

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

DONGHEE AMERICA, INC. AND DONGHEE ALABAMA, LLC,
Petitioner,

v.

PLASTIC OMNIUM ADVANCED INNOVATION AND RESEARCH,
Patent Owner.

Case IPR2017-01654
Patent 9,079,490 B2

Before MITCHELL G. WEATHERLY, CHRISTOPHER M. KAISER, and
ROBERT L. KINDER, *Administrative Patent Judges*.

WEATHERLY, *Administrative Patent Judge*.

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

I. INTRODUCTION

A. BACKGROUND

Donghee America, Inc. and Donghee Alabama, LLC (collectively “Petitioner”) filed a petition (Paper 1, “Pet.”) to institute an *inter partes* review of claims 1, 2, 7–9, and 12–14 of U.S. Patent No. 9,079,490 B2 (Ex. 1001, “the ’490 patent”). 35 U.S.C. § 311. Petitioner supported the Petition with a Declaration from David O. Kazmer, Ph.D. (Ex. 1007).

Plastic Omnium Advanced Innovation and Research (“Patent Owner”) timely filed a Preliminary Response. Paper 8 (“Prelim. Resp.”). On January 19, 2018, based on the record before us at the time, we instituted an *inter partes* review of all challenged claims on all asserted grounds of unpatentability. Paper 9 (“Institution Decision” or “Dec.”). We instituted the review on the following challenges to the claims:

References	Basis	Claim(s)
U.S. Patent Pub. No. 2008/0006625 A1 (Ex. 1003, “Borchert”)	§ 102(e)	1, 2, 8, and 12–14
Borchert	§ 103	7
Borchert and U.S. Patent 6,866,812 B2 (Ex. 1004, “Van Schaftingen”)	§ 103	7
Borchert and U.S. Patent 8,122,604 B2 (Ex. 1005, “Jannot”)	§ 103	2
Borchert and U.S. Patent 6,699,413 B2 (Ex. 1006, “Kachnic”)	§ 103	9

After we instituted this review, Patent Owner filed a Patent Owner Response in opposition to the Petition (Paper 15, “PO Resp.”) that was supported by a Declaration from Tim Osswald, Ph.D. (Ex. 2002). Petitioner filed a Reply in support of the Petition (Paper 28, “Reply”) that was supported by a second Declaration from Dr. Kazmer (Ex. 1011). With our authorization, Patent Owner filed a Sur-reply to Petitioner’s Reply (Paper 30, “Surreply”). Patent Owner did not move to amend any claim of the ’490 patent.

We heard oral argument on November 5, 2018. A transcript of the argument has been entered in the record (Paper 37, “Tr.”).

We have jurisdiction under 35 U.S.C. § 6. The evidentiary standard is a preponderance of the evidence. *See* 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). This Final Written Decision is issued pursuant to 35 U.S.C. § 318(a) and 37 C.F.R. § 42.73.

For the reasons expressed below, we conclude that Petitioner has demonstrated by a preponderance of evidence that claims 1, 2, 7–9, and 12–14 are unpatentable.

B. RELATED PROCEEDINGS

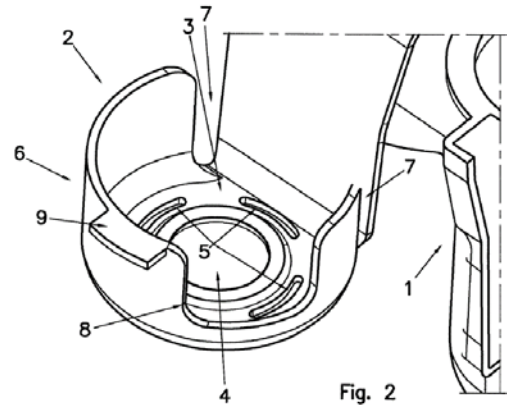
The parties have identified as a related proceeding the co-pending district court proceeding of *Plastic Omnium Advanced Innovation & Research v. Donghee America, Inc. et al.*, Civil Action No. 16-cv-00187-LPS-CJB (D. Del.). Pet. 2; Paper 3, 1.

C. THE '490 PATENT

The '490 patent is directed to “a method for fastening an accessory to a wall of a plastic fuel tank.” Ex. 1001, 1:16–17. More specifically, the '490 patent is directed to a process for snap-riveting accessories to the wall of a plastic fuel tank during molding of the tank. *Id.* at 1:60–2:5. Snap-riveting involves forcing molten plastic from the tank wall through an orifice in the accessory and allowing the protruding plastic to solidify to form the head of a rivet. *Id.* at 3:40–47. The '490 patent describes snap-riveting as a “common technique in the field of metallurgy,” *id.* at 3:43, that has been used in the prior art to fasten accessories to plastic fuel tanks, *id.* at 1:35–41. The Specification further describes “an improved geometry of the snap-riveting zone that makes it possible to ensure [self-centering] of the accessory with respect to the tool which will carry out the snap-riveting and that makes it possible to obtain a better distribution of the stress during this

process.” *Id.* at 1:60–65. In particular, the snap-riveting orifice is surrounded by a concave relief. *Id.* at 3:61–62.

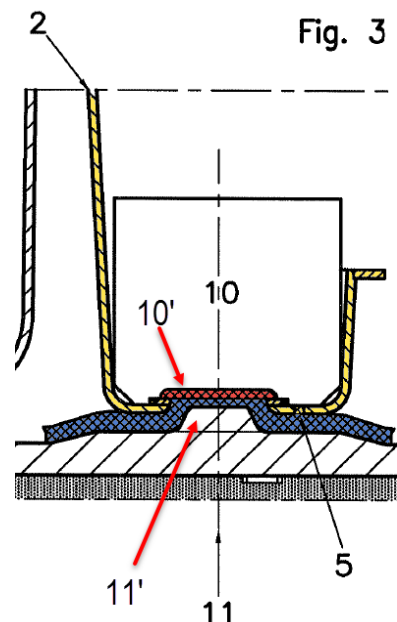
Figure 2 of the '490 patent, reproduced right, illustrates accessory 1 having tab 2 with central orifice 4 through which molten plastic flows to form a snap rivet connecting accessory 1 to the wall of the tank. The Specification states:



In FIG. 2, the geometry of the fastening tabs (2) of the accessory (1) appears more clearly: the curved end (3) of these tabs is provided with a central orifice (4) and with several slots (5) positioned over a circumference surrounding this orifice (4). This curved end (3) is extended by a cylindrical wall (6) in the shape of a cup provided with two recesses (7) that confer a certain mobility to the end of the tab—necessary for accompanying the shrinkage of the material during cooling of the tank—and a wider window (8) that allows visual inspection of the snap-rivet once the accessory is fastened to the wall of a tank.

Id. at 7:1–11.

We reproduce at right the pertinent portion of Figure 3 of the '490 patent with our annotations and coloring, which depicts a cross section of tab 2 (colorized yellow) with the head of a snap rivet above orifice 5 and within concave portion 10' of tool 10 (colorized red), which is formed of plastic used to form the wall of the tank (colorized blue). *Id.* at 7:14–25. The reproduced portion of Figure 3 also illustrates the lower portion of snap rivet being formed between mould 11 with excrement 11', tool 10 and tab 2. *Id.*



Claims 1 and 12, which are the only independent claims among the challenged claims, recite:

1. A method for fastening an accessory to a wall of a plastic fuel tank, comprising:
 - [a] fastening by snap-riveting using a tool, at the same time as said tank is manufactured by moulding with a mould, the accessory including at least one orifice through which the snap-riveting is carried out by material of the tank protruding from the orifice and being deformed to mould the rivet,
 - [b] wherein the snap-riveting orifice is at least partially surrounded by a concave relief that protrudes towards an inside of the tank into which a convex relief of the tool presses in order to force the material through the orifice, the convex relief of the tool comprising a counterform to mould an upper part of the rivet.

Id. at 7:26–40 (with Petitioner’s enumerations for clarity added in brackets); *see* Pet. 16–20 (for Petitioner’s enumerations).

12. A method for fastening an accessory to a wall of a plastic fuel tank, comprising:
 - [a] fastening by snap-riveting using a tool, at the same time as said tank is manufactured by moulding with a mould, the accessory including at least one orifice through which the snap-riveting is carried out by material of the tank protruding from the orifice and being deformed to mould the rivet,
 - [b] wherein the snap-riveting orifice extends through a base portion of a concave relief formed in the accessory,
 - [c] wherein the concave relief is formed by the base portion and a wall portion that protrudes away from the base portion towards an inside of the tank,
 - [d] wherein an area of the base portion surrounds the orifice and faces towards the inside of the tank,
 - [e] wherein the wall portion at least partially surrounds the area of the base portion that surrounds the orifice such that the wall

portion is spaced apart from the orifice by the area of the base portion that surrounds the orifice, and

[f] wherein a convex relief of the tool presses into the concave relief in order to force the material through the orifice, the convex relief of the tool comprising a counterform to mould an upper part of the rivet, which upper part contacts the area of the base portion that surrounds the orifice.

Id. at 8:22–47 (with Petitioner’s enumerations for clarity added in brackets); *see* Pet. 31–34 (for Petitioner’s enumerations).

II. ANALYSIS

A. CLAIM INTERPRETATION

“A claim in an unexpired patent shall be given its broadest reasonable construction in light of the specification of the patent in which it appears.” 37 C.F.R. § 42.100(b) (2016);¹ *see also* *Cuozzo Speed Techs., LLC v. Lee*, 136 S.Ct. 2131, 2142 (2016) (affirming that USPTO has statutory authority to construe claims according to Rule 42.100(b)). When applying that standard, we interpret the claim language as it would be understood by one of ordinary skill in the art in light of the specification, and absent any special definition, we give claim terms their ordinary and customary meaning. *See In re Suitco Surface, Inc.*, 603 F.3d 1255, 1260 (Fed. Cir. 2010); *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007) (“The ordinary and customary meaning is the meaning that the term would have to a person

¹ Our recently changed version of this Rule, which requires that we interpret claims in the same manner used in a civil action under 35 U.S.C. § 282(b), does not apply here because the Petition was filed before the effective date of the new Rule, November 13, 2018. *See* Changes to the Claim Construction Standard for Interpreting Claims in Trial Proceedings Before the Patent Trial and Appeal Board, 83 Fed. Reg. 51,340, 51,344 (Oct. 11, 2018).

of ordinary skill in the art in question.” (internal quotation marks omitted)). Only terms that are in controversy need to be construed, and then only to the extent necessary to resolve the controversy. *See Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999).

Petitioner notes and accepts for purposes of its analysis that the Specification expressly defines the following three terms: “accessory,” “parison,” and “concave relief.” Pet. 12–14 (citing Ex. 1001, 3:11–21 (defining “accessory”), 4:63–5:2 (defining “parison”), 3:61–66 (defining “concave relief”)). When an inventor defines specific terms used to describe an invention, we will give effect to those definitions, as long as they are set out “with reasonable clarity, deliberateness, and precision,” “so as to give one of ordinary skill in the art notice of the change” in meaning. *In re Paulsen*, 30 F.3d 1475, 1480 (Fed. Cir. 1994). Each of the cited express definitions in the Specification indicates what the phrase is “understood to mean.” Ex. 1001, 3:11–21 (defining “accessory”), 4:63–5:2 (defining “parison”), 3:61–66 (defining “concave relief”). On the final record before us, “understood to mean” provides notice of a reasonably clear, deliberate, and precise definition of each claim term. Accordingly, we interpret each claim term according to the definition set forth in the Specification. Other phrases addressed by the parties follow.

1. convex relief

Petitioner proposes that “convex relief” means “a positive or outwardly projecting relief.” Pet. 14 (citing Ex. 1001, 6:4–8). The cited portion of the Specification refers to “convex relief” as an “excrescence,” Ex. 1001, 6:4–8, which is defined by Merriam Webster’s Collegiate Dictionary as “a projection or growth,” Ex. 1008. For the purposes of the

Institution Decision, we preliminarily interpreted “convex relief” as commonly suggested by the parties to mean a “projection.” Dec. 7. Patent Owner agreed with our preliminary interpretation, PO Resp. 20, and we maintain that interpretation for this Decision.

2. *counterform*

Petitioner proposes that “counterform” means “a portion of the convex relief of the tool that is used to shape the upper part of the rivet.” Pet. 14–15 (citing Ex. 1001, 6:1–11). The Specification identifies the “counterform” as being “intended for moulding the upper part of the rivet (snap rivet).” Ex. 1001, 6:1–11. For the purposes of the Institution Decision, we preliminarily interpreted “counterform” to mean “a portion of the convex relief of the tool that is used to shape the upper part of the rivet.” Dec. 7. Relying upon Dr. Osswald’s testimony, Patent Owner contends that “counterform” refers to “a portion of the convex relief that shapes or molds an upper part of the rivet.” PO Resp. 21 (quoting Ex. 2002 ¶ 47 (citing Ex. 1001, 6:1–23, 7:1–25, Figures 2, 3)). Although Patent Owner argues that its interpretation of “counterform” includes the notion of “shapes or molds” rather than simply “shapes,” the difference does not affect our analysis. *Id.* Upon consideration of both parties’ positions and the evidence, we adopt Patent Owner’s slightly broader interpretation because it is more consistent with the Specification. Accordingly, we interpret “counterform” to refer to “a portion of the convex relief that shapes or molds an upper part of the rivet.”

B. THE PARTIES’ POST-INSTITUTION ARGUMENTS

In our Institution Decision, we concluded that the argument and evidence adduced by Petitioner demonstrated a reasonable likelihood that

claims 1, 2, 7–9, and 12–14 were unpatentable as anticipated or obvious based on the challenges identified in the table in Part I.A above.

Dec. 19–20. We must now determine whether Petitioner has established by a preponderance of the evidence that the specified claims are unpatentable over the cited prior art. 35 U.S.C. § 316(e). We previously instructed Patent Owner that “any arguments for patentability not raised in the [Patent Owner Response] will be deemed waived.” Paper 10, 3; *see also In re Nuvasive, Inc.*, 842 F.3d 1376, 1381 (Fed. Cir. 2016) (holding that patent owner’s failure to proffer argument at trial as instructed in scheduling order constitutes waiver). Additionally, the Board’s Trial Practice Guide states that the Patent Owner Response “should identify all the involved claims that are believed to be patentable and state the basis for that belief.” Office Patent Trial Practice Guide, 77 Fed. Reg. 48,756, 48,766 (Aug. 14, 2012).

C. LEGAL STANDARDS

Petitioner challenges the patentability of claims on the grounds that the claims are either anticipated or obvious in light of various references. To prevail in its challenges to the patentability of the claims, Petitioner must establish facts supporting its challenges by a preponderance of the evidence. 35 U.S.C. § 316(e); 37 C.F.R. § 42.1(d). “In an [*inter partes* review], the petitioner has the burden from the onset to show with particularity why the patent it challenges is unpatentable.” *Harmonic Inc. v. Avid Tech., Inc.*, 815 F.3d 1356, 1363 (Fed. Cir. 2016) (citing 35 U.S.C. § 312(a)(3) (requiring *inter partes* review petitions to identify “with particularity . . . the evidence that supports the grounds for the challenge to each claim”)). This burden never shifts to Patent Owner. *See Dynamic Drinkware, LLC v. Nat’l Graphics, Inc.*, 800 F.3d 1375, 1378 (Fed. Cir. 2015) (citing *Tech. Licensing*

Corp. v. Videotek, Inc., 545 F.3d 1316, 1326–27 (Fed. Cir. 2008))
(discussing the burden of proof in *inter partes* review).

“A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference.” *Verdegaal Bros., Inc. v. Union Oil Co. of Cal.*, 814 F.2d 628, 631 (Fed. Cir. 1987). The Supreme Court in *KSR International Co. v. Teleflex Inc.*, 550 U.S. 398 (2007), reaffirmed the framework for determining obviousness as set forth in *Graham v. John Deere Co.*, 383 U.S. 1 (1966). The *KSR* Court summarized the four factual inquiries set forth in *Graham* that we apply in determining whether a claim is reasonably likely to be unpatentable as obvious under 35 U.S.C. § 103(a) as follows: (1) determining the scope and content of the prior art, (2) ascertaining the differences between the prior art and the claims at issue, (3) resolving the level of ordinary skill in the pertinent art, and (4) considering objective evidence indicating obviousness or nonobviousness. *KSR*, 550 U.S. at 406 (citing *Graham*, 383 U.S. at 17–18). In an *inter partes* review, Petitioner cannot satisfy its burden of proving obviousness by employing “mere conclusory statements.” *In re Magnum Oil Tools Int’l, Ltd.*, 829 F.3d 1364, 1380 (Fed. Cir. 2016). Thus, to prevail Petitioner must explain how the proposed combinations of prior art would have rendered the challenged claims unpatentable. With these standards in mind, we address each challenge below.

D. CLAIMS 1, 2, 8, AND 12–14: ANTICIPATION BY BORCHERT

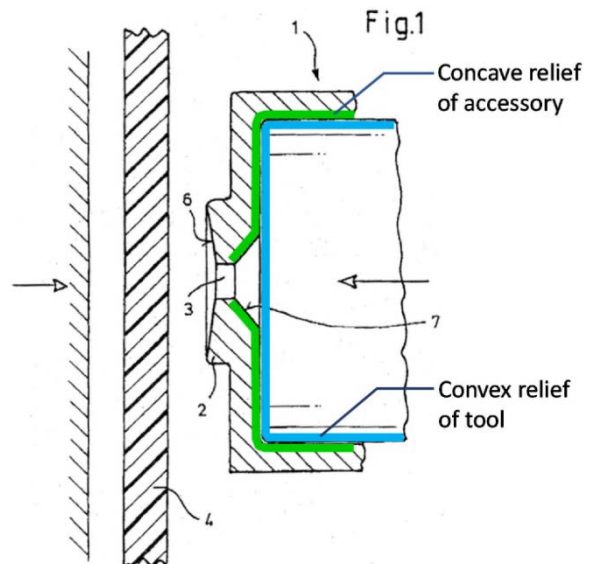
The dispute over whether Borchert anticipates claims 1, 2, 8, and 12–14 tightly focuses on whether Borchert describes using a tool with a counterform on a convex relief of the tool to form the upper part of the rivet

that fastens an accessory to the wall of a fuel tank. Based upon our consideration of the entire record and the parties' arguments, we determine that Borchert not only describes using such a tool, but also describes all other elements of claims 1, 2, 8, and 12–14 and thus anticipates these claims.

1. Independent Claims 1 and 12

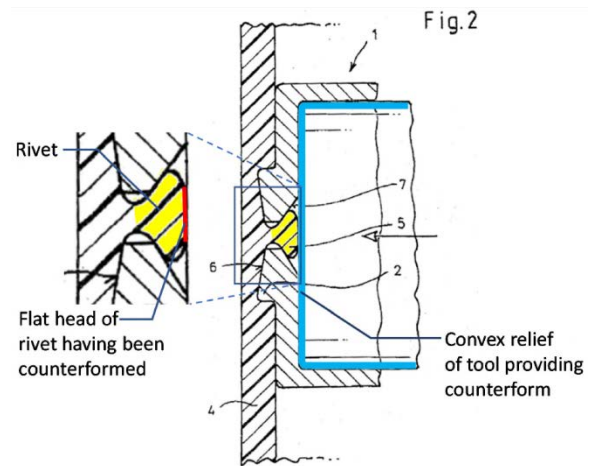
Petitioner contends that Borchert anticipates claims 1, 2, 8, and 12–14. Pet. 16–36. Petitioner identifies the manner in which Borchert describes each step of the claimed methods and cites portions of Borchert to support its contentions. *Id.* (citing Ex. 1003 ¶¶ 8, 10, 19, 26–28, 33, 37, Figures 1, 2, 4, 7, 12). Petitioner also supports its contentions with Dr. Kazmer's testimony. *Id.* (citing Ex. 1007 ¶¶ 41–58, 70–73, 80–96). Dr. Kazmer testifies that an ordinarily skilled artisan would understand an unnumbered element shown in Borchert's Figure 1 to constitute the “convex relief of the tool” that forces material through orifice to form the snap-rivet as required in independent claims 1 and 12. Ex. 1007 ¶¶ 52–54.

Dr. Kazmer provides a colorized and annotated version of Borchert's Figure 1, which we reproduce at right, and which Dr. Kazmer labels as Kazmer-4. Ex. 1007 ¶ 52. Borchert's Figure 1 illustrates accessory 1 with foot element 2 through which orifice 3 extends. Ex. 1003 ¶ 28. Dr. Kazmer testifies as follows: “Borchert provides a concave relief surrounding the orifice that protrudes towards an inside of the tank (highlighted in green). As indicated in Kazmer-4, a POSITA would



understand that Borchert provides a convex relief (i.e. excrescence at 6:4 of the '490 specification) of the tool highlighted in blue.” Ex. 1007 ¶ 52.

Dr. Kazmer also provides a revised version of Borchert’s Figure 2, which he labels Kazmer-5, and we reproduce at right. *Id.* ¶ 53. Dr. Kazmer testifies that Kazmer-5 supports his view that an ordinarily skilled artisan would understand the unnumbered element in Figure 1 to be a convex relief of the tool (blue) including a counterform portion that molds the upper part of rivet head 5 (yellow). *Id.*



Dr. Kazmer testifies:

[Borchert’s] FIG. 2, highlighted and enlarged . . . in [the] demonstrative Kazmer-5, illustrates how the rivet (colored yellow) is molded by the counterform of the convex relief tool (colored blue) to form a flat head (colored red) that is level with the interior surface of the accessory. As shown, the upper part of rivet head 5 is flat and level with the interior surface of the accessory because it has been formed by the tool pressed into the accessory. A POSITA would thus understand that the convex relief of the tool in Borchert comprises a counterform that molds the upper part of the rivet.

Id.

In our Institution Decision, we noted that Patent Owner’s expert, Dr. Osswald, testified that an ordinarily skilled artisan would not understand the unnumbered element in Borchert’s Figure 1 to be a tool. Dec. 10–11. However, we viewed the conflicting testimony on this factual issue in Petitioner’s favor as required under 37 C.F.R. § 42.108(c), and we instituted trial to resolve this factual dispute. *Id.* at 11–12.

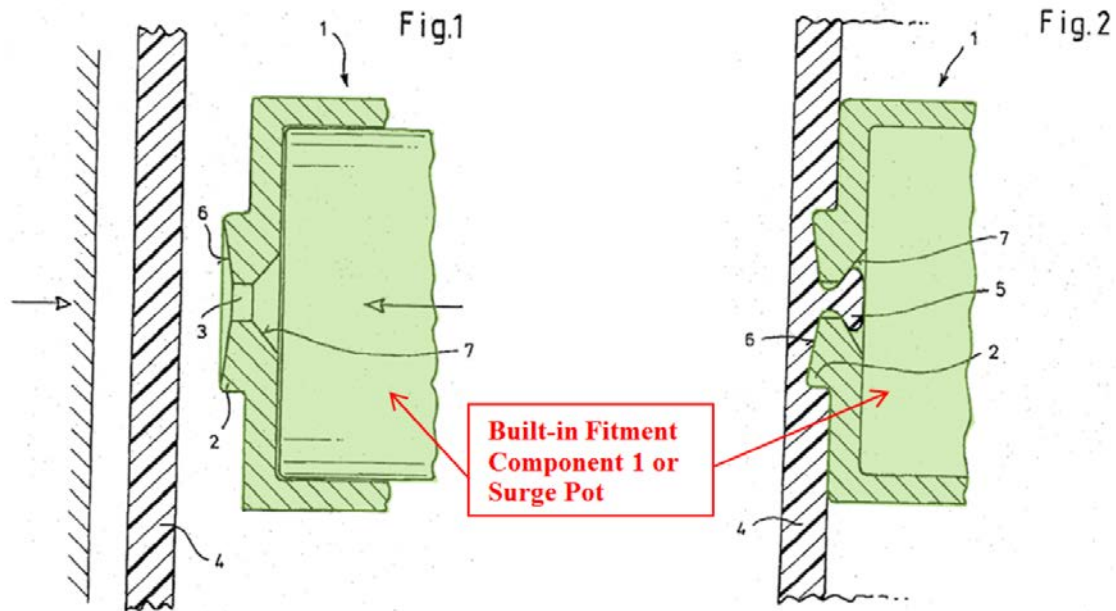
At trial, Patent Owner reasserted its prior position and supported that position with a second declaration from Dr. Osswald and cross-examination of Dr. Kazmer. PO Resp. 21–33 (citing Ex. 2002 ¶¶ 53–58, 63–73, 75, 76; Ex. 2003, 41:18–42:9, 45:20–63:14). Petitioner responded to Patent Owner’s arguments and relied upon a second declaration from Dr. Kazmer and other portions of his cross-examination testimony to bolster its position that Borchert describes using a tool that included a counterform portion. Reply 2–10 (citing Ex. 1011 ¶¶ 13–16; Ex. 2003, 44:9–13, 48:12–16). Patent Owner cross-examined Dr. Kazmer a second time and relied upon portions of that cross-examination in a Sur-reply when arguing that Borchert failed to describe the use of a tool to form the rivet. Surreply 2–10 (citing Ex. 2009, 22:4–21, 26:9–14, 29:25–31:16, 35:23–36:9). Based on our review of this extensive record, Petitioner persuades us that the unnumbered element shown in Borchert’s Figure 1 is a tool with a counterform as recited in claims 1 and 12.

Patent Owner’s arguments otherwise fall into two main categories. First, Patent Owner contends that the alleged tool is part of Borchert’s accessory 1. PO Resp. 21–32. Second, assuming that the alleged tool is, in fact, a tool, Patent Owner contends that Borchert’s tool has no counterform that molds the upper part of the rivet. *Id.* at 32–33. We disagree with Patent Owner on both points as explained below.

a) Whether Borchert Describes a Tool

Patent Owner argues that “no tooling [is] depicted” in Borchert’s Figure 1 and that “Petitioner’s blue highlighting . . . is simply a part of the fitment component” 1. *Id.* at 25–26. Patent Owner relies upon Dr. Osswald’s testimony to support its argument. *Id.* (citing Ex. 2002

¶¶ 65–68). Dr. Osswald testifies that Borchert’s Figures 1 and 2 merely illustrate fitment component 1 with the unmarked center portion of component 1 removed in Figure 2. Ex. 2001 ¶ 68. Dr. Osswald provides his own colorized and annotated versions of Borchert’s Figures 1 and 2, which we reproduce below.



Dr. Osswald’s annotated and colorized versions of Borchert’s Figures 1 and 2 illustrate his contention that the unnumbered element in Figure 1 (colored green), which is missing in Figure 2, is merely part of Borchert’s component 1 (also colored green).

Id. Dr. Osswald also testifies that the blue highlighted element that Petitioner identifies as the claimed tool with a convex relief is “actually the fitment, or surge pot, itself.” *Id.* ¶ 67. Dr. Osswald cites no objective evidence to support his contention that an ordinarily skilled artisan would believe that the alleged tool is part of Borchert’s fitment component 1.

Dr. Kazmer explains that an ordinarily skilled artisan would interpret: (1) the cross-hatching in Borchert’s Figures 1 and 2 as indicating the bounds of component 1 and (2) the shading on the alleged tool as indicating that the

tool is a separate structure with a cylindrical surface. Ex. 1011 ¶ 16. His testimony is consistent with Office Rules for using cross-hatching as applied to component 1 and shading as applied to the alleged tool in patent illustrations as set forth in 37 C.F.R. § 1.84(h)(3), (m), both because component 1 is cross-hatched and the alleged tool is not and because the alleged tool is shaded. See 37 C.F.R. § 1.84(h)(3) (“various parts of a cross section of the same item should be hatched in the same manner”), § 1.84(m) (indicating that shading is used to depict cylindrical surface of objects). Dr. Kazmer further testifies that because Figure 1 “cuts the tool and fitment component at different levels” the figure conveys to an ordinarily skilled artisan that the two items are distinct components. *Id.* Dr. Kazmer further testifies that an ordinarily skilled artisan would understand from Figure 2, which illustrates the cross-hatched component 1 with the alleged tool removed, that the alleged tool forms head 5 to attach component 1 to wall 4. Ex. 1011 ¶ 14. Additionally, Borchert’s Figure 1 depicts a gap between the alleged tool and the interior surface of component 1, which Dr. Kazmer testifies would convey to an ordinarily skilled artisan that the tool and component 1 are separate items. *Id.* ¶ 16.

Patent Owner argues that Dr. Kazmer “refused to recognize that Borchert’s Figure 1 does not explicitly identify any tooling or that Borchert’s *concave* component holders are never described as having a convex relief that interfaces with the accessory to attach it to the fuel tank wall.” *Id.* at 22 (citing Ex. 2003, 45:20–63:14). We discern no requirement for Borchert to include text that explicitly describes the tool and component as separate items when Figures 1 and 2 convey precisely such a concept to an ordinarily skilled artisan. Ex. 1011 ¶¶ 13–16; see *In re Aslanian*, 590

F.2d 911, 914 (CCPA 1979) (“[A] drawing in a utility patent can be cited against the claims of a utility patent . . . even though the feature shown in the drawing was . . . unexplained in the specification of the reference patent.”) (citing *In re Meng*, 492 F.2d 843 (CCPA 1974); *In re Seid*, 161 F.2d 229 (CCPA 1947); *In re Wagner*, 63 F.2d 987 (CCPA 1933)). We consider Dr. Osswald’s testimony otherwise to be entitled little weight because it is inconsistent with mandated and well-understood conventions for using cross-hatching and shading in patent illustrations, like those used in Borchert’s Figures 1 and 2, to convey characteristics of the elements on which they appear.

Patent Owner, through Dr. Osswald, further contends that Borchert’s Figures 4, 6, and 7 demonstrate that Borchert describes a tool as “component holders 12,” which are concave elements that press foot 2 of component 1 into wall 4. Ex. 2002 ¶¶ 65–68. Petitioner persuasively responds that Figures 1 and 2 are more detailed depictions of Borchert’s method of affixing component 1 to wall 4 than Figures 3–9. Reply 7–8. Borchert states that Figures 3–9 are “diagrammatic views of the production process” that depict holders 12 for components 1. Ex. 1003 ¶¶ 24, 33. Borchert expressly indicates, moreover, that each of holders 12 shown in Figures 3–9 is configured as shown in Figures 1 and 2. *Id.* ¶ 33. Accordingly, we remain persuaded that Figure 1 illustrates a tool having a convex relief, despite the failure to depict that tool in detail in Figures 3–9.

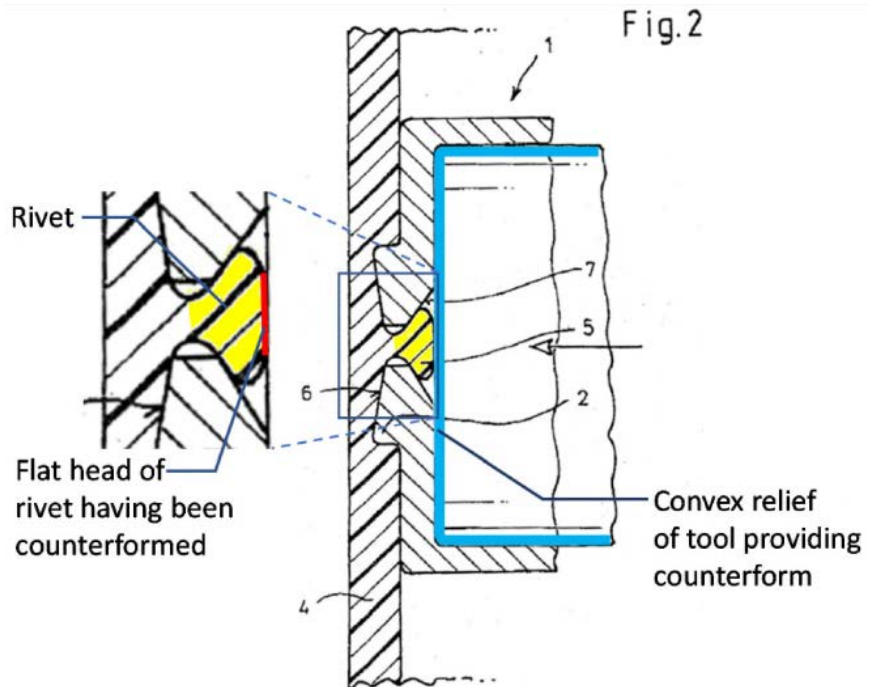
For all these reasons, we determine that Petitioner has proven by a preponderance of evidence that Borchert describes the tool with a convex relief as recited in claims 1 and 12.

b) Whether Borchert's Tool Includes a Counterform

Petitioner contends that the portion of Borchert's tool at the interface highlighted in red in Kazmer-5, reproduced below right, is the claimed counterform because

this red portion covers through opening 3 and forms the top of head 5 when plastic flows through opening 3 into the undercut area remote from wall 4.

Pet. 22–23 (citing Ex. 1007 ¶¶ 50–54); Reply 10 (citing Ex. 1011 ¶ 18).



Patent Owner argues that undercut configuration 7 refers to a portion of component 1 that is cut out to make room for head 5. PO Resp. 32–33. First, this argument presumes that Borchert's Figure 1 does not illustrate a removable tool—a presumption that we have rejected as explained above. Second, Patent Owner's argument and Dr. Osswald's supporting testimony are inconsistent with Borchert itself. We determine that Dr. Kazmer more accurately describes Borchert's "through opening 3" as referring to an opening that passes all the way through component 1 rather than a hole into a cavity located within component 1. Ex. 1011 ¶ 18. Dr. Kazmer's conclusion is more consistent with the combined teachings of Figures 1 and 2. For example, Figure 1 illustrates the tool positioned within a cavity

of component 1 before head 5 is formed and in a position to prevent plastic from flowing past the interface between undercut portion 7 and the tool. Ex. 1003, Figure 1; Ex. 1011 ¶ 18. Figure 2 illustrates component 1 secured to wall 4 after Borchert's tool shapes the flat distal surface of head 5 and after the tool has been removed from component 1. Ex. 1003 ¶¶ 24, 28–30, Figure 2. Once formed as shown in Figure 2, head 5 “provides for positively locking anchorage” of component 1 to wall 4. *Id.* ¶ 18.

We determine that Petitioner has proven by a preponderance of evidence that Borchert's tool includes a portion that constitutes the counterform of claims 1 and 12.

c) Remaining Elements of Claims 1 and 12

Except as discussed above, Patent Owner presents no other argument that Borchert fails to anticipate independent claims 1 and 12. *See* PO Resp. 21–33 (contending only that Borchert fails to describe a tool with a convex relief and a counterform). As explained in Part II.B above, Patent Owner has waived any argument for the continued patentability of these claims based upon elements introduced in those claims. We determine that Petitioner persuasively identifies the manner in which Borchert describes each step of the claimed methods and cites portions of Borchert to support its contentions. Pet. 16–23, 31–36 (citing Ex. 1003 ¶¶ 8, 10, 19, 26–28, 33, 37, Figures 1, 2, 4, 7, 12; Ex. 1007 ¶¶ 41–54, 80–90). We adopt Petitioner's argument and evidence as our own and determine that Petitioner has proven by a preponderance of evidence that Borchert describes all other elements of claims 1 and 12.

d) Conclusion

For the reasons expressed above, we conclude that Petitioner has proven that Borchert anticipates claims 1 and 12.

2. *Dependent Claims*

Petitioner also contends that Borchert anticipates dependent claims 2, 8, 13, and 14, each of which directly depends from claim 1. Patent Owner presents no argument that Borchert fails to anticipate these dependent claims beyond its contention that Borchert fails to anticipate claim 1. *See* PO Resp. 21–33 (contending only that Borchert fails to describe a tool with a convex relief and a counterform). As explained in Part II.B above, Patent Owner has waived any such argument for the continued patentability of these claims based upon elements introduced in those claims.

Petitioner persuasively identifies the manner in which Borchert describes each step of the claimed methods and cites portions of Borchert to support its contentions. Pet. 23–30 (citing Ex. 1003 ¶¶ 8, 10, 19, 26–28, 33, 37, Figures 1, 2, 4, 7, 12; Ex. 1007 ¶¶ 77–58, 70–73, 91–96). We adopt Petitioner’s argument and evidence as our own and determine that Petitioner has proven by a preponderance of evidence that Borchert anticipates dependent claims 2, 8, 13, and 14.

E. CLAIM 2: OBVIOUSNESS IN VIEW OF BORCHERT AND JANNOT

Claim 2 depends from claim 1 and further recites: “wherein the snap-riveting orifice is made in a fastening tab moulded as one part with the accessory or attached thereto.” Ex. 1001, 7:41–43.

Petitioner contends that Borchert describes the “fastening tab” of claim 2 in connection with its argument that Borchert anticipates claim 2. Pet. 23–25 (equating portions of Borchert’s foot 2 with the claimed

“fastening tab”). Petitioner alternatively argues that the combination of Borchert and Jannot renders claim 2 unpatentable as obvious. Pet. 39–41.

Patent Owner argues that Jannot is not prior art because the named inventors, Hervé Lemoine and Frédéric Jannot, were obligated to assign their inventions, including the subject matter of both Jannot and the application that led to the issuance of the '490 patent, to Patent Owner.² PO Resp. 16–17. Patent Owner proffers testimony from both men that supports its argument. *Id.* (citing Ex. 2007; Ex. 2008). Messrs. Lemoine and Jannot each testify that at all times while they have been employed by Patent Owner, including the time at which they developed the subject matter claimed in the '490 patent, they have been obliged to assign to Patent Owner or its predecessor all rights and resulting patent applications for any invention made in the course of their employment. Ex. 2007 ¶ 2–4; Ex. 2008 ¶ 2–4. This testimony is unrebutted. Tr. 12:21–13:7.

Petitioner contends that Jannot is prior art under § 102(e). Pet. 16. (noting that the effective filing date of Jannot in the U.S. predates the priority date of the '490 patent). Patent Owner has established with unrebutted evidence that Messrs. Jannot and Lemoine were obliged to assign rights to the subject matter of both Jannot and the '490 patent at the time they developed the subject matter of the '490 patent. Ex. 2007 ¶¶ 2–4; Ex. 2008 ¶¶ 2–4. Under § 103(c), commonly owned subject matter is removed from the scope of prior art under § 102(e). Accordingly, we

² Messrs. Lemoine and Jannot worked for Patent Owner's predecessor, Inergy Automotive Systems Research, on July 11, 2007, when the application leading to the issuance of the '490 patent was filed. Ex. 2007 ¶¶ 2–3; Ex. 2008 ¶¶ 2–3.

determine that Petitioner has failed to prove that Jannot is prior art to the '490 patent. Without Jannot, Petitioner's challenge to claim 2 as being obvious in view of Borchert and Jannot fails. Accordingly, we conclude that Petitioner has failed to prove by a preponderance of evidence that the combination of Borchert and Jannot renders claim 2 unpatentable as obvious.

F. CLAIM 7: OBVIOUSNESS IN VIEW OF BORCHERT ALONE OR IN COMBINATION WITH VAN SCHAFTINGEN

Claim 7 depends from claim 1 and further recites: "wherein the tank is blow-moulded from a parison that is made up of two separate parts obtained by extruding a single parison that is cut over an entire length along two diametrically opposed lines." Ex. 1001, 8:5–8.

Petitioner contends that Borchert describes blow-molding a tank from a parison that is divided into two parts. Pet. 36–37 (citing Ex. 1003 ¶ 3). Petitioner concedes that Borchert does not expressly describe cutting a parison "along two diametrically opposed lines" as recited in claim 7. *Id.* at 37. However, Petitioner contends that an ordinarily skilled artisan would have considered doing so to have been obvious. *Id.* (citing Ex. 1007 ¶ 65). Dr. Kazmer testifies that an ordinarily skilled artisan would have considered it obvious to divide Borchert's parison into two parts with equal width because Borchert's mold halves 9a and 9b are shown as being the same width. Ex. 1007 ¶ 65.

Alternatively, Petitioner relies upon Van Schaftingen as expressly describing "extruding a single parison that is cut over an entire length along two diametrically opposed lines." Pet. 37–38 (citing Ex. 1004, 3:15–23). Dr. Kazmer testifies that an ordinarily skilled artisan would have been motivated to use Borchert's process as modified by Van Schaftingen to

obtain sheets of equal width for use in Borchert's equal-width mold halves 9a and 9b and because Van Schaftingen describes its diametrically opposed cuts as being "very particularly preferred." *Id.* at 38 (citing Ex. 1007 ¶ 68).

Other than its argument that Borchert fails to describe the tool recited in claim 1, Patent Owner does not respond to Petitioner's contentions. See PO Resp. 21–36 (contending only that Borchert fails to describe a tool with a convex relief and a counterform). As explained in Part II.B above, Patent Owner has waived any argument for the continued patentability of claim 7 based upon elements introduced in claim 7. Based on our review of the record and arguments currently before us, we determine that Petitioner has demonstrated by a preponderance of evidence that Borchert renders claim 7 unpatentable as obvious.

G. CLAIM 9: OBVIOUSNESS IN VIEW OF BORCHERT AND KACHNIC

Claim 9 depends from claim 8, which depends from claim 1. Claim 8 recites: "The method according to claim 1, wherein the moulding is carried out using a mould comprising two cavities and a core which at least partly incorporates the snap-riveting tool, and wherein the accessory is fastened to an inner wall of the tank." Ex. 1001, 8:9–13. Claim 9 adds: "wherein the core is equipped with a camera allowing visual control of the snap-riveting quality." *Id.* at 8:14–16.

Petitioner contends that Borchert describes all limitations of claim 8, and we agree as explained in Part II.D.2 above. Petitioner concedes that Borchert fails to describe the requirement introduced in claim 9 that "the core is equipped with a camera allowing visual control of the snap-riveting quality." Pet. 41. For this requirement, Petitioner relies upon Kachnic's

suggestion of using a camera in a blow molding process to allow visual control of the quality of molded parts. *Id.* at 41–45 (citing Ex. 1006, 1:30–35, 3:57–61, 8:5–25, 8:30–42, 8:46–57, 10:58–61). Petitioner recognizes that “Kachnic does not specifically disclose attaching the camera to a core, when combining Kachnic’s in-mold vision sensor with Borchert’s extrusion blow molding process, the obvious place to locate the camera would be on the core.” *Id.* at 44 (citing Ex. 1006, 8:9–14, 8:30–36; Ex. 1007 ¶¶ 78, 79).

Patent Owner argues that, because Borchert’s alleged tool is part of component 1 and would block installation of a camera like the one Kachnic describes to check rivet quality, an ordinarily skilled artisan would not have installed such a camera. PO Resp. 35–36. This argument fails because we reject its underlying premise for the reasons expressed in Part II.D.1 above, namely that Borchert’s alleged tool is part of Borchert’s component 1.

Based on our consideration of all evidence of record, we conclude that Petitioner has proven by a preponderance of evidence that the combination of Borchert and Kachnic renders claim 9 unpatentable as obvious.

III. CONCLUSION

Petitioner has demonstrated by a preponderance of the evidence that:

- (1) claims 1, 2, 8, and 12–14 are unpatentable as anticipated by Borchert;
- (2) claim 7 is unpatentable as obvious in view of Borchert alone or in combination with Van Schaftingen; and
- (3) claim 9 is unpatentable as obvious in view of the combined teachings of Borchert and Kachnic.

Petitioner has not demonstrated by a preponderance of the evidence that claim 2 is unpatentable as obvious in view of the combination of Borchert and Jannot.

IV. ORDER

For the reasons given, it is:

ORDERED, based on a preponderance of evidence, that claims 1, 2, 7–9, and 12–14 of U.S. Patent 9,079,490 B2 are *unpatentable*;

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

IPR2017-01654
Patent 9,079,490 B2

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