

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

LES ATELIERS BEAU-ROC INC.,
Petitioner,

v.

AIR POWER SYSTEMS CO., LLC,
Patent Owner.

IPR2020-01702
Patent 7,976,105 B2

Before HYUN J. JUNG, KEVIN W. CHERRY, and RYAN H. FLAX,
Administrative Patent Judges.

CHERRY, *Administrative Patent Judge.*

DECISION
Granting Institution of *Inter Partes* Review
35 U.S.C. § 314, 37 C.F.R. § 42.4

I. INTRODUCTION

A. *Background and Summary*

Les Ateliers Beau-Roc Inc. (“Petitioner”) filed a Petition (Paper 1, “Pet.”) requesting institution of *inter partes* review of claims 1–20 (all claims) of U.S. Patent No. 7,976,105 B2 (Ex. 1001, “the ’105 patent”). Air Power Systems Co., LLC, formerly known as Air Power Systems Co., Inc., (“Patent Owner”) filed a Preliminary Response. Paper 6 (“Prelim. Resp.”).

Pursuant to 35 U.S.C. § 314(a), an *inter partes* review may be instituted only if “the information presented in the petition . . . and any [preliminary] response . . . shows that there is a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition.”

For the reasons given below, on this record Petitioner has established a reasonable likelihood that it would prevail in showing the unpatentability of at least one of claims 1–20 of the ’105 patent. We thus institute *inter partes* review on all challenged claims on all asserted grounds. *See SAS Inst., Inc. v. Iancu*, 138 S. Ct. 1348, 1354, 1359–60 (2018); *see also PGS Geophysical AS v. Iancu*, 891 F.3d 1354, 1360 (Fed. Cir. 2018) (interpreting the statute to require “a simple yes-or-no institution choice respecting a petition, embracing all challenges included in the petition”); Consolidated Trial Practice Guide 64 (Nov. 2019), <https://www.uspto.gov/TrialPracticeGuideConsolidated> (“Consolidated TPG”) (“The Board will not institute on fewer than all claims or all challenges in a petition.”).

II. BACKGROUND

A. Real Parties in Interest

The Petitioner identifies the “real party in interest for the petitioner is Les Ateliers Beau-Roc Inc., which is wholly owned by 6023797 Canada Inc., which is wholly owned by Les Usines D’Autray Ltee, which is owned by Nathalie Bibeau and by Les Acquisitions Bibeau Inc., which is wholly owned by Nathalie Bibeau.” Pet. vi.

Patent Owner identifies the real party in interest is Air Power Systems Co., LLC. Paper 4 § 1.

B. Related Proceedings

The parties identify *Air Power Systems Co. v. Les Ateliers Beau-Roc Inc.*, No. 19-cv-1344-HLT-TJJ, in the U.S. District Court for the District of Kansas. Pet. vi; Paper 4 § 2. Petitioner contends that the complaint was filed December 20, 2019, but “has not yet been served as of the filing of this Petition,” which Patent Owner does not contest. Pet. vi; *see* Paper 4.

C. The ’105 Patent

The ’105 patent is titled “Double Cylinder Assembly for Raising and Lowering a Dump Truck Tailgate.” Ex. 1001, [54]. The ’105 patent issued from Application Serial No. 12/171,321, filed on July 11, 2008, and claims priority to Provisional application No. 60/959,394, filed on July 13, 2007. *Id.* at [21], [22], [60].

The ’105 patent relates to “mechanisms for raising and lowering a tailgate provided on a dump box of a dump truck, trailer, or similar vehicle,” specifically “a double cylinder assembly for raising and lowering such a tailgate that is pivotably supported on the dump box.” *Id.* at 1:13–17.

The ’105 patent describes a “typical dump truck” where “the open rear end of the dump box includes a pair of upstanding corner posts that are

each formed from a hollow rectangular member” and which support a pivoting tailgate. *Id.* at 1:18–31. The tailgate is often moved between open and closed positions “by means of a cylinder (typically a pneumatic cylinder) that extends between the dump box and the tailgate.” *Id.* at 1:32–35. The patent explains that the cylinder is typically located either in the hollow corner post, vertically, even though the corner post size may be “limiting,” or horizontally, on the outside of the dump box walls, which is inexpensive to install, but “does undesirably expand the overall width of the vehicle.” *Id.* at 1:42–58. To address these issues, the patent describes an improvement using a “double cylinder assembly.” *Id.* at 2:9–11.

Figure 4, reproduced below, shows a perspective view of a dump truck with a double cylinder assembly on each side of a tailgate.

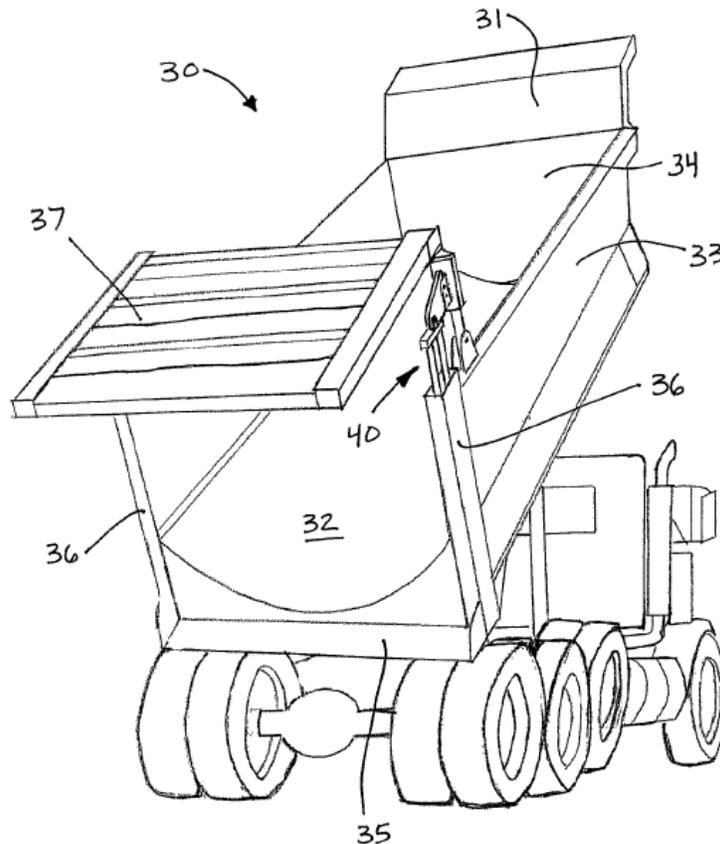


Figure 4 shows a dump truck 30, dump box 31, corner posts 36, tailgate 37, and double cylinder assembly 40. *Id.* at 3:28–48. The '105 patent describes that:

two double cylinder assemblies 40 fit more efficiently within the respective hollow rectangular shape of the corner posts 36 than a conventional single pneumatic cylinder having a square or circular cross sectional shape. Therefore, the two double cylinder assemblies 40 provide more force than the single pneumatic cylinder could provide for a given size of the corner posts 36.

Id. at 4:12–18.

D. Illustrative Claim

1. An apparatus comprising:
 - a dump box having an open end;
 - a tailgate supported on the dump box for movement between a closed position, wherein the tailgate closes the open end of the dump box, and an opened position, wherein the tailgate is spaced away from the open end of the dump box; and
 - a double cylinder assembly that extends between the dump box and the tailgate for selectively moving the tailgate between the closed and opened positions; wherein either
 - (1) the dump box includes a corner post that is formed from a hollow rectangular member and the double cylinder assembly is disposed within the corner post, or
 - (2) the double cylinder assembly includes first and second cylinders that are disposed adjacent to one another, each of the first and second cylinders has a respective piston rod associated therewith, the piston rods are connected to a cross bar for concurrent extending and retracting movement, and the cross bar is connected to a yoke that, in turn, is connected to the tailgate of the dump box.

Ex. 1001, 4:44–63.

E. The Asserted Grounds of Unpatentability

Petitioner asserts that claims 1–20 would have been unpatentable on the following grounds:

| Claims Challenged | 35 U.S.C. § | Reference(s)/Basis |
|--------------------------|--------------------|--|
| 1–20 | 103(a) | Stoll ¹ , “General Knowledge of One of Ordinary Skill” |
| 1–20 | 103(a) | Stoll, Weber ² , “General Knowledge of One of Ordinary Skill” |
| 1–20 | 103(a) | Martin ³ , Stoll |
| 1–20 | 103(a) | Martin, Stoll, Weber |
| 1–20 | 103(a) | Biddy ⁴ , Stoll |
| 1–20 | 103(a) | Biddy, Stoll, Weber |

Pet. 2.

Petitioner supports its Petition with a Declaration by Paul Raymond. Ex. 1012. At this stage of the proceeding we find Mr. Raymond competent to testify as to the understanding of a person of ordinary skill in the art as of the invention date. *See id.* ¶¶ 1–8, 18, 21, 25–28 (discussing Mr. Raymond’s background and experience, and testimony perspective); Ex. 1013 (Mr. Raymond’s CV).

Patent Owner submits the Declaration of Jon B. Hogins in support of the Preliminary Response. Ex. 2001. At this stage of the proceeding we find Mr. Hogins competent to testify as to the understanding of a person of ordinary skill in the art as of the invention date. *See id.* ¶¶ 1–7, 33–36 (discussing Mr. Hogins’s background and experience, and testimony perspective); Ex. 2002 (Mr. Hogins’s CV).

¹ GB 1 212 586, published Nov. 18, 1970 (Ex. 1005, “Stoll”).

² AT 398 739 B, published Jan. 25, 1995 (English Translation in Ex. 1007, Original in Ex. 1006, “Weber”).

³ US 3,860,288, issued Jan. 14, 1975 (Ex. 1003, “Martin”).

⁴ US 4,989,918, issued Feb. 5, 1991 (Ex. 1004, “Biddy”).

F. Level of Ordinary Skill in the Art

Petitioner proposes that a person of ordinary skill in the art “would have had at least several years of practical academic or industrial experience designing, testing, manufacturing, selling and/or servicing dump trucks and/or dump bodies with, or supported by a person with, a bachelor of science in a field of engineering or a closely related discipline.” Pet. 10 (citing Ex. 1012 ¶ 27).

Patent Owner proposes that a person of ordinary skill “would be as follows: A mechanical engineer having at least five year’s industrial experience in the engineering and design of dump bodies with high lift tailgates, including cylinder assemblies, for dump trucks.” Prelim. Resp. 4 (citing Ex. 2001 ¶ 34). Patent Owner argues that in setting forth its proposed level of ordinary skill, “Petitioner has cast a very wide net, covering a person with at least several years’ experience in sales of dump bodies to one with 30 years’ experience in testing, designing, manufacturing, servicing, and selling dump trucks and dump bodies.” *Id.* at 6. We agree that Petitioner’s proposal is relatively broad given the repeated use of “and/or” in the definition and the vagueness of the term “several years.”

For purposes of this Decision, we adopt Patent Owner’s proposed level of ordinary skill, as it appears to be consistent with the level of skill, and choice of language, reflected by the specification and in the asserted prior art references.⁵ *See Okajima v. Bourdeau*, 261 F.3d 1350, 1355 (Fed.

⁵ Patent Owner argues that we should give no weight to Mr. Raymond’s declaration because he is “simply not qualified in the pertinent art.” Prelim. Resp. 48–49. At this stage of the proceeding, we consider Mr. Raymond’s experience sufficient at this stage. *See* Ex. 1012 ¶¶ 2–4. Patent Owner remains free to cross examine Mr. Raymond about his experience and raise this argument during the trial.

Cir. 2001) (the prior art itself can reflect the appropriate level of ordinary skill in the art).

G. Claim Construction

We apply the same claim construction standard that would be used in a civil action under 35 U.S.C. § 282(b), following the standard articulated in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005) (en banc). 37 C.F.R. § 42.100(b) (2020).

Petitioner contends the “either/or” wording in claims 1 and 11 should be construed to require only one of limitations (1) or (2), not both. Pet. 13.

Patent Owner agrees. Prelim. Resp. 12 (“because of the plain ‘either-or’ language of claims 1 and 11, the ’105 Patent prosecution history, and the Doctrine of Claim Differentiation, the either-or limitation of claims 1 and 11 should be construed as mutually exclusive”).

There thus is no dispute on the claim language at this point in the proceedings. We thus interpret the claim language in accordance with the parties’ understanding of the “either/or” language, at this time. To summarize, as stated by Patent Owner, “[c]laim 1 [or claim 11] may be anticipated by a prior art device that meets alternative limitation (1) or alternative limitation (2), assuming the prior device also meets all of the remaining claim 1 limitations.” Prelim. Resp. 9.

III. DISCUSSION

A. Overview of the Prior Art

1. Stoll (Ex. 1005)

Stoll is entitled “A Pnuematically Operated Machine Tool Advancing Device.” Ex. 1005, [54]. Stoll discloses the advancing device includes “a

brake cylinder containing hydraulic oil or other viscous brake fluid, and two pneumatic work cylinders located on opposite sides of the brake cylinder, the longitudinal axes of the work cylinders being arranged in the same plane as the axis of the brake cylinder.” *Id.* at 1:13–31. The device is preferably used in conjunction with processing machines, such as machine-tools. *Id.* at 1:42–45.

A side-view of the advancing device is shown in Figure 1, reproduced below.

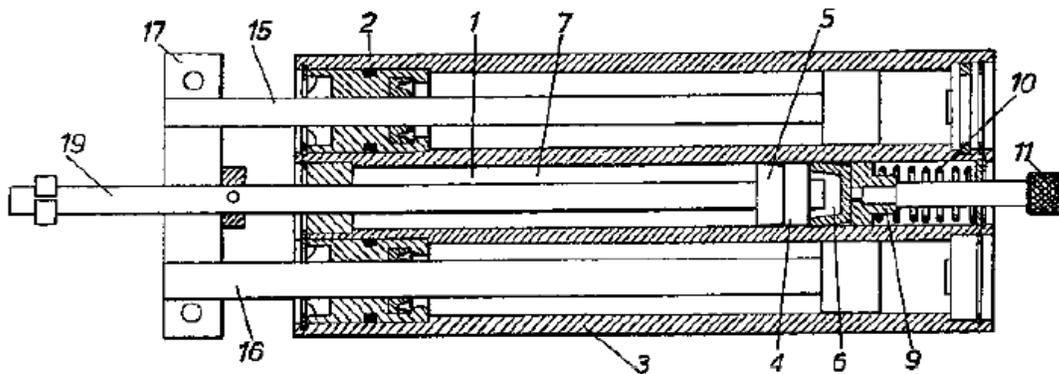


Figure 1 shows two pneumatic work-cylinders 2 and 3, which are mounted symmetrically to one another with reference to the longitudinal axis of the brake-cylinder 1, with their longitudinal axes on the same plane as that of the brake-cylinder, and the three cylinders being combined into a single unit, and housed in a common casing. *Id.* at 1:73–82. The mechanism is constructed so that the brake piston 4, on its movement in either direction in the cylinder 1, forces the brake-fluid from the compressed space 6 or 7 through a throttle-point into the respective space 7 or 6. *Id.* at 1:61–68. Piston rods 15 and 16 of both work-cylinders 2 and 3 are connected by a cross-rod 17. *Id.* at 2:8–18.

Stoll describes that the advancing device is advantageous in that it is of “particularly low constructive height, as two smaller work-cylinders can be used instead of one large one, if at the outset the same piston surface,

i.e.,] the same piston-power is desired,” which “[o]verall, a compact, space-saving arrangement with smooth outer surfaces results.” *Id.* at 2:59–75.

2. *Weber (Ex. 1007 – Original German in Ex. 1006)*

Weber is entitled “Lifting and Pivoting Device for a Liftgate on a Truck.” Ex. 1007, [54].

Weber’s device “has lift arms linked to the liftgate, which are linked at their other ends to a mount on the chassis, and has lifting cylinders dedicated to the lift arms, and closing cylinders that engage with the liftgate at a spacing to the lift arm pivot point.” *Id.* at 2:1–5. Weber describes that the

object of the invention is to improve a device of the type specified above with respect to load-bearing capacity, strength, and torsional strength, etc. with an optimal use of the available space on the vehicle, while retaining the beneficial strength/weight ratio characteristic of aluminum structures. This object is achieved with a device of the type specified above, which is distinguished in that there are at least two lift arms, two lifting cylinders, and two closing cylinders of the same size on both sides of the vehicle.

Id. at 2:13–22. Thus, “optimal use is made of the available space on the vehicle, wherein an arbitrary load-bearing capacity of the liftgate can be obtained, and the production costs can be kept low by using relatively small casting molds.” *Id.* at 2:23–27.

Figure 2 of Weber is reproduced below.

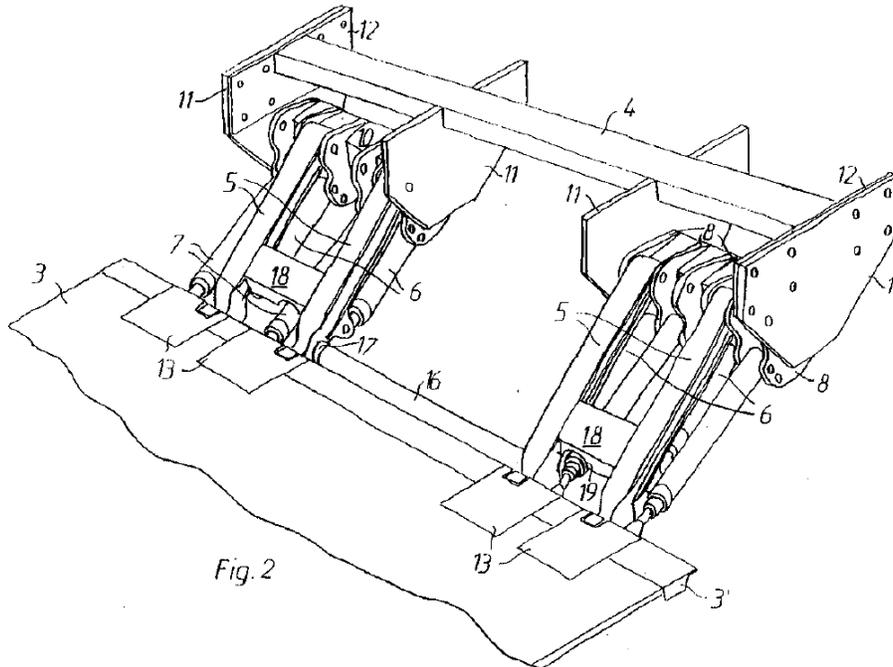


Figure 2 shows lift arms 5, dedicated lifting cylinders 6, and closing cylinder 7. *Id.* at 3:22–24. The paired lift arms 5 on each side of the vehicle are also rigidly connected to one another via a respective connecting profile 18. *Id.* at 4:19–21.

3. *Martin (Ex. 1003)*

Martin is entitled “Dump Truck Tailgate Actuator.” Ex. 1003, [54]. Martin describes prior art dump trucks with tailgates that pivot from the top by gravity, and secured at the bottom by manually-operated latches. *Id.* at 1:5–25. Martin describes shortcomings of this design, including the inability to control the opening space of the gravity-controlled tailgate, and damage from objects larger than the opening hitting the tailgate. *Id.* at 1:28–52.

Martin thus discloses a tailgate lifted by hydraulic cylinder units at the edges of the tailgate. *Id.* at 2:30–48. Figure 1, reproduced below, shows a dump truck with Martin’s powered tailgate.

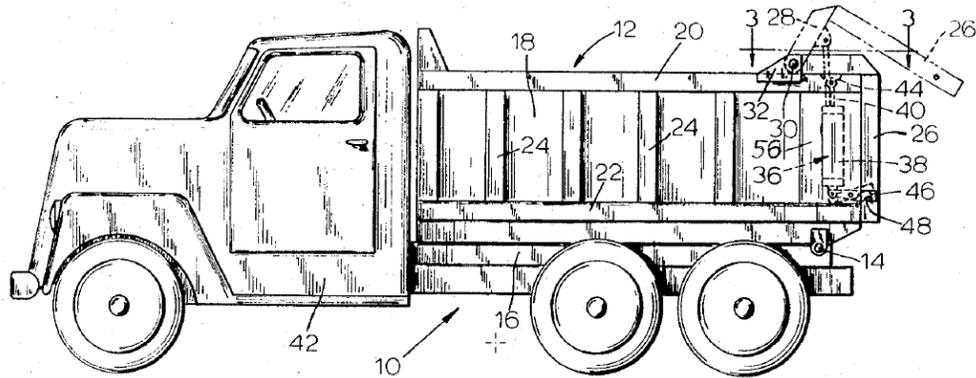


Figure 1 shows truck 10, tailgate 26 (in closed position and in ghost-outline in a raised position), tailgate mounting arm 28, connecting pin 30, and power unit 36 comprising cylinder 38 and piston rod 40. *Id.* at 3:28–4:16. Figure 5, reproduced below, is a close-up view showing the enclosure for the power units shown in Figure 1.

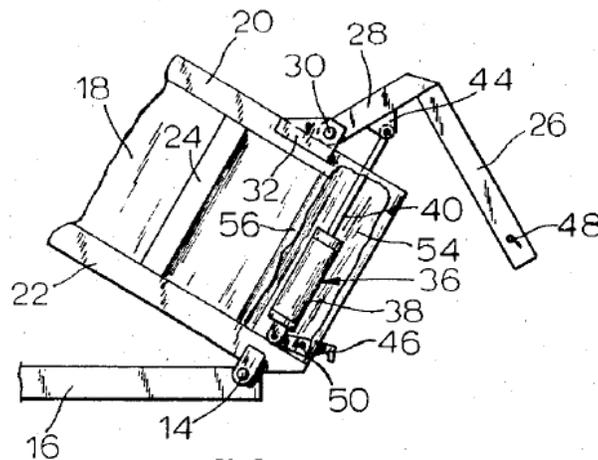


Figure 5 shows power unit 36 in compartment 54, where

The power units preferably are enclosed within suitable compartments 54 formed from sheet metal which are rectangular in cross section, the outer sides 56 of said compartments either being spaced outwardly from the sides 18 of the truck body 12 a sufficient distance to readily accommodate the diameters of the cylinders 38 or, as shown in FIG. 3, as an exemplary alternative, suitable housing members 58 may extend inwardly a slight distance beyond the sides 18 of truck body 12.

Id. at 4:50–58.

4. *Biddy (Ex. 1004)*

Biddy is entitled “Material Handling Vehicle With Improved Tailgate.” Ex. 1004, [54]. Biddy relates “to material handling vehicles having a material container pivotably mounted to a frame and a tailgate mounted to the open rear end of the material container.” *Id.* at 1:6–10.

Biddy describes prior art material-handling vehicles with pivoting tailgates, non-pivoting tailgates that can be raised, and tailgates that are partially non-pivoting and partially pivoting. *Id.* at 1:30–56. Biddy describes the disadvantage of these as “limited function,” because “[e]ach vehicle is constructed to provide only one means of discharge, i.e. either a controlled metering of discharged refuse or other aggregate material contained within the material container, or a less controlled, quicker discharge of material which is facilitated by an outwardly pivoting tailgate, such as a dump truck.” *Id.* at 1:57–64.

Figure 2 of Biddy, reproduced below, shows “a side view of the material handling vehicle showing the front end of the material container lifted and the tailgate in a fully raised position so that the tailgate is free to swing outwardly.” *Id.* at 2:52–55.

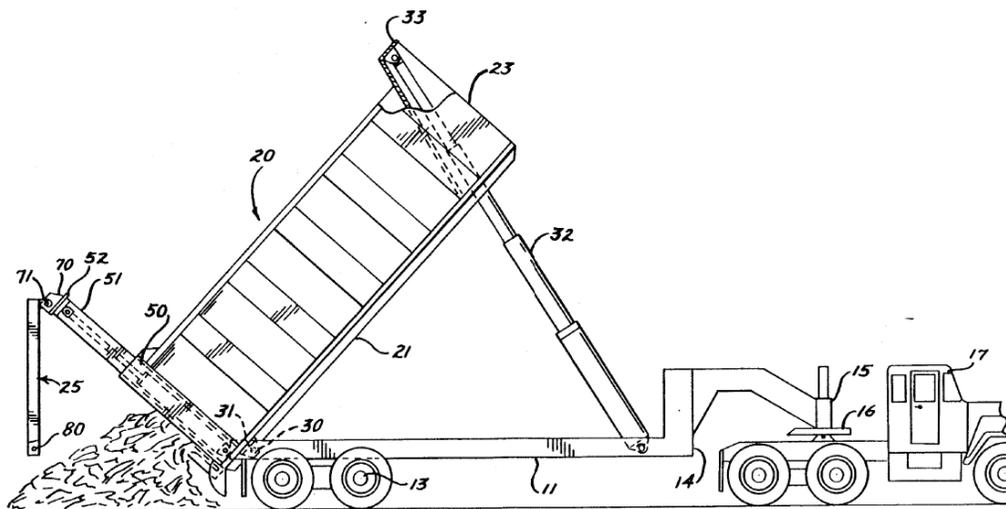


Figure 2 shows material container 20, and tailgate 25 in “a fully raised position where the tailgate is free to swing outwardly.” *Id.* at 3:37–4:7.

A vertically disposed reinforcement member in the form of a rectangularly configured open box sleeve 50 is positioned at each of the side walls of the material container, adjacent the rear end of the material container. *Id.* at 4:10–14. A substantially square longitudinal hollow post 51 is slidably received in each box sleeve 50, and a hydraulic cylinder 60 is contained within each box sleeve 50 and post 51. *Id.* at 4:40–41. Figure 4, reproduced below, illustrates this arrangement.

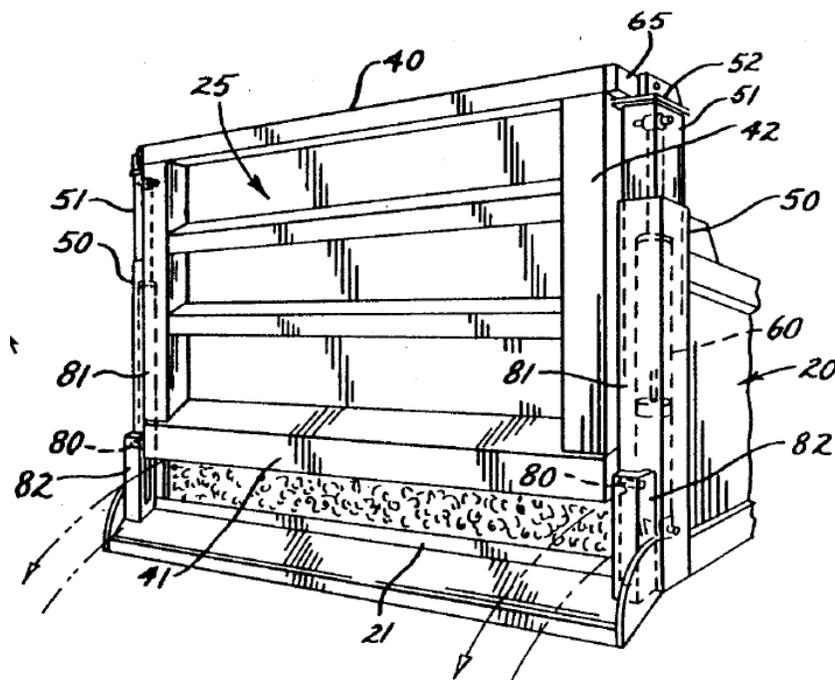


Figure 4 shows material container 20, box sleeve 50, hollow container 51, and cylinder 60. *Id.* at 4:10–41.

*B. Obviousness over Stoll and General Knowledge of One of Ordinary Skill
(Ground 1)*

Petitioner challenges claims 1–20 of the ’105 patent as obvious over Stoll “and the General Knowledge of One of Ordinary Skill in the Art.” Pet. 14–39.

Patent Owner argues that “Petitioner considers only isolated parts of both the ’105 Patent and Stoll and ignores the whole of each,” and that “Petitioner’s alleged motivation for a person of ordinary skill to consider Stoll results in a combination that runs contrary to the motivation.” Prelim. Resp. 13. Patent Owner also argues that Petitioner’s proposed modification of Stoll “makes Stoll unsuitable for its intended purpose and changes its principle of operation,” and that Stoll is non-analogous art. *Id.* Patent Owner further argues that “Petitioner relies upon a false premise that two cylinders are always better than one, that two smaller cylinders always saves space when compared to a larger single cylinder, and that saving space in a dump body is always desirable to a person of ordinary skill.” *Id.* at 13–14.

We have reviewed Petitioner’s and Patent Owner’s assertions, as well as the evidence of record, and, for the reasons discussed below, we conclude that we will not reach either of Petitioner’s first two grounds in this Decision, for the reasons below.

Petitioner has characterized the challenge as primarily based on the general knowledge of one of skill in the art in combination with Stoll, even though Petitioner relies almost exclusively on the Applicant Admitted Prior Art (“AAPA”) as the source of what the “general knowledge of one of skill in the art” would be. Petitioner contends that “the ’105 patent itself acknowledges that a single-cylinder version of the claimed dump body/dump truck was already known in the prior art, and the only thing ‘new’ is the

substitution of this single cylinder assembly with a double cylinder assembly.” Pet. 14–15. Along with this, Petitioner contends Stoll “describes a pneumatic double cylinder assembly for moving machinery, specifically teaches substituting one cylinder with two smaller cylinders.” Pet. 26. Petitioner thus contends the vast majority of the limitations of independent claims 1 and 11 are disclosed as background in the ’105 patent, and Stoll merely supplies the idea of substituting a double-cylinder assembly for the single-cylinder assembly of the ’105 patent.

Petitioner argues that the background disclosures of the ’105 patent (“Applicant Admitted Prior Art,” or “AAPA”) “are admissible in this proceeding as evidence demonstrating the knowledge of the ordinarily-skilled artisan at the time of the invention.” Pet. 3.⁶ However, everything except the substitution of the single cylinder is advanced as being disclosed in the ’105 patent. Pet. 16–20. Because the vast majority of claim limitations are asserted as being disclosed in the ’105 patent, Stoll is actually only relied upon to disclose the use of two mechanical cylinders in place of one mechanical cylinder, which according to Petitioner, is “the only aspect [the] claim element missing.” Pet. 19–20. Thus, the challenge in Ground 1 is based on obviousness over Stoll and AAPA.

“A petitioner in an *inter partes* review may request to cancel as unpatentable 1 or more claims of a patent only on a ground that could be raised under section 102 or 103 and only on the basis of prior art consisting of patents or printed publications.” 35 U.S.C. § 311(b). The Office’s AAPA Memo sets forth the “USPTO’s interpretation of § 311(b) in relation to

⁶ Citing to *Treatment of Statements of the Applicant In the Challenged Patent In Inter Partes Reviews Under § 311* (Aug. 18, 2020, available at <https://go.usa.gov/xAEJ>, “AAPA Memo”).

statements of the applicant” and whether a petitioner may raise a ground on the basis of statements of the applicant, i.e., AAPA. AAPA Memo 1.

The AAPA Memo sets forth that the “basis”—i.e., the “foundation or starting point”—of every obviousness ground in an *inter partes* review (“IPR”) must be “prior art consisting of patents or printed publications.” *Id.* 1 (quoting 35 U.S.C. § 311(b)), 6. “[S]tatements of the applicant in the challenged patent do not qualify as ‘prior art consisting of patents or printed publications.’” *Id.* at 2. The AAPA Memo explains that “[a] patent cannot be prior art to itself . . . [and, therefore,] the challenged patent itself, or any statements therein, cannot be the ‘basis’ of an IPR.” *Id.* at 3–4.

“[A]dmissions by the applicant in the specification of the challenged patent standing alone cannot be used as the basis for instituting an IPR . . . because, under § 311(b), ‘the basis’ for institution must be at least one prior art ‘patent[] or printed publication[].’” *Id.* at 4.

Rather, statements of the applicant may be considered only for more limited purposes. *Id.* at 2. For example, statements in a challenged patent may “evidence the general knowledge possessed by someone of ordinary skill in the art.” *Id.* at 4; *see also Koninklijke Philips N.V. v. Google LLC*, 948 F.3d 1330, 1337 (Fed. Cir. 2020) (“Although the prior art that can be considered in *inter partes* reviews is limited to patents and printed publications, it does not follow that we ignore the skilled artisan’s knowledge when determining whether it would have been obvious to modify the prior art.”). The AAPA Memo acknowledges that sometimes the specification of the challenged patent includes “statements such as ‘It is well known that . . .’, ‘It is well understood that . . .’, ‘One of skill in the art would readily understand that . . .’; or [patents] may describe technology as ‘conventional,’ or ‘well-known.’” AAPA Memo 5–6. Such statements

typically evidence the general knowledge possessed by a person with ordinary skill in the art. *Id.* at 6. As such, use of such statements as evidence of general knowledge possessed by a person with ordinary skill in the art is consistent with § 311(b), when such statements are combined with one or more prior art patents or printed publications, where those prior art patents or printed publications form the “basis” of a ground raised in the petition. *Id.* (explaining, “The generally-understood meaning of ‘basis’ supports reading § 311(b) to require that at least one prior-art patent or printed publication form the ‘foundation or starting point’ of the IPR, but not to foreclose consideration of other pertinent patentability information.”).

Here, the starting point of the challenge in Ground 1 actually is the dump truck disclosed in the ’105 patent, not the substitution of a single cylinder for a double cylinder taught in Stoll. This is because the ordinary artisan would not start with the teaching in Stoll of this one-for-two cylinders substitution, and design an entire dump truck around it. Thus, we preliminarily determine that the challenge in claim 1 runs afoul of the requirements of the AAPA Memo, because the basis, i.e., the “foundation or starting point,” of the challenge primarily is the ’105 patent itself.

For this reason, on this record, we determine that Petitioner’s reliance on AAPA under this Ground is impermissible under 35 U.S.C. § 311(b). AAPA Memo 2–3. This is true also for the dependent claims in Ground 1. Pet. 35–39. Nevertheless, because, as discussed below, the Petition shows a reasonable likelihood that Petitioner would prevail with respect to at least one of the challenged claims based on at least one of the other asserted grounds, we include this ground in the instituted *inter partes* review. *See SAS*, 138 S. Ct. at 1354, 1359–60; Consolidated TPG 64.

C. Obviousness over Stoll, Weber, and General Knowledge of One of Ordinary Skill (Ground 2)

Petitioner explains that under Ground 2,

in the event that the Board determines that the obviousness of the claimed invention cannot be established without a prior art teaching of using a double cylinder assembly specifically in the context of trucks, Petitioner submits that claims 1–20 would nevertheless have been obvious in view of the general knowledge of the ordinarily-skilled artisan and Stoll, and further in view of Weber [which] is directed to a lifting and pivoting device for the liftgate of a truck.

Pet. 40–41.

The basis of the challenge, like in Ground 1, is that nearly everything in the claim is disclosed in background in the '105 patent, and Stoll and Weber supply a disclosure of the use of cylinders for actuating truck liftgates and the substitution of a single cylinder with a double cylinder, for use in such a truck. Pet. 40 (“For the reasons explained in Ground 1, Petitioner submits that claims 1–20 would have been obvious in view of the general knowledge of the ordinarily-skilled artisan and Stoll.” (emphasis omitted)).

As in ground 1, we determine that Petitioner’s reliance on AAPA is impermissible under 35 U.S.C. § 311(b). AAPA Memo, 2–3. Nevertheless, because the Petition shows a reasonable likelihood that Petitioner would prevail with respect to at least one of the challenged claims based on at least one of the asserted grounds, we include this ground in the instituted *inter partes* review. *See SAS*, 138 S. Ct. at 1354, 1359–60; Consolidated TPG 64.

D. Obviousness over Martin and Stoll (Ground 3)

Petitioner challenges claims 1–20 of the '105 patent under 35 U.S.C. § 103(a) as unpatentable over the combination of Martin and Stoll. Pet. 46–

56. Petitioner argues Martin discloses a truck with a dump box having an open end, and that the “only missing aspect” is that Martin “does not disclose a double cylinder assembly within a single corner post.” Pet. 46–47. The substitution of a single cylinder (as used in Martin’s disclosed truck) with a double cylinder is, according to Petitioner, disclosed in Stoll. *Id.* at 51. Petitioner argues “Stoll, which describes a pneumatic double cylinder assembly for moving machinery, specifically teaches substituting one cylinder with two smaller cylinders.” Pet. 26 (citing Ex. 1005, 2:59–75). Just as Stoll strives to reduce the height of two cylinders positioned horizontally, Petitioner’s expert explains it would have been obvious to the ordinary artisan to incorporate Stoll’s teaching into the known dump truck designs, in order to reduce the width of the space housing the vertically-installed cylinders. Pet. 27–28 (citing Ex. 1012 ¶¶ 47–49). Petitioner advances reasons the modification would have been made at pages 20–28 of the Petition (citing Ex. 1012 ¶¶ 39–42, 45–51, 54–57).

At this time, Patent Owner does not dispute that the combination of Martin and Stoll accounts for all the limitations of the challenged claims. *See* Prelim. Resp. We have reviewed Petitioner’s arguments and evidence and find that Petitioner has shown sufficiently, at this time, that the combination of Martin and Stoll accounts for all the limitations of claims 1–20. Patent Owner’s arguments focus on Petitioner’s motivation to combine the references, so we focus our attention there.

We note that although the argument below was first set out by Patent Owner in the context of Ground 1, above, Patent Owner refers back to that

in its arguments for Grounds 3–6. Prelim. Resp. 46–48. We address those arguments here.⁷

Overall, Patent Owner argues Petitioner “ignores the whole” of Stoll and Martin, and arrives at a combination that “runs contrary to the motivation” to modify Martin, and “makes Stoll unsuitable for its intended purpose and changes its principle of operation.” Prelim. Resp. 13. Additionally, and “[m]ost importantly,” Patent Owner argues “Petitioner relies upon a false premise that two cylinders are always better than one, that two smaller cylinders always saves space when compared to a larger single cylinder, and that saving space in a dump body is always desirable to a person of ordinary skill.” *Id.* at 13–14.

Specifically, Patent Owner argues “Stoll teaches something different than two smaller work cylinders,” and “ignores . . . other teachings” in Stoll. *Id.* at 15. For example, argues Patent Owner, “Stoll is describing [] a device that moves or shuttles a platform back-and-forth in a horizontal direction at uneven speeds ‘in conjunction with processing machines, e.g., machine tools.’” *Id.* at 17 (citing Ex. 1005, 1:43–45). Patent Owner contends Stoll’s device is “intended for use in a horizontal orientation” and “advances and retracts at different speeds,” which “is not how the tailgate of a dump box is lifted and closed.” *Id.* at 18–19 (citing Ex. 2001 ¶ 43).

We are not persuaded by Patent Owner’s argument, which implies that to use Stoll’s two cylinders one must use them in a horizontal position

⁷ One argument section we do not address concerns problems with modifying Stoll *because* it is the primary reference. Prelim. Resp. 29–30. We do this because we reject the proposition that Stoll is the primary reference in Grounds 1 and 2, and in the remaining grounds, Stoll is the not the primary reference.

to advance and retract work in a machine tool, because that was their intended use, according to Patent Owner's expert, Mr. Hogins. *See* Ex. 2001 ¶ 42. On this record, we find Petitioner's argument more persuasive, that Stoll is used for the teaching of substituting two cylinders for one to reduce the profile in the direction perpendicular to the double-cylinder dimension, not for its entire application of those cylinders in machine tools, consistent with the opinion of Petitioner's expert, Mr. Raymond. *See* Pet. 26; Ex. 1012 ¶ 47. There is, after all, no requirement for bodily incorporation of any of Stoll's additional features into Martin's dump truck box. *See Allied Erecting & Dismantling Co. v. Genesis Attachments, LLC*, 825 F.3d 1373, 1381 (Fed. Cir. 2016) ("The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference."). Instead, the question is "whether 'a skilled artisan would have been motivated to combine the teachings of the prior art references to achieve the claimed invention[.]'" *Id.* (quoting *Pfizer, Inc. v. Apotex, Inc.*, 480 F.3d 1348, 1361 (Fed. Cir. 2007)).

Along the same line, Patent Owner argues "Stoll's disclosure, considered as a whole, teaches something different than two cylinders in place of one. At a minimum, it teaches two work cylinders on each side of a brake cylinder, with the brake cylinder controlling the advance and retract speeds of the two work cylinders." Prelim. Resp. 20. Patent Owner adds that "[a]ny yoke connected to Stoll's cross-bar would interfere with Stoll's first stop in the advance direction and any clevis mounted to its other end would interfere with the bolt 11 which is 'used to ascertain the filling level of the brake or equalizing cylinders.'" *Id.* at 22.

Again, Patent Owner's argument seeks to discredit the use of Stoll by requiring additional features, not relied upon by Petitioner, to show

problems with the complete incorporation of nearly all the structure of Stoll's device, to a dump truck box gate lift mechanism. Similarly, Patent Owner argues "Petitioner fails to explain how the Stoll device could extend between a dump box and a tailgate or how its cross-bar could be connected to a yoke that, in turn, is connected to the tailgate of the dump box," and that "Stoll's 'one unit' is not suitable for a dump body." Prelim. Resp. 21, 23. This, according to Patent Owner, is because Stoll's device is arranged as a single unit with two cylinders and a *brake*, so the ordinary artisan would not consider it for use in a dump truck. *Id.* at 22–23; *see also* Ex. 2001 ¶ 39 ("It is my opinion that the invention of Stoll's patent specification revolves around a brake cylinder . . . Without the brake cylinder and speed control features there is no Stoll device."). Further, Patent Owner contends "[i]f the brake cylinder was included in Petitioner's dump body, the prior art corner post of the dump body actually increases in size, contrary to Petitioner's motivation." *Id.* at 25–26; *see also* Ex. 2001 ¶ 54 ("If the Stoll device were to have been employed as a whole [including the brake cylinder] and included in Petitioner's dump body, the prior art corner post of the dump body would actually increase in size.")

Considering the whole of a reference does not require incorporating everything it teaches to a combination of features, because "[c]ombining the teachings of references does not involve an ability to combine their specific structures." *In re Nievelt*, 482 F.2d 965, 968 (CCPA 1973).

Two additional bodily-incorporation-type arguments that fail to persuade us are that "[r]emoving the brake cylinder makes Stoll unsatisfactory for its intended purpose and changes its principle of operation because the advance and retract speed of the work cylinders is no longer controlled" (Prelim. Resp. 29), and that "Stoll would require significant

modification for it to be suitable for use in lifting a tailgate because Stoll's brake cylinder rod 19 is not always engaged to the work cylinder rods" (*id.* at 30). The brake cylinder in Stoll, or its physical removal, is not necessary to apply Stoll's teaching, that two cylinders with an equivalent overall piston surface area can be used to minimize the width, compared to one cylinder with an equivalent cross-sectional piston surface area. Thus, the arguments fail because they presume the brake is required, or required to be removed from a particular structure, to take advantage of the teaching concerning substituting two cylinders for one.

Patent Owner argues that Petitioner's motivation to modify the references "is misguided." Prelim. Resp. 24. This, according to Patent Owner, is because Petitioner's motivation is "to reduce the width of the corner box that house the cylinder assembly" (Pet. 25), but the goal of the '105 patent is to "fit more efficiently within the respective hollow rectangular shape of the corner posts." *Id.* (citing Ex. 1001, 4:23–18). Though not stated, the implication is that the ordinary artisan would not have been motivated to make Petitioner's proposed modification.

It is clear that the motivation in the Petition does not have to match a motivation within the challenged patent. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 420 (2007) ("[A]ny 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."); *In re Kahn*, 441 F.3d 977, 989 (Fed. Cir. 2006) ("[T]he skilled artisan need not be motivated to combine [a prior art reference] for the same reason contemplated by the [inventor]"); *In re Beattie*, 974 F.2d 1309, 1312 (Fed. Cir. 1992) ("As long as some motivation or suggestion to combine the references is provided by the prior art taken as a whole, the law does not

require that the references be combined for the reasons contemplated by the inventor.”). On this record, we find Petitioner’s motivation sufficient. Petitioner explains, “if more [] lifting force is desired, this is typically achieved by increasing [] the area of the cylinder’s piston head.” Pet. 20. Further, Petitioner argues that “it is generally undesirable for such lifting mechanisms to extend too far outwardly from the sides of the truck, as this increases the overall width of the vehicle,” and undesirable to reduce the internal width of the dump box, to accommodate larger cylinders, because this “has the very undesirable effect of reducing the carrying capacity of the dump truck.” Pet. 23–25 (citing Ex. 1012 ¶¶ 41, 42, 44). Thus, Petitioner argues, it would be desirable to prevent either of these dimension changes, by instead substituting two cylinders for one, where the increased lifting force can be accomplished with a more “compact, space-saving arrangement” than increasing the dimensions of the cylinder housing. Pet. 26 (citing Ex. 1005 at 2:59–65 and 2:73–75); *see also* Ex. 1012 ¶ 49. Petitioner thus does not seek to reduce the size (width) of the corner post, but instead seeks to *avoid any increases* in width, when providing more lifting force to the tailgate. Thus, even if Patent Owner was correct that the same motivation was required of the prior art combination as in the ’105 patent, Petitioner’s asserted motivation to combine Martin and Stoll appears to be consistent with the goals of the ’105 patent to create “a compact, space-saving arrangement with smooth outer surfaces,” and “fit more efficiently within the respective hollow rectangular shape of the corner posts.” Prelim. Resp. 24 (citing Ex. 1001, 4:12–18).

Also challenging whether the skilled artisan would have had the asserted motivation to combine the prior art, Patent Owner argues:

a design engineer would quickly realize there are several issues with simply substituting a single cylinder assembly with a double cylinder assembly. . . . These issues include unwanted forces and stresses acting on the piston rods and internal components, unequal piston travel and induced bending moments that eventually cause failure, difficulty in synchronizing the cylinders, and differences caused by machining and component tolerances which can cause each cylinder to extend and retract at different speeds than one another.

Prelim. Resp. 27 (citing Ex. 2001 ¶¶ 56–57).

In designing and manufacturing any product, engineering challenges are expected to be encountered along the way. The “issues” Patent Owner articulates appear to us, at this stage of the proceeding, to be the type that would have been routinely encountered and addressed by someone who was a “mechanical engineer having at least five year’s industrial experience in the engineering and design of dump bodies with high lift tailgates, including cylinder assemblies, for dump trucks.” *See* Prelim. Resp. 4. Moreover, if such a multitude of issues existed with using two cylinders and their solution is beyond the level of skill in the art at the time of the invention, Patent Owner’s specification gives no indication of these problems or how to surmount them. Instead, the Specification describes the cylinders used and their operation as “conventional.” Ex. 1001, 3:52–55 (“The first and second cylinders 41 and 42 are, of themselves, conventional in the art and may be embodied as hydraulically or pneumatically actuated cylinders.”); 3:57–59 (“As is well known in the art, the piston rods 41a and 42a can be extended from or retracted within the associated first and second cylinders 41 and 42 as desired.”); 3:66–4:11. Thus Patent Owner does not persuade us that these argued issues would discourage the ordinary artisan from combining the prior art for the reasons articulated by Petitioner. *In re Epstein*, 32 F.3d

1559, 1568 (Fed. Cir. 1994) (holding “the Board’s observation that appellant did not provide the type of detail in his specification that he now argues is necessary in prior art references supports the Board’s finding that one skilled in the art would have known how to implement the features of the references.”); *Smith & Nephew, Inc. v. Rea*, 721 F.3d 1371, 1381–82 (Fed. Cir. 2013) (addressing a patent owner’s argument as to an alleged technical issue in the proposed combination, stating that “[t]his naturally raises the question of how [patent owner] managed to make such a combination work”).

Patent Owner also contends that Stoll is not analogous art, because Stoll is not in the same field as the ’105 patent, and “is not reasonably pertinent to any problem faced by the ’105 patent.” Prelim. Resp. 31. In support, Patent Owner contends “Petitioner fails to explain how Stoll logically commends itself to a person of ordinary skill,” and Patent Owner’s expert “found it[] ‘extremely difficult to search for the Stoll patent.’” *Id.* at 32 (citing Ex. 2001 ¶ 70). We agree that Petitioner does not specifically address the issue of whether Stoll is analogous art, or its pertinence to problems faced in the ’105 patent.

At this point in the proceedings, however, Patent Owner’s argument does not persuade us. The ’105 patent is concerned with “the internal space that is available within each of these corner posts is limited, thus limiting the size of the cylinder.” Ex. 1001, 1:48–53. The patent also says the cylinders “may be embodied as hydraulically or pneumatically actuated cylinders.” *Id.* at 3:52–55. Stoll teaches “a pneumatically operated machine tool advancing device including a brake cylinder containing hydraulic oil or other viscous brake fluid, and two pneumatic work cylinders located on opposite sides of the brake cylinder” and expressly states that its disclosed

cylinder arrangement is advantageous because of its "low constructive height, as two smaller work-cylinders can be used instead of one large one," which offers "a compact, space saving arrangement with smooth outer surfaces." Ex. 1005, 1:13–18, 2:59–75. Thus, both the '105 patent and Stoll (as well as Martin) are concerned with problems utilizing pneumatic and/or hydraulic cylinders to provide moving forces on devices, and, at the very least, would be reasonably pertinent to an inventor attempting to improve providing moving forces via mechanical cylinders. *See Donner Tech., LLC v. Pro Stage Gear LLC*, 979 F.3d 1353, 1361 (Fed. Cir. 2020) (noting "[t]he relevant question is whether a PHOSITA "would reasonably have consulted" the reference in solving the relevant problem" and that the problem must be identified "from the vantage point of a PHOSITA who is considering turning to the teachings of references outside her field of endeavor" and "[s]uch a PHOSITA—resigned to considering art outside her field of endeavor—would thus not identify the problems so narrowly so as to rule out all such art"). On this record, we find this sufficient to demonstrate that Stoll is analogous art. Of course, this finding is only preliminary and Patent Owner will be free to further develop the record on this issue during the course of the trial.

We also note that Patent Owner's argument about the alleged difficulty in finding Stoll is irrelevant. Prelim. Resp. 32 (citing Ex. 2001 ¶ 70). There is no dispute that Stoll, as a published British patent specification from 1970, is prior art. As long as Stoll is analogous art—i.e., it is in the same field of endeavor or reasonably pertinent to the problem facing the inventor—the hypothetical person of ordinary skill is presumed to know it. *See Kimberly-Clark Corp. v. Johnson & Johnson*, 745 F.2d 1437,

1449–54 (Fed. Cir. 1984) (explaining what a person of ordinary skill is presumed to have known).

Pointing out that “persons of ordinary skill in the art must accommodate various and sometimes conflicting design criteria when solving the tailgate lifting problem,” Patent Owner advances a number of examples of alternative approaches an ordinary artisan “could use” instead of substituting two cylinders for one. Prelim. Resp. 33–38; *see also id.* at 27–28 (“using a hydraulic lifting cylinder in place of a larger or double pneumatic cylinder”). Therefore, according to Patent Owner,

two cylinders are better than one only if the person of ordinary skill ignores other, less problematic solutions; disregards all of the issues involved in double cylinder assemblies; forgets that there is a readily available hydraulic supply on all dump trucks with dump bodies; and zeroes out the significant difference between hydraulic and pneumatic pressure.

Id. at 38.

The fundamental problem with Patent Owner’s argument is that neither the claims nor the ’105 patent draw any distinction between pneumatic and hydraulic cylinders. The claims are entirely silent, and the specification expressly states that both/either pneumatic and hydraulic cylinders can be used. *See* Ex. 1001, 3:52–55 (“The first and second cylinders **41** and **42** are, of themselves, conventional in the art and may be embodied as hydraulically or pneumatically actuated cylinders.”). Moreover, the fact that better solutions might exist does not necessarily make a particular solution non-obvious. *See In re Mouttet*, 686 F.3d 1322, 1334 (Fed. Cir. 2012) (“This court has further explained that just because better alternatives exist in the prior art does not mean that an inferior combination is inapt for obviousness purposes.”). Finally, Patent Owner’s

arguments that there were cheaper solutions to the problems Petitioner articulated than using two cylinders are not persuasive. Prelim. Resp. 33–35. The fact that a solution is more costly, by itself, is insufficient to reject Petitioner’s motivation to combine. *See Grit Energy Solutions, LLC v. Oren Techs., LLC*, 957 F.3d 1309, 1323–24 (Fed. Cir. 2020) (“[T]he fact that the two disclosed apparatus [sic] would not be combined by businessmen for economic reasons is not the same as saying that it could not be done because skilled persons in the art felt that there was some technological incompatibility that prevented their combination. Only the latter is telling on the issue of nonobviousness.” (quoting *Orthopedic Equip. Co. v. United States*, 702 F.2d 1005, 1013 (Fed. Cir. 1983))).

Under Ground 3, Patent Owner additionally argues that nothing in Martin makes up for the shortcomings in Stoll, and that “[a]t most, Martin is cumulative to the prior art disclosed in the ‘105 Patent.” Prelim. Resp. 46. Patent Owner thus does not dispute Petitioner’s use of Martin, and instead focuses only on the use of Stoll as a secondary reference.

Because we are not persuaded by Patent Owner’s arguments, we conclude that Petitioner has established a reasonable likelihood of prevailing on its contentions that claims 1–20 would be obvious over the combination of Martin and Stoll.

E. Obviousness over Martin, Stoll, and Weber (Ground 4)

Petitioner challenges claims 1–20 of the ’105 patent under 35 U.S.C. § 103(a) as unpatentable over Martin, Stoll, and Weber. Pet. 56–57.

Patent Owner only argues Martin and Weber, alone or in combination, do not overcome the alleged deficiencies of Stoll. Prelim. Resp. 47.

Because Patent Owner has not demonstrated to us the alleged deficiencies in Stoll and based on our review of the current record, we conclude Petitioner has established a reasonable likelihood of prevailing on its contentions that claims 1–20 would be obvious over the combination of Martin, Stoll, and Weber.

F. Obviousness over Bidy and Stoll (Ground 5)

Petitioner challenges claims 1–20 of the '105 patent under 35 U.S.C. § 103(a) as unpatentable over Bidy and Stoll. Pet. 57–69.

Patent Owner only argues Bidy does not overcome the alleged shortcomings of Stoll. Prelim. Resp. 47.

Because Patent Owner has not demonstrated to us the alleged deficiencies in Stoll, we conclude Petitioner has established a reasonable likelihood of prevailing on its contentions that claims 1–20 would be obvious over the combination of Bidy and Stoll.

G. Obviousness over Bidy, Stoll, and Weber (Ground 6)

Petitioner challenges claims 1–20 of the '105 patent under 35 U.S.C. § 103(a) as unpatentable over Bidy, Stoll, and Weber. Pet. 69–70.

Patent Owner only argues Bidy and Weber, alone or in combination, do not overcome the alleged shortcomings of Stoll. Prelim. Resp. 47–48.

Because Patent Owner has not demonstrated to us the alleged deficiencies in Stoll and based on our review of the current record, we conclude Petitioner has established a reasonable likelihood of prevailing on its contentions that claims 1–20 would be obvious over the combination of Bidy, Stoll, and Weber.

IV. CONCLUSION

For the reasons discussed above, we conclude Petitioner has shown a reasonable likelihood of prevailing with respect to at least one claim. We have evaluated the parties' submissions and determine that the record supports institution. Accordingly, we institute an *inter partes* review of all challenged claims under all grounds set forth in the Petition.

Our determination at this stage of the proceeding is based on the evidentiary record currently before us. This decision to institute trial is not a final decision as to patentability of any claim for which *inter partes* review has been instituted. Our final decision will be based on the full record developed during trial.

V. ORDER

For the reasons given, it is:

ORDERED that an *inter partes* review is instituted on all challenged claims (1–20, all claims) of the '105 patent under all grounds; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(a), *inter partes* review of the '105 patent is hereby instituted commencing on the entry date of this Decision, and pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial.

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