

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

CMS CEP COR LTD. and
CMS CEP COR AMERICAS LLC,
Petitioners,

v.

SANDVIK INTELLECTUAL PROPERTY AB,
Patent Owner.

IPR2024-01381
Patent 11,014,090 B2

Before CYNTHIA L. MURPHY, RICHARD H. MARSCHALL, and
SEAN P. O'HANLON, *Administrative Patent Judges*.

MARSCHALL, *Administrative Patent Judge*.

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

CMS Cepcor Ltd. and CMS Cepcor Americas LLC (collectively, “Petitioner”) filed a Petition requesting *inter partes* review of claims 1–14 of U.S. Patent No. 11,014,090 B2 (Ex. 1001, “the ’090 patent”). Paper 2 (“Pet.”). Sandvik Intellectual Property AB (“Patent Owner”) filed a Preliminary Response. Paper 8 (“Prelim. Resp.”).

We have jurisdiction under 35 U.S.C. § 314. Under § 314, an *inter partes* review may not be instituted “unless . . . there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the challenged claims in the petition.” 35 U.S.C. § 314(a). Because we determine that Petitioner demonstrates a reasonable likelihood that at least one challenged claim is unpatentable, we institute an *inter partes* review of all claims as challenged in the Petition.

BACKGROUND

A. Real Parties-in-Interest and Related Matters

Petitioner identifies CMS Cepcor Ltd. and CMS Cepcor Americas LLC as real parties-in-interest. Pet. 50. Patent Owner identifies Sandvik Intellectual Property AB, Sandvik Mining and Construction USA LLC, and Sandvik Rock Processing Solutions AB as real parties-in-interest. Paper 4 (“Patent Owner’s Mandatory Notices”), 1.

Petitioner filed a petition for *inter partes* review of a related patent, U.S. Patent No. 9,827,568 B2 (“the ’568 patent”), in IPR2024-01380. Paper 4, 1. The ’090 patent at issue here and the ’568 patent are also the subject of an infringement action, *Sandvik Mining and Construction USA LLC v. CMS Cepcor Ltd.*, Case No. 1-24-cv-00481-JLH (D. Del.). Pet. 50; Patent Owner’s Mandatory Notices 1.

B. The '090 patent

The '090 patent relates to “[g]yratory crushers . . . used for crushing ore, mineral and rock material to smaller sizes.” Ex. 1001, 1:24–25. Specifically, the '090 patent discloses “a main shaft having an axial upper end region that tapers radially inward and comprises at least one groove to receive a pressurised fluid to facilitate mounting and demounting of a sleeve at the shaft.” *Id.* at 1:17–20.

Figure 1 shows a representative embodiment and is reproduced below.

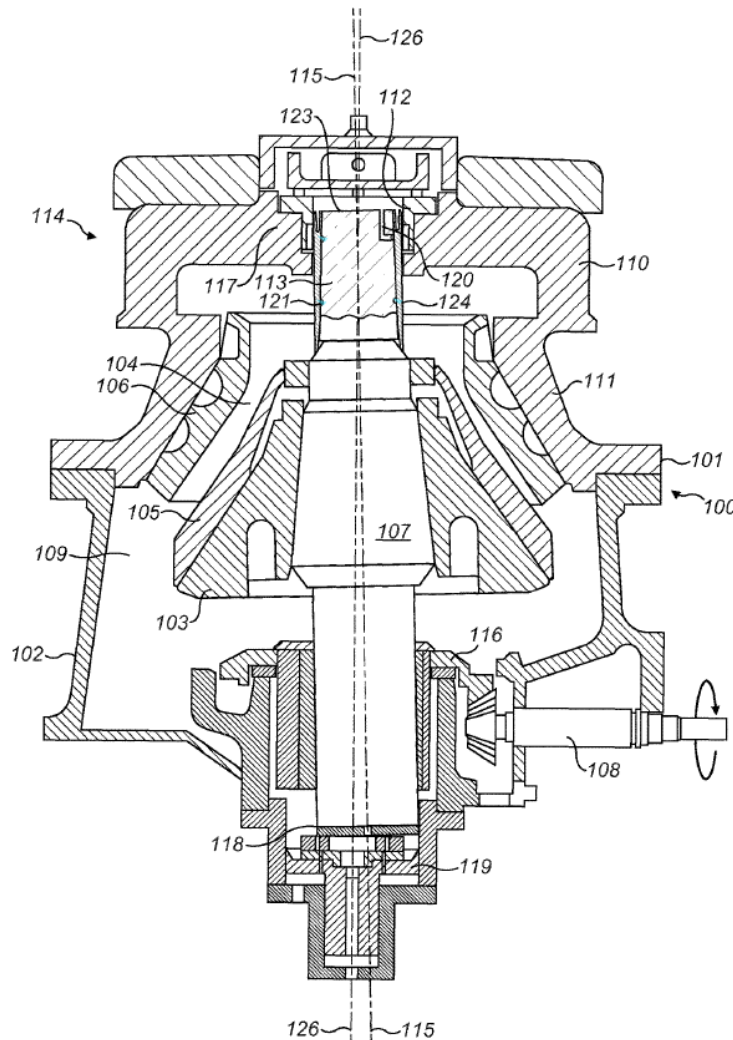


Figure 1 depicts “a crusher” with “an elongate shaft 107 having a longitudinal axis 115.” Ex. 1001, 4:42, 4:44–45. The ’090 patent further describes the main shaft and sleeve shown in Figure 1 as follows:

Upper end region 113 comprises a radial taper that defines an upper conical region of main shaft 107. The conical region 113 is tapered so as to decrease in cross sectional area in a direction from shaft second (lower) end 118 to an upper end surface 123 positioned uppermost within the crusher. To avoid excessive wear of the conical region 113, by contact with bearing assembly 112, a substantially cylindrical wear sleeve 124 is mounted over and about region 113 by an interference or friction fit and is provided in close touching contact over an axial length of both sleeve 124 and region 113.

Id. at 5:1–11.

According to the ’090 patent, in order to “facilitate mounting and dismounting of sleeve 124 at shaft region 113, shaft 107 is configured to enable a fluid to be introduced into the contact region between the sleeve 124 and shaft region 113.” Ex. 1001, 5:17–19. To supply the fluid, the ’090 patent describes fluid supply conduit 120, which “extends axially and radially along shaft 107 (within region 113) from end surface 123 to the contact region between sleeve 124 and region 113.” *Id.* at 5:19–22. A “channel” or “groove” 121 “is indented within the external facing surface of shaft 107 at region 113 and is provided in fluid communication with the conduit 120.” *Id.* at 5:22–25.

C. The Asserted Challenges

Petitioner challenges claims 1–14 on the following grounds (Pet. 11–13):

Claims Challenged	35 U.S.C. §	Basis
1–14	103	Polinski, ¹ Piepho, ² Harless ³

In support of these challenges, Petitioner submits the Declaration of David G. Smith. *See* Ex. 1002.⁴ Patent Owner submits the Declaration of Dr. Harri Kytömaa in support of its arguments. *See* Ex. 2001.

D. Challenged Claims

Among the challenged claims of the '090 patent, claims 1, 9, and 14 are independent claims. Independent claim 1 is representative and recites:

1. [1P] A gyratory crusher main shaft of a crusher comprising:
 - [1a] a shaft body having a radially outward facing external surface, and a first end and a second end;
 - [1b] an axial region of the shaft body extending from the second end and being tapered relative to a longitudinal axis of the shaft body such that a cross sectional area of the shaft body at the tapered axial region decreases in a direction from the first end to the second end;
 - [1c] a shaft sleeve mounted on the tapered axial region;
 - [1d1] and at least one groove indented at the external surface and positioned at the tapered axial region,

¹ U.S. Patent No. 4,410,143, issued October 18, 1983 (Ex. 1017, “Polinski”).

² U.S. Patent No. 6,270,026 B1, issued August 7, 2001 (Ex. 1018, “Piepho”).

³ U.S. Patent No. 2,840,399, issued June 24, 1958 (Ex. 1033, “Harless”).

⁴ Exhibit 1002 includes paragraph numbers, but Petitioner often fails to cite to them and instead cites to more general page numbers. *See, e.g.*, Pet. 16–21 (citing page numbers only), 12–13 (citing paragraph numbers). For clarity and precision, the parties should cite to paragraph numbers unless referencing a specific citation Petitioner made to page numbers in the Petition.

[1d2] the at least one groove being arranged to receive a pressurised fluid to facilitate mounting and dismounting of the shaft sleeve at the shaft body.

Ex. 1001, 7:2–15 (bracketed nomenclature added to reflect Petitioner’s nomenclature, *see* Pet. 13–21).

ANALYSIS

A. Level of Ordinary Skill in the Art

The level of ordinary skill in the art is “a prism or lens” through which we view the prior art and the claimed invention. *Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed. Cir. 2001). The person of ordinary skill in the art is a hypothetical person presumed to have known the relevant art at the time of the invention. *In re GPAC Inc.*, 57 F.3d 1573, 1579 (Fed. Cir. 1995). In determining the level of ordinary skill in the art, we may consider certain factors, including: “(1) the educational level of the inventor; (2) type of problems encountered in the art; (3) prior art solutions to those problems; (4) rapidity with which innovations are made; (5) sophistication of the technology; and (6) educational level of active workers in the field.” *Best Med. Int’l, Inc. v. Elekta Inc.*, 46 F.4th 1346, 1353 (Fed. Cir. 2022) (quoting *Daiichi Sankyo Co. v. Apotex, Inc.*, 501 F.3d 1254, 1256 (Fed. Cir. 2007)). “The patent’s purpose can also be informative.” *Id.*

Petitioner argues that a person of ordinary skill in the art (“POSITA”) relating to the ’090 patent would have had “a bachelor’s degree in mechanical engineering or a related field, and at least 2 years of experience with industrial equipment design and development.” Pet. 3 (citing Ex. 1002 ¶ 29). Petitioner also contends that one of ordinary skill “may also have a combination of more formal education and less work experience or a combination of less/different formal education and more work experience.”

Id. Patent Owner states that, for purposes of its Preliminary Response, it “does not object to Petitioner’s position on the level of ordinary skill in the art.” Prelim. Resp. 21 (citing Ex. 2001 ¶ 27).

At this stage, and based on Petitioner’s undisputed contentions, we view Petitioner’s definition as consistent with the problems and solutions disclosed in the ’090 patent and prior art of record, and adopt it as our own for purposes of this Decision. *See, e.g., GPAC*, 57 F.3d at 1579 (approving the determination of the level of ordinary skill in the art by appeal to the references of record).

B. Claim Construction

Pursuant to 37 C.F.R. § 42.100(b), we apply the claim construction standard set forth in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). Under that standard, we give the words of a claim their plain and ordinary meaning as would have been understood by one skilled in the art at the time of the invention and in the context of the entire patent disclosure. *Id.* at 1312–13. Only terms in controversy need be construed, and only to the extent necessary to resolve the controversy. *See Nidec Motor Corp. v. Zhongshan Broad Ocean Motor Co.*, 868 F.3d 1013, 1017 (Fed. Cir. 2017) (quoting *Vivid Techs., Inc. v. Am. Sci. & Eng’g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999)).

Petitioner argues that “[n]o terms need construction because the claims read on the prior art identified below under any construction consistent with *Phillips*.” Pet. 10–11. Patent Owner “submits that the Board need not construe any claim terms as the claims are patentable under any reasonable construction.” Prelim. Resp. 20. Based on the record before us,

we need not expressly construe any claim terms to resolve the issues presented at this stage of the proceeding.

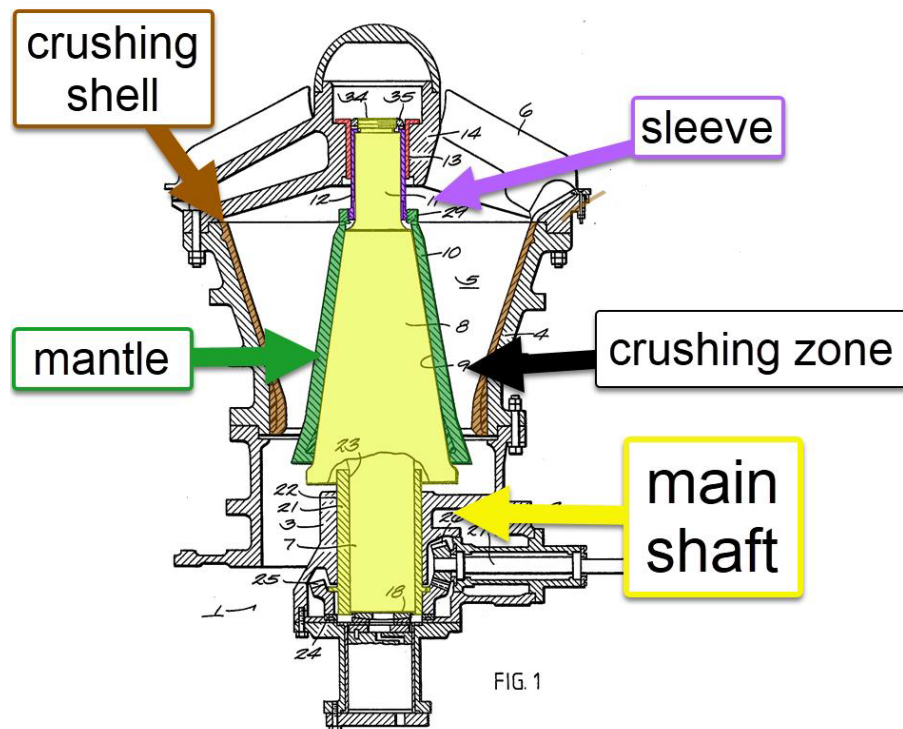
C. Obviousness Based On Polinski, Piepho, and Harless

Petitioner argues that claims 1–14 would have been obvious over the combination of Polinski in view of Piepho, and Harless. Pet. 11–49. We first provide a brief overview of the prior art and then address the parties’ arguments.

1. Overview of Polinski, Piepho, and Harless

a. Polinski

Polinski discloses “a gyratory crusher” with “a main shaft having a tapered mantle supporting portion extending through a correspondingly tapered bore in the crusher mantle to support the mantle on the shaft.” Ex. 1017, code (57). We reproduce Petitioner’s annotated version of Polinski’s Figure 1 below (Pet. 14).

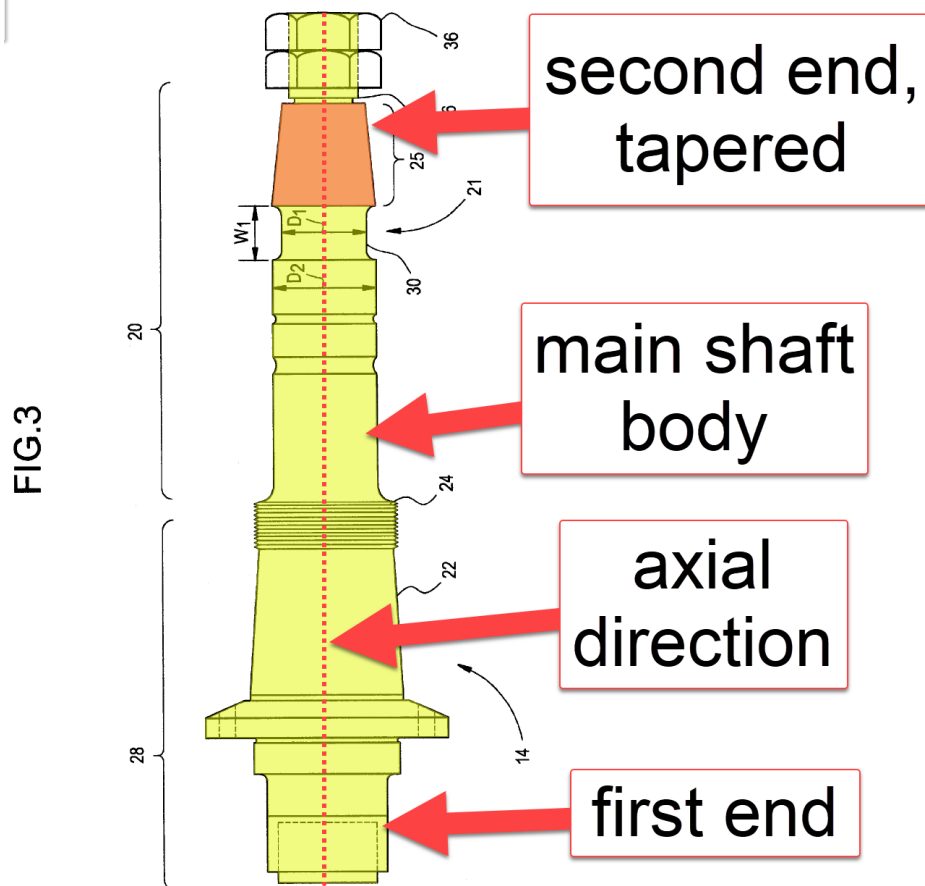


The annotated version of Figure 1 shown above includes labels for “mantle” (mantle supporting portion 8), “main shaft” 7, and “sleeve” (bearing sleeve 12). Pet. 14; Ex. 1017, 2:36–47, Fig. 1. Polinski describes the bearing sleeve as “fitted about the end of the shaft releasably securing the crusher mantle to the tapered portion of the shaft.” *Id.*

Polinski states that “the cross-section of the upper end of the shaft 7 gradually converges to form a bearing journal 11 extending from the tapered portion of the shaft which is fitted with a cylindrical bearing sleeve 12 rotatably retained within a bearing bushing 13 secured within a coaxially aligned hub 14 in the spider 6.” Ex. 1017, 2:42–47. According to Polinski, “abrupt structural discontinuities in the normally high-stressed regions of the main shaft have been essentially eliminated to minimize the development of fatigue fractures in the shaft while at the same time providing an arrangement which can be easily maintained and repaired in the field.” *Id.* at 1:62–67.

b. Piepho

Piepho discloses “[a]n improved main shaft for a coal pulverizer” that “provides improved fretting resistance.” Ex. 1018, code (57), 2:19–20. We reproduce an annotated version of Piepho’s Figure 3 from the Petition to illustrate the main shaft in Piepho’s device.



Annotated Figure 3 depicts shaft 14, with four annotations added by Petitioner, including “second end, tapered” and “main shaft body.” Pet. 21; Ex. 1018, Fig. 3. The “second end, tapered” label points to a section of shaft 14 corresponding to “shaft end (25),” which Petitioner highlights with orange coloring. See Pet. 21, Ex. 1018, 3:23–24.

Piepho describes “an intervening material between the shaft end (25) and the mating bore in the yoke bushing (18) fitted within the bore of yoke (12) to prevent fretting damage.” Ex. 1018, 3:23–26. Piepho also describes a “joint (21) . . . capable of accepting radial, axial, and bending or overturning loads” where “joint 21 is a tapered joint with the tapered end (25) of shaft (14)” and “yoke bushing (18) has a mating bore similarly

tapered.” *Id.* at 3:26–32. Piepho further states that “shaft end (25) alternatively may be cylindrical rather than tapered.” *Id.* at 3:33–34.

c. Harless

Harless discloses “improvements in the attachment of gears and other members having axially projecting hubs to tapered shaft ends.” Ex. 1033, 1:15–17. Harless describes “tapered end 1 of the shaft 2,” wherein “[o]il under pressure is introduced into a circumferential groove 12 through a bore 13, expanding the bearing sufficiently to permit it to be pushed up against the spacer 6 by conventional means.” *Id.* at 1:63–64, 2:19–22. We reproduce Figure 7 from Harless below.

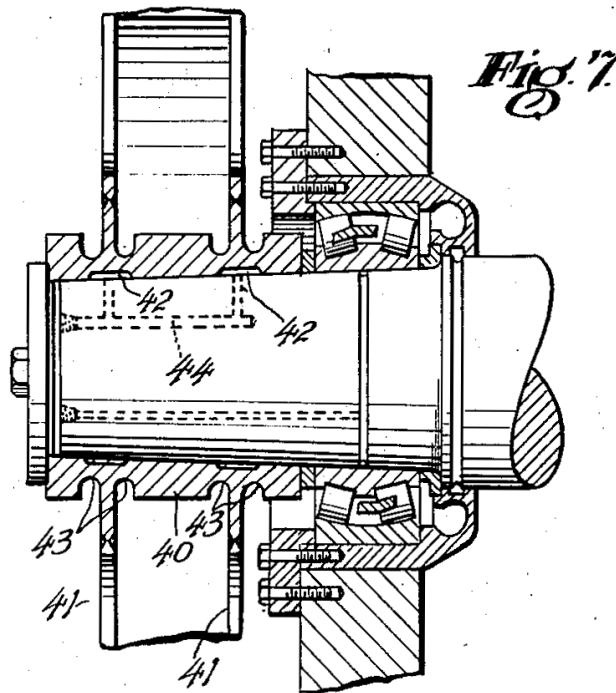


Figure 7 above depicts an axial section view of the assembly of Harless. Ex. 1033, 1:61–62. Figure 7 includes hub 40 surrounding a shaft running from

left to right in the figure. *Id.* at Fig. 7, 4:18–19. Oil bore 44 disposed within the shaft includes branches that supply oil to grooves 42. *Id.* at 4:20–22.

2. Discussion

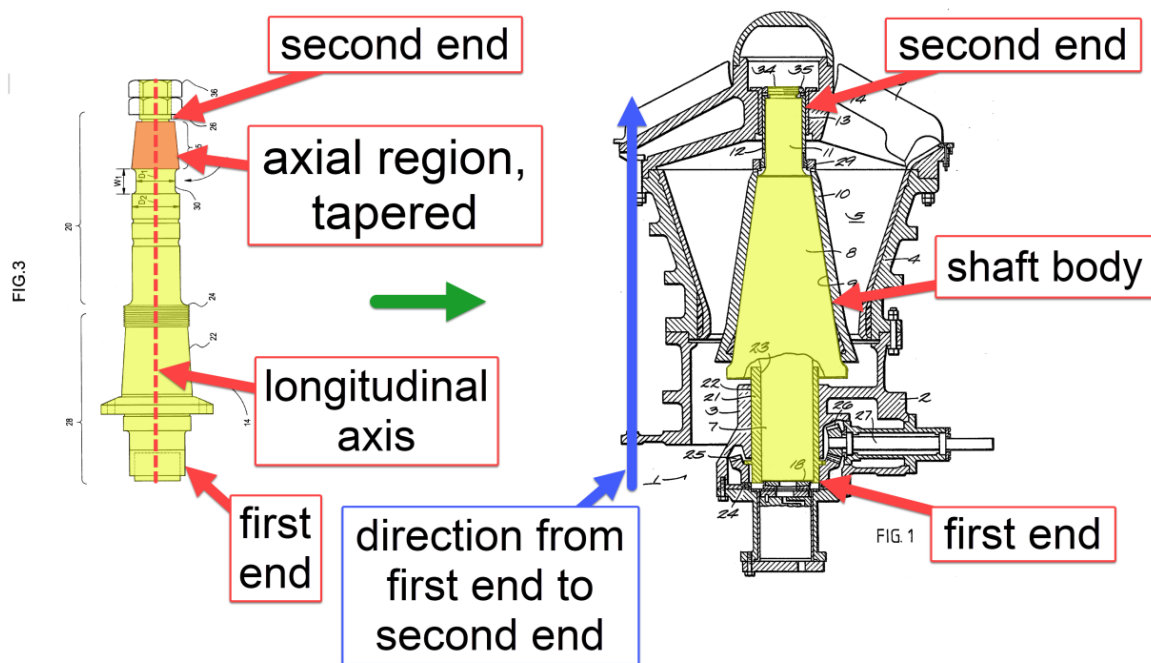
We begin with Petitioner’s argument that the combination of Polinski, Piepho, and Harless renders claim 1 obvious. For each limitation in claim 1, Petitioner points to specific portions of the references that support its position that the combination discloses the limitations in question. *See* Pet. 11–49. Petitioner also cites to declarant testimony addressing the limitations. *Id.* (citing Ex. 1002). Patent Owner argues that (1) the resulting combination fails to disclose a tapered axial region of the shaft body extending from the second end of the shaft; and (2) one of ordinary skill in the art would not have been motivated to combine the prior art in the manner Petitioner proposes. Prelim. Resp. 22–37. We address Patent Owner’s arguments in the context of Petitioner’s arguments below.

a. Disclosure of Claim 1’s Limitations

The preamble of claim 1 recites a “gyratory crusher main shaft” and limitation 1a recites “a shaft body having a radially outward facing external surface, and a first end and a second end.” Ex. 1001, 7:2–4; Pet. 13–15. For these limitations, Petitioner relies on Polinski’s disclosure of a gyratory crusher and both Polinski and Piepho to teach a main shaft with a first and second end. Pet. 13 (citing Ex. 1017, 1:6–8 (“[t]he present invention relates to gyratory crushers”)); *id.* at 14–15 (citing Ex. 1017, 2:32–37 (disclosing “a centrally located gyratable main shaft 7”); Ex. 1018, 1:26–27 (“a vertical main shaft assembly 14 of the pulverizer”)). Patent Owner does not dispute Petitioner’s assertions as to these aspects of claim 1. Based on the current

record, Petitioner adequately establishes that its proposed combination teaches the preamble, to the extent that it limits the claim, and limitation 1a.

As to limitation 1b requiring “an axial region of the shaft body extending from the second end and being tapered relative to a longitudinal axis of the shaft body,” Petitioner argues that Polinski in view of Piepho discloses the limitation because Piepho’s shaft “has a tapered region that extends from the second end.” Pet. 15–16. According to Petitioner, “the cross-sectional area of the shaft body decreases” as a result of the taper, occurring “in the direction from the first (bottom) end of the main shaft to the second (top) end of the main shaft” as required by limitation 1b. *Id.* at 16. We reproduce Petitioner’s annotated figures from Piepho and Polinski below.



The figure shown above on the left shows annotations to Piepho’s Figure 3, while the figure on the right shows annotations to Polinski’s Figure 1. See Pet. 16. The annotations label a “second end” near the top of each figure

and the annotations to Piepho's Figure 3 also label an orange section an "axial region, tapered." *Id.* Petitioner further asserts that one of ordinary skill "would have been motivated to incorporate" Piepho's tapered end with Polinski's main shaft because Piepho's tapered shaft "aids in accurate alignment which is notoriously more difficult with purely cylindrical shafting." *Id.* at 16–17 (citing Ex. 1002, 59).

Patent Owner argues that Polinski and Piepho, alone or in combination, fail to teach or suggest a shaft having a tapered region "extending from the second end" as claimed. Prelim. Resp. 31–37. More specifically, Patent Owner contends that the '090 patent emphasizes that "conical region 113 is tapered . . . to an upper end surface 123 [the second end] *positioned uppermost within the crusher.*" *Id.* at 32 (citing Ex. 1001, 5:1–5, Figs. 2–3). Patent Owner points to Figures 2 and 3 of the '090 patent to argue that "when mounted, the upper end of the sleeve is positioned substantially coplanar with the second end of the shaft." *Id.* at 32–33 (citing Ex. 1001, 5:33–35). Neither Polinski nor Piepho, Patent Owner argues, disclose such a tapered region *extending from the second end* because both references show other structures at the second end of the shaft. *Id.* at 34–37. Patent Owner asserts that Polinski's shaft has a second end "defined by the top end of a threaded lug 34" while Piepho discloses "a cylindrical portion labeled 26 [that] extends from the second (top) end of the shaft . . . between the top end and the tapered portion 25" and connects to a fastener, element 36. *Id.* at 34–36 (citing Ex. 2001 ¶¶ 38, 61–63).

Based on the current record, Petitioner adequately establishes that the combination of Piepho's tapered region with Polinski's shaft discloses limitation 1b for at least two reasons. First, Patent Owner appears to assume

that “extending from the second end” in limitation 1b requires the tapered axial region to include a taper that extends all the way to the outermost extremity at the end of the shaft. *See* Prelim. Resp. 31–37. While we may ultimately agree with Patent Owner’s implicit position, we are reluctant to reach that conclusion without a proposed express construction to that effect from Patent Owner and after considering responsive argument and evidence from Petitioner. We note that the intrinsic evidence arguably includes evidence contrary to and in support of Patent Owner’s position. For example, the limitation refers to an “axial region of the shaft body extending from the second end and being tapered” without explicitly stating that the “second end” refers only to the extremity of the shaft rather than the second end more generally, and without stating that the entire axial region includes a taper that extends to the second end. *See* Ex. 1001, claim 1. On the other hand, the specification arguably supports Patent Owner’s implicit reading of the limitation by showing a taper that does extend to the outermost extremity of the shaft. *See id.* at Fig. 3; 5:1–5 (describing “[u]pper end region 113” that includes “a radial taper that defines an upper conical region of main shaft 107” and extends “to an upper end surface 123”). The parties may further address these issues during trial.

Second, Piepho states that its shaft 14 includes “a tapered joint with *the tapered end (25) of shaft (14).*” Ex. 1018, 3:29–30 (emphasis added). In other words, Piepho itself describes its “end” as “tapered.” *See id.* Petitioner relies on the same portion of Piepho’s shaft, highlighted in orange and labelled “axial region, tapered” in the figure shown above, that Piepho describes as a “tapered end” and “shaft end.” *See id.*; *see also id.* at 3:23–31 (describing portion 25, highlighted in orange by Petitioner in its annotated

figures, as “shaft end (25)” or “tapered end (25)”); Pet. 16 (labelling orange portion of Piepho’s Figure 3, item 25 as “tapered”) (citing Ex. 1002, 59); Ex. 1002, 59 (quoting Ex. 1018, 3:23–31). Based on the current record, Petitioner’s reliance on structure that Piepho describes as a tapered end or shaft end adequately supports Petitioner’s argument the structure teaches a taper “extending from” the end of the shaft as required by limitation 1b.

Limitation 1c recites “a shaft sleeve mounted on the tapered axial region” while limitations 1d1 and 1d2 recite aspects of a claimed “groove” indented on an external surface of the tapered axial region. *See* Ex. 1001, 7:10–15; Pet. 17–21. Petitioner argues that Polinski in view of Piepho teaches the sleeve limitations, and Harless discloses the indented groove limitations. *See* Pet. 17–21. Petitioner also provides motivations for combining the references and implementing Piepho’s tapered sleeve and the indented groove of Harless in a manner that would result in the teaching of these limitations. *See id.* at 18–21. Patent Owner does not dispute that Petitioner’s proposed combination teaches these aspects of claim 1. Based on the current record, Petitioner adequately establishes that its proposed combination teaches these limitations.

Based on our review of the current record, Petitioner adequately establishes that the proposed combinations disclose all claim 1 elements.

b. Motivation to Combine

We now turn to the motivation to combine Piepho and Polinski with Harless. Petitioner argues that a “POSITA would be motivated to combine the tapered joint of Piepho with the teachings of Polinski based on the explicit teachings of the prior art” and “the advantages afforded by the use of a tapered joint” in Piepho “as compared with a cylindrical joint” in Polinski.

Pet. 12 (citing Ex. 1002 ¶ 86); *see also id.* at 12–13 (citing Ex. 1002 ¶¶ 87–88) (providing additional reasons to combine Piepho and Polinski), 16–18 (citing Ex. 1002, 59, 61) (same). To address the addition of Harless’s teaching of an indented groove on the end of a tapered shaft to the combination, Petitioner contends that a POSITA would have been “motivated to make the groove in the shaft, as the sleeves are known to wear out and be replaced” and a grooved shaft “would save time and money” compared to grooved sleeve because it “only has to be manufactured once.” *Id.* at 19 (citing Ex. 1002, 62–63). Petitioner also asserts that its combination involves “combining known elements using known methods to produce predictable results” and that during prosecution of the ’090 patent, the Examiner employed prior art dealing with the same issues. *Id.* at 19–20 (citing Ex. 1002, 63; Ex. 1041). When addressing the addition of Harless’s teaching as to receiving pressurized fluid to facilitate mounting and dismounting of the sleeve, Petitioner argues that a “POSITA would be further motivated to combine these elements to simplify the equipment and process for making and breaking interference fits as discussed above, and would have every expectation of success as the technology was already well developed and documented.” *Id.* at 20–21 (citing Ex. 1002, 64).

Patent Owner does not contest Petitioner’s combination of Polinski and Piepho, but instead argues that no motivation to combine exists because Harless “would render both Polinski and Piepho inoperable for their intended purpose of preventing shaft failure.” Prelim. Resp. 22–31 (citing, *inter alia*, Ex. 2001 ¶¶ 48–59). When addressing intended purpose, Patent Owner argues that “Polinski mitigates shaft fatigue failure . . . specifically by omitting threads that are typically cut into gyratory shafts to attach a

crusher mantle.” *Id.* at 23 (citing Ex. 1017, 1:61–67). Patent Owner asserts that Polinski instead teaches that shaft stress can be reduced “by cutting threads into a bearing sleeve.” *Id.* at 24 (citing Ex. 1017, 1:1–67). Piepho, according to Patent Owner, seeks a similar goal: “to prevent fretting wear and corresponding fatigue,” by “coating a portion of the shaft fit into a yoke bushing (which Petitioner alleges is a sleeve) with a ceramic coating.” *Id.* at 24 (citing Ex. 1007, 2:15–25; Ex. 2001 ¶¶ 42–43).

Patent Owner argues that introducing Harless’s groove onto the main shaft would undermine the purposes of Piepho and Polinski because these would “introduce stress concentrations,” “lead to increased fretting wear,” and “increase the likelihood of fatigue failure.” *Id.* at 24–29. Patent Owner also argues that Petitioner’s approach relies on impermissible hindsight because one of ordinary skill would not seek to rely on Harless’s grooved shaft for use in “mounting of gears and similar components” rather than “for crushing applications, much less in a gyratory crusher, as claimed.” *Id.* at 30. According to Patent Owner, Harless fails to disclose “that its shaft is subjected to the same substantial stresses generated by the cyclic loading as the shafts disclosed by Polinski and Piepho.” *Id.* As to Petitioner’s argument that a POSITA would be motivated to make the combination to simplify the equipment and process for interference fits, Patent Owner contends that “Petitioner impermissibly picks and chooses aspects of the three references” and ignores what they teach to a POSITA, namely that “Polinski and Piepho are both directed to mitigating shaft fatigue” and adding Harless’s oil groove introduces several problems, as noted above. *Id.* at 31 (citing Ex. 2001 ¶¶ 48–59).

Based on the current record, Petitioner sufficiently establishes for the purposes of institution that one of ordinary skill in the art would have been motivated to combine Piepho, Polinski, and Harless in the manner Petitioner proposes. Notably, Patent Owner does not directly contest Petitioner's stated reasons why a POSITA would be motivated to make the proposed combination, i.e., that the combination would save money and simplify the equipment and process for making and breaking interference fits. *See* Pet. 19–21; Prelim. Resp. 22–31. Patent Owner instead suggests that Petitioner improperly ignores disadvantages when adding Harless's groove to Polinski and Piepho, which at best suggests a weighing between the advantages Petitioner contends the addition of Harless's groove provides and the alleged disadvantages. *See* Prelim. Resp. 22–31. While Patent Owner's arguments may ultimately prevail, given the highly factual nature of the competing expert testimony and the weighing necessary to resolve this issue, we view the issues as best resolved after further development during trial and after Petitioner has the opportunity to respond to Patent Owner's arguments and evidence. On this record and at this stage of the proceeding, Petitioner's arguments and supportive declarant testimony adequately establishes a motivation to combine the references.

3. Conclusion

Petitioner adequately establishes that one of ordinary skill in the art would have been motivated to combine Piepho, Polinski, and Harless, and that the resulting combination discloses all of the limitations of claim 1, and therefore establishes a reasonable likelihood of proving that Piepho, Polinski, and Harless render claim 1 obvious. We have also reviewed Petitioner's arguments addressing claims 2–14. *See* Pet. 22–49. Because

Petitioner already demonstrates that at least one claim of the '090 patent meets the threshold for institution, we institute an *inter partes* review of all claims as challenged in the Petition, including these challenges. *See* 37 C.F.R. §§ 42.108(a), (c); *SAS Inst. v. Iancu*, 138 S. Ct. 6668, 1359–60 (2018).

CONCLUSION

We institute an *inter partes* review of all claims as challenged in the Petition.

ORDER

Accordingly, it is:

ORDERED that, pursuant to 35 U.S.C. § 314(a), an *inter partes* review of claims 1–14 of the '090 patent is *instituted*; and

FURTHER ORDERED that, pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4(b), notice is hereby given of the institution of trial, which will commence on the entry date of this Decision.

IPR2024-01381
Patent 11,014,090 B2

For PETITIONER:

Terry M. Sanks
BEUSSE SANKS, PLLC
tsanks@firstiniplaw.com

For PATENT OWNER:

Mehran Arjomand
Alex S. Yap (backup counsel)
Jeffrey G. Young (backup counsel)
MORRISON & FOERSTER LLP
MArjomand@mofo.com
AYap@mofo.com
JeffreyYoung@mofo.com