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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JOHN PURCELL, AARON QUINTON,
NATHANIEL P. HASSALL, and JOHN C. WALL

Appeal 2019-000428
Application 14/442,257
Technology Center 3700

Before CHARLES N. GREENHUT, BRANDON J. WARNER, and ALYSSA A. FINAMORE, *Administrative Patent Judges*.

WARNER, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant[1] appeals from the Examiner's decision to reject claims 1 and 3–20, which are all the pending claims. Appeal Br. 4. We have jurisdiction over the appeal under 35 U.S.C. § 6(b).

We AFFIRM.

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[1] We use the word "Appellant" to refer to the "applicant" as defined in 37 C.F.R. § 1.42. Appellant identifies the real party in interest as Cummins Inc. Appeal Br. 2.

CLAIMED SUBJECT MATTER

Appellant's disclosed invention "relates generally to internal combustion engines, and more particularly to the cylinders and associated liners of internal combustion engines." Spec. ¶ 2. Claims 1, 13, and 20 are independent. Claim 1, reproduced below with emphasis added, is illustrative of the subject matter on appeal.

1. An internal combustion engine, comprising:

a cylinder comprising a mid-stop shelf;

a liner positioned within the cylinder, the liner comprising a seat supported on the mid-stop shelf, wherein the liner defines a piston channel;

a coolant conduit between the cylinder and the liner, the coolant conduit being located above the mid-stop shelf and [the] seat; and

a piston comprising a head portion and a skirt portion, the piston being movable within the piston channel between an uppermost position and a lowermost position, wherein in the uppermost position, the skirt portion is positioned below the mid-stop shelf and [the] seat,

wherein the piston imparts a peak side thrust on the liner within a peak thrust zone, and

wherein the peak thrust zone is located below the mid-stop [shelf] and the seat.

EVIDENCE

The Examiner relies on the following evidence in rejecting the claims on appeal:

Jones	US 4,294,203	Oct. 13, 1981

REJECTION

The following rejection is before us for review: Claims 1 and 3–20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Jones. Final Act. 2–7.

ANALYSIS

Appellant presents arguments against the rejection of independent claim 1 (*see* Appeal Br. 7–20), relies on the same arguments in addressing the rejection of independent claim 13 (*see id.* at 20–21) and independent claim 20 (*see id.* at 21–22), and expressly notes that the dependent claims are considered to stand or fall together with the respective independent claims (*see id.* at 20, 21, 22). We select independent claim 1 as representative of the issues that Appellant presents in the appeal of this rejection, with remaining claims 3–20 standing or falling therewith. *See* 37 C.F.R. § 41.37(c)(1)(iv).

The Examiner determines that the teachings from Jones alone render obvious to one of ordinary skill in the art the subject matter claimed. *See* Final Act. 2–5. Appellant argues that the rejection is deficient because "the Examiner has failed to prove that Jones teaches [or] suggests a location of the peak thrust zone or that the peak thrust zone is located below the mid-stop and the seat," as recited in the claim. Appeal Br 8; *see id.* at 10–11. This argument does not apprise us of error in the Examiner's conclusion of obviousness.

First, the Examiner acknowledges that Jones does not expressly disclose "the peak . . . side thrust's specific location, including it being below the mid-stop shelf and the seat." Final Act. 3. Nevertheless, the

Examiner explains, and we agree, that the engine of Jones will naturally experience side thrust from the reciprocating piston such that there will be some position along the vertical extent of Jones's cylinder liner where the piston imparts a peak side thrust with a peak thrust zone. Given the Examiner's reasonable explanation that such a peak thrust zone in Jones would likely be approximately around the mid-way point of the vertical extent of the cylinder (*see* Ans. 14–15), and given that Appellant explains that the peak thrust zone is a region where a maximum side thrust from the skirt portion of the piston occurs (*see* Appeal Br. 9 (citing Spec. ¶ 35)), we are not apprised of error in the Examiner's conclusion that Jones's peak thrust zone would be disposed below the mid-stop depicted, or that it would have been obvious to so locate it without more than routine experimentation by one of ordinary skill in the art (*see* Ans. 14–15; *see also id.* at 9–10).

Accordingly, Appellant's arguments do not identify error in the Examiner's ultimate conclusion that the claimed subject matter as a whole *would have been obvious* at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. *See* 35 U.S.C. § 103(a). Logic dictates that the relative vertical disposition between the peak thrust zone and the mid-stop shelf in Jones would naturally fall into one of only three possibilities—the peak thrust zone is located above the mid-stop shelf, the peak thrust zone is located below the mid-stop shelf, or the peak thrust zone and the mid-stop shelf are in the same vertical location. We discern no shortcoming in the Examiner's reasoning that, if the peak thrust zone in Jones is not already located below the mid-stop shelf (admittedly unspecified in Jones), it would have been obvious to a person having ordinary skill in the art to pick another location from such limited options.

Further, Appellant does not explain how such a modification (if necessary) in relative vertical location between the peak thrust zone and the mid-stop shelf in Jones would have yielded unpredictable results or somehow been beyond the level of ordinary skill in the art. *See KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007); Ans. 9–10, 14–15. In this regard, Appellant's assertions against Jones (*see* Appeal Br. 11–13) neglect to adequately consider that "[a] person of ordinary skill is also a person of ordinary creativity, not an automaton" (*KSR*, 550 U.S. at 421). The analysis under 35 U.S.C. § 103(a) presumes not only common sense, but also skill in the art. *See In re Sovish*, 769 F.2d 738, 743 (Fed. Cir. 1985).

After careful consideration of the record before us, Appellant's arguments do not apprise us of error in the Examiner's factual findings from Jones, which are supported by a preponderance of the evidence, or the Examiner's reasonable conclusion of obviousness, which is rationally articulated based on prior art teachings. In short, we sustain the Examiner's rejection based on the reasoned positions set forth therein and in light of the Examiner's thorough responses to Appellant's arguments. *See* Final Act. 2–5; Ans. 9–10, 14–15.

We note that any other arguments not specifically addressed in detail herein have been thoroughly considered by the panel but are not persuasive for the reasons well expressed in the Examiner's Answer.[2]

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[2] Regarding the variety of "hypothetical" additional rationales for a conclusion of obviousness provided in the Advisory Action (dated March 5, 2018), both Appellant and the Examiner agree that such "hypotheticals" do not form the basis of the obviousness rejection before us on appeal. *See* Appeal Br. 13–16; Ans. 12. We decline to speculate as to the sufficiency of these additional rationales.

In conclusion, after careful consideration of the evidence of record and for the foregoing reasons, Appellant's arguments do not apprise us of error in the Examiner's findings or reasoning in support of the conclusion of obviousness. Accordingly, we sustain the rejection of independent claim 1, and claims 3–20 falling therewith, under 35 U.S.C. § 103(a) as being unpatentable over Jones.

DECISION

We AFFIRM the Examiner's decision rejecting claims 1 and 3–20 under 35 U.S.C. § 103(a) as being unpatentable over Jones.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a). *See* 37 C.F.R. § 1.136(a)(1)(iv).

CONCLUSION

In summary:

Claims Rejected	Basis	Affirmed	Reversed
1 and 3–20	35 U.S.C. § 103(a) over Jones	1 and 3–20	

AFFIRMED