



Patent Trial and Appeal Board

Precedential

Standard Operating Procedure 2

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Paper 18
Entered: October 25, 2013

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ATHENA AUTOMATION LTD.
Petitioner

v.

HUSKY INJECTION MOLDING SYSTEMS LTD.
Patent Owner

Case IPR2013-00290
Patent 7,670,536 B2

Before JENNIFER S. BISK, MICHAEL J. FITZPATRICK, and
GEORGIANNA W. BRADEN, *Administrative Patent Judges*.

BISK, *Administrative Patent Judge*.

DECISION
Institution of *Inter Partes* Review
37 C.F.R. § 42.108

I. INTRODUCTION

A. Background

Athena Automation Ltd. (“Athena” or “Petitioner”) filed a petition (Paper 3) (“Pet.”) to institute an *inter partes* review of claims 1-22 (the “challenged claims”) of U.S. Patent 7,670,536 B2 (the “’536 Patent”). 35 U.S.C. § 311. Husky Injection Molding Systems Ltd. (“Husky” or “Patent Owner”) filed a Preliminary Response. Paper 8 (“Prelim. Resp.”). We conclude that, under 35 U.S.C. § 314(a), there is a reasonable likelihood that it would prevail with respect to at least one of the challenged claims.

Athena contends that the challenged claims are unpatentable under 35 U.S.C. §§ 102 and 103 based on the following specific grounds (Pet. 10-11)¹:

| Reference[s] | Basis | Claims challenged |
|------------------------|-------------------|------------------------|
| Glaesener | § 102 | 1-7, 12, and 17-20 |
| Glaesener ² | § 103 | 1-22 |
| Arend | § 102 | 1, 4-16, 18, and 20-22 |
| Arend and Glaesener | § 103 | 1, 4-16, 18, and 20-22 |
| Quéré | §§ 102 and/or 103 | 1-3, 8-19, 21, and 22 |
| Quéré and Glaesener | § 103 | 1-3, 8-19, 21, and 22 |

¹ The petition relies on the following references: U.S. Patent Application 2004/0208950 (Ex. 1002) (“Glaesener”); U.S. Patent 5,753,153 (Ex. 1003) (“Choi”); U.S. Patent 5,417,913 (Ex. 1004) (“Arend”); U.S. Patent 2,916,768 (Ex. 1005) (“Quéré”). The petition also relies on the Declaration of Carsten Link (Ex. 1006).

² The petition states that claims 1-22 are obvious under Glaesener combined with Choi. Pet. 10. However, because we determine that Glaesener incorporates Choi by reference, we refer to Glaesener by itself instead of referring to Glaesener combined with Choi.

For the reasons described below, we institute an *inter partes* review of claims 1-22 based on the following grounds: (1) claims 1-7, 12, and 17-20 as anticipated by Glaesener; (2) claims 8-11, 13-16, 21, and 22 as obvious over Glaesener; and (3) claims 1, 4-16, 18, and 20-22 as anticipated by Arend.

We do not institute an *inter partes* review based on any of the other proposed grounds.

B. Related Proceedings

Athena filed two other petitions for *inter partes* review involving patents owned by Husky—Case No. IPR2013-00167 and Case No. IPR2013-00169. The Board instituted a review in both cases on July 30, 2013. Like the '536 Patent, the patents involved in those proceedings (U.S. 5,620,723 and U.S. 5,624,695, respectively) are related to injection molding machines, but claim different subject matter.

C. The '536 Patent

The '536 Patent is titled “Molding-System Clamp” and relates to injection molding machines that inject, under pressure, injectable molding material into a mold cavity. Ex. 1001, col. 8, ll. 8-10, 37-42, 63-66. The mold cavity is created by two halves of a mold, each mounted on a platen, closed against each other. *Id.* at col. 9, ll. 20-24, 57-61. Once closed, the mold is held in that position by a clamp assembly, and the two platens are secured by a lock mechanism. *Id.* at col. 8, ll. 37-42; col. 9, ll. 29-31; Figs. 2A, 2B.

The lock mechanism includes both a lock member associated with a rod and a complementary lock member associated with a platen. *Id.* at Abstract. Once the two members of the locking mechanism are engaged (locked), clamp actuators apply a clamping force to keep the mold closed as it receives molding material

under pressure. *Id.* at col. 8, ll. 39-42. This clamping force causes uneven load stresses on the platen. *Id.* at col. 13, ll. 42-45. Thus, some portions, or zones, of the platen receive less load stress in comparison to the stress experienced by other zones. *Id.* The uneven stress causes the platen to bend, or flex, more at some zones (relatively higher flex zones) relative to others (relatively lower flex zones). *Id.* Accordingly, the '536 Patent discloses engaging the two lock members at a position that is proximate to a relatively lower flex zone of the platen resulting in reduced wear associated with the teeth of the locking mechanisms. *Id.* at col. 13, ll. 55-67.

Figure 2A of the '536 Patent, reproduced below, depicts the clamp assembly of the molding system according to one embodiment in which the clamp assembly is placed in a mold opened position.

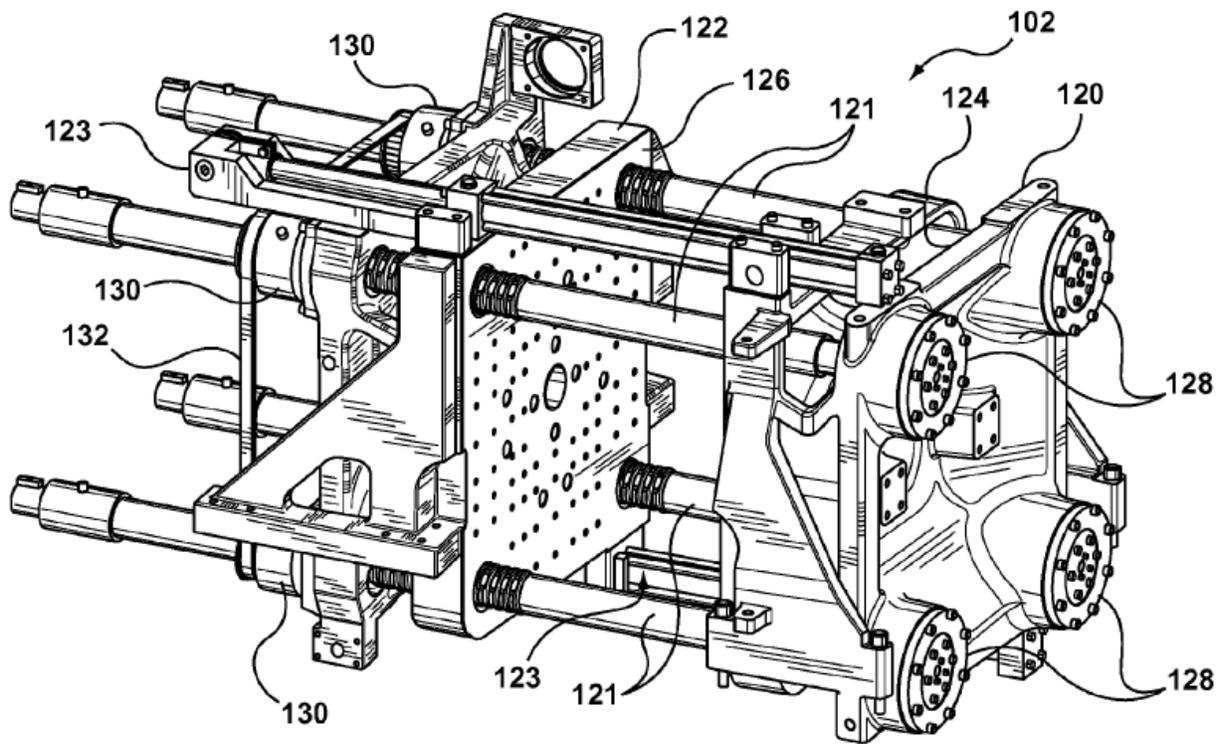


FIG. 2A

Figure 2A of the '536 Patent, above, illustrates a clamp assembly 102 in the mold opened position. Ex. 1001, col. 7, ll. 29-31. The clamp assembly 102 includes (i) a stationary platen 120, (ii) a movable platen 122, (iii) platen stroke actuators 123, (iv) clamp actuators 128, (v) rods 121, and (vi) tie-bar lock mechanisms 130.

Figure 8A of the '536 Patent, reproduced below, depicts a clamp actuator 128, also referred to as a clamp.

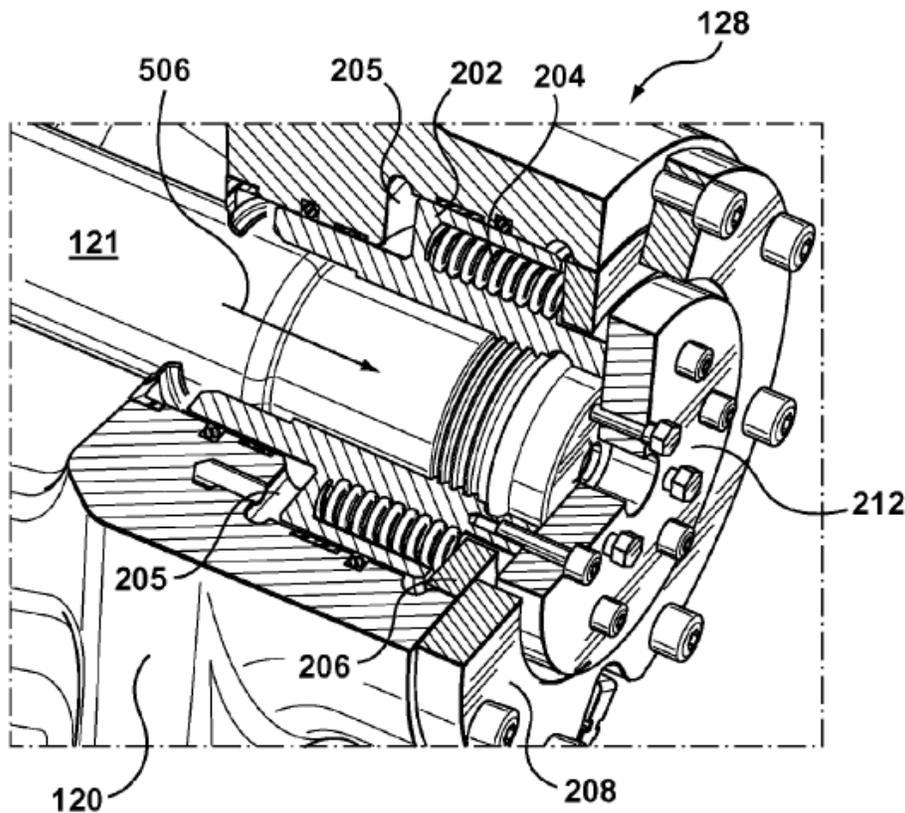


FIG. 8A

Figure 8A, above, illustrates clamp 128 of the clamp assembly 102. Ex. 1001, col. 7, ll. 51-52. The clamp 128 is actuated so that a clamping force 506 is applied to the rod 121. *Id.* at col. 13, ll. 12-13.

Figure 8D of the '536 Patent, reproduced below, depicts the lock in which the clamp 128 is actuated.

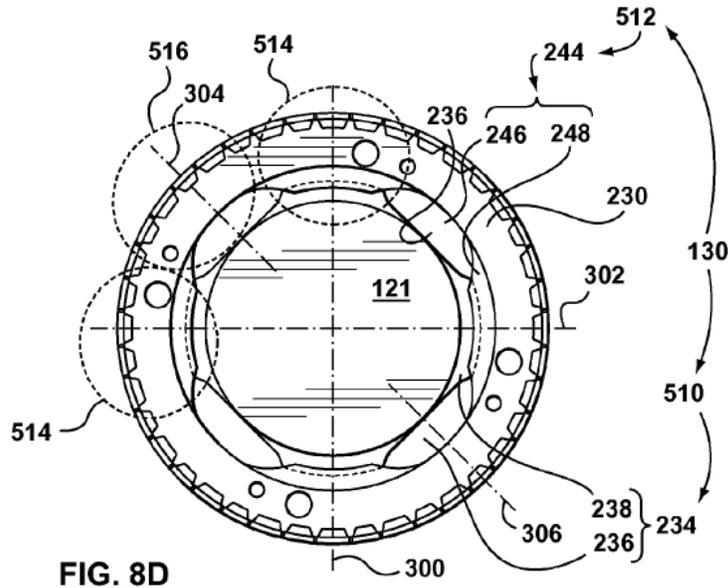


Figure 8D, above, illustrates the end view of the lock 130 in which the lock is placed in the locked condition. *Id.* at col. 13, ll. 32-33. Rod 121 transmits the clamping force 506 across the teeth 238 and 248. *Id.* at ll. 38-40. Then the clamping force is transferred to the platens 122 and 120 and ultimately to mold 140. *Id.* at ll. 40-42. The location of relative stress zones (514, 516) will depend on the structural supports of platen 122. *Id.* at ll. 48-54. When the lock mechanism is actuated, teeth 238 and 248 become aligned at a position that is located proximate to a relatively lower flex zone 514. *Id.* at ll. 55-60.

Claim 1, reproduced below, is illustrative of the claimed subject matter:

1. A lock of a molding system having a rod and a platen, the lock comprising:

a lock member associated with the rod that is movable between a clamped position and a released position by a clamp assembly; and

a complementary lock member associated with the platen; the lock member and the complementary lock member cooperatively operable to move between a lockable condition and an unlockable condition; wherein

the complementary lock member is engagable with the lock member within a relatively lower flex zone of the platen;

the relatively lower flex zone of the platen being a portion of the platen adjacent to the rod and having a flex that is lower relative to a relatively higher flex zone of the platen also adjacent to the rod.

D. Claim Construction

As a step in our analysis for determining whether to institute a trial, we determine the meaning of the claims. Consistent with the statute and the legislative history of the Leahy-Smith America Invents Act (“AIA”), the Board interprets claims using the broadest reasonable construction. *See* Office Patent Trial Practice Guide, 77 Fed. Reg. 48756, 48766 (Aug. 14, 2012); 37 C.F.R. § 42.100(b). Athena submits proposed constructions for several claim terms. Pet. 11-23. Husky did not address claim construction in the Preliminary Response.

To determine whether there is a reasonable likelihood Petitioner will prevail, we analyze those claim terms relevant to our determination below.

1. Lock Member

All the challenged claims require a “lock member.” The specification describes “a lock member associated with the rod, the lock member includes: (i) a row of rod-interrupted teeth extending from the rod; and (ii) a rod groove extending along the row of rod-interrupted teeth.” Ex. 1001, col. 6, ll. 16-19. Athena asserts that the definition of “lock member” at least includes a tooth structure associated with the rod. Pet. 11. We agree. For purposes of this

decision, we construe the term “lock member” to encompass a mechanism made up of at least one tooth structure.

2. Complementary Lock Member

All the challenged claims require a “complementary lock member.” The specification describes “a complementary lock member including: (i) a row of sleeve-interrupted teeth extending from a sleeve, the sleeve coupled to the platen; and (ii) a sleeve groove extending along the row of sleeve-interrupted teeth, the row of rod-interrupted teeth of the lock member is rotatably engagable with the row of sleeve-interrupted teeth of the complementary lock member.” Ex. 1001, col. 6, ll. 19-24. Athena asserts that the definition of “complementary lock member” at least includes a tooth structure that is engagable with the tooth structure of the lock member. Pet. 12. We agree. For purposes of this decision, we construe the term “complementary lock member” to encompass a mechanism made up of at least one tooth structure that is engagable with the tooth structure of the corresponding lock member.

3. Relatively Higher Flex Zone

All the challenged claims require “a relatively higher flex zone of the platen.” The specification defines “relatively higher flex zone” solely in terms of how such zone relates to a “relatively lower flex zone” and vice versa. Ex. 1001, col. 13, ll. 45-48; col. 13, l. 63 – col. 14, l. 3; col. 16, ll. 24-27; Fig. 8C, 8D. The specification, however, does give some guidance as to the meaning of the word “relatively.” For example, element 516 of Figure 8D (see above) is identified as a “relatively higher flex zone” of platen 122. Ex. 1001, col. 13, ll. 45-48; Fig. 8D. In addition, the specification states that the “location of these zones will depend on the structural supports associated with the platen 122.” *Id.* at col. 13, ll. 48-49.

Because zone 516 lacks support structure compared to zone 514, it will flex more than zone 514. *Id.* at ll. 49-51.

Athena asserts that, although the presence of reinforcing structure may affect the manner in which the platen flexes, such reinforcing structure should not be read into the claim interpretation. Pet. 18. We agree that the plain and ordinary meaning of the term “relatively higher flex zone” is a measurable physical characteristic that does not depend necessarily upon the presence of reinforcing structure.

Athena also asserts that because the only platen zone identified as a “relatively higher flex zone,” zone 516 of Figure 8D, is located farthest from the stiffening ribs 231 in the corner of the platen 122, “a person of ordinary skill would infer that zone 516 . . . is the *highest* flex zone in the platen adjacent to the tie rod 121.” Pet. 18-19 (citing Ex. 1006 ¶ 21). Athena asserts that a construction consistent with this understanding would also lead to the broadest reasonable construction of the entire claim because the term “relatively higher flex zone” is used only as a reference point in the challenged claims—“the relatively lower flex zone being a portion of the platen adjacent to the rod and having a flex that is lower relative to a relatively higher flex zone.” On the other hand, Athena concedes that the claim language itself does not require that the “relatively higher flex zone” be the highest flex zone. Pet. 19.

We agree with Athena that, when viewed in the context of the entire claim, the term “relatively higher flex zone” is used only as a reference point for identifying a “relatively lower flex zone.” However, we do not agree that the term “relatively higher flex zone” need be defined as the highest flex zone in order to produce the broadest reasonable construction of the entire claim. The broadest reasonable construction of “relatively higher flex zone” includes all flex zones that

have a flex higher than the flex of any other portion of the platen. Thus, for purposes of this decision, we construe the term “relatively higher flex zone of a platen” to mean that portion of the platen that exhibits a higher flex, compared to the flex in any other portion of the platen, in response to the application of a clamping force on the platen.

4. Relatively Lower Flex Zone

All the challenged claims require “a relatively lower flex zone of the platen.” As described above, the specification defines “relatively lower flex zone” solely in terms of how it relates to the “relatively higher flex zone.” Ex. 1001, col. 13, ll. 45-48; col. 13, l. 63 – col. 14, l. 3; col. 16, ll. 24-27; Fig. 8C, 8D. Consistent with our construction of the term “relatively higher flex zone,” for purposes of this decision, we construe the term “relatively lower flex zone of a platen” to mean that portion of the platen that exhibits a lower flex, compared to the flex in any other portion of the platen, in response to the application of a clamping force on the platen.

5. Complementary Lock Member and the Lock Member Engage Within/Proximate To a Relatively Lower Flex Zone of the Platen (“the engagement limitations”)

All the challenged claims contain an engagement limitation. Independent claim 1 requires “wherein the complementary lock member is engagable with the lock member within a relatively lower flex zone of the platen.”³ Athena asserts that “engage” in the context of this limitation takes its plain and ordinary meaning

³ Independent claim 12 requires “the complementary lock member being engagable with the lock member within a relatively lower flex zone of the platen,” and independent claim 18 requires “engaging a lock member associated with the rod with a complementary lock member associated with the platen at a position located proximate to a relatively lower flex zone of the platen.”

of “interlock” or “mesh.” Pet. 21 (citing dictionary definition 1.c⁴ of “engage” at <http://www.merriam-webster.com>). Athena, thus, concludes that the limitation includes the tooth structure of the complementary lock member interlocking or meshing with the tooth structure of the lock member within, or proximate to, a “relatively lower flex zone.” *Id.* We agree that “engage” should be construed using the plain and ordinary meaning and that Athena’s proposed definition is reasonable.

Further, Athena asserts that this limitation does not require that *all* the tooth structures engage within, or proximate to, a relatively lower flex zone of the platen. Pet. 21. Instead, according to Athena, it is sufficient that some engagable portions of the complementary lock member and the lock member engage within or proximate to a relatively lower flex zone, even if they also engage in other areas. *Id.* Athena bases this argument on the statement in the ’536 Patent that “the complementary lock member 512 is lockably engaged with the lock member 510 at a position that is proximate, *at least in part*, to the [relatively lower flex] zone 514 of the platen 122 so as to reduce wear of the lock members 510, 512 once the clamping force 506 has been applied to the rod 121.” Ex. 1001, col. 14, ll. 11-16 (emphasis added). Athena adds that none of the claims uses the terms “exclusively” or “only” to modify the phrase “within” or “proximate to a relatively lower flex zone.” Thus, according to Athena, the broadest reasonable construction of the engagement limitations does not require engagement to be exclusively within or proximate to a relatively lower flex zone of the platen.

⁴ We note that there does not appear to be a definition 1.c of “engage.” Definition 2.c of “engage” is “to interlock with: mesh; *also*: to cause (mechanical parts) to mesh <engage the clutch>.” MERRIAM-WEBSTER DICTIONARY, <http://www.merriamwebster.com/dictionary/engage> (last visited Oct. 3, 2013).

We agree with Athena that the broadest reasonable construction of the engagement limitations, for purposes of this decision, includes the situation in which the complementary lock member and the lock member are capable of interlocking or meshing at least in part within or proximate to a relatively lower flex zone of the platen.

II. ANALYSIS

A. Assignor Estoppel

The only argument that Husky asserts in its Preliminary Response is that Athena is barred from bringing this Petition by the doctrine of assignor estoppel. Prelim. Resp. 1. Husky contends that Mr. Robert Schad, one of the named inventors of the '536 Patent, is the founder, co-owner, President, Chief Executive Officer, and one of two directors on the Board of Directors of Petitioner Athena and is, therefore, in privity with Athena. *Id.* Thus, according to Husky, Athena is estopped from challenging the patentability of the '536 Patent under the doctrine of assignor estoppel. *Id.* The Federal Circuit has explained,

[A]ssignor estoppel is an equitable doctrine that prohibits an assignor of a patent or patent application, or one in privity with him, from attacking the validity of that patent *when he is sued for infringement by the assignee. . . . Assignor estoppel is thus a defense to certain claims of patent infringement.*

Semiconductor Energy Laboratory Co., Ltd. v. Nagata, 706 F.3d 1365, 1369 (Fed. Cir. 2013) (emphasis added) (citations omitted).

Under the AIA, “a person *who is not the owner of a patent* may file with the Office a petition to institute an inter partes review of the patent.” 35 U.S.C. § 311(a) (emphasis added). Consequently, under the statute, an assignor of a patent, who is no longer an owner of the patent at the time of filing, may file a petition requesting *inter partes* review. This statute presents a clear expression of

Congress's broad grant of the ability to challenge the patentability of patents through *inter partes* review. In contrast to § 311(a), in International Trade Commission (ITC) investigations involving patent disputes brought under 19 U.S.C. § 1337(c), Congress provided explicitly that "[a]ll legal and equitable defenses may be presented in all cases." From this statutory mandate, the ITC concluded that it must consider the defense of assignor estoppel in cases in which a patent owner may seek to have infringing goods excluded from the United States. *See Lannom Mfg. Co. v. Int'l Trade Comm'n*, 799 F.2d 1572, 1579 (Fed. Cir. 1986). Congress issued no similar statutory mandate to the Office in connection with AIA post-grant reviews.

Husky concedes that the Patent Office does not apply assignor estoppel in reexamination proceedings, but argues that assignor estoppel should be available to patent owners in *inter partes* review proceedings based on the adjudicative nature of the proceedings. Prelim. Resp. 15-25. However, none of Husky's arguments addresses the language of § 311(a).

Because we are not persuaded that assignor estoppel, an equitable doctrine, provides an exception to the statutory mandate that any person who is not the owner of a patent may file a petition for an *inter partes* review, we decline to deny this Petition based on the doctrine of assignor estoppel.

B. Grounds based on Glaesener (Ex. 1002)

1. Overview of Glaesener

Athena asserts that Glaesener qualifies as prior art under 35 U.S.C. § 102(b) because it issued on October 21, 2004, more than one year prior to the '536 Patent's earliest filing date of February 5, 2007. Pet. 23. Glaesener describes an injection molding machine with a platen having reinforcing ribs that cause the

edges of the platen to bend less than they otherwise would when subjected to clamping forces. Ex. 1002, Abstract; ¶ 40.

Figure 5 of Glaesener is reproduced below.

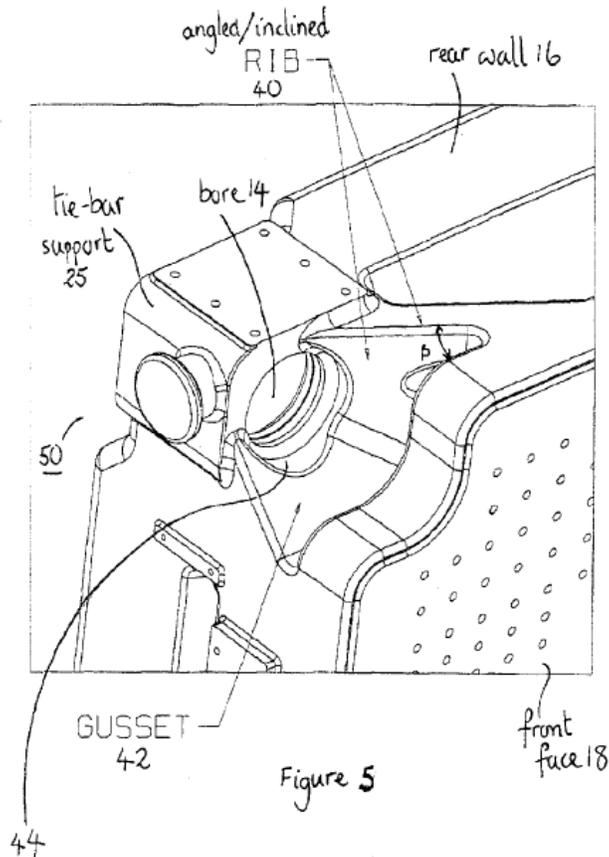


Figure 5, above, is an enlarged perspective view of a corner of platen 50. Ex. 1002 ¶ 33. Platen 50 includes “pairs of angled/inclined but straight ribs [40] located on at least two opposed sides of the platen.” *Id.* ¶ 38. According to Glaesener, this configuration of ribs 40 is desirable to ensure an even distribution of load to the platen during clamping. *Id.* Each angled rib 40 may be complemented by an angled support gusset 42 that extends laterally outwardly from each angled rib and provides greater support of the platen edge. *Id.* ¶ 42.

2. *Incorporation of Choi (Ex. 1003)*

Athena asserts that Glaesener and Choi can be considered together as a single prior art reference under 35 U.S.C. § 102(b) because Glaesener expressly incorporates Choi by reference. Pet. 32 (citing Ex. 1002 ¶¶ 35, 49). Glaesener refers to Choi, specifically, by stating that “tie-bar nuts can be secured to the rear wall 16 by any appropriate mechanism, such as the pineapple and toothed-ring mechanism described in U.S. Pat. No. 5,753,153 [i.e., Choi].” Ex. 1002 ¶ 35. Subsequently, Glaesener states that “[a]ll cross-referenced patents and application[s] referred to in this specification are hereby incorporated by reference.” *Id.* ¶ 49.

We are persuaded that the broad language used in Glaesener incorporates the Choi specification by reference. *See Harari v. Lee*, 656 F.3d 1331, 1334-35 (Fed. Cir. 2011) (holding that referenced application disclosures were incorporated by “the broad and unequivocal language: ‘The disclosures of the two applications are hereby incorporate[d] by reference.’”). Because a document incorporated by reference “becomes effectively part of the host document as if it were explicitly contained therein,” *Telemac Cellular Corp. v. Topp Telecom, Inc.*, 247 F.3d 1316, 1329 (Fed. Cir. 2001), we agree Choi constitutes part of Glaesener for purposes of the anticipation analysis in this decision.

Choi discloses a clamping device for positioning and sustaining engagement of a movable mold platen on a carrier device relative to another platen. Ex. 1003, Abstract. Figure 3A of Choi is reproduced below.

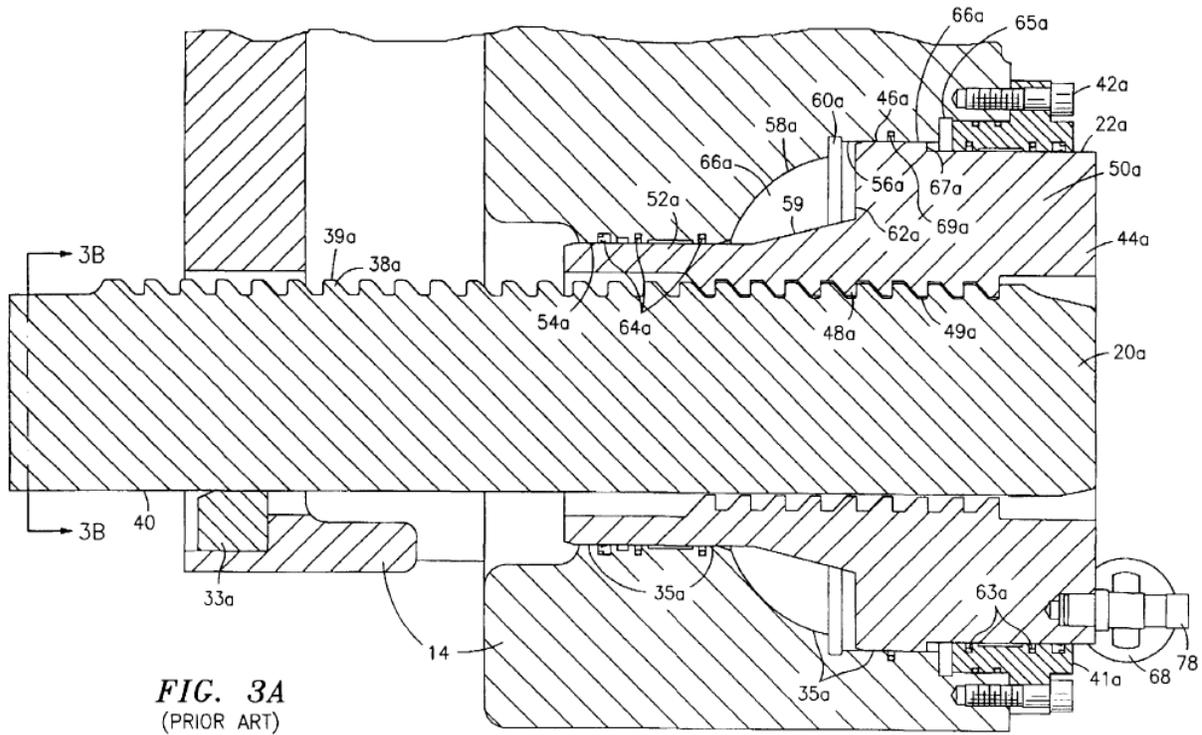


FIG. 3A
(PRIOR ART)

Figure 3A, above, is a cross-sectional view of the clamping assembly disclosed in Choi. Ex. 1003, col. 4, ll. 3-5. Tie bar 20a extends between the corners of moveable platen 14 and a fixed platen 12 (not shown above). *Id.* at ll. 63-67. Tie bar 20a includes an elongated end section with four strips 39 of teeth 38 on its outer surface. *Id.* at col. 5, ll. 42-53. Clamping assembly 22 includes piston 44 having an inner surface with four strips 49 of teeth 48, which are adapted to engage teeth 38. *Id.* at l. 59 - col. 6, l. 1. A portion of Figure 4 of Choi is reproduced below.

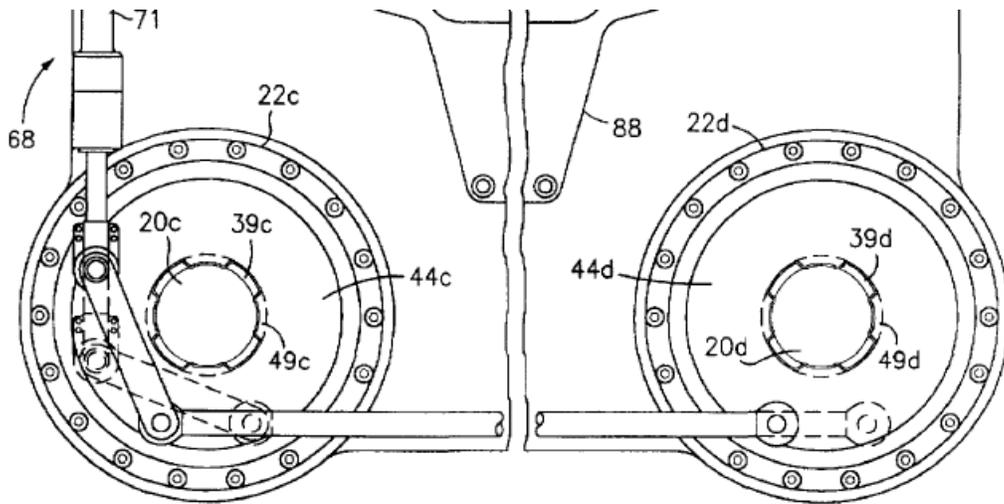


FIG. 4
(PRIOR ART)

The portion of Figure 4 of Choi, above, is the lower section of an end view of the injection molding machine showing the clamping assemblies and rotational mechanism. Ex. 1003, col. 4, ll. 6-9. The dotted lines in Figure 4 indicate movement of a rotational mechanism 68 that synchronously rotates the pistons 44 of the clamping assemblies 22 to bring the strips 49 of teeth 48 into alignment with the strips 39 of teeth 38 prior to the application of a clamping force on the platens 12 and 14. *Id.* at col. 7, l. 53 – col. 8, l. 9.

3. Anticipation by Glaesener

Athena asserts that Glaesener anticipates claims 1-7, 12, and 17-20. Pet. 32-41. As such, Athena contends that Glaesener discloses all the limitations of the challenged claims. In particular, according to Athena, platen 50 corresponds to platen 122 disclosed in the '536 Patent. In addition, according to Athena, Choi, incorporated in Glaesener, discloses the claimed lock members and rod because Glaesener states that the “tie bars 22, 24 may be coupled to the rear wall 16 of the platen 50 by tie bar nuts 26, 28” and “[t]he tie bar nuts can be secured to the rear

wall 16 *by any appropriate mechanism*, such as the pineapple and toothed-ring mechanism described in [Choi].” Pet. 25, 36 (quoting Ex. 1002 ¶ 35).

Specifically, Athena asserts that Choi’s teeth 38 corresponds to the claimed lock member, Choi’s teeth 48 corresponds to the claimed complementary lock member, and Choi’s tie bar 20 corresponds to the claimed rod. *Id.*

Athena does not assert that Glaesener explicitly describes the engagement limitations. Instead, Athena appears to base its argument on the theory of inherency, without actually stating outright that these limitations are inherent in the reference. *See Verdegaal Bros., Inc. v. Union Oil Co. of Cal.*, 814 F.2d 628, 631 (Fed. Cir. 1987) (“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.”). Athena asserts Glaesener teaches that “the portions of the platen 50 adjacent each bore 14 that coincide with ribs 40 and gussets 42 experience a relatively lower flex than portions of the platen 50 that do not coincide with the ribs 40 and gussets 42 during clamping.” Pet. 25 (citing Ex. 1006 ¶ 27). Thus, according to Athena, “to the extent the disclosure of the ’536 patent supports the conclusion that the platen 122 . . . would have a relatively higher flex zone and relatively lower flex zones adjacent the tie rod bore, the ribs 40 and gussets disclosed in Glaesener would result in the *same* relatively higher flex zone.” Pet. 32-33 (citing Ex. 1006 ¶ 27). Athena’s expert testifies that these results were verified using finite element analysis. Pet. 33-35 (citing Ex. 1006 ¶¶ 44-55). Further, Athena asserts, supported by testimony of its expert, that Choi’s teeth 38 and teeth 48 “are engagable in a relatively lower flex zone of Glaesener’s platen 50.” Pet. 35 (citing Ex. 1006 ¶ 53). Athena, thus, appears to argue that Glaesener inherently includes the engagement limitation.

We are persuaded that there is a reasonable likelihood that the engagement limitations are inherent in Glaesener. “To serve as an anticipation when the reference is silent about the asserted inherent characteristic, such gap in the reference may be filled with recourse to extrinsic evidence.” *Continental Can Co. USA v. Monsanto Co.*, 948 F.2d 1264, 1268 (Fed. Cir. 1991). “Under the principles of inherency, if the prior art necessarily functions in accordance with, or includes, the claims limitations, it anticipates.” *Perricone v. Medicis Pharm. Corp.*, 432 F.3d 1368, 1375-76 (Fed. Cir. 2005) (quoting *In re Cruciferous Sprout Litigation*, 301 F.3d 1343, 1349 (Fed. Cir. 2002)) (internal quotation marks omitted). Although Athena has not stated, in so many words, that the engagement limitations necessarily are present in Glaesener, Athena nevertheless has provided sufficient evidence to show that this is the case for at least one of the embodiments described by Glaesener. *See* Ex. 1006 ¶ 53.

Thus, we are persuaded that there is a reasonable likelihood that Athena will prevail on anticipation by Glaesener of claims 1-7, 12, and 17-20.

4. *Obviousness Over Glaesener*

Athena argues that, in the alternative, claims 1-7, 12, and 17-20 are unpatentable as obvious in view of Glaesener. Pet. 41-42. Because we find reasonable Athena’s contentions that Glaesener anticipates claims 1-7, 12, and 17-20, we need not reach Athena’s alternative obviousness basis for those claims.

Athena also argues that dependent claims 8-11, 13-16, 21, and 22 would have been obvious over Glaesener. Pet. 42-44. These claims depend from independent claims 1, 12, or 18, and specify that the location of the relatively lower flex zone of the platen “is nominally located approximately” based on various clock positions in relation to the rod.

Athena asserts that skilled artisans knew that “platen distortion or flexure caused by clamping forces could cause undesirable wear between contacting parts.” Pet. 43 (citing Glaesener ¶¶ 6, 8). Athena further asserts that this known problem, and Glaesener’s provided solution of stiffening ribs and gussets adjacent the tie bar “to reduce loading in the region of the tie-bar support” (Ex. 1002 ¶ 45), would have suggested the further improvement of rotating Choi’s tie bars and piston to place them in the claimed clock positions. Pet. 43. According to Athena, this orientation would engage lock members *only* within relatively lower flex zones and, therefore, would reduce stress and wear on all the lock members. Pet. 43-44. Thus, a person of ordinary skill would have had a reason to make such modification. We are persuaded that this rationale for changing the orientation of Choi’s tie bars is reasonable.

Therefore, we are persuaded that there is a reasonable likelihood that Athena will prevail on obviousness over Glaesener of dependent claims 8-11, 13-16, 21, and 22.

C. Grounds based on Arend (Ex. 1004)

1. Overview of Arend

Athena asserts that Arend qualifies as prior art under 35 U.S.C. § 102(b) because it issued on May 23, 1995, more than one year prior to the ’536 Patent’s earliest priority date of February 5, 2007. Pet. 28. Arend describes an injection molding machine with multiple platens containing mold parts that are united during the molding process and separated to release the molded product. Ex. 1004, col. 1, ll. 7-12. Arend’s mold halves are connected by tie rods, which prevent the mold halves from separating during the molding process by locking the rods to the platen during molding. *Id.* at col. 1, ll. 6-12; col. 3, ll. 13-22. Figure 13,

reproduced below, is an enlarged detail view of the platen lock cam nut structure illustrating a tie rod entering the associated platen. *Id.* at col. 4, ll. 58-60.

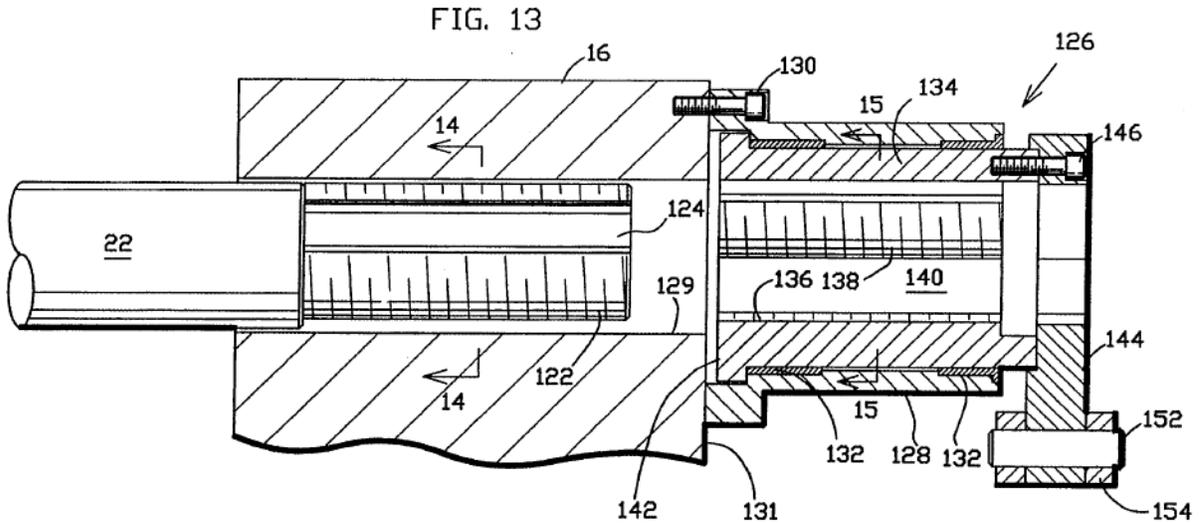


Figure 13, above, illustrates tie rod 22 associated with platen 16 and cam nut 134 with traverse end 142 that may directly abut against the platen surface 131. *Id.* at col. 7, ll. 50-66. Yoke 144 rotates the cam nut 134. *Id.* at ll. 66-69.

Figure 14, reproduced below, is a sectional view of the tie rod end. *Id.* at col. 4, ll. 61-62. Figure 15, also reproduced below, is a sectional view of the lock cam nut. *Id.* at col. 4, ll. 63-64.

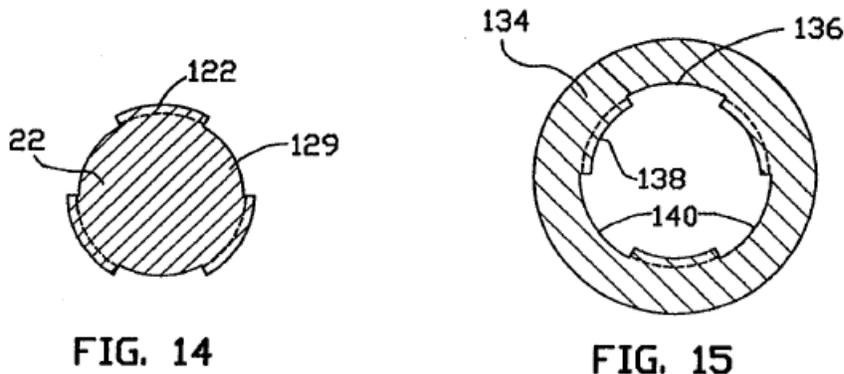


Figure 14, above, illustrates a section of tie rod 22 threaded at 122. *Id.* at col. 7, ll. 44-49. Figure 15, above, illustrates a section of the lock cam nut 134

with circular bore 136, thread segments 138, and notches 140 between the cam thread portions. *Id.* at ll. 50-62. During the molding cycle, tie rod 22 is received within lock cam nut 134 at a time such that (i) the cam nut threads 138 align with the tie rod notches 124, (ii) the tie rod thread segments 122 align with the cam nut notches 140, and (iii) the two sets of thread segments engage. *Id.* at col. 8, l. 67 – col. 9, l. 21. The tie rod locks release upon completion of the molding cycle. *Id.* at col. 9, ll. 47-55.

2. *Anticipation by Arend*

Athena asserts that Arend anticipates claims 1, 4-16, 18, and 20-22. Pet. 44-50. Athena argues that Arend discloses a generally flat platen without structural supports. Pet. 44. Athena argues that Arend explicitly discloses each claim limitation except the engagement limitations, which are inherent. Pet. 44-46. Athena equates rod 22 of Arend to the claimed rod, platen 16 to the claimed platen, thread segments 122 to the claimed lock member, and thread segments 138 to the claimed complementary lock member.

In addition, according to Athena's expert, finite element analysis confirms that "a generally flat platen such as the platen 16 disclosed in Arend . . . inherently experiences a non-uniform distribution of flex in zones adjacent to an affixed tie rod in response to a clamping force applied to the platen, with the highest flex zone being in the region of the platen's corners." Ex. 1006 ¶ 56. Further, Athena's expert testifies that "each of Arend's three corresponding rows of thread segments 122, 138 (i.e., teeth) on the tie rod 22 and the cam nut 134, respectively, are engageable within or proximate to a relatively lower flex zone LFZ of Arend's platen 16 relative to a relatively higher flex zone HFZ." *Id.* ¶ 62.

We are persuaded that there is a reasonable likelihood that the engagement limitations are inherent in Arend. Again, although Athena has not stated, in so many words, that the engagable limitations are necessarily present in Arend, Athena nevertheless has provided sufficient evidence to show that this is the case for at least one of the embodiments described by Arend. *See* Ex. 1006 ¶¶ 56-64.

Thus, we are persuaded that there is a reasonable likelihood that Athena will prevail on anticipation by Arend of claims 1, 4-16, 18, and 20-22.

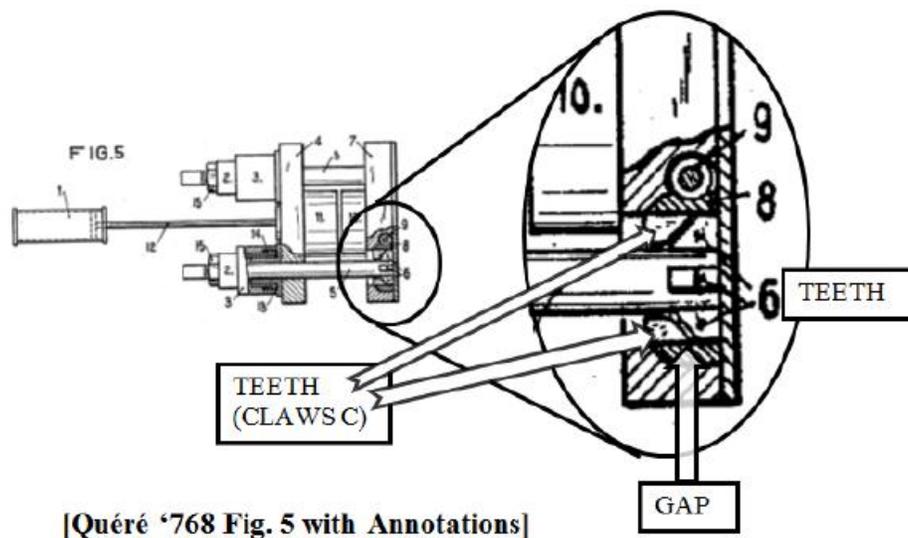
3. Obviousness Over Arend Combined with Glaesener

Athena asserts that Arend combined with Glaesener renders obvious claims 1, 4-16, 18, and 20-22. Pet. 51-52. Specifically, Athena asserts that “it would have been obvious to one of skill in the art at the time of the invention to have substituted Glaesener’s platen 50 for the platen 16 disclosed in Arend” because Glaesener states that the tie bars may be secured by “any appropriate mechanism.” Pet. 51 (quoting Ex. 1002 ¶ 35). Athena also asserts that Glaesener expressly discloses the problem of wear between contacting parts due to flexure adjacent to the tie bars and provides the rationale for combining its platen with a lock and clamping structure such as disclosed by Arend. Pet. 51-52 (citing Glaesener ¶¶ 6, 8, 40, 45).

Further, Athena asserts that the substitution would result in Arend’s complementary lock member and lock member being engagable *only* within relatively lower flex zones of Glaesener’s platen 50, which occur in the areas of Glaesener’s platen 50 proximate the rib 40 and/or gusset 42. Pet. 51-52; Ex. 1006 ¶ 51. Athena, however, does not explain this assertion, nor does Athena point to any persuasive expert testimony confirming that a combination of Arend’s locking mechanism with Glaesener’s platen would result in the engagement limitation.

2. Anticipation by Quéré

Athena asserts that Quéré anticipates claims 1-3, 8-19, 21, and 22. Pet. 52-57. Athena argues that Quéré, similar to Arend, discloses a generally flat platen without structural supports. Pet. 52. Athena equates rod 5 of Quéré to the claimed rod, platen 7 to the claimed platen, claws 6 to the claimed lock member, and claws C (not identified with a reference numeral in the figures of Quéré, but identified by the letter “C” in Athena’s annotated Figure 5) to the claimed complementary lock member. Athena’s annotated version of Quéré’s Figure 5 is reproduced below.



Annotated Figure 5 above, labels as “Claws C” the “inward-extending claws” that Athena equates to the complementary lock member. Pet. 31 (citing Ex. 1005, col. 3, ll. 36-40).

Athena argues that Quéré explicitly discloses each claim limitation except (i) the engagement limitations, which are inherent, and (ii) the number of coupling rods and corresponding coupling sleeves. Pet. 52-54. Regarding the number of coupling rods and sleeves, Athena asserts that a person of ordinary skill in the art would understand that Quéré teaches both a two and four rod arrangement. Pet. 53 (citing Ex. 1006 ¶ 40). It is unclear if Athena is asserting that this limitation is

inherently present in Quéré or would have been obvious to a person of ordinary skill in the art. However, we need not resolve this issue because we are not persuaded that Quéré explicitly discloses “inward-extending claws C.”

Athena equates “inward-extending claws C” to the claimed complementary lock member. The only supporting evidence in Quéré pointed to by Athena is Figures 1-6, which do not label the claws, and the following language: “By means of a worm drive 9 the coupling sleeves 8 can be rotated in such a manner that they allow the claws 6 of the coupling rods to pass, whereupon these claws can be locked by a rotary movement of the sleeve 8 by means of worm drive 9 in opposite direction.” Ex. 1005, col. 3, ll. 36-40; Pet. 31 (citing Ex. 1006 ¶ 39).

We are not persuaded that the cited language supports Athena’s assertion. Nor are we persuaded that the drawings are detailed enough to be relied upon for the disclosure of the complementary lock member limitation. This is true especially given Athena’s expert’s statement that “the drawings [in Quéré] appear to contain an error in that they show the teeth 6 of coupling rods 5 rotating but no mechanism to cause such rotation is shown or described.” Ex. 1006 ¶ 39.

Thus, we are not persuaded that Athena will prevail on anticipation by Quéré of claims 1-3, 8-19, 21, and 22.

3. Obviousness Over Quéré

Athena argues that, in the alternative, claims 1-3, 8-19, 21, and 22 are unpatentable as obvious in view of Quéré. Pet. 53. According to Athena, if we are not persuaded that Quéré is an anticipatory reference given the lack of explicit disclosure of the number of rods, the use of four rods would have been obvious to a person of skill in the art. Pet. 53. However, Athena does not explain why a person of ordinary skill in the art would have found the challenged claims obvious given

the deficiency in the disclosure of Quéré related to the complementary lock member limitation as described above.

Thus, we are not persuaded that there is a reasonable likelihood that Athena will prevail on obviousness over Quéré of claims 1-3, 8-19, 21, and 22.

4. Obviousness Over Quéré combined with Glaesener

Athena asserts that Quéré combined with Glaesener renders obvious claims 1-3, 8-19, 21, and 22. Pet. 58-59. Specifically, Athena asserts that “[i]t would have been obvious to one of skill in the art at the time of the invention to have substituted Glaesener’s platen 50 for Quéré’s platen 7, satisfying the engagement limitations” because Glaesener states that the tie bars may be secured by “any appropriate mechanism.” Pet. 58 (quoting Ex. 1002 ¶ 35).

However, Athena does not explain why a person of ordinary skill in the art would have found the challenged claims obvious given the deficiency in the disclosure of Quéré related to the complementary lock member as described above.

Thus, we are not persuaded that there is a reasonable likelihood that Athena will prevail on obviousness over Quéré combined with Glaesener of claims 1-3, 8-19, 21, and 22.

III. CONCLUSION

We institute an *inter partes* review of claims 1-22 of the ’536 Patent on the following grounds: (1) claims 1-7, 12, and 17-20 as anticipated by Glaesener; (2) claims 8-11, 13-16, 21, and 22 as obvious over Glaesener; and (3) claims 1, 4-16, 18, and 20-22 as anticipated by Arend. The Board has not made a final determination on the patentability of the challenged claims.

IV. ORDER

For the reasons given, it is

ORDERED that the Petition is granted as to claims 1-22.

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review of the '536 Patent is hereby instituted commencing on the entry date of this Order, and pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial.

FURTHER ORDERED that the trial is limited to the grounds listed in the Conclusion. No other grounds are authorized for claims 1-22.

FURTHER ORDERED that an initial conference call with the Board is scheduled for 2 PM Eastern Time on November 21, 2013. The parties are directed to the Office Trial Practice Guide, 77 Fed. Reg. 48756, 48765-66 (Aug. 14, 2012) for guidance in preparing for the initial conference call, and should come prepared to discuss any proposed changes to the Scheduling Order entered herewith and any motions the parties anticipate filing during the trial.

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