direct contact with each other when the floor boards are joined.

Patent Owner argues that "Moriau teaches the lip shown in Figure 9 was specifically designed *not to extend* beyond the joint plane" (PO Resp. 54), "extending the lip in Figure 9 beyond the vertical joint plane would undermine the locking system's principle of operation" (*id.* at 55), and Petitioner's allegation regarding "simple and obvious design choice" fails to articulate why a skilled artisan would have made the design choice (*id.* at 57).

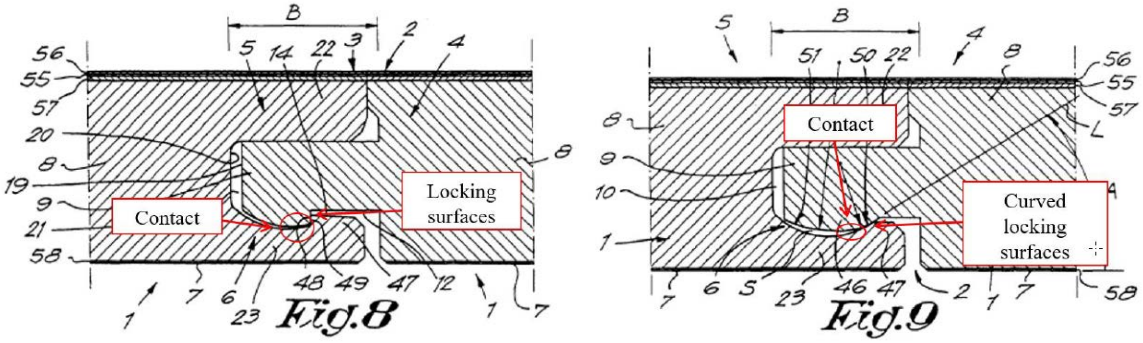
Regarding combining the embodiment of Figs. 22–25 with the embodiment of Fig. 8, Patent Owner has not defined a principle of operation of Moriau that would be undermined by the proposed combination of embodiments, and provides no evidence that Moriau criticizes, discredits, or otherwise discourages the solution claimed. *See In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004). Instead, we are more persuaded by Petitioner's argument and evidence that (1) Moriau "provides express direction to combine features of its various embodiments," (2) making the proposed combination "would have been a matter of obvious design choice," and (3) "a PHOSITA would have recognized a reasonable expectation of success in combining the embodiments of FIG. 9 [and] FIGS. 22-23, especially in view of the suggestions in Moriau to combine embodiments and the express advantages disclosed pertaining to an extended lower lip. Corr. Pet. 61. We agree with Petitioner.

For the reasons set forth above, we determine that, based on the combined embodiments of Moriau set forth in Ground III, Petitioner has demonstrated by a preponderance of the evidence that claims 1–12 are unpatentable as obvious over Moriau.

(3) Ground IV

Regarding Ground IV, Petitioner contends that, as established in the anticipation analysis discussed above in Section C, Figs. 22–25 teach each and every element of claims 1–12. Corr. Pet. 82. Petitioner further contends that, to the extent Moriau's Figs. 22–25 do not disclose a lower tongue surface that is "not in direct contact with" the lower tongue groove surface, "it would have been obvious to a PHOSITA at the time of the invention to modify FIGS. 22-25 in view of FIGS. 8 and 9 to machine surfaces 77, 78 such that there is no direct contact between the lower tongue groove surface and the lower tongue surface," reasoning that Moriau provides express direction to combine features of its various embodiments, and "[t]he addition of such a space would also provide the advantage of additional dust chamber functionality." *Id.* at 82–85 (citing Ex. 1005, 24:14–19, 24:20–24).

Patent Owner argues, *inter alia*, that the embodiment of Moriau's Figures 8 and 9 provide for contact along the lower tongue surface and lower tongue groove surface and cannot meet the "not in direct contact" limitation. PO Resp. 64. Patent Owner provides the following annotated versions of Moriau's Figures 8 and 9, showing where such contact exists in the respective embodiments:



Id. at 65.

Lacking any detailed explanation of where the lower tongue surface and lower tongue groove surface end, and where the allegedly separate operative locking surfaces of the embodiments of Moriau's Figs. 8 and 9 begin, we are not persuaded that either Moriau's Fig. 8 or Moriau's Fig. 9 can reasonably be considered to disclose a complete lack of contact between the lower tongue surface and the lower tongue groove surface.

Because we construe the term "not in direct contact with" to require that "the lower tongue groove surface and lower tongue surface do not contact each other," Petitioner fails to prove Moriau's Fig. 8 or 9 discloses a lower tongue surface and lower tongue groove surface that are not in direct contact. We, therefore, are not persuaded that modifying the embodiment of Moriau's Fig. 23 with the lower tongue surface and lower tongue groove surface of the embodiment of Moriau's Fig. 8 or 9 would teach or suggest the claimed "lower tongue groove surface and the lower tongue surface [that] are not in direct contact with each other when the first and the second floorboards are joined horizontally and vertically." Ex. 1007, 2 (emphasis omitted).

Petitioner has not demonstrated by a preponderance of the evidence that claims 1–12 are unpatentable as obvious based on the combined embodiments set forth in Gound IV. We appreciate that "[c]ombining two

embodiments disclosed adjacent to each other in a prior art patent does not require a leap of inventiveness" (*Boston Scientific Scimed, Inc. v. Cordis Corp.*, 554 F.3d 982, 991 (Fed. Cir. 2009)), and that "a disclosure that anticipates under § 102 also renders the claim invalid under § 103, for 'anticipation is the epitome of obviousness'" (*Connell v. Sears, Roebuck & Co.*, 722 F.2d 1542, 1548 (Fed. Cir. 1983) (quoting *In re Fracalossi*, 681 F.2d 792, 794 (CCPA 1982))). However, because the proposed combination of Ground IV, as asserted, lacks a lower tongue surface and lower tongue groove surface that are "not in direct contact" as claimed, Petitioner has not established by a preponderance of the evidence that the proposed modification in Ground IV teaches or suggests the claim limitations.

F. ANTICIPATION BY FRIEDL — CLAIMS 1 AND 11

Petitioner challenges claims 1–12 as anticipated under 35 U.S.C. § 102(b) by Friedl. Corr. Pet. 3, 12–35. The Corrected Petition, as redacted, only provides contentions regarding a portion of a single claim (claim 1) being anticipated by Friedl. The Corrected Petition, therefore, lacks a complete analysis for any single claim as a whole, and the explanations and supporting evidence presented by Petitioner do not sufficiently demonstrate how Friedl renders any of claims 1–12 obvious. As such, Petitioner has not demonstrated a reasonable likelihood of prevailing on its assertions that claims 1–12 are anticipated by the various embodiments of Moriau.

III. MOTION TO EXCLUDE

Petitioner seeks to exclude Patent Owner's Exhibits 2002–2007, 2011–2014, and 2016–2017 under "at least Federal Rules of Evidence 401-403 on the basis that these exhibits are not relevant and are unfairly prejudicial, confusing the issues, causing undue delay and waste of time."

Motion 1. Petitioner also seeks to exclude "at least portions of Exhibit 2010, the Declaration of Steven B. MacLean, under Federal Rule of Evidence 702 on the basis that Dr. MacLean, Patent Owner's expert, is not qualified to testify as an expert in this matter." *Id*.

Regarding Exhibits 2002–2007, 2011–2014 and 2016–2017, Petitioner contends, generally, that the Exhibits (1) are irrelevant and "unfairly prejudicial, confusing the issues, causing undue delay and waste of time," (2) "have been not been shown to relate to the '625 Patent, or be tied to the claims of the '625 Patent in any manner," (3) "do not relate to the prior art at issue or any substantive issue raised." Motion 2–3. According to Petitioner, Patent Owner has not relied on, or cited to, these Exhibits in forming any of its substantive positions, and instead "cites these exhibits only in connection with providing a self-serving background section on the history of the Patent Owner." *Id.* at 3 (citing Paper 23, pp. 1–3). Petitioner also seeks to exclude many of these Exhibits as hearsay or as not being properly authenticated. *Id*.

Without excluding this evidence, we have determined that Petitioner has demonstrated the unpatentability of the challenged claims. Thus, the motion to exclude is moot as to our determinations herein.

Further, regarding Exhibit 2010 specifically, Petitioner moves to exclude portions thereof, because Dr. MacLean, Patent Owner's expert, "is not qualified to testify as an expert in this matter because his scientific, technical, or other specialized knowledge will not help the trier of fact to understand the evidence or to determine a fact in issue due at least in part to a lack of experience in the flooring industry." Motion 4. Petitioner contends that "the opinions expressed therein by Dr. MacLean are not based on

sufficient facts or data and are not the product of reliable principles and methods reliably applied to the facts of the case, but rather, are conclusory and lack sufficient explanation." *Id*. According to Petitioner, Dr. MacLean is not qualified as a technical expert in the art because, while he has advanced degrees in Material Science and Engineering and experience in polymer materials and plastics, "Dr. MacLean has set forth no experience with respect to the flooring technologies that are at issue in the '625 Patent." *Id*. at 6. (citing Exhibit 2010 ¶¶ 7–8; Exhibit 2015; Exhibit 1013, 12:10–17, 13:23–14:7).

Petitioner seeks to exclude paragraphs 16–20, 26–39, 41, 44–54, 57–64, 67, 69–73, 77, 79, and 81–90 of Exhibit 2010 because they are based on the understanding of one skilled in the art which Dr. MacLean is not qualified to opine upon. *Id.* Further, and in particular, Petitioner argues that Dr. MacLean's conclusions in the above-identified paragraphs regarding the location and definition of the "tongue," the presence of the "upwardly directed locking element" and "locking groove formed in the underside" of the floorboard, and the arbitrary annotations of Figure 6 of the '625 Patent and Figure 23 of Moriau, FIG. 23 to prove the same, are unsupported and should be excluded due Dr. MacLean's lack of experience. *Id.* at 6–7.

As set forth above in Section II(C) above, we define the level of ordinary skill as including, in addition to a given level of education met by Dr. MacLean, "a minimum of 2 years of practical experience in the design, analysis or manufacturing" specifically "of flooring technologies." Dr. MacLean does not possess practical experience in the design, analysis or manufacturing of flooring technologies.

For this reason, although we decline to exclude the testimony of Dr. MacLean, we have given limited weight to certain testimony of Dr. MacLean, because he does not possess experience in the flooring industry, the certain testimony being, for example, statements regarding how persons skilled in the art would have understood certain claim terms such as "tongue," "tongue groove," facilitation of vertical locking, and "typical" locking profile creation.

We are capable of determining and assigning appropriate weight to the evidence. We have given some weight to Dr. MacLean's testimony. For the reasons explained above. For these reasons, Petitioner's motion to exclude is DENIED.

IV. CONCLUSION

For the foregoing reasons, and based on the record before us, we determine that Petitioner has demonstrated that claims 1–12 are unpatentable by a preponderance of the evidence.

V. ORDER

For the reasons given, it is:

ORDERED that claims 1–12 of U.S. Patent 7,398,625 B2 have been shown to be unpatentable; and

FURTHER ORDERED that, because this is a final written decision, the parties to this proceeding seeking judicial review of our Decision must comply with the notice and service requirements of 37 C.F.R. § 90.2.

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