

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 IPR2013-00167
Patent 5,620,723

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

BISK, *Administrative Patent Judge*.

FINAL WRITTEN DECISION

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

I. INTRODUCTION

A. Background

Petitioner Athena Automation Ltd. filed a Petition (Paper 1, “Pet.”) to institute an *inter partes* review of claims 21-37 (“the challenged claims”) of U.S. Patent No. 5,620,723 (Ex. 1001, “the ’723 patent”). 35 U.S.C.

§§ 311-319. Patent Owner Husky Injection Molding Systems Ltd. waived the filing of a Preliminary Response. Paper 8. On July 30, 2013, the Board instituted trial (Paper 9, “Decision to Institute”), concluding that Petitioner had shown a reasonable likelihood of showing that the challenged claims were unpatentable based on the following grounds:

References ¹	Basis	Claims challenged
Queré and Putkowski	§ 103	21-34
Queré, Putkowski, and Kushibe	§ 103	30 and 33
Arend and Putkowski	§ 103	21-31 and 34-37
Arend, Putkowski, and Kushibe	§ 103	30
Arend, Putkowski, and Queré	§ 103	32
Arend, Putkowski, Queré, and Kushibe	§ 103	33
Stüdli and Putkowski	§ 103	21, 27-31, and 34-37
Stüdli, Putkowski, and Queré	§ 103	32 and 33

After institution of trial, Patent Owner filed a Response. Paper 22 (“PO Resp.”). Patent Owner also filed a Motion to Amend claims by submitting proposed new claims 38-54 for claims 21-37. Paper 24 (“Mot. to

¹ U.S. Patent No. 2,976,569 (Ex. 1002) (“Queré”); U.S. Patent No. 5,417,913 (Ex. 1003) (“Arend”); U.S. Patent No. 2,711,561 (Ex. 1004) (“Stüdli”); U.S. Patent No. 3,677,682 (Ex. 1005) (“Putkowski”); U.S. Patent No. 4,874,309 (Ex. 1006) (“Kushibe”).

Amend”). Petitioner filed a Reply to the Response (Paper 33, “Reply”) and an Opposition to Patent Owner’s Motion to Amend (Paper 34, “Opp. Mot. to Amend”). Patent Owner then filed a Reply in support of its Motion to Amend (Paper 40, “Reply Mot. to Amend”). Oral hearing was held April 28, 2014, a transcript of which appears in the record. Record of Oral Hearing, Paper 50 (“Tr.”).

The Board has jurisdiction under 35 U.S.C. § 6(c). This final written decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73.

Petitioner has shown, by a preponderance of evidence, that claims 21-37 are *unpatentable*.

Patent Owner’s Motion to Amend claims is *denied*.

B. Related Proceedings

The parties simultaneously are involved in two other *inter partes* reviews of patents claiming similar subject matter. IPR2013-00169 involves U.S. Patent No. 5,624,695 (“the ’695 patent”), and IPR2013-00290 involves U.S. Patent No. 7,670,536. The ’695 patent shares much of the specification of the ’723 patent. In a separate decision, we conclude that claims 1-17 of the ’695 patent are unpatentable as obvious over combinations of some of the same references raised in this proceeding: Queré, Arend, and Stüdli. IPR2013-00169, Paper 51. The Petition in IPR2013-00290 was filed several months after the other two Petitions and is currently scheduled for oral hearing on July 22, 2014.

C. The ’723 Patent

The ’723 patent generally relates to injection molding machines in which at least one stationary platen includes a first mold half and at least one platen that is moveable toward the stationary platen includes a second mold

half. Ex. 1001, Abstract. In particular, the patent describes a securing and clamping assembly for use with the tie bars extending between and connecting the stationary platen and the movable platen. *Id.* at 1:5-8.

The Background section of the patent describes prior art tie bar gripping and clamping assemblies for use with injection molding machines. *Id.* at 1:9-21. The objective of the invention is to provide an improved injection molding machine in which the securing/clamping assembly (1) can be engaged and disengaged from the tie bar at each molding cycle, (2) provides the dual purpose of “securing with tie bars and clamping mold halves closed for injection molding,” and (3) is actuated via rotational movement. *Id.* at 3:5-28.

Figure 1 of the '723 patent, reproduced below, is a simplified overhead view of an injection molding machine.

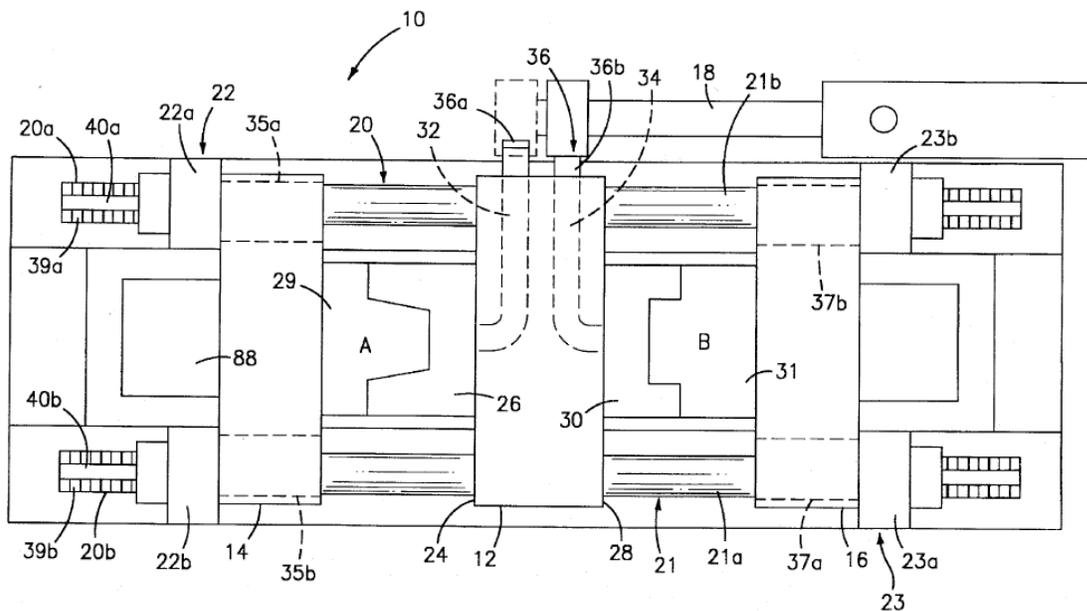


FIG. 1

Figure 1 illustrates the top view of an injection molding machine that includes stationary platen 12, movable platens 14 and 16, injection unit 18,

hot runners 32 and 34 for directing melt to the molds halves, and tie bars 20 and 21, for guiding the movable platens and securing/clamping assemblies 22 and 23. Ex. 1001 4:11-13, 34-59.

D. Illustrative Claims

Patent Owner's Response addresses only claim 33, which indirectly depends from claim 21. Claims 21 and 33 are illustrative, and are reproduced below:

21. An injection molding machine, comprising:
 - a stationary platen including at least one stationary mold half;
 - a movable platen movable relative said stationary platen and having a mold half adapted to engage said stationary mold half to form a first mold;
 - said first mold having a hot runner leading thereto;
 - an injection unit for delivering melt to said hot runner of said first mold; and
 - tie bars extending between and connecting said stationary platen and said movable platen;wherein at least one of said movable platen and said stationary platen includes means for securing said platen to at least one of said tie bars, wherein said means for securing includes engagement means for placing said means for securing into and out of locking engagement with said at least one tie bar such that when said engagement means is out of locking engagement with said at least one tie bar, said means for securing and said at least one tie bar are relatively movable, wherein said engagement means is rotatable into and out of engagement with said at least one tie bar, and wherein said at least one tie bar includes an engagable surface having protrusions for engagement by said engagement means.

33. The injection molding machine according to claim 32, wherein said movable platen is adapted to be forced in a direction for achieving clamping with said stationary platen,

and wherein said movable platen has bores for receiving said means for securing, said means for conveying having an outer surface being configured to form cavities between said outer surface and one of said bores and being configured to have surfaces extending substantially transversely to said directions,

wherein said cavities are for the introduction of pressurized fluid and said surfaces are for the receipt of pressure from said pressurized fluid thereagainst for moving said movable platen in said direction and away from said direction.

II. ANALYSIS

A. Assignor Estoppel

Patent Owner argues that Petitioner is barred from challenging the validity of the '723 patent by assignor estoppel. PO Resp. 34-56. Patent Owner contends that Mr. Robert Schad, one of the named inventors of the '723 patent, is the founder, co-owner, President, Chief Executive Officer, and one of two directors on the Board of Directors of Petitioner and is, therefore, in privity with Petitioner. *Id.* at 34-35. Thus, according to Patent Owner, Petitioner is estopped from challenging the patentability of the '723 patent under the doctrine of assignor estoppel. *Id.*

We determined previously, in the related proceeding, IPR2013-00290, that assignor estoppel is not a basis for denying a petition requesting an *inter partes* review:

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.

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Athena Automation Ltd. v. Husky Injection Molding Sys. Ltd., IPR2013-00290, slip op. at 12-13 (PTAB Oct. 25, 2013) (Paper 18); *see also Palo Alto Networks, Inc. v. Juniper Networks, Inc.*, IPR2013-00369, slip op. at 11-14 (PTAB Dec. 19, 2013) (Paper 16).

Patent Owner does not persuade us otherwise in this proceeding. Specifically, we are not persuaded by Patent Owner's argument that 37 C.F.R. § 42.101(c), enacted pursuant to 35 U.S.C. §§ 312 and 316, modifies the broad statutory language of § 311. *See* PO Resp. 50-56. We are also not persuaded that § 311(b) limits the scope of § 311(a) to grounds not subject to assignor estoppel. *See* PO Resp. 46 n.4.

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 dismiss this *inter partes* review based on the doctrine of assignor estoppel.

B. Claim Construction

In an *inter partes* review, claim terms in an unexpired patent are interpreted according to their broadest reasonable construction in light of the specification of the patent in which they appear. 37 C.F.R. § 100(b); Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,766 (Aug. 14, 2012). Pursuant to that standard, claim terms are given 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).

In the Decision to Institute, we adopted Petitioner's construction of several claim terms, concluding that they correspond to the plain and

ordinary meaning in the context of the Specification. Decision to Institute 5-7. Although Petitioner did not propose constructions for “stationary platen” and “movable platen,” we also construed those terms for purposes of institution. *Id.* at 7-8. We construed “movable platen” as “a platen that, at certain times, is capable of being moved—i.e. not in a fixed position—relative to a stationary platen and connecting tie bars” and construed “stationary platen” as “a platen that, at certain times, is capable of being held in a fixed position.” *Id.* For all other claim terms not specifically addressed in the Petition, we applied the plain and ordinary meaning that the term would have had to a person of ordinary skill in the art without further elaboration. *Id.* at 6-7.

Patent Owner argues “movable platen” should instead be construed as “a platen that is movable *during an injection molding operation*” and “stationary platen” should be construed as “a platen that does not move *during an injection molding operation.*” PO Resp. 21-24. Petitioner disagrees and asserts that the differences between Patent Owner’s proposed constructions and the constructions adopted in the Decision to Institute are irrelevant. Reply 1 n.1. Patent Owner agreed at oral argument that, for this proceeding, the analysis is the same whether or not we adopt Patent Owner’s proposed constructions. *See* Tr. 19:1-13.

We agree with the parties that, on this record, either construction of the two terms would result in the same patentability analysis. Therefore, for purposes of this decision, we proceed under the constructions adopted in the Decision to Institute.

C. Claims 21-32 and 34-37

Previously, we considered the Petition and determined it was reasonably likely that Petitioner would prevail in showing that claims 21-32 and 34-37 are unpatentable. Decision to Institute 8-14. As previously noted, Patent Owner did not file a Preliminary Response, and its Response addresses only claim 33. *See* PO Resp. 6-33. Thus, Patent Owner has not directed us to any argument or evidence to rebut Petitioner’s demonstration that claims 21-32 and 34-37 are unpatentable.

Moreover, during oral argument, Petitioner’s counsel stated that “[w]ith regard to . . . the ’723 patent, the 167 matter², only Claim [33] remains on the table.” Tr. 5:1-3. In response, Patent Owner’s counsel stated that “I agree with Mr. Schmitt with regard to the original claims at issue, [for the] ’723 patent, we’re talking about Claim 33.” *Id.* at 17:23-18:1. Patent Owner’s counsel also conceded that “it turns out upon closer scrutiny, while there’s an individual preferred embodiment that’s represented by some of the dependent claims, including the ones we’re talking about here today, some of the broader features were shown . . . 40 years before the patent was actually filed.” *Id.* at 17:11-18.

To the extent that any of Patent Owner’s arguments presented for the patentability of claim 33 are also applicable to claims 21-32 and 34-37, we are not persuaded for the reasons discussed below. Thus, the preponderance of the evidence, including the findings of fact and reasoning set forth in our Decision to Institute, indicate that these claims are unpatentable.

² Referring to case caption IPR2013-00167.

Accordingly, based on the record before us, we conclude that a preponderance of the evidence demonstrates that claims 21-32 and 34-37 are unpatentable based on the following grounds:

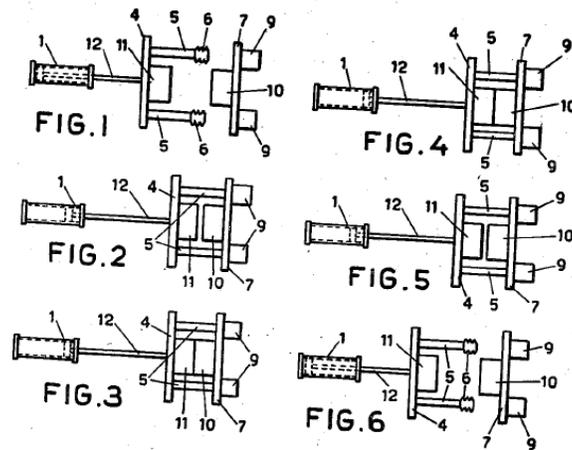
- (1) claims 21-32 and 34 are obvious over Queré and Putkowski;
- (2) claim 30 is obvious over Queré, Putkowski, and Kushibe;
- (3) claims 21-31 and 34-37 are obvious over Arend and Putkowski;
- (4) claim 30 is obvious over Arend, Putkowski, and Kushibe;
- (5) claim 32 is obvious over Arend, Putkowski, and Queré;
- (6) claims 21, 27-31, and 34-37 are obvious over Stüdli and Putkowski; and
- (8) claim 32 is obvious over Stüdli, Putkowski, and Queré.

D. Claim 33

Patent Owner's Response explicitly addresses the patentability of only claim 33, which indirectly depends from independent claim 21. PO Resp. 6-33. For the reasons discussed below, we conclude that a preponderance of the evidence demonstrates that claim 33 is unpatentable.

1. Overview of Queré

Queré describes an injection molding machine with a mold section that is "slidably displaced with respect to" another mold section. Ex. 1002, 1:7-18. Figures 1-6 of Queré are reproduced below.



Figures 1-6 show the essential parts of Queré's invention, in various positions occurring when the machine is in operation. *Id.* at 2:15-19. Mold section 11 is supported by slidable block 4 that moves toward mold section 10 that is supported by fixed block 7. *Id.* at 2:21-47. Coupling rods 5, which include locking claws 6 on a free end, are secured to block 4. *Id.* During the injection process, block 4 is locked in place with high pressure. *Id.*

Figure 7 of Queré is reproduced below.

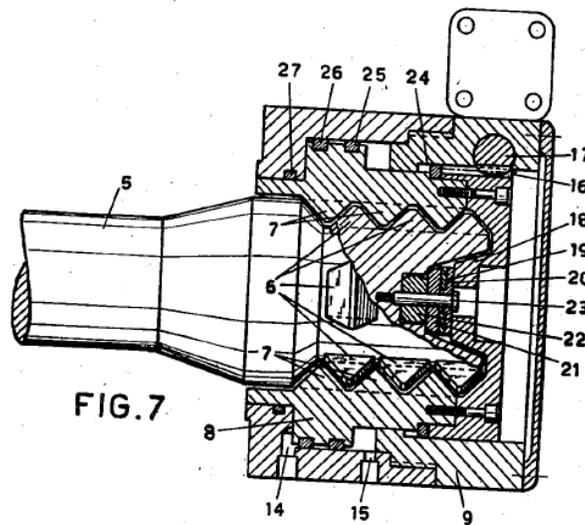


Figure 7 shows hydraulic pressure cylinder 9 that is secured to the fixed block³. *Id.* at 2:18-47. Pressure cylinder 9 includes coupling sleeve 8, which receives coupling rods 5 when slidable block 4 is moved sufficiently close to stationary block 7. *Id.* at 2:37-47.

2. *Alleged Obviousness over Queré, Putkowski, and Kushibe*

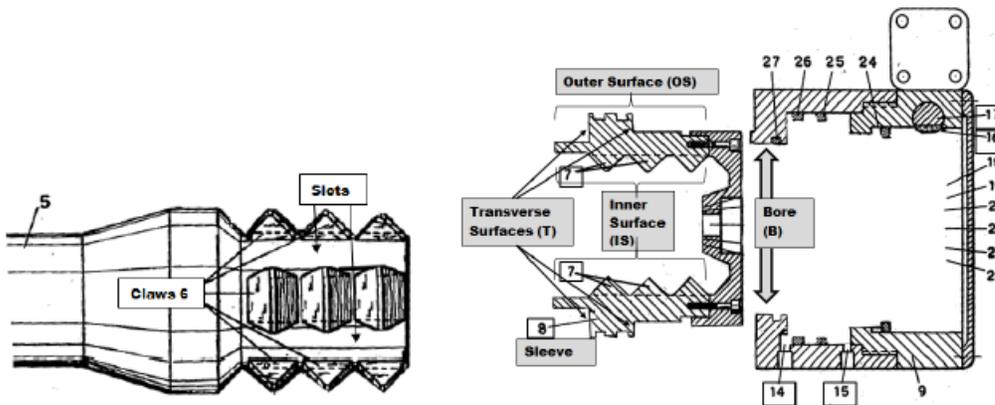
Petitioner asserts that claim 33 is obvious over the combinations of Queré and Putkowski and Queré, Putkowski, and Kushibe. Pet. 43-50. In particular, Petitioner asserts that Queré explicitly discloses every limitation of claim 33 except (1) “bores for receiving said means of securing” (“the bore limitation”), and (2) “said first mold having a hot runner leading thereto.” *Id.* at 41-43, 48, 50. In addition, Petitioner argues that “a person of skill in the art would recognize that Queré’s block 7 could readily be rendered movable, and platen 4 made stationary by attaching cylinder 1 and piston 12 to platen 7.” Pet. 41 (citing Ex. 1007 ¶¶ 23, 24, 26). Petitioner alternatively relies on Kushibe, cited in the ’723 patent (Ex. 1001 1:13-17, 26-30), to show that a person of ordinary skill in the art would find it an obvious design choice to make block 7 movable as recited in claim 33. Pet. 41 (citing Ex. 1007 ¶¶ 23, 24, 26).

Petitioner relies on Putkowski as teaching the hot runner. Pet. 43 (citing Ex. 1005, 2:36-49; Fig. 1). Putkowski is indeed directed to a “hot runner system” for “plastic injection molds.” Ex. 1005, Abstract. Putkowski states that “[i]n the art of injection molding, molten plastic is usually supplied under high pressure by an injection molding machine to a

³ In Figures 1-6, element 7 denotes fixed block 7. In Figure 7, however, element 7 denotes the locking claws associated with coupling sleeves 8. Ex. 1002, 2:42-45.

mold structure” and is “commonly conducted by conduits called runners” that “are often heated, in which case they are called hot runners.” *Id.* at 1:5-11. Petitioner argues that hot runners were, thus, commonly known to be used with injection molding machines at the time of the invention, and it would have been obvious to combine the teaching of Putkowski with the machine disclosed in Queré to “achieve the well-known benefits of hot runners.” Pet. 32 (citing Ex. 1007 ¶¶ 27-28). Patent Owner does not dispute that Putkowski discloses hot runners or that it would have been obvious to a person of ordinary skill to combine the hot runner of Putkowski with the machine in Queré.

Regarding the bore limitation, Petitioner asserts that Queré’s pressure cylinder 9 includes bore B for receiving coupling sleeve 8. *See* Pet. 19-20. Bore B is not labeled in Figure 7 of Queré. Instead, Petitioner creates a modified version of Figure 7 with annotations. Petitioner’s version of Queré Figure 7 with annotations is reproduced below.



[Queré Fig. 7 with Annotations]

Annotated Figure 7, above, depicts pressure cylinder 9 with annotations, including the feature that Petitioner names “Bore B.” Pet. 19-20; Ex. 1007 ¶ 11. Petitioner concedes that Queré does not disclose explicitly how pressure

cylinder 9 is secured to the stationary platen—block 7. Pet. 41. Petitioner asserts, however, that the manner of connecting the pressure cylinder to block 7 is simply a design choice. *Id.* at 42. According to Petitioner, it would have been obvious to one of ordinary skill in the art at the time of the invention to have made part or all of pressure cylinder 9 integral with block 7 to reduce part count. *Id.* (citing Ex. 1007 ¶ 11 (“A person of ordinary skill would recognize that the bore B that receives the sleeve could be within the platen itself.”)).

As discussed above, we have already determined that the combinations of Queré and Putkowski and Queré, Putkowski, and Kushibe render obvious claims 21 and 32, from which claim 33 depends. And of the limitations added by claim 33, Patent Owner addresses only the bore limitation, arguing that Queré does not disclose this limitation because pressure cylinder 9 is located externally from block 7, not *within* block 7. PO Resp. 26. We note, however, that claim 33 does not use the language *within* the platen, but instead recites that “said moveable platen *has* bores for receiving said means for securing.” (emphasis added). Even assuming, as both parties appear to do, that claim 33 requires the bore to be within the platen, we agree with Petitioner that a person of ordinary skill in the art would have found it obvious, based on the disclosure of Queré, to locate the bore within block 7.

Patent Owner argues that a person of ordinary skill would not have modified Queré to integrate pressure cylinder 9 and block 7, because block 7 is formed of a single piece of metal. PO Resp. 31 (citing Ex. 2006 ¶ 11). According to Patent Owner, modifying block 7 to integrate pressure cylinder 9 “would require a much larger block of metal in order to allow the

individual projections to be machined” and each projection would require individual machining thus increasing the overall cost of manufacturing. PO Resp. 31-32 (citing Ex. 2006 ¶¶ 11-13; Ex. 2007, 131:15-134:13).

On this record, we are persuaded that a person of ordinary skill would have found the bore limitation obvious from the disclosure of Queré. First, nothing in claim 33 requires that block 7 (the movable platen) and pressure cylinder 9 be machined as one integral piece. Instead, claim 33 simply requires that block 7 “has” a bore for receiving coupling sleeve 8 (securing means). Figure 1 of Queré shows that block 7 and pressure cylinder 9, which includes coupling sleeve 8, must be connected in some way to apply tension to coupling rods 5. Ex. 1002, Fig. 1, 2:60-70.

Second, even assuming that the bore limitation requires block 7 and pressure cylinder 9 to be integrated, we are persuaded that this integration would involve nothing more than ordinary mechanical skill. *See KSR Int’l v. Teleflex Inc.*, 550 U.S. 398, 421 (2007) (where there “are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue known options within his or her grasp.”); *In re Lockhart*, 190 F.2d 208, 210 (C.C.P.A. 1951) (stating the existence of a “general rule that there is no invention in making integral that which was before in several parts.”). Patent Owner has not directed us to persuasive evidence that such integration would require anything more than ordinary mechanical skill. *See In re Fridolph*, 309 F.2d 509, 512 (C.C.P.A. 1962) (reciting an exception to the general rule on integration when such modification shows “improved results” and “involved more than mere mechanical skill.”). In fact, Patent Owner’s declarant, Frederick G. Steil, stated that at the time of the invention

there were “appropriate people” who could accomplish this integration. Ex. 1010, 134:7-24.

We are not persuaded by Mr. Steil’s testimony that integration of block 7 and pressure cylinder 9 would have been non-obvious because it would increase complexity of the design and manufacturing cost. *See* Ex. 2006 ¶¶ 10-15. “[A] given course of action often has simultaneous advantages and disadvantages, and this does not necessarily obviate motivation to combine.” *Medichem S.A. v. Rolabo, S.L.*, 437 F.3d 1157, 1165 (Fed. Cir. 2006). Moreover, Patent Owner does not point to persuasive evidence that a person of ordinary skill would have been discouraged from making the modification or found such modification nonobvious because of this increased expense. *See, e.g.*, Tr. 25-26. Merely knowing that the integration would cause increased expense does not indicate whether such integration would have been nonobvious to persons of ordinary skill in the art. *See Orthopedic Equip. v. United States*, 702 F.2d 1005, 1013 (Fed. Cir. 1983)(“[T]he fact that the two disclosed apparatus would not be combined by businessmen for economic reasons is not the same as saying that it could not be done because skilled persons in the art felt that there was some technological incompatibility that prevented their combination.”). In fact, Stüdli explicitly discloses this limitation, as described in more detail below, evidencing that at the time of the invention a person of ordinary skill in the art would have known to locate a bore in the platen. *See* Ex. 1004, Fig. 7. In light of Queré’s disclosure, we are not persuaded that a potential increase in cost of machining complexity changes the fact that a person of ordinary skill in the art would find obvious the minimal modification of integrating the two components.

Finally, to the extent that Patent Owner argues that (1) Queré does not show a cavity for pressurized fluid within the bore and improperly only accommodates mold sections that have the same shut height, or (2) modification of Queré to include the bore limitation would be inoperable because it would not include these features, we do not find these arguments persuasive.⁴ *See* Tr. 23-24; Ex. 2006 ¶¶ 16-22. Claim 33 does not recite a cavity for pressurized fluid within the bore or that it must accommodate mold sections with different shut heights. *See, e.g.*, Tr. 37.

We conclude that the preponderance of the evidence demonstrates that claim 33 is unpatentable based on the combination of Queré and Putkowski, and Queré, Putkowski, and Kushibe.

3. *Overview of Arend*

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. 1003, 1:7-12. The Summary of the Invention describes the invention as including “two platens mounted upon a frame [that] are relatively horizontally movable toward and away from each other.” *Id.* at 2:58-62. Figure 1, reproduced below, is an elevational side view of the injection molding machine. *Id.* at 4:16-21.

⁴ Patent Owner’s Response does not mention these features in its argument pertaining to this proposed ground of unpatentability. *See* PO Resp. 24-29. We address these arguments solely because the declaration testimony and oral argument refer to these features, but do not clearly identify what, precisely, Patent Owner’s arguments are, or what specific grounds they apply to. *See, e.g.*, Tr. 23-24; Ex. 2006 ¶¶ 16-22.

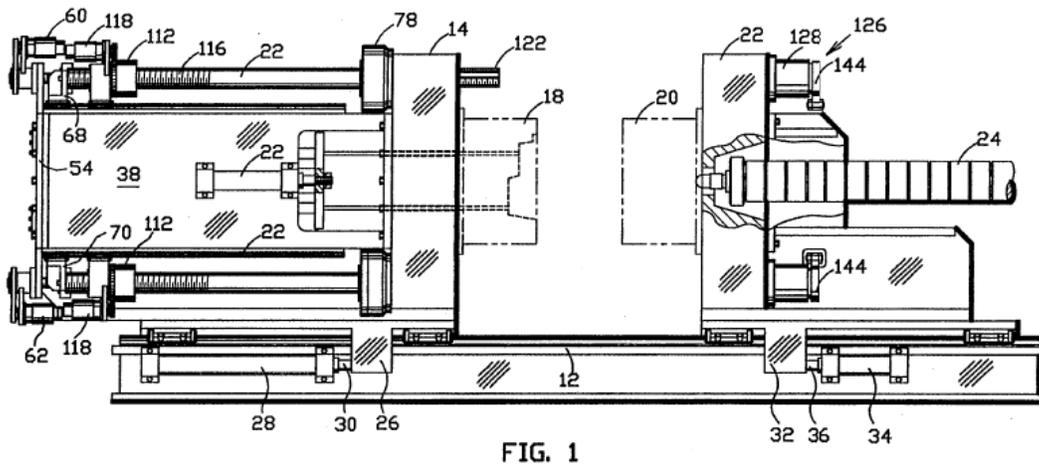


FIG. 1

Figure 1 of Arend, above, illustrates the injection molding machine, including “platens 14 and 16 movably mounted upon the ways 12.” *Id.* at 5:67-6:1. Platen 14 is moved along frame 10 by two hydraulic cylinders 28, and platen 16 is adjusted on the frame by frame-mounted cylinders 34. *Id.* at 6:18-28.

Figures 13, 14, and 15 of Arend, reproduced below, are all views of the platen lock cam nut structure used to lock the movable platen in place.

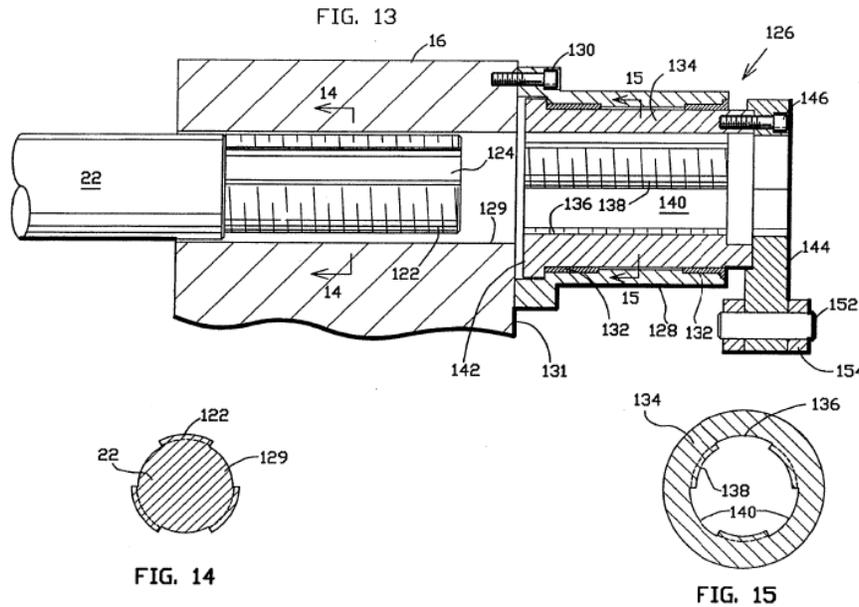


FIG. 14

FIG. 15

Figure 13, above, shows platen bore 129, and tie rods 22 with tie rod locks 126. Ex. 1003, 7:50-55. Each tie rod lock 126 includes annular sleeve 128,

which is bolted to platen 16 by bolts 130 and includes annular cam nut 134. *Id.* Figure 15, above, shows annular cam nut 134 with circular bore 136, thread segments 138, and notches 140. *Id.* at 7:55-60. Figure 14, above, shows end of tie rod 22 with threads 122. *Id.* at 7:44-49. The threads 138 correspond to thread segments 122 defined on the ends of the tie rod. *Id.* at 7:60-62.

4. *Alleged Obviousness over Arend, Putkowski, Queré, and Kushibe*

Petitioner asserts that Arend, combined with Putkowski, Queré, and Kushibe, renders obvious claim 33. Pet. 52-53. In particular, Petitioner asserts that Arend explicitly discloses every limitation of claim 33 except (1) “means for conveying a clamping force to said platens for clamping said platens during injection molding,” (2) the bore limitation, and (3) the hot runner, which are disclosed by the other references. *Id.* at 41-43, 48, 50-52. Patent Owner limits its argument to addressing the bore limitation. See PO Resp. 25-29.

In addition, Petitioner argues that a person of skill in the art would have recognized that Arend’s platen 16 would meet claim 33’s limitation that the bores are located in the *movable* platen under a broad construction of movable platen. Pet. 50. Petitioner, alternatively, relies on Kushibe, cited in the ’723 patent (Ex. 1001, 1:13-17, 1:26-30), to show that a person of ordinary skill in the art would have found it an obvious design choice to make platen 16 movable as recited in claim 33. Pet. 50-51 (citing Ex. 1007 ¶ 24).

Regarding the bore limitation, Petitioner concedes that Arend does not disclose that the bore is within platen 16, because Arend discloses modified cam nut 134 positioned within annular sleeve 128, which is secured to a rear

surface of platen 16 by fasteners 130. *Id.* at 52. According to Petitioner, it would have been obvious to integrate part or all of sleeve 128 with platen 16 to reduce part count, without any effect on the function of platen 16. *Id.* Such integration would result in the bore limitation—platen 16 having the bore of sleeve 128. *Id.*

As discussed above, we have already determined that the combinations of Arend and Putkowski and Arend, Putkowski, and Queré render obvious claims 21 and 32, from which claim 33 depends. And, of the limitations added by claim 33, Patent Owner addresses only the bore limitation, arguing that Arend does not disclose this limitation because tie rod locks 126 are attached to platen 16, but are not “*within* a platen.” PO Resp. 26-27. Claim 33 does not use the language *within* the platen, but instead recites that “said movable platen *has* bores for receiving said means for securing” (emphasis added). Even assuming, as both parties appear to do, that claim 33 requires the bore to be within the platen, we agree with Petitioner that a person of ordinary skill would have found it obvious, based on the disclosure in Arend and Queré, to locate the bore within platen 16.

Patent Owner argues that modification of Arend to make sleeve 128 of tie rod locks 126 integral with platen 16 as suggested in the Petition would prevent installation of cam nuts 134 within the sleeves 128. *Id.* at 27 (citing Ex. 2006 ¶ 29). Thus, according to Patent Owner, the suggested modification would make the resulting machine inoperable. PO Resp. 27-28 (citing Ex. 2006 ¶ 30). In support of this argument, Mr. Steil testifies that Arend, modified as suggested, would be inoperable due to the disparate relative diameters of the components. Ex. 2006 ¶¶ 30-33. Further, changing the size of the components to permit the modification would result in platen

16 that is difficult and costly to manufacture. *Id.* Petitioner replies that a person of ordinary skill would have found it an obvious design choice to size the components of Arend appropriately to produce an embodiment meeting the bore limitation. Reply 5-7.

We agree with Petitioner. Patent Owner does not assert that there are more than two obvious locations for securing the bore—either within the platen or attached to the platen. Nor does Patent Owner point to persuasive evidence that the combination of the references fails to disclose any of the claimed limitations. Finally, Patent Owner does not point to persuasive evidence that the particular location of the bore would achieve any novel or unexpected results or point to any persuasive evidence that a person of ordinary skill would have been discouraged from making the modification because of the size issue. Moreover, Stüdlí’s explicit disclosure of this limitation, as described in more detail below, evidences that at the time of the invention a person of ordinary skill in the art would have known to locate a bore in the platen. *See* Ex. 1004, Fig. 7. Thus, we are persuaded that the location of the bore using appropriately sized components would be an obvious design choice within the abilities of a person of ordinary skill. *See KSR*, 550 U.S. at 421 (“A person of ordinary skill is also a person of ordinary creativity, not an automaton.”); *In re Sovish*, 769 F.2d 738, 742 (Fed. Cir. 1985) (affirming a rejection of obviousness when modifying one reference with a component of another reference required “no more change than to make it the right size”).

In addition, as discussed above with respect to Queré, merely knowing that the integration would cause increased expense does not indicate whether such integration would have been nonobvious to persons of ordinary skill in

the art. On this record, we are not persuaded that a potential increase in cost of machining complexity changes the fact that a person of ordinary skill in the art would find obvious the minimal modification of integrating the two components.

Finally, to the extent that Patent Owner argues that Arend (1) accomplishes determining the shut height of the machine in a different manner than the invention, or (2) modification of Arend to include the bore limitation would be inoperable because of this difference, we do not find these arguments persuasive.⁵ Claim 33 does not mention shut height or the manner in which this property is determined. *See, e.g.*, Tr. 37.

We conclude that a preponderance of the evidence demonstrates that claim 33 is unpatentable based on the combination of Arend, Putkowski, Queré, and Kushibe.

5. Overview of Stüdli

Stüdli describes a press with hydraulically operated press plungers. Ex. 1004. Figure 1 of Stüdli, reproduced below, illustrates a vertical section of the disclosed press. *Id.* at 1:46-48.

⁵ Patent Owner's Response does not present these arguments. *See* PO Resp. 24-29. We address these arguments solely because the declaration testimony and oral argument that refers to these features do not clearly identify what, precisely, Patent Owner's arguments are or to what specific grounds they apply. *See, e.g.*, Tr. 35-37; Ex. 2006 ¶¶ 23-28.

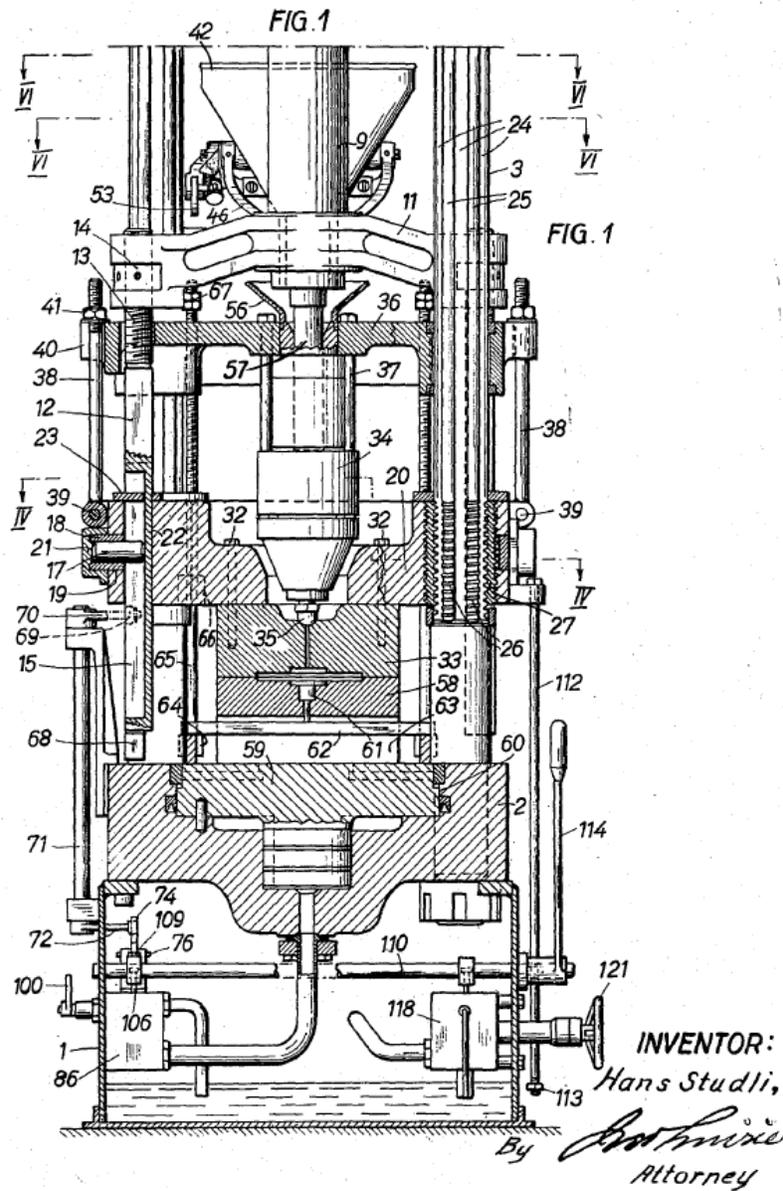


Figure 1, above, shows lower cylinder block 2 and press plate 20, which is “slidably guided on four columns 3.” *Id.* at 1:61-2:16. Figure 7, reproduced below, is a section of the machine disclosed in Stüdl. *Id.* at 1:44-57.

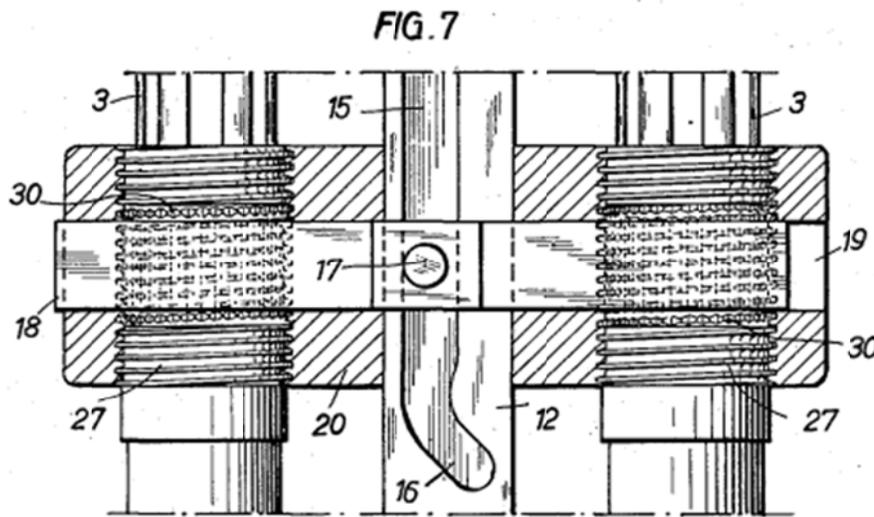


Figure 7, above, shows two columns 3, each surrounded by sleeve 27 that is screwed into a corresponding bore of press plate 20. *Id.* at 2:15-28.

6. *Alleged Obviousness over Stüdli, Putkowski, and Queré*

Petitioner asserts that Stüdli, combined with Putkowski and Queré, renders obvious claim 33. Pet. 50-53. In particular, Petitioner asserts that Stüdli explicitly discloses every limitation of claim 33 except “means for conveying a clamping force to said platens for clamping said platens during injection molding” (“the conveying limitation”) added by dependent claim 32, and the hot runner. *Id.* at 38, 59-60. Petitioner relies on Queré for disclosing the conveying limitation and Putkowski for the hot runner. *Id.* Petitioner asserts that Stüdli, unlike Queré and Arend, explicitly discloses the bore limitation, because press plate 20 (moveable platen) has a bore for receiving rotatable sleeve 27. *Id.* at 53.

As for the conveying limitation, Petitioner asserts that

[i]t would have been obvious to one of ordinary skill in the art at the time of the invention to have modified Stüdli’s rotatable sleeve 27 in accordance with Queré’s teachings to make sleeve 27 also function as a piston responsive to fluid pressure to force platen 20 in a direction

toward platen 2 and apply a corresponding tensile force to the column 3 for clamping mold sections 33, 58.

Id. at 59. Petitioner describes the rationale for such combination as “achiev[ing] several advantages, including simplicity and lower cost.” *Id.* at 59-60 (citing Ex. 1007 ¶ 22). Mr. Link, Petitioner’s declarant, testifies to a list of advantages that a person of ordinary skill would appreciate in the modified design of more than one piston, including the potential requirement of less oil leading to a faster and more energy efficient system, smaller pistons that are easier to machine, and easier maintenance. Ex. 2007 ¶ 22.

Patent Owner limits its argument to the conveying limitation, arguing that the proposed modification of Stüdli with Queré is not possible. PO Resp. 30. According to Patent Owner, this is because the connection between sleeve 27 and press plate 20 is described as being made via threads (Ex. 1004, 2:23-27), the connection does not include a cavity and, therefore, could not be modified to introduce a pressurized fluid therein. *Id.* (citing Ex. 2006 ¶¶ 34-37).

Petitioner disagrees and points to language in Queré that discloses providing a sleeve “with a shoulder 13 operating as a piston which shoulder is incorporated in the pressure cylinder 9” resulting in the two mold halves being drawn together under high pressure. Reply 9-10 (citing Ex. 1002, 2:60-70). According to Petitioner, a person of ordinary skill would have found making these changes to Stüdli’s sleeve 27 to be an obvious variation according to established functions. *Id.* (quoting *KSR*, 550 U.S. at 417). Moreover, Petitioner asserts that a person of ordinary skill would have realized that this modification achieves the advantage of eliminating plunger 59. *Id.* at 10.

We agree with Petitioner. Patent Owner does not assert that the technical issues involved in this combination would achieve any novel or unexpected results. Nor does Patent Owner point to any persuasive evidence that a person of ordinary skill would have been discouraged from making the changes to Stüdli as disclosed in Queré. Thus, we are persuaded that modifying Stüdli as disclosed in Queré to achieve the conveying limitation would be an obvious design choice within the abilities of a person of ordinary skill. *See KSR*, 550 U.S. at 421 (“A person of ordinary skill is also a person of ordinary creativity, not an automaton.”).

Patent Owner also argues that, even if a modification of Stüdli with Queré is possible, one of ordinary skill in the art would not find such modification obvious because doing so unnecessarily increases the cost and complexity of the device disclosed by Stüdli. PO Resp. 30-33 (citing Ex. 2006 ¶¶ 10-13). We are not persuaded by this argument for the reasons discussed above with respect to Queré. Namely, merely knowing that the integration would cause increased expense does not indicate whether such integration would have been nonobvious to persons of ordinary skill in the art. On this record, a potential increase in cost of machining complexity does not change the fact that a person of ordinary skill in the art would find obvious the modification of Stüdli’s sleeve 27 as disclosed in Queré.

Finally, we conclude based on the arguments made with respect to the grounds discussed above, that claim 33 is rendered obvious by Stüdli, Putkowski, and Queré. Above, we concluded that claim 33 is rendered obvious over Queré combined with Putkowski alone or with Kushibe. Because Stüdli explicitly discloses the bore limitation, the only limitation

disputed by Patent Owner, it is clear that a combination of Stüdli, Putkowski, and Queré also would render claim 33 obvious.

We conclude that a preponderance of the evidence demonstrates that claim 33 is unpatentable based on the combination of Stüdli, Putkowski, and Queré.

E. Patent Owner's Motion to Amend Claims

Because we determine that claims 21-37 are unpatentable, we now address Patent Owner's contingent request to enter proposed, amended claims 38-54. In its Motion to Amend, Patent Owner proposes replacements for each of the challenged claims. Mot. to Amend 2. At oral argument, however, Patent Owner stated that it is only interested in pursuing proposed claim 50, the proposed substitute for claim 33. Tr. 18:1-6, 49:14-16. Thus, we explicitly address only proposed claim 50.

For purposes of discussion, we rewrite proposed claim 50 in independent form, such that it includes the content of claims 38 and 49 from which claim 50 depends. We also include underlining to indicate additions and strikethrough to indicate deletions from claim 33 of the issued '723 patent, as follows:

50. (Proposed Conditional Substitute for Challenged Claim 33)

An injection molding machine, comprising:

a stationary platen including at least one stationary mold half;

a movable platen movable relative said stationary platen and having a mold

half adapted to engage said stationary mold half to form a first mold;

said first mold having a hot runner leading thereto;

an injection unit for delivering melt to said hot runner of said first mold; and

tie bars extending between and connecting said stationary platen and said movable platen;

wherein at least one of said movable platen and said stationary platen includes means for securing said platen to at least one of said tie bars, wherein said means for securing includes a sleeve having engagement means for placing said means for securing into and out of locking engagement with said at least one tie bar such that when said engagement means is out of locking engagement with said at least one tie bar, said means for securing and said at least one tie bar are relatively movable,

wherein said engagement means is rotatable into and out of engagement with said at least one tie bar, and wherein said at least one tie bar includes an engagable surface having protrusions for engagement by said engagement means;

wherein said sleeve includes a first cylindrical portion, a second cylindrical portion, and a tapered portion extending between and connecting said first cylindrical portion and said second cylindrical portion, said first cylindrical portion including a larger diameter than said second cylindrical portion and being disposed farther from the other of said movable platen and said stationary platen than said second cylindrical portion, said first cylindrical portion, said second cylindrical portion, and said tapered portion cooperating to define an outer surface of said sleeve;

wherein said means for securing further comprises means for conveying a clamping force to said platens for clamping said platens during injection molding

wherein said movable platen is adapted to be forced in a direction for achieving clamping with said stationary platen,

and wherein said movable platen has bores for receiving said means for securing, said means for conveying ~~having an~~ including said outer surface of said sleeve and being configured to form cavities between said outer surface and one of said bores and being configured to have surfaces extending substantially transversely to said directions,

wherein said cavities are for the introduction of pressurized fluid and said surfaces are for the receipt of pressure from said pressurized fluid there against for moving said movable platen in said direction and away from said direction.

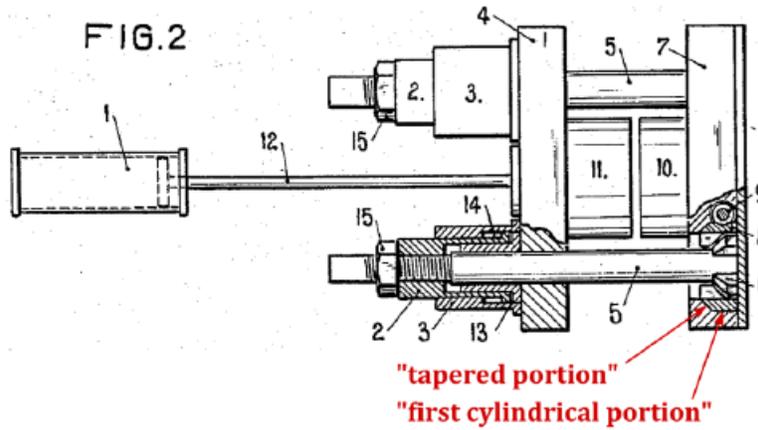
During an *inter partes* review, we enter proposed amended claims only upon a showing that the amended claims are patentable. *Idle Free Sys. v. Bergstrom, Inc.*, Case IPR2012-00027, slip op. at 33 (PTAB Jan. 7, 2014) (Paper 66). This burden may not be met merely by showing that the proposed claims are distinguished over the prior art references applied to the original patent claims. Instead, because there is no examination of the proposed claims, the patent owner must show that the subject matter recited is not taught or suggested by the prior art in general for us to determine that they comply with 35 U.S.C. §§ 102 and 103. *Id.*

Patent Owner argues that the injection molding machine recited in proposed claim 50 is patentable over Queré, because Queré fails to disclose a coupling sleeve that includes a tapered portion that extends between and connects first and second cylindrical portions (“the tapering limitation”). Mot. to Amend 2-3 (citing Ex. 2013 ¶ 8). Although it is Patent Owner’s burden to show patentability over the prior art in general, Patent Owner does not assert, or direct us to evidence, that the claimed injection molding machine was novel over other machines known in the art at the time the patent was filed. Instead, Patent Owner focuses only on the disclosure of Queré. Patent Owner does not direct us to evidence, such as the testimony of one of at least ordinary skill in the art, that it is unaware of any other anticipatory art. *See* Tr. 50:22-51:12. Nor does Patent Owner direct us to evidence that the proposed claim is not obvious over Queré either alone or in combination with any of the prior art. *Id.* at 51:17-22. Accordingly, Patent Owner has not met the burden it undertook by putting forth proposed amended claims.

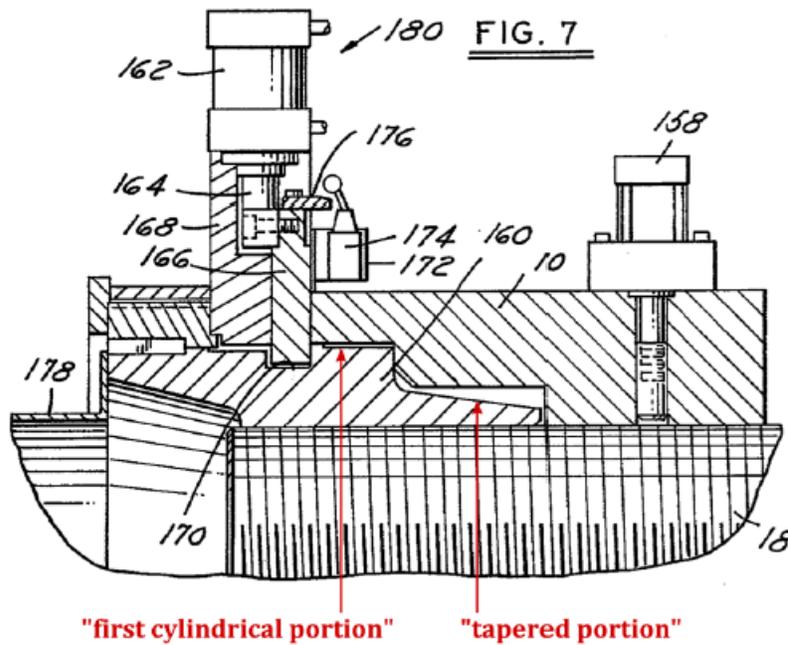
In any event, even if Patent Owner's burden was to show patentability over only the prior art of record, we would not be persuaded that the proposed claims are patentable, because Patent Owner addresses only whether Queré anticipates the newly claimed injection molding machine, not whether ordinarily skilled artisans would have considered Queré to render the newly claimed injection molding machine obvious.

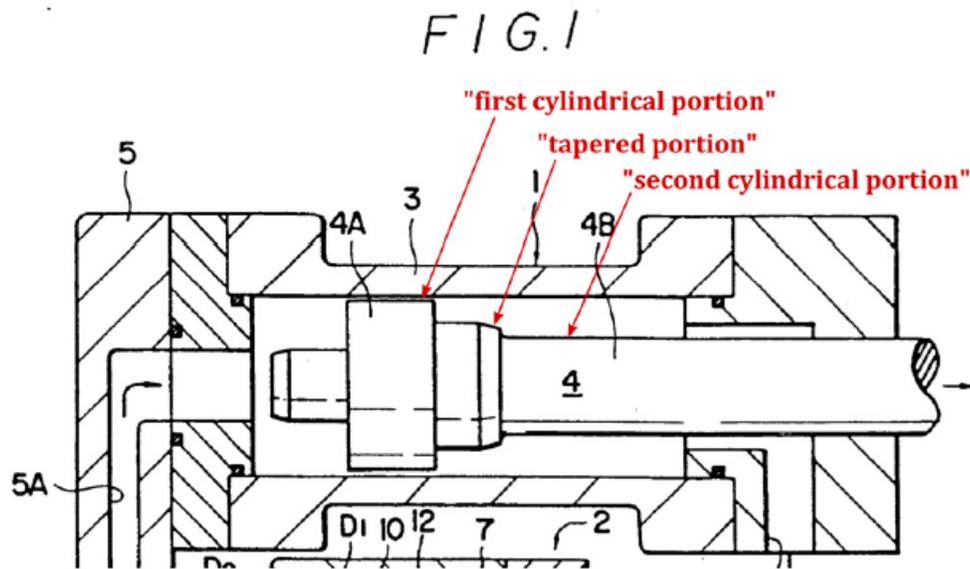
In arguing for patentability of the proposed claim, Patent Owner asserts that Queré fails to disclose a coupling sleeve that includes a tapered portion that extends between and connects first and second cylindrical portions. Mot. to Amend 2-3 (citing Ex. 2013 ¶ 8). Petitioner, in response, argues that claim 50 is obvious over a combination of Queré, Putkowski, and one of U.S. Patent No. 2,916,768 (Ex. 1014, "Queré II"), U.S. Patent No. 4,285,384 (Ex. 1015, "Wunder"), or U.S. Patent No. 5,061,175 (Ex. 1016, "Iwamoto"). Opp. Mot. to Amend 3.

Petitioner points to Figure 2 of Queré II as disclosing sleeve 8 having a first cylindrical portion and a tapered portion extending from that portion to a smaller diameter end portion. *Id.* at 4. In support of this assertion, Mr. Link testifies that "Queré II discloses an injection molding machine very similar to that disclosed in Queré and includes" the tapering limitation, pointing to an annotated version of Figure 2 of Queré II, reproduced below. Ex. 1022 ¶ 6.



Annotated Figure 2, above, points to a portion of sleeve 8 as including the tapering limitation. Ex. 1022 ¶ 5. Mr. Link also testifies that a tapered transition portion on the outer surface of a sleeve is disclosed in Figure 7 of Wunder and Figure 1 of Iwamoto, both reproduced below.





Annotated Figures 7 and 1, above, each point to a portion of a sleeve as including the tapering limitation. Ex. 1022 ¶¶ 7-8. In addition, Mr. Link testifies that “a person of ordinary skill in the art reading the ’723 patent would understand that the tapered shape of the transitional portion 59a is not critical to the claimed device and is merely a matter of design choice.” *Id.* at ¶ 9. Mr. Link adds that “the shape chosen for the corresponding transitional portion 59a of piston 44a is not critical and could be any number of different shapes without affecting the piston’s function.” *Id.* at ¶ 10.

Patent Owner argues in reply that Petitioner does not provide a rationale for combining Queré II, Wunder, or Iwamoto with Queré. Reply Mot. to Amend 3. Patent Owner also argues that Petitioner improperly picks and chooses the added elements from the secondary references even though the structures perform a different function than the claimed securing means. *Id.*

We are not persuaded by Patent Owner’s arguments that the injection molding machine of the proposed claim is patentable under 35 U.S.C. § 103. We credit Mr. Link’s testimony that a person of ordinary skill in the art

would have found it an obvious design choice to substitute the tapered shape disclosed in Queré II, Wunder, or Iwamoto between the cylindrical portions of coupling sleeve 8 of Queré. Ex. 1022 ¶ 9. We also credit Mr. Link's testimony that such substitution would not affect the machine's function. *Id.* at ¶ 10. Patent Owner does not assert that this substitution would achieve any novel or unexpected results. Nor does Patent Owner point to any persuasive evidence that a person of ordinary skill would have been discouraged from making such a substitution. Thus, we are persuaded that modifying Queré as disclosed in Queré II, Wunder, or Iwamoto to achieve the tapering limitation would be an obvious design choice within the abilities of a person of ordinary skill. *See KSR*, 550 U.S. at 421 ("A person of ordinary skill is also a person of ordinary creativity, not an automaton.").

Thus, we are not persuaded that proposed claim 50 is patentable over a combination of Queré, Putkowski, and any one of Queré II, Wunder, or Iwamoto.

III. CONCLUSION

Petitioner has shown, by a preponderance of the evidence, that the challenged claims are unpatentable based on the following grounds: (1) claims 21-34 are obvious over Queré and Putkowski; (2) claims 30 and 33 are obvious over Queré, Putkowski, and Kushibe; (3) claims 21-31 and 34-37 are obvious over Arend and Putkowski; (4) claim 30 is obvious over Arend, Putkowski, and Kushibe; (5) claim 32 is obvious over Arend, Putkowski, and Queré; (6) claim 33 is obvious over Arend, Putkowski, Queré, and Kushibe; (7) claims 21, 27-31, and 34-37 are obvious over Stüdli and Putkowski; and (8) claims 32 and 33 are obvious over Stüdli, Putkowski, and Queré.

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Patent Owner has not shown that its proposed substitute claims 38-54 are patentable.

Accordingly, it is

ORDERED that claims 21-37 of the '723 patent are determined to be *unpatentable*;

FURTHER ORDERED that Patent Owner's Motion to Amend Claims is *denied*;

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

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