

Case IPR 2025-00985

Patent 9,518,604

Filed on Behalf of FLSmidth Inc.

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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

FLSmidth Inc.,

Petitioner,

v.

Metso Outotec (Finland) Oy,

Patent Owner.

Patent 9,518,604

IPR2025-00985

**PETITIONER'S OPPOSITION TO PATENT OWNER'S REQUEST FOR
DISCRETIONARY DENIAL**

TABLE OF CONTENTS

I.	INTRODUCTION	1
II.	THE CHALLENGED CLAIMS	1
III.	The '604 PATENT AND RELEVANT PROSECUTION HISTORIES	7
A.	Overview of the '604 Patent.....	7
B.	Prosecution History.	11
1.	Prosecution History of PCT Application.....	11
2.	U.S. Prosecution History of the '604 Patent.....	16
3.	Prosecution History of Related EPO Application	19
C.	Claim Construction of the term “Mounting Element”	19
IV.	METSO’S “SETTLED EXPECTATIONS” DO NOT JUSTIFY DISCRETIONARY DENIAL UNDER § 314(a).....	22
A.	Metso’s Market Activity is Recent.....	23
B.	Metso’s Cited Decisions are Distinguishable.....	24
C.	Settled Expectations Do Not Outweigh the Strength of the Petition and Clear Examiner Error.	27
V.	INSTITUTION SHOULD NOT BE DENIED UNDER § 325(d).....	29
A.	Metso’s Request Fails Part One of <i>Advanced Bionics</i>	31
1.	The Prior Art of Ground 1 is Not the Same/Cumulative.....	32
2.	The Prior Art of Ground 5 is Not the Same/Cumulative.....	33
3.	The Prior Art of Ground 6 is Not the Same/Cumulative.....	35
B.	Metso’s Request Fails Part Two of <i>Advanced Bionics</i>	40
1.	The Office Erred in Allowing Claim 1	40
2.	The Office Materially Erred When it Allowed Claim 11.....	52
3.	The Office Materially Erred When it Allowed Claim 21.....	53
VI.	CONCLUSION.....	57

TABLE OF AUTHORITIES

Cases

<i>Advanced Bionics, LLC v. MED-EL Elektromedizinische Geräte GmbH,</i> IPR2019-01469, Paper 6 (PTAB Feb. 13, 2020)	29, 38, 39
<i>Amazon.com, Inc. v. NL Giken Inc.,</i> IPR2025-00250, Paper 14 (Director May 16, 2025).....	27
<i>Amgen Inc. v. Bristol-Myers Squibb Co.,</i> IPR2025-00601, IPR2025-00602, Paper 9 (Director July 24, 2025).....	24
<i>Anthony Inc. v. Controltec, LLC,</i> IPR2025-00559, Paper 12 (Director July 16, 2025).....	25, 27, 28
<i>Becton, Dickinson & Co. v. B. Braun Melsungen AG,</i> IPR2017-01586, Paper 8 (PTAB Dec. 15, 2017).....	29, 31
<i>BowTech Inc., v. MCP IP, LLC,</i> IPR2019-00379, Paper 14 (PTAB July 3, 2019).....	31
<i>Cambridge Indus. USA, Inc. v. Applied Optoelectronics, Inc.,</i> IPR2025-00435, Paper 11(Director June 27, 2025).....	23
<i>Coretronic Corp. v. Maxell, Ltd.,</i> IPR2025-00476, Paper 10 (Director July 10, 2025).....	23
<i>Dabico Airport Sols. Inc. v. AXA Power ApS,</i> IPR2025-00408, Paper 21 (Director June 18, 2025).....	24, 25, 26
<i>Ecto World, LLC v. RAI Strategic Holdings, Inc.,</i> IPR2024-01280, Paper 13 (PTAB May 19, 2025).....	31
<i>Geotab USA, Inc. v. Omega Patents, LLC,</i> IPR2023-00504, Paper 11 (PTAB July 25, 2023).....	30
<i>Globus Medical, Inc. v. Spinelogik, Inc.,</i> IPR2025-00225, Paper 8 (Director June 12, 2025).....	26
<i>Intel Corp. v. Proxense, LLC,</i> IPR2025-00327, Paper 12 (Director June 26, 2025).....	24, 27
<i>Interim Processes for PTAB Workload Management</i> (USPTO Acting Director Mar. 26, 2025).....	27
<i>Kangxi Commc 'ns Techs. (Shanghai) Co. v. Skyworks Sols.,</i> <i>Inc.,</i> IPR2025-00372, Paper 10 (Director July 16, 2025)	23
<i>KSR Int'l Co. v. Teleflex Inc.,</i> 550 U.S. 398, 420, 127 S. Ct. 1727, 167 L. Ed. 2d 705 (2007)	37
<i>Meta Platforms, Inc. v. Immersion Corporation,</i> IPR2023-00942, Paper 7 (PTAB December 6, 2023).....	48

<i>Murata Mfg. Co. v. Georgia Tech. Research Corp.</i> , IPR 2025-00383, Paper 14 (Director July 29, 2025).....	24, 25
<i>Noah Sys., Inc. v. Intuit Inc.</i> , 675 F.3d 1302 (Fed. Cir. 2012)	20
<i>Skechers U.S.A., Inc. v. Nike, Inc.</i> , IPR2025-00141, Paper 23 (Director. Aug. 21, 2025)	27
<i>Tesla, Inc. v. Intellectual Ventures II LLC</i> , IPR2025-00217, Paper 9 (Director June 13, 2025).....	27
<i>T-Mobile USA, Inc. v. Smart RF Inc.</i> , IPR2025-00692, Paper 13 (Director July 29, 2025).....	23, 24
<i>Williamson v. Citrix Online, LLC</i> , 792 F.3d 1339 (Fed. Cir. 2015)	19

I. INTRODUCTION

On May 14, 2025, Petitioner FLSmidth, Inc. (“FLS”) filed a Petition for *Inter Partes Review* (“Petition”) of U.S. Patent Number 9,518,604 (“the ’604 patent”) owned by Metso Outotec (Finland) Oy (“Metso”). Metso filed a Request for Discretionary Denial of Institution Under 35 U.S.C. § 314(a) and/or § 325(d) (“Request”). For the reasons stated below, Metso’s Request should be denied, and FLS’s Petition for *Inter Partes Review* (“IPR”) should be granted and trial instituted.

As an initial matter, in its Request Metso repeatedly touts the novelty of its use of polymers as a bearing liner. *E.g.*, Request at 2–5, 13. Metso fails to inform the Director that multiple patent offices, including the USPTO (“the Office”), World Intellectual Property Organization (“WIPO”), and the European Patent Office (“EPO”), consistently found that the use of a polymer as a bearing liner or pad was an obvious design choice to one of ordinary skill. Critically, in each instance that Metso faced this rejection, Metso acquiesced and sought patentability on other grounds via claim amendment. To be clear, the mere selection of a known bearing liner, i.e. polymer, for use with a mill bearing does not provide grounds for patentability.

In light of the repeated findings by patent offices throughout the world that the use of polymer as a bearing liner was an obvious design choice, the Office’s

allowance of the Challenged Claims is problematic. Namely, the Challenged Claims prevent Metso's competitors from using polymer as a bearing liner on long-known bearing assemblies. For example, Claim 1 is directed to a bearing assembly for supporting a journal of a grinding mill body having a "polymer bearing pad mounted to a base." Removing the "polymer bearing pad" as a basis of patentability, as one must for the reasons above, the remaining limitations of Claim 1 have no patentable weight because they merely recite common and well-known hydrostatic bearing assemblies that use a pressurized fluid (typically oil or water) to support a load by creating a thin film of fluid between the bearing surfaces to reduce friction and wear. In practice, Claim 1 prevents competitors from using polymer bearing pads, which are not novel, on common hydrostatic bearing assemblies that have been used long prior to the '604 patent. As such, the Challenged Claims are the exact types of overbroad claims that the current IPR procedures were created to efficiently address.

In view of the overly broad scope of the Challenged Claims, Metso's Request for denial under 35 U.S.C. §§ 314(a) and 325(d) lacks merit for several reasons. First, under § 314(a), the Director should not exercise her discretion to deny institution because there is no reasonable "settled expectation." Metso argues it has a "settled expectation" and presumptive legal right to keep its patent intact because the '604 patent issued in 2016, Metso and FLS are competitors, and Metso

has commercialized its “technology” for over a decade. Metso’s argument ignores critical facts. Metso’s own documents filed in support of its Request demonstrate that it did not launch a product purportedly covered by the ’604 patent until 2019. And even then, the technology at issue did not become relevant to FLS until no earlier than late 2022. Setting that critical fact aside, “settled expectations,” even if established, are not dispositive when the Office has committed a material error during patent prosecution. The record provides compelling evidence that the Office committed a material error here.

Second, under § 325(d), the Director should not exercise her discretion to deny institution because the *Advanced Bionics* two-part framework for evaluating discretionary denial under 35 U.S.C. § 325(d) is not satisfied. Under part one of that framework, the evidence shows that the art and argument for all the Challenged Claims are not the same or substantially the same as that considered during prosecution. Independent Claims 1 and 11 were allowed in a first Office Action without comment. Indeed, the Office did not provide any reasoning for their allowance in the Office Action or in the Notice of Allowance. As such, there is no prosecution history regarding any argument or art applied to those claims. As such, for Claims 1 and 11, there is no record or evidence from which to make any comparison to the art or argument presented in the Petition at all.

In addition, Ground 1 relies on GB384 and DE364. GB384 was analyzed by the Office. But DE364 was only listed in an IDS. As such, there is no evidence that the Office ever considered the teachings of DE364. Art used in Ground 5 and 6 is also not cumulative of art considered by the Office during examination as discussed further herein.

Under part two of the *Advanced Bionics* framework, even if the Director believes the Petition art is the same or substantially the same as that explicitly considered during examination (it is not), the record demonstrates that the Office unequivocally committed a material error. Even a cursory review of the cited prior art and related WIPO and EPO proceedings demonstrates that the Office either misapprehended the Challenged Claims, the scope and content of the prior art, or both. There is nothing patentable about using a polymer bearing pad on a common hydrostatic bearing assembly. If the Office had not overlooked the scope and content of the prior art in the record, it would have found that the Challenged Claims are obvious.

Accordingly, the Director should not deny institution under 35 U.S.C. §§ 314(a) or 325(d).

II. THE CHALLENGED CLAIMS

The '604 patent has 26 claims, all of which are challenged. Three of the Challenged Claims (1, 11, and 21) are independent claims. Claims 2–10 depend

from Claim 1, Claims 12–20 depend from Claim 11 and Claims 22–26 depend from Claim 21.

Many of the dependent claims recite identical subject matter. The only difference is the independent claim from which they depend. For purposes of efficiency and this Opposition to Metso’s Request, FLS’s application of evidence to the *Advanced Bionics* framework focuses primarily on Independent Claims 1, 11, and 21.

Claims 1 and 11 are substantially the same; the primary difference is that Claim 1 recites bearings that “self-adjust” while Claim 11 recites a “fixedly mounted” bearing. For purposes of this Opposition, Claim 1 is used as the primary point of discussion and is generally broken down into three parts (1.1, 1.2 and 1.3) as shown below.

Claim 1:

[1.1] A bearing assembly for supporting a journal of a grinding mill body, comprising a frame and a plurality of fluid bearings comprising a frame and a plurality of fluid bearings, said fluid bearings each comprising a polymer bearing pad mounted to a base, said polymer bearing pad comprising an outer surface

[1.2] at least one recess for receiving lubricating fluid from at least one passage of said base and distributing said lubricating fluid to said outer surface and mounting element for securely mounting said polymer bearing pad to said base, said base also comprising at least one lubricating fluid supply port in fluid communication with said at least one passage

[1.3] wherein said base is mounted to said frame so that said fluid bearings self adjust to changes in the angular position of the journal during operation of said grinding mill body.

Claim 21 is directed towards a multidirectional fluid bearing for a journal.

As discussed in detail below, the Office found that the originally filed claim 21

(portion below with no underlining) was obvious in view of prior art in the first

Office Action. Metso added the underlined portion below during prosecution

(broken into three subparts, 21.4, 21.5, and 21.6, to assist in analysis of Claim 21).

[21.1] a base having a first surface orthogonal to a second surface, one or more lubricating fluid supply ports and a plurality of passages in fluid communication with said lubricating fluid supply ports, said first surface and said second surface,

[21.2] a first polymer bearing pad mountable to said first surface, said polymer bearing pad having a first outer surface and at least one recess for receiving lubricating fluid from at least one of said plurality of passages and distributing said lubricating fluid to said first outer surface, and

[21.3] a second polymer bearing pad mountable to said second surface, said second polymer bearing pad having a second outer surface and at least one recess for receiving lubricating fluid at least one of said plurality of passages and distributing said lubricating fluid to said second outer surface,

[21.4] wherein at least one of said first and second polymer bearing pads comprises at least one opening for receiving at least one fastener for mounting said at least one polymer bearing pad to said base,

[21.5] wherein said at least one recess comprises a locking tab for retaining a head portion of said fastener within said at least one recess,

said head portion being tapered to facilitate retention of said at least one fastener within said at least one recess by said locking tab,

[21.6] and wherein said at least one fastener comprises a bore for conveying lubricating fluid from said at least one passage to said at least one recess, said at least one fastener being partially received in said at least one passage.

III. The '604 PATENT AND RELEVANT PROSECUTION HISTORIES

A. Overview of the '604 Patent

The Background of the '604 patent discusses technology that was generally known prior to its filing. The Background explains that grinding mills were known to use bearing pads to support mill journals as they rotate. Ex. 1001 at 1:57–64.

Figure 1 illustrates what the '604 patent characterizes as a “typical” grinding mill.

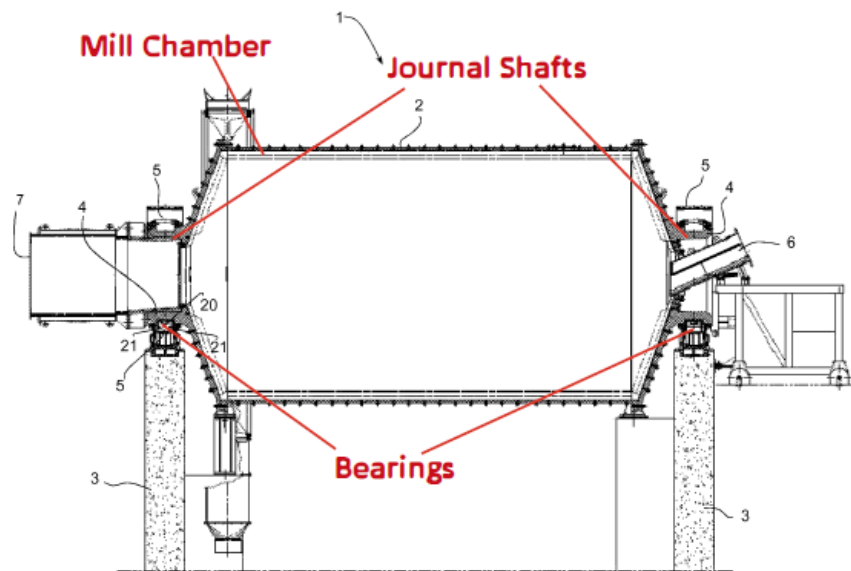
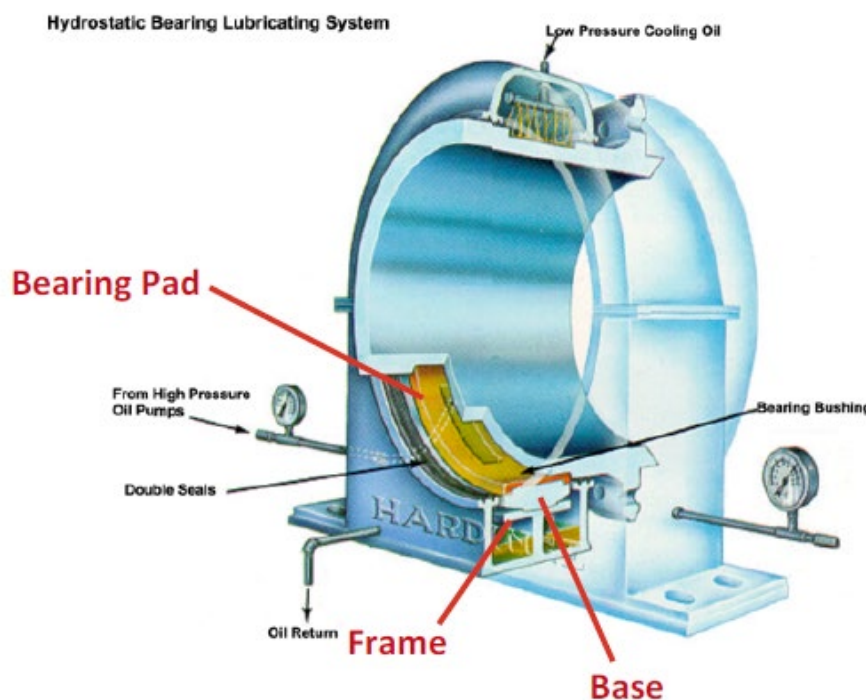


Fig. 1

The Background also describes aspects of hydrostatic bearing pads that were “currently in use.” *See* Ex. 1001 at 1:66. Specifically, Metso admits that it previously used a “hydrostatic pad bearing system, [where] an external oil supply system pumps high–pressure oil to recesses machined into the bearing so that the oil forms a thin film on the bearing pad surface.” *Id.* at 1:65–2:2. An example of this type of system is detailed in a Metso Brochure (cited in the Petition in Ground 6), as shown below:



The claims of the '604 patent are generally directed to fluid bearings and, particularly, to a fluid bearing used in connection with a rolling body. Ex. 1001 at Abstract. Figures 5 and 6 are exemplary and show cross–sectional views of a radial

hydrostatic bearing 11. *Id.* at 8:34–39, 9:40–42. Figure 6 illustrates how “polymer pad 17 is mountable to the base 14 of each radial hydrostatic bearing 11 via a mounting portion 8.” *Id.* at 9:54–55. “The polymer bearing pad 17 has at least one recess 18 for receiving oil from the oil gallery 16 and distributing it to the outer surface 13A to act as a lubricating fluid between the radial hydrostatic bearing 11 and the journal shafts 4.” *Id.* at 10:3–6. The “recess 18 is fluidly connected to the oil gallery 16 via an interconnecting passage 19.” *Id.* at 10:7–8. The “oil gallery 16” is “in fluid communication with the oil supply port 15.” *Id.* at 9:44–45.

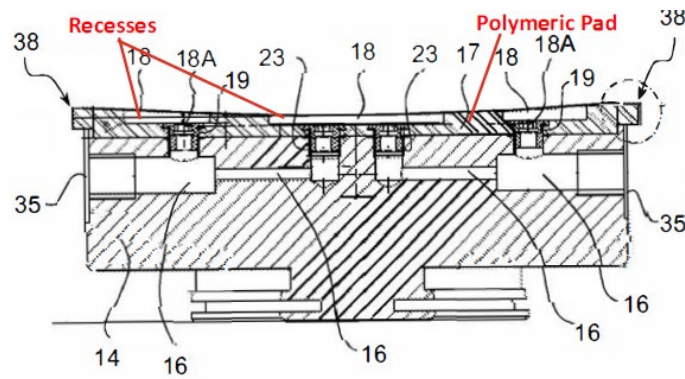


Fig. 5

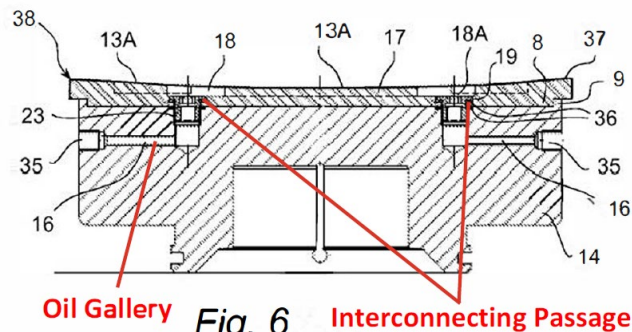
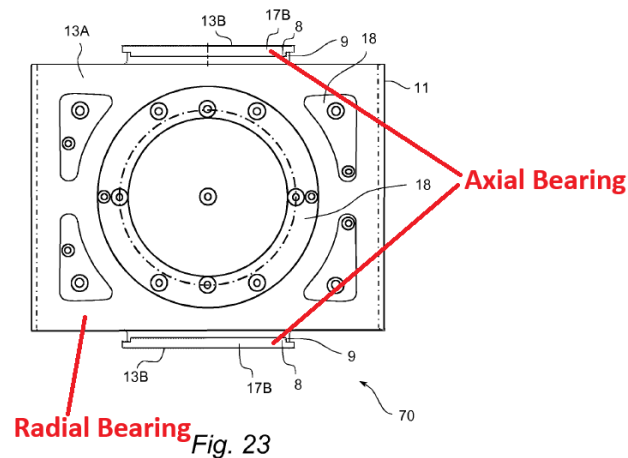


Fig. 6

An oil passage 19 is created by using a hollow bolt 23 as a fastener. *Id.* at 10:52–11:14. Each bolt has a bore 24 for transmitting lubricant from oil galleries 16 to recesses 18. *Id.* at 10:56–61. The fasteners (i.e., the bolts 23) can be locked into place via locking elements, which are described as “liquid thread locker, a Scotch key, a non-loosening thread, a non-loosening washer or similar locking device.” *Id.* at 17:45–50. A “mounting portion 8 is a protrusion extending from a mounting surface opposite the outer surface 13A to engage flanges 9 located at respective outer edges or sides of the base 14.” *Id.* at 9:56–59.

The '604 patent further explains that the base 14 may “self adjust to any changes in the angular position of the journals 4 during operation of the mill 1” by using a “spherical seat.” *Id.* at 9:45–51. Alternatively, the '604 patent states that the base 14 may be “fixedly mounted” to a frame. *Id.*, 16:15–19.

In one embodiment (*see, e.g.*, Claim 21), the fluid bearing includes a multidirectional fluid bearing 70 that provides both a radial bearing with a polymer pad 17A and at least one axial bearing with a polymer pad 17B. *Id.* at 16:38–48.



B. Prosecution History

The independent claims of the '604 patent were carried over from Metso's related PCT application. Thus, both the U.S. and related PCT prosecution history are relevant here because, as discussed further below, they demonstrate that the Office made a material error. In addition, the prosecution history of a corresponding application before the EPO supports the conclusion that the Office made a material error.

1. Prosecution History of PCT Application

The application for the '604 patent was a nationalization of PCT Application No. PCT/IB2013/055305 ("PCT App") filed on June 28, 2013. As filed, PCT claim 1 broadly claimed a polymer bearing pad as follows:

A polymer bearing pad for a fluid bearing, comprising an outer surface, at least one recess for receiving lubricating fluid from a base of said fluid bearing and distributing said lubricating fluid to said

outer surface and mounting means for securely mounting said polymer bearing pad to said base.

Ex. 1002 at 104. In the Written Opinion of the International Searching Authority (“WO–ISA”) issued on October 29, 2013, the ISA determined that PCT claim 1 lacked novelty and an inventive step based on the teachings of DE102007039364 (“DE364”). Ex. 1002 at 135.

In response to the WO–ISA, on April 22, 2014, Metso submitted Article 34 amendments that amended PCT claim 1 and added a new PCT claim 2 in the manner shown below:

1. A bearing assembly for supporting a journal of a grinding mill body, comprising a frame and a plurality of fluid bearings, said fluid bearings each comprising a polymer bearing pad mounted to a base, said polymer bearing pad for a fluid bearing, comprising an outer surface, at least one recess for receiving lubricating fluid from at least one passage of said base of said fluid bearing and distributing said lubricating fluid to said outer surface and mounting means for securely mounting said polymer bearing pad to said base, said base also comprising at least one lubricating fluid supply port in fluid communication with said at least one passage, wherein said base is mounted to said frame so that said fluid bearings self adjust to changes in the angular position of the journal during operation of said grinding mill body.

2. A bearing assembly for supporting a journal of a grinding mill body, comprising a frame and a plurality of fluid bearings, said fluid bearings each comprising a polymer bearing pad mounted to a base, said polymer bearing pad comprising an outer surface, at least one recess for receiving lubricating fluid from at least one passage of said base and distributing said lubricating fluid to said outer surface and mounting means for securely mounting said polymer bearing pad to said base, said base also comprising at least one lubricating fluid supply port in fluid communication with said at least one passage, wherein said base is fixedly mounted to said frame.

Ex. 1027 at 461. PCT amended claim 1 added, among other things, a limitation that the “base is mounted to said frame so that the fluid bearings self adjust to

changes in the angular position of the journal during operation of said grinding mill body.” *Id.* PCT amended claim 2 is similar to PCT amended claim 1 except that instead of self-adjusting bearings it provides the limitation that the “base is fixedly mounted to said frame.” *Id.*

Metso also amended original PCT claim 39 to claim an “orthogonal” orientation of the bearing pads and renumbered it to PCT amended claim 22 as shown below:

~~39-22.~~ 22. A multidirectional fluid bearing for a journal, comprising:

a base having a first surface orthogonal to, a second surface, one or more lubricating fluid supply ports and a plurality of passages in fluid communication with said lubricating fluid supply ports, said first surface and said second surface,

a first polymer bearing pad mountable to said first surface, said polymer bearing pad having a first outer surface and at least one recess for receiving lubricating fluid from at least one of said plurality of passages and distributing said lubricating fluid to said first outer surface, and

a second polymer bearing pad mountable to said second surface, said second polymer bearing pad having a second outer surface and at least one recess for receiving lubricating fluid at least one of said plurality of passages and distributing said lubricating fluid to said second outer surface.

Ex. 1027 at 467. Amended PCT claims 1 and 2 are substantially identical to Claims 1 and 11 of the ’604 patent, respectively. In conjunction with its Article 34 Amendments, Metso submitted a response to the WO-ISA (“PCT Response”) arguing that the amended PCT claims were novel and inventive over the prior art. Ex. 1002 at 142–143. In regard to PCT amended claim 1, Metso argued that the

self-adjusting feature of the fluid bearings distinguished it from the prior art. *Id.* at 142. For PCT amended claim 2, Metso argued that the fixed mounting of the base to the frame distinguished it from the prior art. *Id.* Regarding PCT amended claim 22, Metso argued that orthogonally mounted bearing pads distinguished it from the prior art. *Id.*

Importantly, Metso did not argue that the use of a *polymer* bearing pad was novel or nonobvious in the PCT prosecution in response to the WO-ISA. *See id.* at 142–44. Instead, Metso amended the claims with other features and argued that the prior art did not teach those features as follows: self-adjusting bearings (PCT amended claim 1), fixed bearings (PCT amended claim 2), and orthogonally mounted bearings (PCT amended claim 22).¹

On October 8, 2014, the International Preliminary Examining Authority (“IPEA”) issued the International Preliminary Report on Patentability (“IPRP”) finding that the amended PCT claims lacked inventive step. Ex. 1002 at 132, Box. No. V. For PCT amended claim 1 (which corresponds to Claim 1 of the ’604

¹ PCT claims 1 and 2 are substantially identical to Claims 1 and 11 of the ’604 patent, respectively.

patent), the IPRP found that D5 (“GB384”; Ex. 1003), taught all its limitations except the use of a polymer.

D5 discloses "a bearing assembly for supporting a journal (12) of a grinding mill body (see page 3, lines 20-27), comprising a frame (17) and a plurality of fluid bearings, said fluid bearings each comprising a ~~polymer~~ bearing pad (16) mounted to a base (10), said ~~polymer~~ bearing pad (16) comprising an outer surface, at least one recess (18) for receiving lubricating fluid from at least one passage (20) of said base (10) and distributing said lubricating fluid to said outer surface (implicit feature) and mounting means (11, 13) for securely mounting said ~~polymer~~ bearing pad (16) to said base (10), said base (10) also comprising at least one lubricating fluid supply port (see figure 2) in fluid communication with said at least one passage (20), wherein said base (10) is mounted to said frame (17) so that said fluid bearings self adjust to changes in the angular position of the journal (12) during operation of said grinding mill body (see page 2, lines 45-54)".

Ex. 1002 at 135, Re Item V, ¶ 4.1. In regard to the lack of a polymer, the IPRP concluded that the use of a polymer for a bearing pad was “considered as being a mere constructional option which is obvious to the skilled person.” *Id.* at ¶ 4.1.2.

For PCT amended claim 2 (which corresponds to Claim 11 of the ’604 patent), the IPRP found that D6 (U.S. Pat. No. 4,911,554; not cited in the Petition) taught all its limitations except the use of a polymer.

D6 discloses "a bearing assembly for supporting a journal of a grinding mill body (see column 2, lines 28-37), comprising a frame and a plurality of fluid bearings, said fluid bearings each comprising a ~~polymer~~ bearing pad (18, 18a) mounted to a base (17, 17a), said ~~polymer~~ bearing pad (18, 18a) comprising an outer surface, at least one recess for receiving lubricating fluid (implicit feature) from at least one passage of said base (31) (see column 3, line 57-column 4, line 2) and distributing said lubricating fluid to said outer surface and mounting means for securely mounting said polymer bearing pad (18, 18a) to said base (17, 17a) (implicit feature), said base (17, 17a) also comprising at least one lubricating fluid supply port in fluid communication with said at least one passage (see 31), wherein said base (18, 18a) is fixedly mounted to said frame (see column 3, lines 28-38)".

Ex. 1002 at 136, Re Item V, ¶ 5.1. In regard to the lack of a polymer teaching in D6, the IPRP again found that use of a polymer bearing was "a mere constructional option" that was "obvious to the skilled person." *Id.* at ¶ 5.1.2.

2. U.S. Prosecution History of the '604 Patent

On December 22, 2014, Metso filed a national stage patent application in the U.S. from the PCT App. Simultaneously, Metso filed a preliminary amendment ("PA") in the U.S. that carried over the PCT amended claims. Ex. 1002 at 262–271. To be clear, new PA claim 53 carried over PCT amended claim 1, new PA claim 54 carried over PCT amended claim 2, and new PA claim 63 carried over

PCT amended claim 21. PA claims 53, 54, and 63 were eventually renumbered to Claims 1, 11, and 21 in the '604 patent.²

Despite the IPEA's finding that identical claims in the PCT prosecution were unpatentable (i.e., PCT amended claims 1 and 2), the Office allowed PA claims 53 and 54 without providing any reasoning for their apparent allowability. Ex. 1002 at 46. The Office rejected PA claim 63 under § 103(a) as being unpatentable over GB384 in view of Guerenbourg et al. US 2012/0099993 (Ex. 1013, "the '993 publication"). *Id.* at 45. Specifically, the Office found that "[i]t would have been obvious to one of ordinary skill in the art at the time the invention was made to utilize known antifriction material in [GB384], including polymer, as taught by [the '993 publication] as exhibiting favorable stability and stiffness, as well as other beneficial properties to fluid bearings." *Id.* at 46.

In its response to the first Office Action, Metso amended PA claim 63 to include a "locking tab" feature, a fastener with a "tapered" head portion, and a lubrication "bore" in the fastener. Ex. 1002 at 28–29. Metso did not traverse the rejection or argue that the use of a polymer as a bearing pad was new or nonobvious.

² With the national filing, the Office also received copies of the IPRP and Metso's PCT Response, discussed above. *See supra* at 11–16.

(i) U.S. Notice of Allowability

Following the single amendment to what would become Claim 21, the Examiner issued a Notice of Allowability with no discussion or statement of reasons for allowance. Ex. 1002 at 10–22 (note that Attachment(s) box 6, “Examiner’s Statement of reasons for Allowance” is not checked on p. 14). The record thus reflects no reasoning for allowance of any of the claims.

The ’604 patent issued on December 13, 2016. PA claim 1 issued as Independent Claim 1, PA claim 2 issued as Independent Claim 11, and PA claim 63 issued as Independent Claim 21. The Office provided no written analysis of Claims 1 or 11 and hence there is no evidence of any analysis of those claims.

(ii) Art Cited in IDS But Not Cited by Examiner

DE102007039364 (“DE364,” Exs. 1004, 1005) appears in an IDS but was not expressly relied on by the Office in any rejection. Ex. 1002 at 59. Metso argues that DE364 was presumably considered by the Office during examination because it appears in an IDS. As discussed in greater detail in Section V(B)(3), if DE364 was evaluated during examination, then the Office materially erred because DE364 discloses numerous elements recited in the Challenged Claims and provides explicit motivations to combine prior art teachings that render many of the Challenged Claims obvious.

3. Prosecution History of Related EPO Application

On January 1, 2015, Metso regionalized the PCT App into the European phase before the European Patent Office (“EPO”). Like in the U.S, Metso filed preliminary claim amendments (EPO claims) that carried over the PCT amended claims into European phase. Ex. 1027 at 269–273. In its first action, the EPO rejected the EPO claims based on the same prior art and rationale set forth in the IPRP. *Id.* at 211–212, ¶¶ 2–3.4. To be clear, the EPO rejected EPO claim 1 (nearly identical to claim 1 of the ’604 patent) and EPO claim 2 (nearly identical to claim 11 of the ’604 patent). *Id.* After several rounds of examination, Metso ultimately cancelled EPO claims 1 and 2. *Id.* at 114. The European patent thereafter issued with claims significantly narrower than those issued in the ’604 patent. *Id.* at 19. As explained below, the rejection of claims nearly identical to claims 1 and 11 at the EPO based on the IPRP, which was in the prosecution file of the ’604 patent, further corroborates the conclusion that the Office made a material error.

C. Claim Construction of the term “Mounting Element”

Construction of the term “mounting element” is necessary at this step of the proceeding in that Metso argues that the Office did not commit material error because the prior art allegedly does not disclose a “mounting element.” Request at 21. While the merits of that argument are address below, it is important to note that during examination the Office interpreted a prior claim limitation “mounting

means” under 35 U.S.C. § 112(f) “because it uses a generic placeholder ‘means’ coupled with functional language... without reciting sufficient structure...” Ex. 1002 at 43. The Office identified the following corresponding structure from paragraph [0015] of the specification: “a mounting portion extending from said polymer bearing pad.” *Id.* at 44. The Office determined that the claim term must be construed in accordance with § 112(f), limited to the specific structures described in the specification and equivalents thereof, rather than carrying its full ordinary meaning. *Id.*

While Metso amended each independent claim to recite “mounting element” instead of “mounting means,” it did not otherwise traverse the Office’s § 112(f) interpretation. Merely swapping “means” for “element” does not avoid § 112(f). The Federal Circuit has repeatedly held that generic placeholders such as “mechanism,” “device,” or “element” are equivalent to “means” when the claim lacks sufficient structure. *See Williamson v. Citrix Online, LLC*, 792 F.3d 1339, 1350 (Fed. Cir. 2015) (*en banc*) (“The word ‘means’ is not the only generic placeholder that can invoke § 112, ¶ 6; other non–structural terms, such as ‘module’ or ‘element,’ may do so as well.”).

Here, the claim limitation “mounting element” in the Challenged Claims must be interpreted under § 112(f) and given only the scope of the specific corresponding structure disclosed in the specification and its statutory equivalents.

This means the claims should not be construed to include every conceivable “mounting” structure but should be limited to what was explicitly described in the specification. *See Noah Sys., Inc. v. Intuit Inc.*, 675 F.3d 1302, 1311 (Fed. Cir. 2012) (scope of § 112(f) term “limited to the structure disclosed in the specification and equivalents thereof”).

That said, the term “mounting element” does not appear in the specification. The term “mounting portion,” however, is shown at callouts 8 and 9 in FIG. 9 and 13 (shown below) and discussed in Ex. 1001 at 11:15–22 (where “mounting portion 8 of the polymer pad 17 engages the flanges 9 of the base 14 to help lock the polymer pad in place”). The structure of the mounting portion 8 effectively comprises a corner 8 of the bearing liner 17 abutting an edge 9 of the bearing base 14 or shoe as shown in FIG. 9 and FIG. 13 below. *Id.*

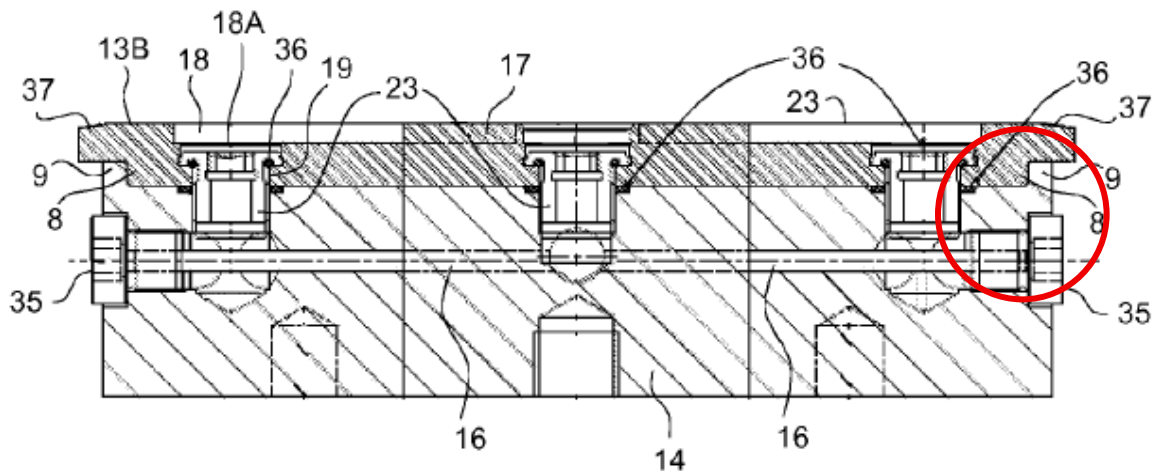


Fig. 9

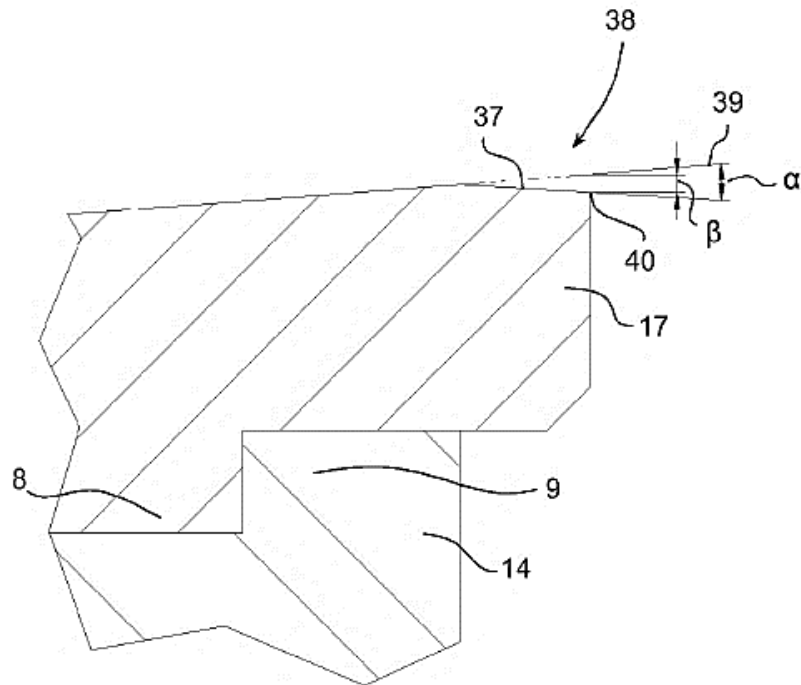


Fig. 13

In sum, in assessing whether the Office materially erred in its evaluating of the scope and content of the prior art, the term “mounting element” should be construed in accordance with § 112(f). As such, the term should be given only the scope of the specific corresponding structure disclosed in the specification and its statutory equivalents.

IV. METSO’S “SETTLED EXPECTATIONS” DO NOT JUSTIFY DISCRETIONARY DENIAL UNDER § 314(a).

Metso argues discretionary denial under § 314(a) is appropriate because the ’604 patent “has been in force for over eight years,” the “technology” has been

commercialized for over a decade, and that FLS must have known about the '604 patent so the “settled expectations” of the parties “weighs decisively against institution.” Request at 7–10.

Metso’s argument lacks merit for several reasons. First, Metso’s factual proffer incorrectly characterizes the technology as being commercialized for “over a decade.” Request at 9. Second, Metso’s legal citations in support are distinguishable and make it clear that the existence of “settled expectations” is not dispositive. Third, the strength of the IPR and the evidence of clear material Office error weigh against any alleged settled expectations.

A. Metso’s Market Activity is Recent.

In its Request, Metso alleges that “Metso ‘has been supplying Polymer HSB systems’ on grinding mills ‘since 2013’” (Request at 2) and that it “has actively commercialized the technology for over a decade, successfully integrating it into bearing systems for grinding mills.” Request at 9. Metso’s allegations are flawed for several reasons. First, none of the materials cited by Metso reference the '604 patent indicating what part of any “technology” was commercially available. Moreover, the two documents that reference a polymer hydrostatic bearing are unauthenticated hearsay. Metso’s Exhibit 2001 appears to have a copyright notice of 2021, but is otherwise unidentifiable. Metso’s Exhibit 2002 appears to be an excerpt from Metso’s own website, but it is dated August 18, 2025. In any event,

neither document is a decade old and hence cannot corroborate Metso's factual assertion.

Second, even taking Metso's own exhibits at face value, the exhibits demonstrate that Metso's assertion that the "technology" has been commercially available for over a decade is wrong. The top of page 2 of 4 of Metso's Exhibit 2002 expressly states that its "Polymer HSB system" was not "officially launched" until 2019.

Based on FLS's current understanding, that date checks out. Specifically, Trevor Kupstas, FLS's R&D portfolio manager, notes that he did not become aware of Metso's polymer bearing system until late 2022. Declaration of Trevor Kupstas in Support of Opposition (Ex. 1028) at ¶ 4. And even then, the product did not become relevant to FLS until late 2022 to early 2023. *Id.* at ¶ 9. FLS does not have an infinite amount of resources and cannot challenge every patent from every competitor as soon as it is issued, particularly when there is no apparent need to do so. *Id.* at ¶ 8. It is simply unreasonable for a patent owner to have a "settled expectation" that its patent will go unchallenged before it has even launched a product covered by that patent.

B. Metso's Cited Decisions are Distinguishable.

Most of the decisions Metso relies on regarding settled expectations involve parallel litigation. Those cases include: *T-Mobile USA, Inc. v. Smart RF Inc.*,

IPR2025–00692, Paper 13 at 2 (Director July 29, 2025); *Kangxi Commc ’ns Techs. (Shanghai) Co. v. Skyworks Sols., Inc.*, IPR2025–00372, Paper 10 at 2 (Director July 16, 2025); *Coretronic Corp. v. Maxell, Ltd.*, IPR2025–00476, Paper 10 at 2 (Director July 10, 2025); *Cambridge Indus. USA, Inc. v. Applied Optoelectronics, Inc.*, IPR2025–00435, Paper 11 at 2 (Director June 27, 2025); *Intel Corp. v. Proxense, LLC*, IPR2025–00327, Paper 12 at 2 (Director June 26, 2025); and *Murata Mfg. Co. v. Georgia Tech. Research Corp.*, IPR 2025–00383, Paper 14 at 2 (Director July 29, 2025).

Here, there is no parallel litigation, which weighs “against discretionary denial.” *Amgen Inc. v. Bristol–Myers Squibb Co.*, IPR2025–00601, IPR2025–00602, Paper 9 at 2 (Director July 24, 2025). Indeed, without a parallel proceeding, there is no risk of duplication of effort, expenses, and/or potentially inconsistent decisions. *See T–Mobile USA, Inc.*, IPR2025–00692, Paper 13 at 2; *Amgen Inc.*, IPR2025–00601, IPR2025–00602, Paper 9 at 2. FLS specifically seeks *inter partes review* instead of litigation to minimize costs and avoid the wasteful use of resources. Given the complete absence of parallel litigation that would risk duplicating the Board’s efforts, the Director should deny Metso’s Request.

Metso’s cited decisions that do not involve parallel litigation are also distinguishable. Specifically, those petitions were denied because they failed to provide “any persuasive reasoning” to rebut settled expectations or explain why

review would be “an appropriate use of Office resources.” *Dabico Airport Sols. Inc. v. AXA Power ApS*, IPR2025–00408, Paper 21 at 3 (Director June 18, 2025) (emphasis added); *see also id.*, Paper 17 (failing to raise any arguments regarding settled expectations); *Amgen Inc.*, IPR2025–00601, Paper 9 at 3 (noting how the parties presented unpersuasive arguments “about the exercise of discretion in view of the Biologics Price Competition and Innovation Act”).

By contrast, there are significant reasons why institution of an IPR is appropriate. In addition to the absence of parallel litigation, the evidence of material Examiner error and the merits of the Petition weigh heavily in favor of review. *See Anthony Inc. v. Controltec, LLC*, IPR2025–00559, Paper 12 at 2 (Director July 16, 2025) (denying patent owner’s request for denial regarding patents in force 18 and 17 years when petitioner provided “persuasive reasoning, supported by evidence, that the Office erred”); *Dabico*, IPR2025–00408, Paper 21 at 3 (where the merits of a § 325(d) claim can weigh against discretionary denial).

Lastly, Metso relies heavily on *Murata*. Request at 9. *Murata* involved different key facts. First, even though there was parallel litigation, no trial date had been set; this weighed against discretionary denial. *Murata Mfg. Co.*, IPR2025–00383, Paper 14 at 2. Second, the patent had also “been in force for more than 16 years.” *Id.* Third, the petitioner and patent owner in *Murata* “had discussions in 2007 regarding the technology space involving the challenged patent.” *Id.* Citing

Murata, Metso claims that “failure to seek early review of the patent favors denial and outweighs [other] considerations,” Request at 9. But that is not what *Murata* says. *Murata* specifically limits itself to the facts and says, “failure to seek early review of the patent favors denial and outweighs *the above-discussed considerations*.” *Murata Mfg. Co.*, IPR2025–00383, Paper 14 at 3 (emphasis added). The “above-discussed considerations” from *Murata* include “no trial date set for the parallel district court proceeding” and that the patent owner “never commercialized the challenged patent.” *Id.* at 2.

The facts here are completely different. There is no parallel litigation, the challenged ’604 patent has only been issued for eight years, and there is no evidence that Metso and FLS discussed the specific technology before the patent issued. *See id.* On the contrary, the record evidence unquestionably demonstrates that Metso did not officially launch its “Polymer HSB system” until 2019. Exhibit 2002 at 2. It was not until late 2022 that FLS heard of Metso’s product and even then, it was not relevant to FLS until late 2022 to early 2023. Ex. 1028 at ¶¶ 4, 9.

C. Settled Expectations Do Not Outweigh the Strength of the Petition and Clear Examiner Error.

Even if weight is given to Metso’s allegations, the cited decisions make it clear that institution regularly occurs despite any “settled expectations.” In fact, the Director’s decision whether “to exercise discretion to deny institution is based on a

holistic assessment of all of the evidence and arguments presented.” *E.g., Globus Medical, Inc. v. Spinelogik, Inc.*, IPR2025–00225, Paper 8 at 2 (Director June 12, 2025). Metso’s cited decisions illustrate that “settled expectations” lead to discretionary denial when the petitioner fails to provide “persuasive reasoning why an inter partes review is an appropriate use of Board resources.” *See e.g., Dabico Airport Sols. Inc.*, IPR2025–00408, Paper 21 at 3; *Intel Corp.*, IPR2025–00327, Paper 12 at 2–3.

Other decisions illustrate that even petitions involving patents that have been in force for up to 18 years are referred to the Board. *See, e.g., Anthony Inc.*, IPR2025–00559, Paper 12 at 2 (referring petition to the Board due to examiner error when patents had been in force for 18 and 17 years); *Tesla, Inc. v. Intellectual Ventures II LLC*, IPR2025–00217, Paper 9 at 2–3 (Director June 13, 2025) (referring petition to the Board due to the complexity of parallel litigation without a mention of settled expectations even though one patent had been in force for 14 years); *Skechers U.S.A., Inc. v. Nike, Inc.*, IPR2025–00141, Paper 23 at 4 (Director Aug. 21, 2025) (referring petition to the Board due to examiner error without a mention of settled expectations even though the patent had been in force almost 13 years); *Amazon.com, Inc. v. NL Giken Inc.*, IPR2025–00250, Paper 14 at 2 (Director May 16, 2025) (13 and 11–year–old patents). Put plainly, “settled expectations” is just one of many considerations pertaining to whether

discretionary denial is appropriate under § 314(a). *See Interim Processes for PTAB Workload Management* at 2 (USPTO Acting Director Mar. 26, 2025) (“PTAB Memo”).

Perhaps most importantly, evidence “that the Office erred in a manner material to the patentability of” a challenged patent is “persuasive reasoning” that challenges any settled expectations and allows for institution. *Anthony Inc. v. Controltec, LLC*, IPR2025–00559, Paper 12 at 2; PTAB Memo at 2 (listing “strength of the unpatentability challenge” as a consideration).

As discussed in more detail below, the record shows that the Office committed material error during examination of the ’604 patent. New art and new argument both weigh heavily in favor of invalidation of the Challenged Claims. Given the non–dispositive nature of settled expectations, the material error committed by the Office, and the strength of FLS’s arguments in its Petition, the Director should deny Metso’s Request and refer the ’604 patent to the Board for review.

V. INSTITUTION SHOULD NOT BE DENIED UNDER § 325(d).

As will be explained below, Metso fails to satisfy the two-part framework of *Advance Bionics* because:

- The evidence shows that the Office did not evaluate the same or substantially the same art or arguments presented in the Petition; and

- The Office committed a material error in its examination of the
Challenged Claims.

As such, denial under § 325(d) is unwarranted. In fact, the Petition presents compelling evidence that trial should be instituted.

Under part one of *Advanced Bionics*, the Director first must decide “whether the same or substantially the same art previously was presented to the Office or whether the same or substantially the same arguments previously were presented to the Office[.]” *Advanced Bionics, LLC v. MED–EL Elektromedizinische Geräte GmbH*, IPR2019–01469, Paper 6 at 7 (PTAB Feb. 13, 2020) (precedential). If neither condition of part one is satisfied, discretionary denial under § 325(d) is inappropriate. If one of the conditions of part one is satisfied, the Director must determine, under part two, whether “the Office erred in a manner material to the patentability of challenged claims.” *Id.*

Applying the above framework, the Board considers the *Becton Dickinson* factors set for the below:

“(a) the similarities and material differences between the asserted art and the prior art involved during examination; (b) the cumulative nature of the asserted art and the prior art evaluated during examination; (c) the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection; (d) the extent of the overlap between the arguments made during examination and the manner in which Petitioner relies on the prior art or Patent Owner distinguishes the prior art; (e) whether Petitioner has pointed out sufficiently how the Examiner erred in its evaluation of the asserted prior art; and (f) the extent to which additional

evidence and facts presented in the Petition warrant reconsideration of the prior art or arguments.”

Becton, Dickinson & Co. v. B. Braun Melsungen AG, IPR2017–01586, Paper 8 at 17–18 (PTAB Dec. 15, 2017).

Importantly, as the moving party, the patent owner bears the burden of proof to show that discretionary denial is warranted under 35 U.S.C. § 325(d). *Geotab USA, Inc. v. Omega Patents, LLC*, IPR2023–00504, Paper 11 at 16 (PTAB July 25, 2023) (citing 37 C.F.R. § 42.20(c)). As explained below, Metso has not carried its burden under *Advanced Bionics* and, therefore, discretionary denial under 35 U.S.C. § 325(d) is inappropriate.

A. Metso’s Request Fails Part One of *Advanced Bionics*.

Metso has not shown that the same or substantially the same art or arguments presented by the Petition in Grounds 1-6 were explicitly considered by the Office. By way of review, the Office found Claims 1 and 11 allowable in the first Office Action without providing any reasoning for their allowance in the Office Action or Notice of Allowance. *Supra* at 16–18. In the first Office Action, the Office rejected Claim 21 based on a combination of GB384 and the ’993 publication. In its response, Metso secured the allowance of Claim 21 by amending it, without argument, to include the allowable subject matter of several dependent claims. As such, there is no record of any argument presented by Metso in support

of the allowability of Claims 1, 11 and 21. With this understanding, FLS addresses only Grounds 1, 5, and 6 as they pertain to independent claims 1, 11, and 21.

1. The Prior Art of Ground 1 is Not the Same/Cumulative.

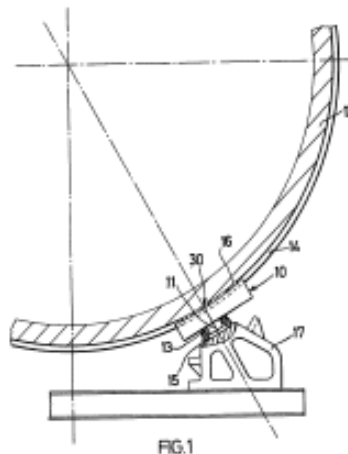
In its Petition, FLS asserts that Claims 1 and 11 are obvious in view of GB384 alone or in combination with DE364 under Ground 1. Petition at 33. FLS concedes that both GB384 and DE364 were listed on the IDS submitted by Metso. However, since Claims 1 and 11 were allowed in the first Office Action—meaning neither GB384 nor DE364 were explicitly applied to these claims—the Director should end her analysis here and reject Metso’s Request forthwith. The Board has consistently held that a reference that “was neither applied against the claims nor discussed by the Examiner” does not weigh in favor of exercising discretion under § 325(d). *See BowTech Inc., v. MCP IP, LLC* IPR2019–00379, Paper 14 at 4, 6, 18 (PTAB July 3, 2019) (“Indeed, *Becton Dickinson* expressly distinguished the situation “where the prior art was simply listed in an IDS during prosecution,” and the notion that actual consideration of the art by the Examiner on the record weighs in favor of denial under § 325(d) pervades the *Becton Dickinson* factors.”) (citing cases).³

³ FLS acknowledges *Ecto World, LLC v. RAI Strategic Holdings, Inc.*, IPR2024–01280, Paper 13 (PTAB May 19, 2025) with respect to art that is present in an IDS but not cited by the Examiner. As noted further below, had the Office applied DE364 to the Challenged Claims, they would not have been allowed.

Setting aside the failure to apply any art to Claims 1 and 11 and the lack of any argument presented to the Office in favor of patentability, and assuming simply for the sake of argument that DE364 was evaluated by the Office (it was not), the new combinations of art presented in the Petition are not the same or substantially the same as those found in the prosecution history.

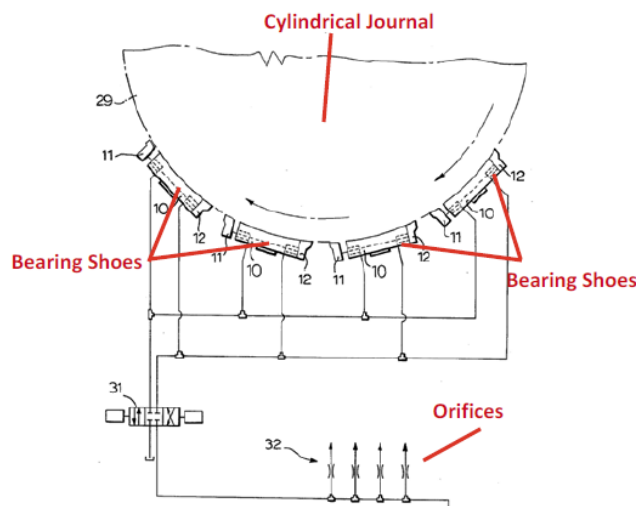
2. The Prior Art of Ground 5 is Not the Same/Cumulative.

In its Petition, FLS asserts that Claims 1 and 11, for example, are obvious in view of the '133 patent and DE364 under Ground 5. Petition at 64. The '133 Patent is not part of the record prior art and is not cumulative. While the '133 Patent shares some similarities with GB384, the '133 Patent *is more explicit* in its disclosure of several claim elements. For example, GB384 discloses a single fluid bearing coupled to a frame. FIG. 1 from GB384, below, shows those features.



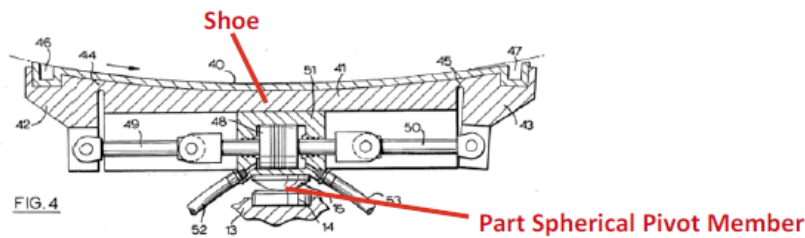
Ex. 1003 at 5. The Petition relies on expert testimony to establish that a plurality of hydraulic bearings is necessarily present in FIG. 1, even if not

explicitly shown. Petition at 33–34. The ’133 Patent ameliorates any concern with respect to any explicit disclosure of a *plurality of fluid bearings* coupled to a frame. Specifically, the ’133 Patent discloses a plurality of fluid bearings 10 coupled to a frame or “support structure” 13 for supporting a journal 29 of a grinding mill body. Petition at 64. A plurality of pivoted (i.e., self-adjusting) bearing shoes are positioned to engage the journal. Figure 3 of the ’133 Patent shows the plurality of fluid bearings 10 positioned about and supporting the cylindrical journal. *Id.*; see *also*, Ex. 1007 3:3–5.



In addition, while GB384 discloses a structure that acts as a “self-adjusting” bearing mount (*see* Petition at 13–14), the ’133 Patent more clearly articulates the structure and function of the self-adjusting bearing mount. Specifically, the ‘133 Patent discloses a “shoe [] mounted on a support structure 13 which provides a

universal pivotal mounting formed by a pivot pad 14 and a part-spherical pivot member 15 which is connected to the shoe structure. The bearing shoe is mounted symmetrically with respect to its pivot.” *See* annotated FIG. 4 from the ‘133 Patent below; *see also*, Ex. 1007 at 2:20–33; Petition at 68.

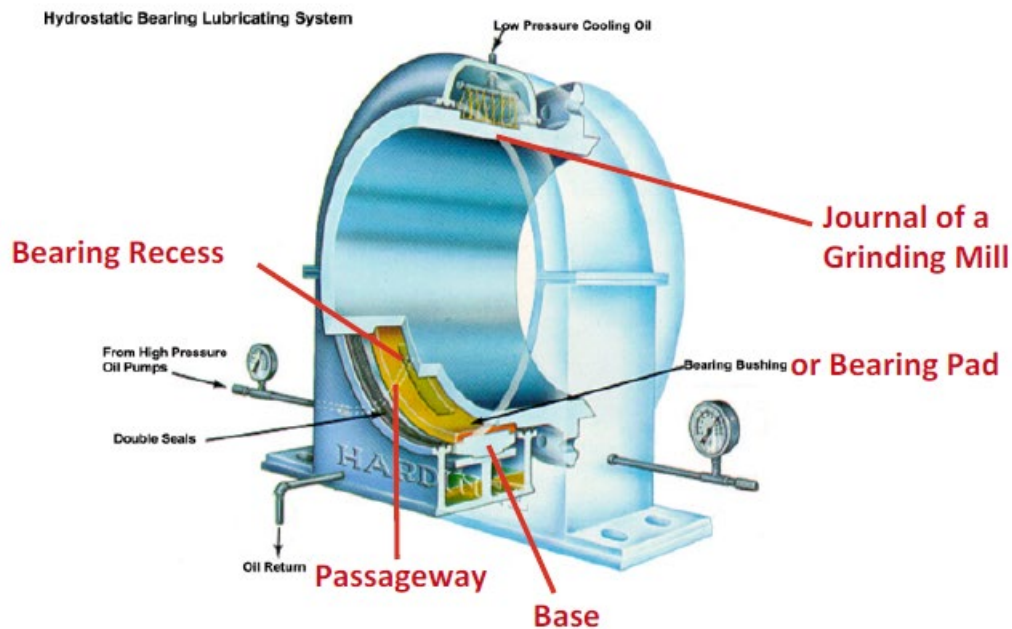


3. The Prior Art of Ground 6 is Not the Same/Cumulative.

In its Petition, FLS asserts that Claims 1 and 11 are obvious in view of the Metso Brochure, the '993 publication, and Trygg under Ground 6. Neither the Metso Brochure nor Trygg are the same or cumulative of art that was cited during prosecution.

a. The Metso Brochure Is Not the Same or Cumulative of the Record Prior Art.

The '993 publication and GB384, which were both before the Office during prosecution, disclose a structure that operates as a “self-adjusting” bearing. *See, e.g.*, Ex. 1013 at ¶ 22; Ex. 1003 at 3:45–54. The Metso Brochure discloses a bearing assembly for supporting a journal of a grinding mill comprising a fluid bearing comprising a pad mounted to a base.



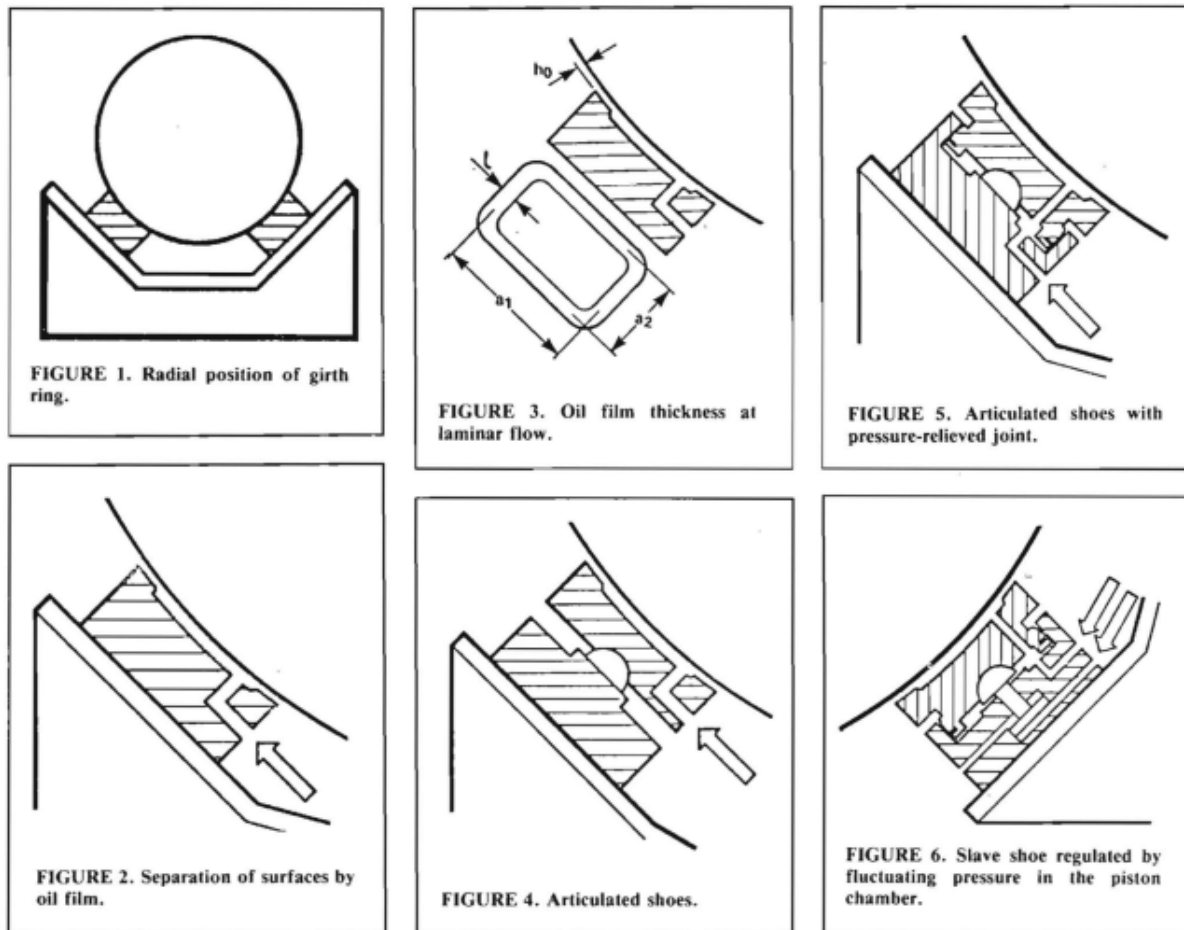
Ex. 1006 at 5. Importantly, however, unlike the base in GB384 and the '993 publication, the bearing in the Metso Brochure is a variation of a “fixed” mounted bearing, which is a limitation recited in Claim 11. *See* Petition at 44.

b. Trygg Is Not the Same or Cumulative of the Record Prior Art.

Trygg is a journal article from “The Canadian Mining and Metallurgical Bulletin” published in 1982 that provides some history of the development and use of hydraulic bearings as well as a general recitation of the problems that hydraulic bearings solve. This includes the benefits of hydraulic bearings when used in connection with heavy machinery such as mill trunnions. Ex. 1009 at 5. This general information was not before the Office and provides a motivation to combine Trygg with Metso and the '993 publication. It also corroborates the

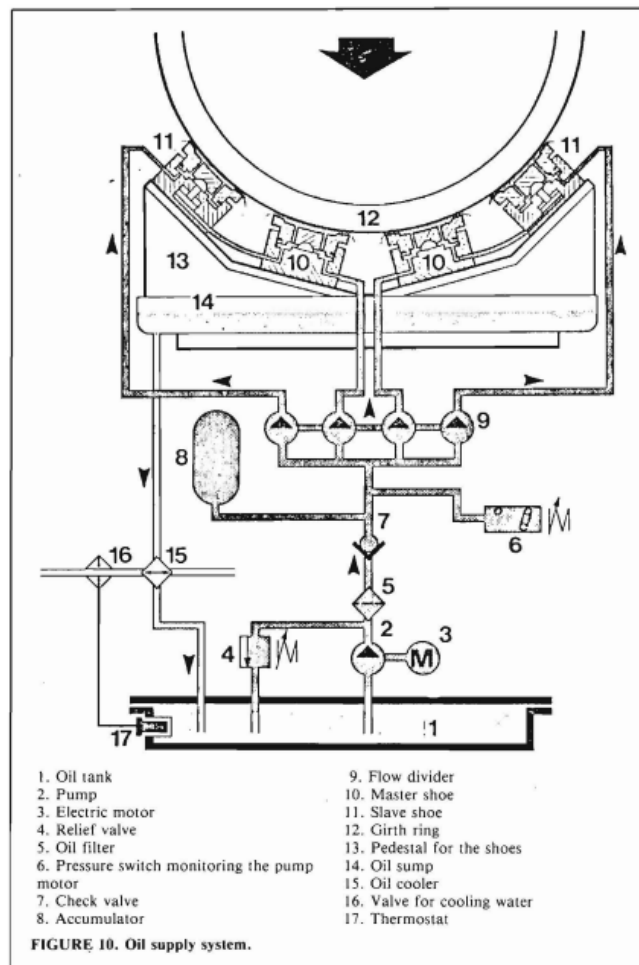
general knowledge of the person of ordinary skill in the art (“POSITA”) that supports a motivation to combine prior art presented in other grounds in the Petition. See, *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 420 (2007) (where “any need or problem known in the field of endeavor at the time of invention and addressed by the patent can provide a reason for combining the elements in the manner claimed”).

Unlike the prosecution prior art, Trygg discloses **both** “fixed” and “self-adjusting” fluid bearings. For example, Figure 2 of Trygg (shown below on the left) discloses a fixed fluid bearing mounted to a frame where Figure 4 directly right of Figure 2 discloses a self-adjusting bearing mounted to a frame. See Petition at 79–80. Numerous of the other figures shown below are accompanied by an explanation of different hydraulic bearing arrangements and their use in milling operations.



Ex. 1009 at 6. In other words, Trygg discloses the use of a number of different hydraulic bearing arrangements including a “fixed” hydraulic bearing and explains the benefits and rationale behind use of self-adjusting bearings, a consideration absent in the prosecution history. Petition at 79–80; *see also*, Ex. 1009 at 5. This rationale provides additional motivation to combine prior art teachings that are not present in the prosecution prior art.

Lastly, Trygg discloses how these different hydraulic bearing arrangements are used in connection with heavy milling operations, including, for example, in Figure 10 shown below. Ex. 1009 at 8



In sum, the Grounds of the Petition present new art and argument that is not the same or substantially the same as that in the prosecution history. Metso's Request thus fails part one of *Advanced Bionics* and the Director should not deny institution of the Petition.

B. Metso’s Request Fails Part Two of *Advanced Bionics*.

In the event that the Director finds that Metso satisfied part one of *Advanced Bionics*, she should still not exercise discretion because part two is not satisfied. Part two of the *Advanced Bionics* framework asks whether the Office erred “in a manner material to the patentability of the challenged claims.” *Advanced Bionics*, IPR2019-01469, Paper 6 at 7. The Office materially erred here.

In evaluating part two, the Director looks at “the extent to which the asserted art was evaluated during examination, including whether the prior art was the basis for rejection.” *Id.* at 9, n.10. “For example, if the record of the Office’s previous consideration of the art is not well developed or silent, then a petitioner may show the Office erred by overlooking something persuasive.” *Id.* at 10. Further, “[a]n example of a material error may include misapprehending or overlooking specific teachings of the relevant prior art where those teachings impact patentability of the challenged claims.” *Id.* at 8, n.9.

1. The Office Materially Erred in Allowing Claim 1.

Claim 1 was erroneously allowed by the Office in the first Office Action. Of concern here, the Office did not provide any reasoning for the allowance in the first Office Action or in the Notice of Allowance. Put plainly, the record with respect to allowance of Claim 1 is not just underdeveloped—it is nonexistent. This failure

makes it impossible to determine why the Office believed Claim 1 was allowable over the prior art of record at that time.

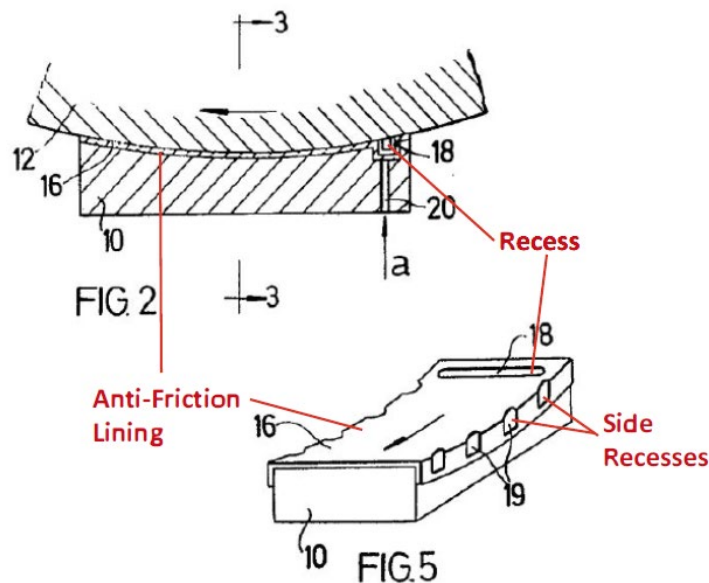
That said, the Office found, in rejecting Claim 21 (PA claim 63) in the first Office Action, that the use of a bearing pad comprising a polymer “would have been obvious to one of ordinary skill” based on the ’993 Publication, which finding Metso did not traverse with argument. Ex. 1002 at 45–46. On this basis, it is reasonable to assume that the Office did not allow Claim 1 based upon its similar recitation of a “polymer bearing pad.” As such, the Office clearly committed a material error because GB384 disclosed all of the remaining elements of Claim 1, which again amount to nothing more than a well-known hydrostatic bearing design in use long prior to the ’604 patent.

Below, FLS will show that the Office overlooked the prior art of record that disclosed all of the elements of Claim 1. For purposes of analysis, the elements of Claim 1 are separated into three subparts, Parts 1.1, 1.2, and 1.3, presented below. The corresponding disclosure of those elements is discussed in turn with respect to the prior art of record, namely, GB384, the ’993 Publication, and/or DE364.

[1.1] A bearing assembly for supporting a journal of a grinding mill body, comprising a frame and a plurality of fluid bearings comprising a frame and a plurality of fluid bearings, said fluid bearings each comprising a polymer bearing pad mounted to a base, said polymer bearing pad comprising an outer surface

The above-recited elements in part 1.1 of Claim 1 are found in the prosecution prior art. Metso does not appear to dispute that GB384 discloses a plurality of bearings 10 coupled to a frame 17 for use with a “tubular grinding mill.” Ex. 1003 at 3:25–27. A plurality of bearings are tacitly disclosed as the specification describes that “a supporting device shown in Figure 1 is intended to support a rotating body 12 of large diameter; an identical device is arranged symmetrically relatively to a vertical plane containing the axis of the rotating body 12.” Ex. 1003 at 2:33–38; *see also*, Petition at 33–34.

There is also no dispute that GB384 comprises “[a]n upper face of the shoe 10 and an upper portion of the sides thereof are covered with a lining 16 of anti-friction material. Recesses 19 (Figure 5) forming containers for oil are formed in the sides of the shoe 10.” Exhibit 1003 at 2:69–74. “[R]ecesses 22 allow the oil to flow from the channel 18 into the groove 24 and then into the lateral containers 19 for oil, to provide lubrication for the sides of shoe 10.” *Id.* at 2:114–118.

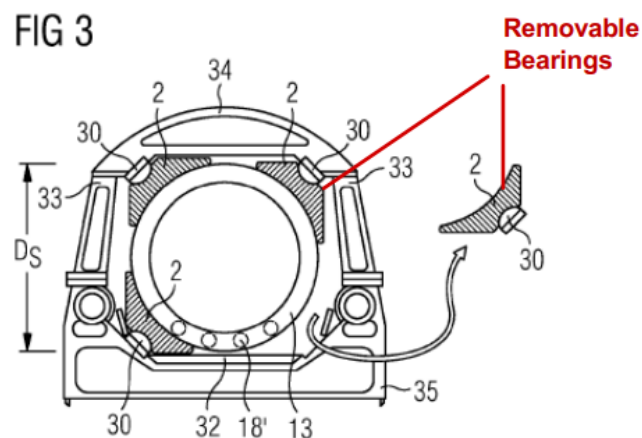


Thus, as shown above, GB384 discloses all of the elements of part 1.1 of Claim 1 except the use of a polymer.

In this regard, GB384 does not specifically identify the composition of its bearing pad. Rather, it states it is a “lining 16 of anti-friction material.” Ex. 1003 at 2:71. The use of a polymer as the anti-frictional lining 16 in GB384, however, was within the general knowledge of a POSITA. Petition at 35. GB384 itself states that its bearing pad can help avoid an undesired “shearing stress on a film of oil formed between the shoe and rotating body,” which is “harmful to the stability of said film and may consequently have been detrimental to lubrication of the sliding surfaces.” Ex. 1003 at 1:26–33.

That general understanding of the POSITA aside, each of the '993 publication and DE364, both of record, teach the use of polymer as a bearing

material. First, the '993 publication was relied upon by the Office during prosecution to establish that it would have been obvious to use a polymer due to its “favorable stability and stiffness, as well as other beneficial properties to fluid bearings.” Ex. 1002 at 46. The Office was correct. The '993 publication discloses a plurality of removable fluid bearings used to support a rotating shaft. “The pad arrangement of the fluid bearing for a wind turbine can comprise several bearing pads suitably arranged relative to the rotor and held in place by the outer containing structure.” Ex. 1013 at ¶ [0031]; *see also* Petition at 76.



The '993 publication also discloses the use of polymer bearing pads in connection with its bearings. *See* Ex. 1013 at ¶ [0030] (where polymers “exhibit favourable stability and stiffness, are lightweight, have low coefficients of friction, and can be immersed in oil without damage. Use of such a material as an inner surface of the bearing can be advantageous, since a polymer with these properties will deform

slightly while under pressure, so that the bearing has more ‘give’. This allows a better fluid film thickness to be built up during hydrodynamic operation.”).

DE364 also expressly discloses a polymeric hydraulic bearing pad and expressly teaches that “preferred material” for the bearing is “thermoplastic, for example polyether ketone (PEEK) polyamide–imide (PAI) or polyimide (PI), which is preferably supplemented with a small amount of polytetrafluoroethene (PTFE) and / or graphite to improve the sliding properties.” Ex. 1005 at ¶ [0011].

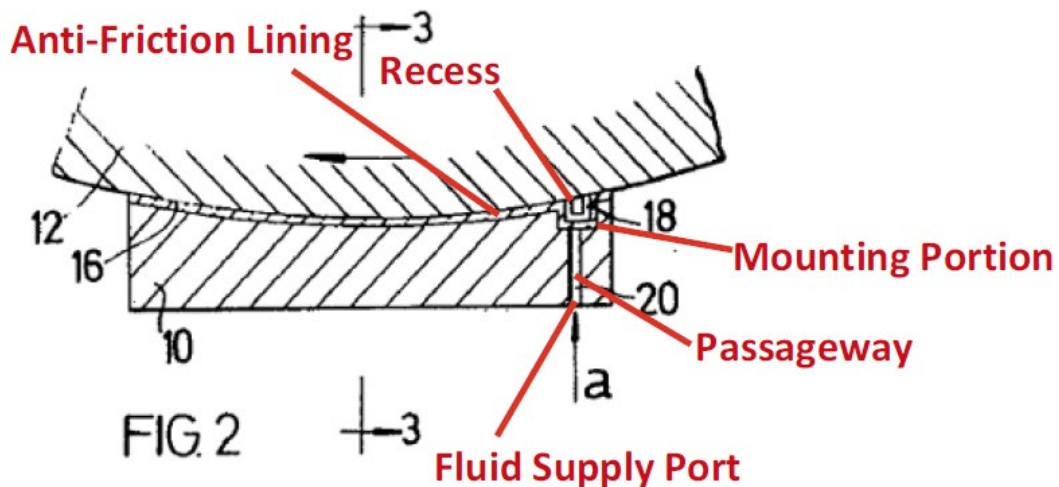
Lastly, as was recognized in the IPRP, which is found in the prosecution file history, the POSITA would have understood that the use of a polymer on a bearing pad is obvious. More specifically, the POSITA would know that the anti–frictional properties of polymers are a known substitute for the “anti–friction” liner of GB384 and would have had a reasonable expectation of success in making that substitution. Those properties include “favourable stability and stiffness, are lightweight, have low coefficients of friction, and can be immersed in oil without damage” and the advantage of deformation under pressure resulting in more “give.” Petition at 36. “This allows a better fluid film thickness to be built up during hydrodynamic operation.” Ex. 1013 at ¶ [0030].

[1.2] at least one recess for receiving lubricating fluid from at least one passage of said base and distributing said lubricating fluid to said outer surface and mounting element for securely mounting said polymer bearing pad to said base, said base also comprising at least one lubricating fluid supply port in fluid communication with said at least one passage

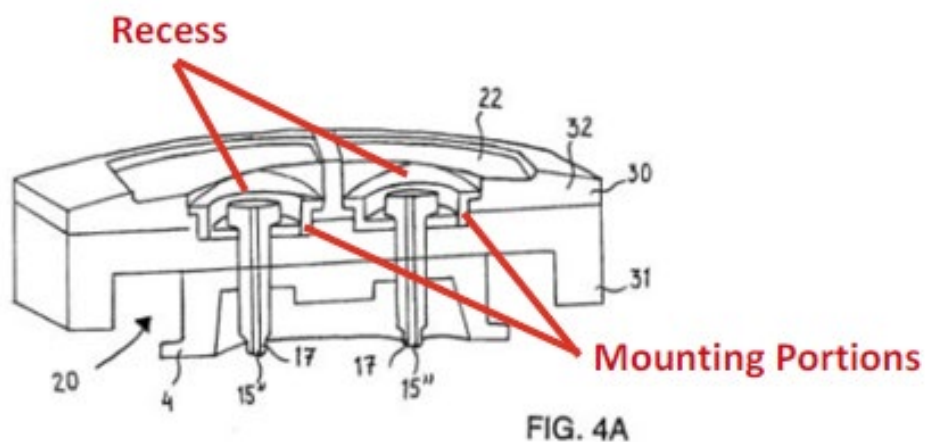
The above-recited elements of part 1.2 of Claim 1 are also found in the prosecution prior art. There is no dispute that GB384 discloses a base (i.e., the shoe 10) with at least one passage (i.e., the duct 20). The bearing pad (the anti-friction lining 16) has at least one recess (the channel 18/oil containers 19) that receive lubricating fluid from at least one passage (duct 20) and is disposed on the outer surface of the lining 16. *See* Ex. 1003 at 2:69–82. A fluid supply port in communication with the duct 20 is necessarily present in Figure 2 at the bottom of the shoe 10. *Id.* at Figure 2.

GB384 also discloses a mounting element for securing the polymer bearing pad to the base. The term “mounting element” must be construed as a “means claim” and, as such, is defined by the corresponding structure in the specification. *See* Petition at 37; *supra* at 19–22. That structure is effectively a bottom corner portion of the bearing liner abutting a corner portion of the base. Petition at 37. With respect to GB384, the upper surface of the shoe 10 has a surface (i.e., a mounting element) whereon the anti-friction lining 16 is mounted. Specifically,

the anti-friction liner 16 of GB384 comprises a corner abutted against an edge of the shoe 10 as shown below. *Id.*



While GB384 discloses the structure of a mounting portion, DE364 specifically discloses the recited mounting portions **in a polymer bearing pad 30** used to help mount the polymer bearing pad 30 to the base 31. *See* Petition at 37.



[1.3] wherein said base is mounted to said frame so that said fluid bearings self adjust to changes in the angular position of the journal during operation of said grinding mill body.

The above-recited elements of part 1.3 of Claim 1 are present in the prosecution prior art, though it is unclear from the Request whether Metso disputes that these elements are present in GB384. Irrespective, GB384 notes “[t]he shoe comprises an extending portion 11 fitted into a central bore of an annular member 13 forming a ball joint. The member 13 has a part-spherical lower surface and a centre 30 situated on the sliding surface of the shoe 10.” Ex. 1003 at 2:45–51. By mounting the shoe 10 atop a member 13 having a part-spherical lower surface, shoe 10 “self adjusts” to angular movements of the rotating body 12. Petition at 42. The shoe 10 “self-adjusts” by virtue of the layer of lubricating oil deposited on the outer surface of the anti-friction lining 16 (i.e., the pad) in connection with the part-spherical annular member formed in the ball joint. *Id.*

In sum, if the Office had fully appreciated the scope and content of the prior art, it would have recognized that the POSITA would be motivated to combine GB384 and DE364 to find Claim 1 obvious. To be clear, once the Office determined that the claimed polymer bearing pad was obvious, as it correctly did in the first Office Action, none of the remaining elements imparted any patentable

weight to Claim 1. In fact, all of these remaining elements are common features in prior art hydraulic bearings as evidenced by GB384.

The Office's material error is further compounded by its apparent failure to consider the findings in the IPRP at least as they relate to Claim 1.⁴ In the IPRP, the IPEA found that PCT amended claim 1, nearly identical to Claim 1 of the '604 patent, lacked an inventive step based on GB384. Specifically, the IPRP concluded that GB384 discloses:

a bearing assembly for supporting a journal (12) of a grinding mill body (see page 3, lines 20-27), comprising a frame (17) and a plurality of fluid bearings, said fluid bearings each comprising a bearing pad (16) mounted to a base (1), said bearing pad (16) comprising an outer surface, at least one recess (18) for receiving lubricating fluid from at least one passage (20) of said base (1) and distributing said lubricating fluid to said outer surface (implicit feature) and mounting means (11, 13) for securely mounting said bearing pad (16) to said base (10), said base (10) also comprising at least one lubricating fluid supply port (see figure 2) in fluid communication with said at least one passage (20), wherein said base (10) is mounted to said frame (17) so that said fluid bearings self adjust to changes in the angular position of the journal (12) during operation of said grinding mill body (see page 2, lines 45-54).

Supra at 15; Ex. 1002 at 135. The IPRP then concluded that the only missing element, the recitation that the bearing pad was a polymer bearing pad, “was considered as being a mere constructional option which is obvious to the skilled person.” *Supra* at 15; Ex. 1002 at 136, Re Item V, ¶ 4.1.2. Put plainly, the IPRP

⁴ While Metso does not appear to list the IPRP in an IDS, the IPRP is in the file record of the '604 patent. *See Supra* at 17 n.2.

concluded that a claim virtually identical to Claim 1 of the '604 Patent was obvious in view of GB384.

The IPRP's conclusions are corroborated, and the Office's material error underscored, by the file history for an EPO counterpart to the '604 Patent. That matter was a regionalized application from the same PCT application from which the '604 patent was nationalized in the U.S. In that application, EPO claim 1, which is nearly identical to claim 1 of the '604 patent, was rejected based on the same rationale and art (GB384) as set forth in the IPRP. *Supra* at 19. In fact, after several rounds of prosecution at the EPO, Metso cancelled EPO claim 1 altogether. *Id.*

Had the Office properly assessed the content of the IPRP, it would have recognized that GB384 rendered Claim 1 obvious—similar to the conclusion reached in the IPRP and by the EPO. The failure to do so demonstrates a material error.

While not identical, the facts and reasoning in *Meta Platforms, Inc. v. Immersion Corporation*, IPR2023–00942, Paper 7, 16 (PTAB December 6, 2023) are instructive. In *Meta Platforms*, the Examiner's initials on the IDS indicated that an International Search Report and International Preliminary Report on Patentability (or "IPRP") were considered. *Id.* The Board noted, however, that "the Examiner did not appreciate fully [the prior art's] relevance to the claims,

particularly in view of the International Search Report and the International Preliminary Report on Patentability both indicating that certain claims of the foreign counterpart application lacked novelty and inventive step in view of [the prior art reference].” *Id.*

Here, the Office appears to have acknowledged the International Search Report corresponding to the ’604 patent’s foreign counterpart. *See*, cover page Ex. 1001 (citation under “other publications”). But there is no evidence that the Office ever considered the IPRP. Had it not overlooked this evidence, the Office would have fully appreciated the fact that GB384 rendered Claims 1 obvious.

Lastly, Metso alleges that several limitations found in Claim 1 are missing from GB384 and argues that this is the reason Claim 1 was allowed. *See* Request at 21 (arguing that GB384 does not disclose a self-adjusting bearing assembling or a bearing pad mounted on a base by a mounting element). As part of its argument, however, Metso appears to tacitly concede that GB384 discloses a self-adjusting bearing assembly, focusing its argument instead on the alleged lack of a mounting element in GB384. *Id.* Metso’s argument that the prosecution art does not disclose a mounting element is belied by a proper analysis of GB384 and DE364, as noted above. *See also* Petition at 39–41. And, as noted above, the disclosure of a mounting element in at least GB384 is corroborated by the rejections in both the IPRP and the EPO file history.

2. The Office Materially Erred When it Allowed Claim 11.

For many of the same reasons that the Office erred when it allowed Claim 1, the Office also erred when it allowed Claim 11. Claim 11 is virtually identical to Claim 1, the only difference being that Claim 1 recites a bearing that is mounted to a frame that allows the bearing to “self adjust” whereas Claim 11 recites a bearing with a base that is “fixedly mounted” to a frame.

As with Claim 1, the Office did not provide any reasoning for the allowance in the first Office Action or in the Notice of Allowance. As such, there is no record with respect to allowance of Claim 11 making it impossible to determine why the Office believed Claim 11 was allowable. That error aside, the Petition articulates how the use of a “fixedly mounted” hydraulic bearing versus a “self-adjusting” bearing was well within the general knowledge of the POSITA. Petition at 30–31. That conclusion is supported by the testimony of FLS’s expert witness and further supported by the obviousness conclusions found in both the IPRP and the EPO prosecution history. *See Supra* at 14–16, 19.⁵

⁵ To the extent Metso argues that the prosecution prior art does not disclose a “fixedly mounted” hydraulic bearing, then the art presented in Ground 6 of the Petition (i.e., Metso and Trygg) cannot be cumulative. That leaves part one of Advanced Bionics unmet with respect to Claim 11.

3. The Office Materially Erred When it Allowed Claim 21.

Metso's Request does not address Claim 21. As with Claim 1 and 11, to the extent record prior art was evaluated by the Office, the Office failed to appreciate its disclosure.

During the first and only substantive action, the Office rejected the following elements of what would eventually become Claim 21 based on GB384 in view of the '993 Publication. Ex. 1002 at 41–48.

[21.1] a base having a first surface orthogonal to a second surface, one or more lubricating fluid supply ports and a plurality of passages in fluid communication with said lubricating fluid supply ports, said first surface and said second surface,

[21.2] a first polymer bearing pad mountable to said first surface, said polymer bearing pad having a first outer surface and at least one recess for receiving lubricating fluid from at least one of said plurality of passages and distributing said lubricating fluid to said first outer surface, and

[21.3] a second polymer bearing pad mountable to said second surface, said second polymer bearing pad having a second outer surface and at least one recess for receiving lubricating fluid at least one of said plurality of passages and distributing said lubricating fluid to said second outer surface,

In response, Metso did not argue that the rejection was incorrect. Rather, Metso amended Claim 21 to include dependent claims that were considered allowable in that first action. *Supra* at 17–18. Those amendments are shown below as parts 21.4, 21.5, and 21.6.

[21.4] wherein at least one of said first and second polymer bearing pads comprises at least one opening for receiving at least one fastener for mounting said at least one polymer bearing pad to said base,

[21.5] wherein said at least one recess comprises a locking tab for retaining a head portion of said fastener within said at least one recess, said head portion being tapered to facilitate retention of said at least one fastener within said at least one recess by said locking tab,

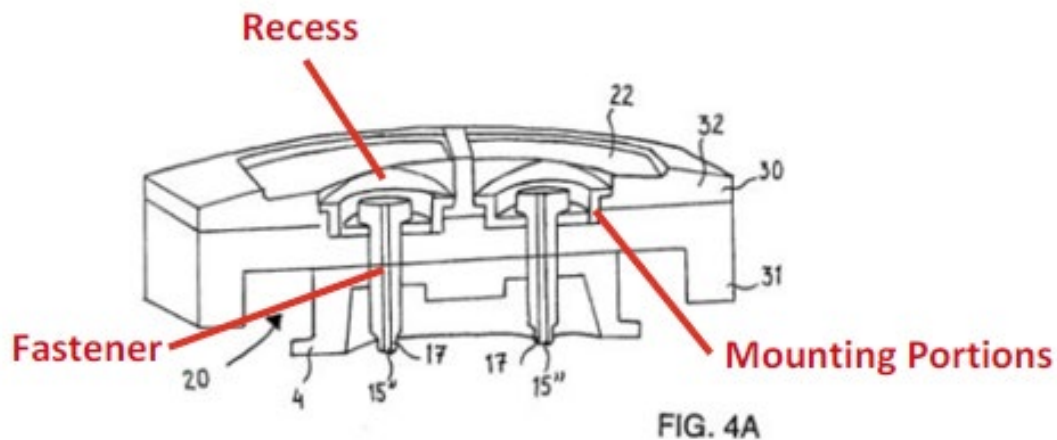
[21.6] and wherein said at least one fastener comprises a bore for conveying lubricating fluid from said at least one passage to said at least one recess, said at least one fastener being partially received in said at least one passage.

Parts 21.4, 21.5, and 21.6 of Claim 21 are all contained in DE364 together with the general knowledge of POSITA. Petition at 46–48. As noted above, DE364 is a reference that is listed in an IDS submitted to the Office. Had the Office appreciated the disclosure of DE364 and general knowledge in the art, it would have concluded that all of the amendments to Claim 21 were obvious. The Office failed to do so.

Parts 21.4, 21.5, and 21.6 to Claim 21 and their corresponding disclosure in DE364 and general knowledge of the POSITA are discussed below.

[21.4] wherein at least one of said first and second polymer bearing pads comprises at least one opening for receiving at least one fastener for mounting said at least one polymer bearing pad to said base,

DE364 discloses part 21.4 of Claim 21. It discloses at least one polymer bearing pad with at least one opening for receiving at least one fastener 17 for mounting the bearing pad 30 to the base 31. *See* Petition at 47.



[21.5] wherein said at least one recess comprises a locking tab for retaining a head portion of said fastener within said at least one recess, said head portion being tapered to facilitate retention of said at least one fastener within said at least one recess by said locking tab,

Part 21.5 of Claim 21 comprises general knowledge possess by the POSITA. Specifically, locking tabs and tapered fastener heads are within the general knowledge of POSITA to help retain or secure one component to another. The POSITA could easily choose to implement this general knowledge, for example, to

assist in minimizing bolts from coming loose based on the vibration and operation of the bearing. As set out in the Petition, evidence of that general knowledge is found in US2003/0175074. Petition at 24. This knowledge of the POSITA, supported by the prior art, was not considered by the Office. As such, the Office materially erred in its examination of part 21.5 of Claim 21.

[21.6] and wherein said at least one fastener comprises a bore for conveying lubricating fluid from said at least one passage to said at least one recess, said at least one fastener being partially received in said at least one passage.

DE364 discloses the limitation found in 21.6 of Claim 21. Namely, DE364 discloses a fastener (i.e., the nozzle) with a bore 15 for conveying lubricating fluid from a passage in a base that carries the bearing pad to a recess on a polymer bearing pad. Petition at 48. As shown above in annotated FIG. 4A of DE364, the fastener is partially received in the passage for conveying lubrication. *Id.*

Placing “a hollow fastener into the passageway is a generally known method of forming a seal between the cavity for receiving the hollow fastener and the passageway.” *Id.* “[T]his minimizes the likelihood that lubricating fluid from the passageway will seep past the hollow fastener in the cavity rather than moving through the bore of the fastener.” *Id.* “[A] POSITA would be motivated to utilize a fastener comprising a bore to minimize the number of holes needed to be

manufactured in the base and the polymer bearing pad, reducing manufacturing and maintenance costs.” *Id.*

In sum, all of the structural limitations added to Claim 21 by amendment were present in DE364 and obvious to the POSITA. Hollow bolts, locking tabs, and other “locking elements” are within the general knowledge of POSITA (Petition at 55) and the POSITA would be motivated to combine that general knowledge and the knowledge from the DE364 at least because the use of hollow bolts reduces the number of openings needed in the bearing pad and the shoe and reduces manufacturing and maintenance costs. *Id.* Moreover, the use of locking elements minimizes the risk that temporary fasteners prematurely loosen during operation. *Id.*

Accordingly, if the Director assumes that DE364 was evaluated by the Office, the Office materially erred in its application of DE364 because the amendments made to Claim 21 are obvious in view of that art.

VI. CONCLUSION

For all of these reasons, the Director should deny Metso’s request for discretionary denial of institution and refer the Petition to the Board for institution of a trial on the merits.

Case IPR 2025-00985

Patent 9,518,604

Dated: September 16, 2025

/s/ Jed H. Hansen

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U.S. Patent Reg. No. 59,106

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CERTIFICATE OF COMPLIANCE PURSUANT TO 37 C.F.R. §42.24

Pursuant to 37 C.F.R. § 42.24(d), the undersigned certifies that the foregoing **PETITIONER'S OPPOSITION TO PATENT OWNER'S REQUEST FOR DISCRETIONARY DENIAL** complies with the typeface requirements of 37 C.F.R. §42.6(a)(ii) and the style requirements of 37 C.F.R. §§42.6(a)(iii) and (iv). This document contains 12,271 words, excluding the parts exempted as provided in 37 C.F.R. § 42.24(b). The undersigned relies on the word count of the computer program used to prepare this brief.

/s/ Jed H. Hansen

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CERTIFICATE OF SERVICE

The undersigned hereby certifies that a correct copy of this Opposition to Patent Owner's Request for Discretionary Denial was served upon the Patent Owner on September 16, 2025, by email to the email addresses identified in Patent Owner's Mandatory Notices dated June 4, 2025:

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Dated: September 16, 2025

/s/ Kaelynn Moultrie
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