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MCCOY RUSSELL LLP 806 S.W. BROADWAY, SUITE 600 PORTLAND, OR 97205			KIM, JAMES JAY	
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte CHRISTOPHER K. PALAZZOLO, DARREN SIPILA,
STEVE POE, PHILIP D. CIERPIAL, and
CHANGSHENG GAN

Appeal 2018-004160
Application 13/270,110
Technology Center 3700

Before MICHAEL L. HOELTER, BRADLEY B. BAYAT, and
FREDERICK C. LANEY, *Administrative Patent Judges*.

HOELTER, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Pursuant to 35 U.S.C. § 134(a), Appellant¹ appeals from the
Examiner's decision to reject claims 1–20, which constitute all the claims

¹ We use the word “Appellant” to refer to “applicant” as defined in
37 C.F.R. § 1.42. Appellant identifies the real party in interest as “Ford
Global Technologies, LLC.” Appeal Br. 3.

pending in this application. Appellant's counsel presented oral argument on February 28, 2020. We have jurisdiction under 35 U.S.C. § 6(b).

We REVERSE.

CLAIMED SUBJECT MATTER

The disclosed subject matter relates to internal combustion engines which are continually being refined to increase the output of the engine as well as reduce the engine's weight and/or size. *See* Spec. 1:9–10. Apparatus claims 1 and 10, and method claim 16, are independent. Claim 1 is illustrative of the claims on appeal and, is reproduced below.

1. A structural frame configured to be coupled between a cylinder block and oil pan, comprising:
 - an oil pan engaging surface;
 - first and second cylinder block engaging surfaces, the first and second surfaces positioned above the oil pan engaging surface at a height that is above a centerline of a crankshaft when the first and second surfaces are coupled to bottom engaging surfaces of the cylinder block;
 - a structural frame lubrication passage internally routed through an exterior sidewall of the structural frame and traversing at least a portion of the structural frame; and
 - a plurality of laterally aligned supports, with respect to a lateral direction, the lateral direction perpendicular to the centerline, forming a ladder configuration, where the plurality of laterally aligned supports and the oil pan engaging surface form a bottom surface of the structural frame, the bottom surface positioned vertically below and offset from the centerline, and where the structural frame lubrication passage includes an inlet located at the bottom surface of the structural frame and an outlet located at one of the first and second cylinder block engaging surfaces.

EVIDENCE

Name	Reference	Date
Sonoda et al.	US 4,729,349	Mar. 8, 1988
Elsbett et al. (“Elsbett”)	US 4,854,276	Aug. 8, 1989
Breeden	US 6,390,072 B1	May 21, 2002
Sachdev et al. (“Sachdev”)	US 2003/0029413 A1	Feb. 13, 2003
Inoue et al. (“Inoue”)	US 6, 530,356 B2	Mar. 11, 2003
Cho	US 6,684,845 B2	Feb. 3, 2004
Lunsford	US 6,729,284 B2	May 4, 2004
Ohta et al. (“Ohta”)	US 7,040,275 B2	May 9, 2006
Toda	US 7,938,094 B2	May 10, 2011
Kuah	US 8,346,459 B2	Jan. 1, 2013

REJECTIONS

Claims 1–3, 5, 6, 10, 11, 16, and 19 are rejected under pre-AIA 35 U.S.C. § 103(a) as unpatentable over Elsbett and Sachdev.

Claims 4 and 13 are rejected under pre-AIA 35 U.S.C. § 103(a) as unpatentable over Elsbett, Sachdev, and Ohta.

Claims 7 and 18 are rejected under pre-AIA 35 U.S.C. § 103(a) as unpatentable over Elsbett, Sachdev, and Breeden.

Claim 8 is rejected under pre-AIA 35 U.S.C. § 103(a) as unpatentable over Elsbett, Sachdev, and Inoue.

Claims 9 and 17 are rejected under pre-AIA 35 U.S.C. § 103(a) as unpatentable over Elsbett, Sachdev, and Toda.

Claim 12 is rejected under pre-AIA 35 U.S.C. § 103(a) as unpatentable over Elsbett, Sachdev, and Sonoda.

Claim 14 is rejected under pre-AIA 35 U.S.C. § 103(a) as unpatentable over Elsbett, Sachdev, and Kuah.

Claim 15 is rejected under pre-AIA 35 U.S.C. § 103(a) as unpatentable over Elsbett, Sachdev, Cho and Toda.

Claim 20 is rejected under pre-AIA 35 U.S.C. § 103(a) as unpatentable over Elsbett, Sachdev, and Lunsford.

ANALYSIS

*The rejection of claims 1–3, 5, 6, 10, 11, 16, and 19
as unpatentable over Elsbett and Sachdev*

Each independent claim on appeal (i.e., claims 1, 10, and 16) includes a limitation to a “structural frame” having a bottom surface formed by both “a plurality of laterally aligned supports and the oil pan engaging surface.” The “structural frame” of apparatus claims 1 and 10 is recited as being “coupled between a cylinder block and [an] oil pan.” The “structural frame” of method claim 16 is recited as “positioned between and coupled to an oil pan and a cylinder block.”

The Examiner relies on Elsbett for many of the limitations recited in these claims. *See* Final Act. 2–3. However, the Examiner acknowledges that Elsbett lacks disclosure of “a plurality of laterally aligned supports.” Final Act. 3. The Examiner relies on Sachdev for disclosing this limitation. Final Act. 3.

The laterally aligned supports relied on by the Examiner are understood by Appellant as being Sachdev’s crankshaft bearing supports 50, 52, 54, 56, and 58. Appeal Br. 23; *see also* Sachdev Fig. 5. We agree with this assessment by Appellant, and the Examiner does not indicate otherwise. *See* Ans. 3–5 where laterally aligned supports are discussed. These supports

50–58 are described in Sachdev as being integrally cast with crankcase 16.² See Sachdev ¶ 34, Fig. 5. The Examiner’s reasoning for combining Sachdev’s supports 50–58 with Elsbett’s engine is “to have laterally spaced supports so that the crankshaft is to be supported.” Final Act. 3.

Appellant contends, “there is no reason to think that Elsbett does not already support its bearings” and “Appellant finds no teaching in Elsbett that there is a lack of bearing support.”³ Appeal Br. 24, Reply Br. 6. According to Appellant, “it is more likely that one of ordinary skill in the art would find it redundant and counterintuitive to include the bearing supports 50–58 taught by Sachdev . . . with the existing support system taught by Elsbett.” Appeal Br. 24–25.

The Examiner does not explain why it would have been obvious to employ Sachdev’s laterally aligned supports in place of (or in combination with) Elsbett’s supports because the Examiner is silent as to how or why Elsbett’s existing bearing supports are lacking in some manner, or otherwise in need of replacement and/or modification. The Examiner indicates that employing laterally aligned supports would “provide an easier assembly of the engine” (Final Act. 3), but this disregards Elsbett’s express object as being to provide an engine “which is simpler, less expensive and more reliable than heretofore known systems.” Elsbett 1:60–63. Thus, it is not clear why Elsbett’s engine needs to be combined with Sachdev or otherwise needs to incorporate laterally aligned supports for “easier assembly” reasons when Elsbett’s engine is already “simpler” in design.

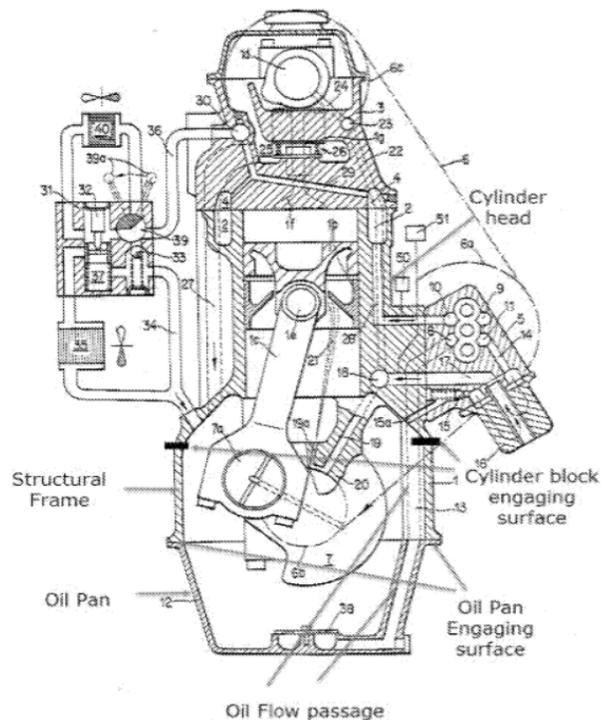
² Crankcase 16 also serves as an oil pan. See Sachdev ¶ 10 (“And the architecture requires no oil pan.”).

³ Elsbett discloses “bearing 20 for the crankshaft 7.” Elsbett 5:19–20.

The Examiner states, “it is known in the art to have laterally aligned supports to support the crankshaft bearings.” Ans. 3. This statement is supported by Fig. 5 of Sachdev. However, as stated above, Sachdev’s laterally aligned supports 50–58 are cast integral with Sachdev’s bottom oil pan. *See* Sachdev ¶ 34, Fig. 5. The Examiner does not explain why it would have been obvious to remove Sachdev’s supports 50–58 from the oil pan enclosure and, at the same time, have these supports also form a bottom surface of a separate structural frame that is designed to engage the oil pan itself.⁴ *See* Appeal Br. 14, Reply Br. 6. For example, simply because the general concept of laterally aligned supports is known, it is not made clear by the Examiner why Sachdev’s cast supports 50–58 are to be relocated from their present position to the other side of the oil pan/structural frame interface when it is not disputed that Elsbett already has mid-engine supports, as well as an engine design described as being “simpler.” *See* above.

Additionally, the Examiner addresses making Elsbett’s engine modular, and provides an annotation as to how this is to be accomplished. *See* Ans. 3–4. The Examiner’s annotation is provided below:

⁴ Claim 1 recites, “where the plurality of laterally aligned supports and the oil pan engaging surface form a bottom surface of the structural frame.”



The Examiner identifies the above as “Annotated Figure 1 of Elsbett with the modular combination of Sachdev.” Ans. 4. The Examiner applied a pair of dark marks labeling them “Cylinder block engaging surface,” which identifies the interface between the upper “Cylinder head” and an intermediate “Structural Frame.” This is distinct from the Examiner’s identification of the “Oil Pan Engaging surface” which is the interface between the intermediate “Structural Frame” and the lower “Oil Pan.”

Appellant, however, contends that the Examiner’s marking which identifies the upper cylinder head/structural frame interface “is an arbitrary position.” Reply Br. 5; *see also id.* at 3. Appellant contends that “the only guidance of splitting the housing of the engine of Elsbett in that location of record is Appellant’s specification.” Reply Br. 5. However, the Examiner relies on the teachings of Sachdev for making Elsbett’s engine modular by separating Elsbett’s engine into “an upper cylinder block and a lower

cylinder block (known as a structural frame in the instant invention).” Final Act. 3. Regardless, the Examiner does not elaborate as to why the demarcation between a cylinder block and a structural frame is to be located where specifically shown, and cannot, instead, be located elsewhere, such as identified by Appellant. *See, e.g.*, Reply Br. 5. The Examiner’s silence regarding any reason for choosing the specific location identified may, indeed, be a result of hindsight and/or speculation, neither of which can provide a proper basis for an obviousness rejection. *See, e.g., In re Warner*, 379 F.2d 1011, 1017 (CCPA 1967).

There is merit to Appellant’s contentions above. In other words, the Examiner has not provided sufficient reasoning with rational underpinning which is necessary to support a legal conclusion of obviousness. *See KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 418 (2007). Accordingly, and based on the record presented, we do not sustain the Examiner’s rejection of independent claims 1, 10, and 16 in view of Elsbett and Sachdev. Nor do we sustain the Examiner’s rejection of dependent claims 2, 3, 5, 6, 11, and 19 in view of Elsbett and Sachdev for the same reasons.

The remaining rejections

There are additional rejections expressed by the Examiner with respect to claims 4, 7–9, 12–15, 17, 18, and 20, which rely on Elsbett and Sachdev in addition to one or more other references. These additional references being Ohta (claims 4, 13), Breeden (claims 7 and 18), Inoue (claim 8), Toda (claims 9 and 17), Sonoda (claim 12), Kuah (claim 14), Cho and Toda (claim 15), and Lunsford (claim 20). The Examiner does not employ these additional references in a way that might cure the defect of Elsbett and Sachdev discussed above. Accordingly, and based on the record

presented, we do not sustain the Examiner’s further rejections of claims 4, 7–9, 12–15, 17, 18, and 20 in view of this additionally referenced art.

CONCLUSION

In summary:

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1–3, 5, 6, 10, 11, 16, 19	103(a)	Elsbett, Sachdev		1–3, 5, 6, 10, 11, 16, 19
4, 13	103(a)	Elsbett, Sachdev, Ohta		4, 13
7, 18	103(a)	Elsbett, Sachdev, Breeden		7, 18
8	103(a)	Elsbett, Sachdev, Inoue		8
9, 17	103(a)	Elsbett, Sachdev, Toda		9, 17
12	103(a)	Elsbett, Sachdev, Sonoda		12
14	103(a)	Elsbett, Sachdev, Kuah		14
15	103(a)	Elsbett, Sachdev, Cho, Toda		15
20	103(a)	Elsbett, Sachdev, Lunsford		20
Overall Outcome				1–20

REVERSED