

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

WIRTGEN AMERICA, INC.,
Petitioner

v.

CATERPILLAR INC.,
Patent Owner

Case IPR2022-01397
U.S. Patent No. 9,975,538

PETITIONER’S REQUEST FOR DIRECTOR REVIEW

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I. INTRODUCTION

Petitioner Wirtgen America, Inc. respectfully requests Director Review of a limited portion of the Board’s March 12, 2024, Final Written Decision (FWD) (Paper 27) finding that Petitioner failed to prove claim 13 of U.S. Patent No. 9,975,538 (the ’538 patent) is unpatentable under 35 U.S.C. § 103(a).¹ Petitioner does not seek Director review of the Board’s other findings, including that claims 1-12 are unpatentable. The request should be granted because the Board abused its discretion and made erroneous conclusions of law in overlooking and failing to consider arguments in the Petition that Willis’s milling machine modified to include Xing’s CVT and Laux’s clutch would have included a controller-operated clutch capable of completely disengaging Willis’s rotor from the engine.

II. LEGAL STANDARD

Parties to a PTAB proceeding may request Director review of a final written decision and such review will be “de novo.” *U.S. v. Arthrex, Inc.*, 594 U.S. 1, 25-27 (2021); Request for Comments on Director Review, 87 Fed. Reg. 43,249, 43,250 (July 20, 2022). Director review of a Board decision may be warranted

¹ The Board’s FWD conclusion indicates that Ground 2 was based on § 102(a), which appears to be a typo. FWD 66. The Petition and beginning of the FWD both indicated Ground 2 was based on § 103. Pet. 3; FWD 9.

when the request presents “(a) an abuse of discretion, (b) important issues of law or policy, (c) erroneous findings of material fact, or (d) erroneous conclusions of law.” Revised Interim Director Review Process (5)(A)-(A)(ii)(c)(1)1.

(<https://www.uspto.gov/patents/ptab/decisions/revised-interim-director-review-process>). “[I]ssues of particular importance to the USPTO” include

“inconsistencies with USPTO procedures, guidance, or *decisions*.” 87 Fed. Reg. at 43,250 (emphasis added.)

III. BACKGROUND

Wirtgen America’s Petition challenged the patentability of claims 1-13 of U.S. Patent No. 9,975,538 (EX1001, “the ’538 Patent”) under two grounds. Under Ground 1, the Petition asserted claims 1-13 are obvious based on U.S. Patent Publication No. US2010/0014917 (EX1005, “Willis”), in view of U.S. Patent No. 9,656,656 (EX1006, “Xing”). Under Ground 2, the Petition asserted claims 8 and 13 are obvious based on Willis in view of Xing and U.S. Patent No. 9,864,347 (EX1012, “Laux”). Petitioner seeks Director Review of the Board’s decision to reject the Petition’s Ground 2 argument—that the proposed combination of Willis’s milling machine modified to include Xing’s CVT and algorithm, and further modified to include Laux’s clutch, would have rendered claim 13 obvious. Instead of analyzing how Laux’s clutch would operate in the *Petition’s proposed combination*, the Board analyzed how Laux’s clutch operates in *Laux’s milling*

machine. Based on its analysis of a machine different from that proposed in the Petition, the Board erroneously rejected the combination.

Claim 13 requires “a clutch disposed between the engine and the rotor” and a controller “configured to selectively disengage the rotor from the engine through control of the clutch.” EX1001, 7:21–24. The Petition proposed incorporating Laux’s clutch into the Willis/Xing combination of Ground 1: “A POSITA would have been motivated to incorporate Laux’s clutch into Willis’s milling machine that has been modified to include Xing’s CVT and algorithm.” Pet. 79. The Petition proposed implementing only Laux’s clutch—no other components of Laux—in the proposed combination.

The proposed combination, unlike Laux’s machine, completely disengages the engine from the rotor. This difference results because Xing’s self-contained CVT combines a mechanical path and a hydrostatic path within the CVT itself. Thus, in the proposed combination, a clutch either upstream or downstream of Xing’s self-contained CVT completely disengages the rotor from the engine. In contrast, Laux’s transmission includes a mechanical connection driven directly by the engine (disengaged by Laux’s clutch 15) and a separate hydrostatic connection that drives auxiliary drive 20 via hydraulic pumps 19 (not disengaged by Laux’s clutch 15). FWD 61–62 (quoting Patent Owner’s argument that, in Laux, “even when clutch 15 is disengaged, rotor 7 would still be connected to engine 4 via a

secondary drive 20 and hydraulic pumps 19”). Because the proposed combination incorporates only Laux’s clutch and not Laux’s coupled hydraulic pumps 19 and auxiliary drive 20, disengagement of the clutch in the proposed combination completely disengages all hydraulic and mechanical connections between the engine and rotor. Pet. 79–80.

By analyzing the prior art in isolation rather than analyzing the prior-art combination asserted in the Petition, the Board legally erred in concluding that claim 13 is not unpatentable. *In re Merch & Co.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) (“Non-obviousness cannot be established by attacking references individually where the rejection is based upon the teachings of a combination of references.”).

IV. ARGUMENT

A. The Board abused its discretion by analyzing a prior-art reference in isolation rather than analyzing the prior-art combination asserted against claim 13 in the Petition under Ground 2.

As the Board acknowledged, Wirtgen argued that a POSITA “would have been motivated to incorporate Laux’s clutch into Willis’s milling machine that has been modified to include Xing’s CVT and algorithm.” FWD 60–61 (quoting Pet. 79). The Board further acknowledged that:

Petitioner explains that one of ordinary skill in the art “would have wanted to retain this safety feature from conventional milling machine” and “would have been motivated to incorporate Laux’s

clutch” with “a reasonable expectation of success in doing so because clutches were well-known and Laux taught a successful way to implement a clutch in a milling machine wherein the engine was coupled to the rotor via a CVT.”

FWD 61 (citing Pet. 80). The Board’s statements align with the Petition’s explanation that “claim 13 would have been obvious over Willis, in view of Xing, and in further view of Laux.” Pet. 80.

In demonstrating the obviousness of claim 13, the Petition first explained that parent claim 6 would have been obvious based on Willis’s milling machine modified to include both Xing’s CVT and algorithm. The Petition then explained that this Willis/Xing combination would be further modified by incorporating Laux’s clutch between Willis’s engine and rotor. Pet. 79–80. Thus, Laux’s clutch could only have been incorporated in one of two places in the Willis/Xing combination: (1) before Xing’s CVT, i.e., between Willis’s engine and the CVT; or (2) after Xing’s CVT, i.e., between the CVT output and Willis’s rotor. Either arrangement results in a machine that would “selectively disengage the rotor from the engine through control of the clutch.”

As detailed below, the Board ignored how Laux’s clutch operates in the proposed combination proposed and instead analyzed the operation of Laux’s clutch in Laux’s machine. The Board also improperly rejected Petitioner’s further explanation of the proposed combination in response to Patent Owner’s arguments

regarding the operation of Laux's clutch in Laux's machine as new argument.

Consequently, the Board abused its discretion when it found claim 13 not unpatentable in view of Ground 2. *Uniloc 2017 LLC v. Facebook, Inc.*, 2021 WL 5370480, at *7 (Fed. Cir. 2021) ("An abuse of discretion is found if the decision: (1) is clearly unreasonable, arbitrary, or fanciful; (2) is based on an erroneous conclusion of law; (3) rests on clearly erroneous fact finding; or (4) involves a record that contains no evidence on which the Board could rationally base its decision.").

1. The Petition proposed incorporating Xing's CVT into Willis's drive train.

It is important to understand that Xing's CVT is a self-contained variable transmission containing a mechanical connection and a parallel hydrostatic connection between the engine and a combined transmission output. Pet. 23–24. As seen in the Petition's annotated Figure 3, below, engine 22 directly powers Xing's self-contained CVT 24, which in turn powers output shaft 56.

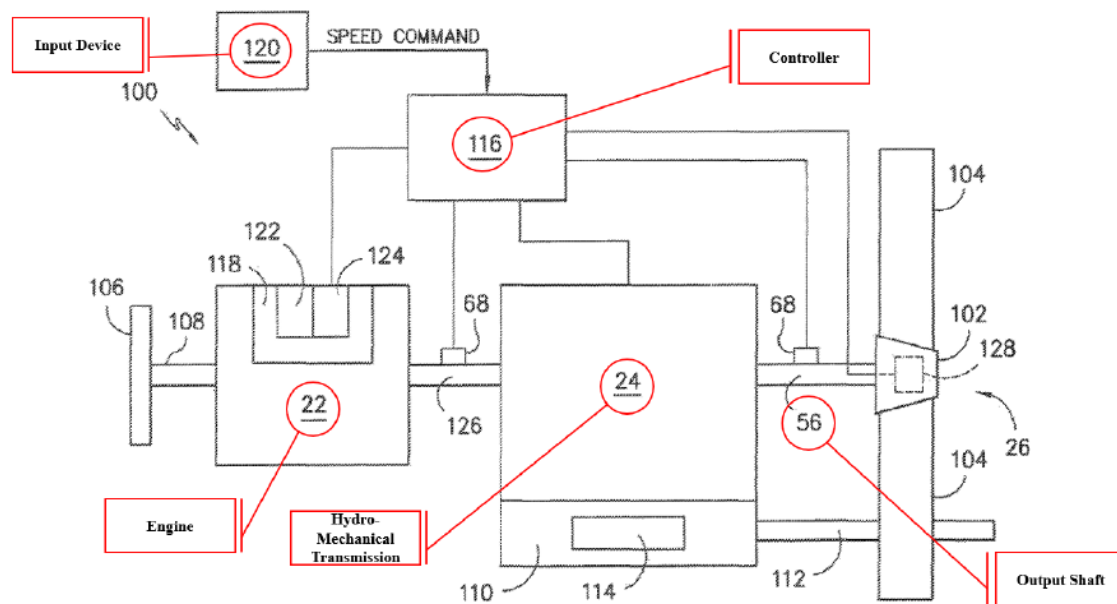


FIG. -3-

Xing, Fig. 3 (annotated)

Pet. 38. This is shown in more detail in the Petition’s annotated Figure 2 below, which bounds Xing’s self-contained CVT 24 with a red box.

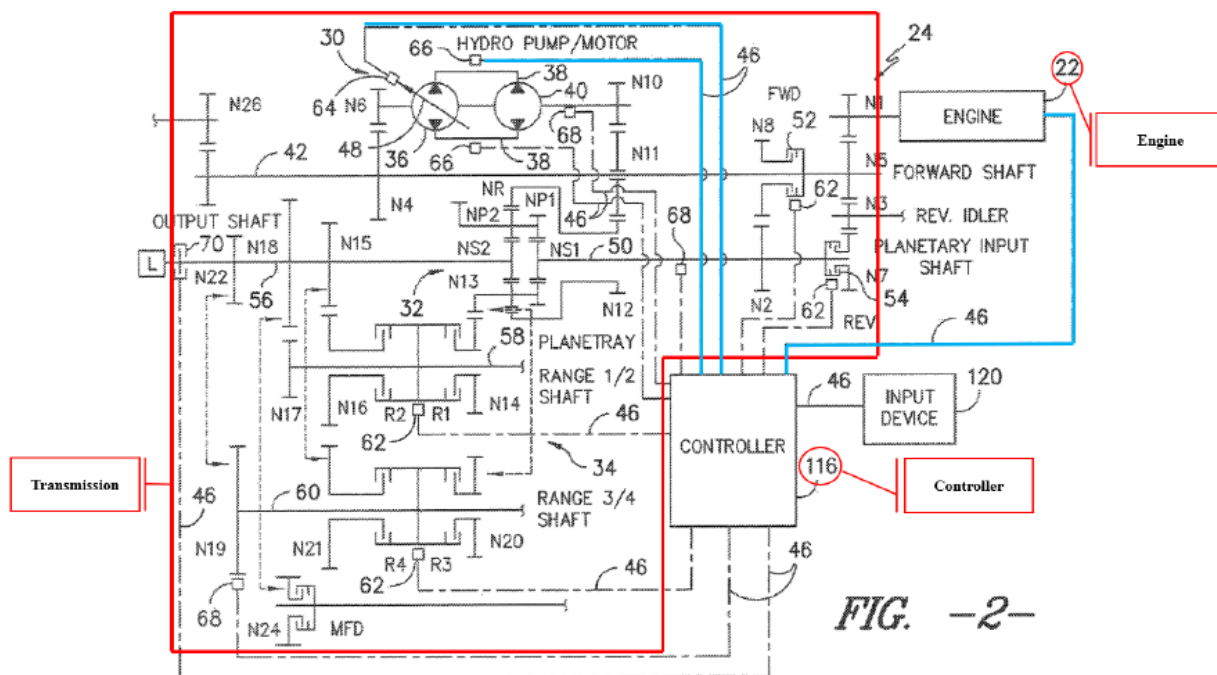
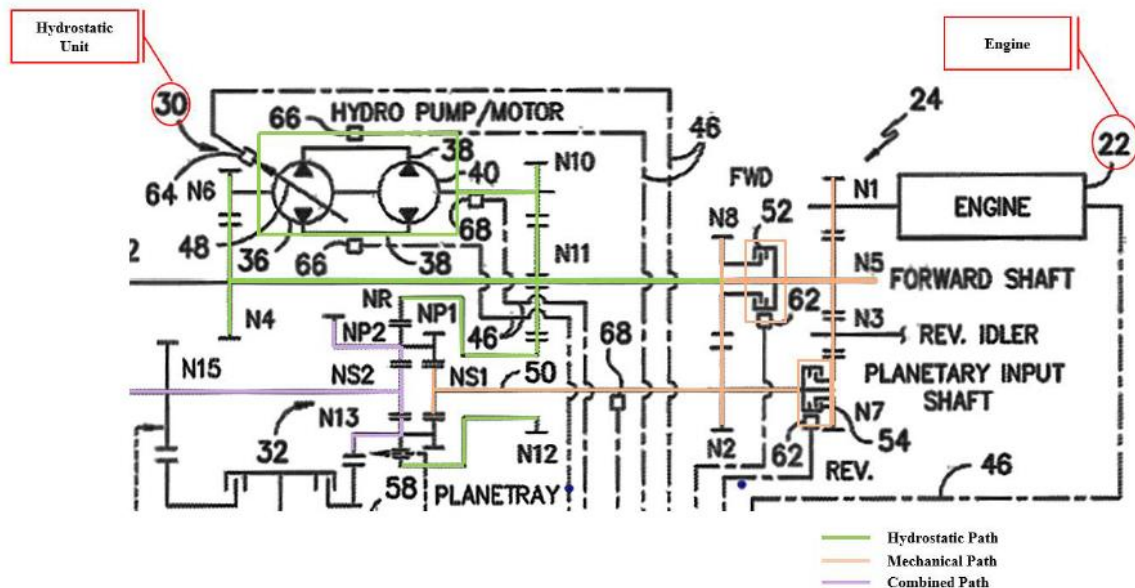


FIG. -2-

Xing, Fig. 2 (annotated)

Pet. 23. The Petition's annotated excerpt of Figure 2 below specifies that the mechanical arrangement (in orange) and the hydrostatic arrangement (in green) combine within Xing's CVT 24 to power output shaft 56.

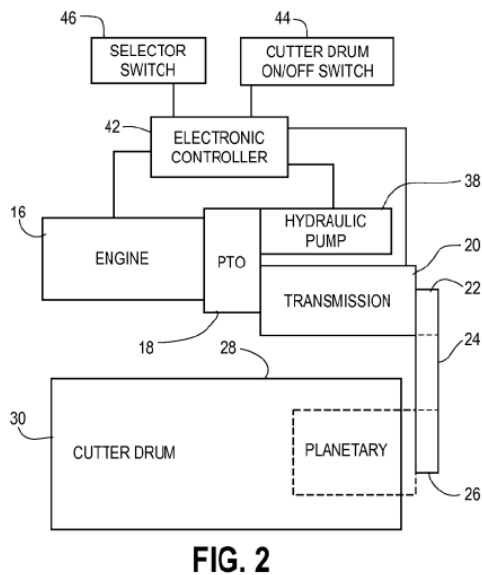


Xing, Fig. 2 (excerpt annotated)

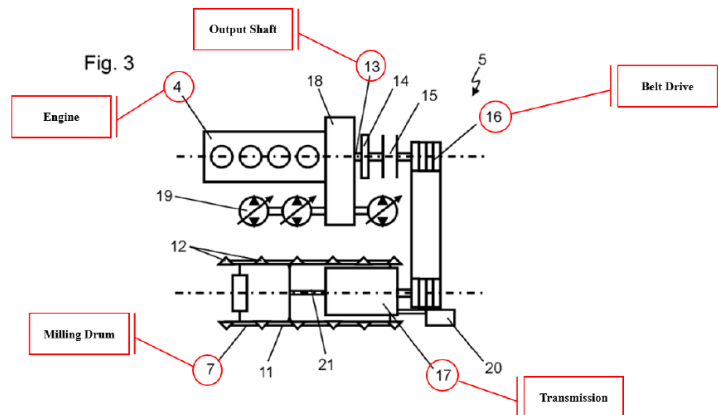
Pet. 23. In concluding that Willis modified to include Xing's CVT renders claim 7 obvious, the Board acknowledged these features of Xing's CVT and noted that Patent Owner did not dispute these facts. See FWD 47.

The Petition asserted, “[a]s Xing, Laux, and Parker suggested, a POSITA would have wanted to *incorporate Xing's CVT into Willis's milling machine* such that the CVT couples Willis's engine and milling drum.” Pet. 56 (emphasis added). The Petition proposed adding Xing's CVT into Willis's drive train, which includes a belt-and-pulley system, not replacing Willis's belt-and-pulley system with Xing's CVT. Pet. 11, 36. This is consistent with the prior art—Parker (EX1013) and

Laux—relied on in the Petition. As demonstrated by Figure 2 of Parker and Figure 3 of Laux, there are only two places to incorporate Xing’s CVT in a drive train like Willis’s that includes a belt-and-pulley system: (1) between the CVT and the rotor (items 20 and 30 in the Parker CVT configuration) or (2) between the engine and the CVT (items 4 and 17 in the Laux CVT configuration).



EX1013, Fig. 2



Laux, Fig. 3.

Pet. 10, 14. This is exactly what the Petition asserted. Pet. 51 (“As in Parker and Laux, the modification would have coupled the output of the variable transmission to Willis’s rotor....”).

2. Incorporating Laux's clutch into the Willis/Xing combination would have resulted in a clutch that completely disengages the engine from the rotor.

In the Petition's proposed combination, a clutch would selectively disengage the engine from the rotor because it would completely disengage transmission of

power—both via the mechanical arrangement and the hydraulic arrangement—by Xing’s self-contained CVT. In the Parker CVT configuration, the clutch would be arranged between Xing’s output shaft 56 and the drive pulley, upstream of the rotor. This clutch, at the output of Xing’s CVT, would have disconnected Xing’s CVT output from Willis’s rotor. In the Laux CVT configuration, the clutch would be arranged between the engine and the input to Xing’s CVT, upstream of Xing’s CVT. This clutch, between Willis’s engine and Xing’s CVT, would have disengaged all engine power from the rest of the drive train, including Xing’s CVT and Willis’s rotor. Either position accomplishes the purpose described for Laux’s clutch: “Laux taught a milling machine powertrain in which clutch 15 was disposed between the engine and the rotor to selectively disengage the rotor from the engine... Clutch 15 could disengage engine 4 from belt drive 16, drive transmission 17, and rotor 7.” Pet. 78–79. And, as seen in Parker Figure 2 and Laux Figure 3 *supra*, in either configuration, the clutch would have disengaged the rotor from the engine just upstream of the driven pulley of the belt drive (item 22 in Parker and item 16 in Laux). Furthermore, because the Willis/Xing combination does not include an auxiliary drive like Laux, either position would “selectively [and completely] disengage the rotor from the engine through control of the clutch” as required by claim 13.

3. Instead of analyzing the Petition’s prior-art combination, the Board erroneously analyzed the function of Laux’s clutch in Laux’s machine, which maintains a hydraulic connection to the engine even when disengaged.

The Board acknowledged that, according to Petitioner, a POSITA “would have been motivated to incorporate Laux’s clutch into Willis’s milling machine that has been modified to include Xing’s CVT and algorithm,” yet erroneously analyzed how Laux’s clutch operates *in Laux’s machine*. FWD 60–61. The Board explained that in “making this determination, we agree with Patent Owner that Laux fails to disclose that clutch 15 disengage[s] rotor 7 from engine 4 because, even when clutch 15 is disengaged, rotor 7 would still be connected to engine 4 via a secondary drive 20 and hydraulic pumps 19.” FWD 63; *see also* FWD 64 (crediting Dr. Kemal’s testimony about the connections of these components “in Laux”). But Laux’s engine 4, secondary drive 20 (“auxiliary drive 20”), and hydraulic pumps 19 were not part of the prior-art combination the Petition asserts against claim 13. It is these additional components *in Laux’s machine* that supply power to the rotor via a hydrostatic path even when Laux’s clutch is disengaged, which was the basis for the Board’s finding that claim 13 was not shown unpatentable.

Because the Board considered only the function of Laux’s clutch in Laux’s machine and overlooked the Petition’s proposed implementation, its conclusion that claim 13 is not unpatentable should be rejected. *Provisur Technologies, Inc. v.*

Weber, Inc., 50 F.4th 117, 125 (Fed. Cir. 2022) (rejecting the Board’s conclusion that the challenged claim was not unpatentable for failing to address prior art combination in the petition).

B. Locating Laux’s clutch at the output of Xing’s CVT is not a new Reply argument.

The Board alleges that locating Laux’s shift clutch 15 as the last drive train element between Xing’s transmission and adjacent Willis’s drive pulley at the output of Xing’s transmission is a “newly asserted modification.” According to the Board, contrary to the Petition, the Willis/Xing/Laux combination “now relies on components of Willis’s direct drive train.” FWD 65. The Board is incorrect.

1. The Reply expands on the Petition’s argument that placement of Laux’s clutch between engine and rotor of Willis/Xing (at the output of Xing’s CVT) would have selectively disengaged the engine from the rotor.

Petitioner’s Reply responded to Patent Owner’s argument that in Laux’s machine, clutch 15 does not completely disengage Laux’s engine from its rotor. Petitioner merely further explained the Petition’s implementation of Laux’s clutch placed at the output of Xing’s CVT (the Parker CVT configuration). Pet. Reply 23–26. And the Reply explained that such implementation would have completely disengaged Willis’s rotor from its engine. *Id.* For example, the Reply argued that “[w]hen implemented in the proposed combination, Laux’s shift clutch 15 would have been located as the last drive train element between Xing’s transmission and

adjacent Willis's drive pulley 'belt-and-pulley system' at the output of Xing's transmission." *Id.* 23 (citing Pet. 11; EX1005 ¶ 20). This was nothing more than explanation of the Petition's proposed combination stating that Willis's milling machine would have been modified to include both Xing's CVT and Laux's clutch between Willis's engine and rotor. Pet. 79. The Petition had already explained that Willis's drive train could include a belt-and-pulley system and that Parker disclosed a milling machine with belt-and-pulley system attached to the output of its variable transmission. *Id.* 11, 32–33; *id.* 8 (citing Parker 4:39-5:9). Petitioner's Reply simply expanded on one of the two prior-art options identified in the Petition to further explain why Laux's clutch would have been located at the output of Xing's CVT. *Apple Inc. v. Andrea Electronics Corporation*, 949 F.3d 697, 706 (Fed. Cir. 2020) (finding abuse of discretion where petitioner relied on the same grounds, arguments, and previously identified portions of prior art reference, that Board rejected as new).

2. The Petition expressly discussed Willis's belt-and-pulley system and only proposed incorporating Xing's CVT into Willis's drive train, not replacing Willis's belt-and-pulley system.

The Board had no basis to conclude that Willis's belt-and-pulley system was not part of the Petition's proposed combination. The Board relied on Patent Owner's false allegation in its Sur-reply that "the petition proposed **replacing** Willis's belt-and-pulley system with the variable transmission of Xing." PO Sur-

reply 22 n.6 (emphasis original); *see also* FWD 65 (citing same). According to Patent Owner, the Petition’s proposed modification was to “couple Willis’s rotor to the output of Xing’s transmission” instead of coupling the rotor to “***the output of*** [Willis’s] ***direct drive train.***” PO Sur-reply 22 n.6 (emphasis in original). But coupling does not require a direct connection between Willis’s rotor and the output of Xing’s CVT to the exclusion of Willis’s belt-and-pulley system. Indeed, both Parker and Laux include a belt-and-pulley system, just like the proposed combination. *See* Pet. 51 (“As in Parker and Laux, the modification would have coupled the output of the variable transmission to Willis’s rotor....”). Nowhere does the Petition suggest coupling Willis’s rotor to the output of Xing’s transmission ***instead of*** coupling the rotor to the output of Willis’s direct drive train. In multiple instances spread over more than 20 pages, the Petition stated that Willis’s direct drive train is modified to “incorporate” or “include” Xing’s CVT, and never to replace any component of Willis’s drive train. *See, e.g.,* Pet. 34, 39, 40, 41, 44, 47, 50, 51, 52, 54, 55, 56, 57, 58, 67, 69, 70, 71, 72, 76, 79.

V. CONCLUSION

For the foregoing reasons, the Director should review and reverse the portion of the Board’s March 12, 2024, Final Written Decision (FWD) (Paper 27) finding that Petitioner failed to prove claim 13 of U.S. Patent No. 9,975,538 (the ’538 patent) is unpatentable.

Respectfully submitted,

Date: April 3, 2024

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CERTIFICATE OF SERVICE (37 C.F.R. § 42.6(e))

I certify that the above-captioned **PETITIONER'S REQUEST FOR
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