

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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*Ex parte* NICHOLAS ROBERT HIRSCH, MARK DONALD SCHAEFER,  
MICHAEL PAUL BRAUN, PETER HOTZ, DARRELL ALBERT  
WIATROWSKI, RONALD LEE BARTELT, and BRIAN HUBBARD

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Appeal 2007-4524  
Application 10/896,598  
Technology Center 3700

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Decided: April 21, 2008

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Before TERRY J. OWENS, HUBERT C. LORIN and JOHN C. KERINS,  
*Administrative Patent Judges.*

KERINS, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Nicholas Robert Hirsch et al. (Appellants) seek our review under 35 U.S.C. § 134 of the final rejection of Claims 21-29. We have jurisdiction under 35 U.S.C. § 6(b) (2002).

## SUMMARY OF DECISION

We AFFIRM.

### THE INVENTION

Appellants' claimed invention is to an internal combustion engine having a crankshaft and a crank chamber accommodating the crankshaft, an oil reservoir adjacent to the crank chamber, and at least one communicating aperture disposed between the crank chamber and the oil reservoir. The crank chamber and oil reservoir are separated from each other by a divider. Different embodiments of the engine include one in which the communicating aperture comprises a plurality of apertures, another in which the divider is disposed within the oil reservoir, and yet another in which the divider is formed in an arcuate shape about a rotational axis of the crankshaft.

Claims 21, 23 and 25, reproduced below, are representative of the subject matter on appeal.

21. An internal combustion engine, comprising:

a crankshaft;

a crank chamber accommodating said crankshaft;

an oil reservoir arranged adjacent to said crank chamber and containing engine oil; and

at least one communicating aperture disposed between said crank chamber and said oil reservoir, said crank chamber and said oil reservoir being separated from each other by a divider, and said at least one communicating aperture comprising an

aperture formed in said divider, said crank chamber and said oil reservoir always communicating with each other through said aperture, wherein said crank chamber and said oil reservoir are in communication with each other by way of said communicating aperture, a pressure difference between said crank chamber and said oil reservoir causing a fluid flow through said communicating aperture from said crank chamber to said oil reservoir in a first instance and from said oil reservoir to said crank chamber in a second instance;

wherein said at least one communicating aperture comprises a plurality of apertures disposed in said divider.

23. An internal combustion engine, comprising:

a crankshaft;

a crank chamber accommodating said crankshaft;

an oil reservoir arranged adjacent to said crank chamber and containing engine oil; and

at least one communicating aperture disposed between said crank chamber and said oil reservoir, said crank chamber and said oil reservoir being separated from each other by a divider, and said at least one communicating aperture comprising an aperture formed in said divider, said crank chamber and said oil reservoir always communicating with each other through said aperture, wherein said crank chamber and said oil reservoir are in communication with each other by way of said communicating aperture, a pressure difference between said crank chamber and said oil reservoir causing a fluid flow through said

communicating aperture from said crank chamber to said oil reservoir in a first instance and from said oil reservoir to said crank chamber in a second instance;

wherein said divider is disposed within the oil reservoir.

25. An internal combustion engine, comprising:

a crankshaft;

a crank chamber accommodating said crankshaft;

an oil reservoir arranged adjacent to said crank chamber and containing engine oil; and

at least one communicating aperture disposed between said crank chamber and said oil reservoir, said crank chamber and said oil reservoir being separated from each other by a divider, and said at least one communicating aperture comprising an aperture formed in said divider, said crank chamber and said oil reservoir always communicating with each other through said aperture, wherein said crank chamber and said oil reservoir are in communication with each other by way of said communicating aperture, a pressure difference between said crank chamber and said oil reservoir causing a fluid flow through said communicating aperture from said crank chamber to said oil reservoir in a first instance and from said oil reservoir to said crank chamber in a second instance;

wherein said divider is formed in an arcuate shape about a rotational axis of the crankshaft.



or through hole 46, extending through crankshaft 13. (Ryu, Fig. 2; Col. 5, ll. 54-56).

FF2. The Ryu patent, at Column 6, lines 14-15, refers to a “pair of through hole [*sic.*] 46”. The description there also notes that, “[T]he total sectional area of the through holes 46 is set sufficiently larger than the total sectional area of the orifices 51.” In the paragraph from which these passages are excerpted, the disclosure refers to an oil return chamber 50 that communicates with the oil reservoir 22 via the referenced through holes. Figure 2 of Ryu illustrates that the oil return chamber 50 is in fluid communication with the oil reservoir 22 via through holes designated by reference numeral 52. The passage at Column 6, lines 14-15 thus erroneously includes reference to element 46, and the correct reference should have been to element 52. (Ryu, Fig. 2; Col. 6, ll. 8-21).

FF3. The term “divider” is not given a specific definition in Appellants’ Specification. A commonly accepted meaning of “divider” is, “a ... thing that divides”. Webster’s New World Dictionary, Second College Edition, The World Publishing Company, 1972.

FF4. The crank chamber 23 in the first embodiment disclosed in the Ryu patent is separated or divided from the oil reservoir by an assembly of upper journal support walls 14, 14’, lower journal support walls 15, 15’, plane bearing 16, and crankshaft 13. (Ryu, Fig. 2; Col. 4, ll. 38-60, Col. 5, ll. 54-64).

FF5. The Ryu patent discloses that, as an alternative to providing a through hole 46 in crankshaft 13, to permit fluid communication between crank chamber 23 and oil reservoir 22, a through hole can be provided in the

plane bearing or in a partition wall between the crank chamber and oil reservoir. (Ryu, Col. 5, ll. 61-64).

FF6. The Ryu patent, in a second embodiment represented in Figures 15-25, discloses an engine in which an oil dipper 135 is employed to agitate and splatter lubricating oil to produce an oil mist as it moves through the oil reservoir 132b and the lower portion of the crank chamber 132a. (Ryu, Figs. 17, 18; Col. 12, ll. 5-11).

### PRINCIPLES OF LAW

Claims on appeal are not to be confined to specific embodiments described in the specification. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1323 (Fed. Cir. 2005) (*en banc*). During *ex parte* prosecution, claims must be interpreted as broadly as their terms reasonably allow, since Applicants have the power during the administrative process to amend the claims to avoid the prior art. *In re Zletz*, 893 F.2d 319, 321-22 (Fed. Cir. 1989). The broadest reasonable meaning of claim terms will be in accord with their ordinary usage as they would be understood by one of ordinary skill in the art, taking into account whatever enlightenment by way of definitions or otherwise that may be afforded by the written description. *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997).

Anticipation of a claim exists when each and every element set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co.*, 814 F.2d 628, 631 (Fed. Cir.), *cert. denied*, 484 U.S. 827 (1987); *In re Cruciferous Sprout Litig.*, 301 F.3d 1343, 1349 (Fed. Cir. 2002). Once a *prima facie* case of anticipation has been established, the burden shifts to the Appellant to prove

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that the prior art product does not necessarily or inherently possess the characteristics of the claimed product. *In re Best*, 562 F.2d 1252, 1255 (CCPA 1977); *In re Spada*, 911 F.2d 705, 708-09 (Fed. Cir. 1990).

A reference may anticipate a claim even if the reference “teaches away” from the claimed invention; whether or not a reference “teaches away” from the invention is not germane to an anticipation rejection under 35 U.S.C. § 102. *Bristol-Myers Squibb Co. v. Ben Venue Labs, Inc.*, 246 F3d 1368, 1378 (Fed. Cir. 2001); *Upsher-Smith Laboratories, Inc. v. Pamlab LLC*, 412 F. 3d 1319, 1323 (Fed. Cir. 2005).

#### ANALYSIS

Appellant argues Claims 21, 22, and 27 as a group; Claims 23, 24, and 28 as a second group; and Claims 25, 26 and 29 as a third group. We will select Claims 21, 23, and 25 as representative of their respective groups for the purposes of this appeal. 37 C.F.R. 41.37(c)(1)(vii) (2007). The remaining claims will stand or fall with their respective representative claim. *Claims 21, 22, and 27*

The sole issue joined by Appellants and the Examiner with respect to the rejection of Claim 21 is whether the Ryu patent discloses a plurality of apertures allowing communication between the crank chamber and the oil reservoir. Figure 2 of Ryu illustrates an aperture 46, referred to in the Ryu Specification as a through-hole, that allows communication between the crank chamber and the oil reservoir. (FF1).

The Examiner relies on three separate passages in the Specification as evidence that Ryu discloses a plurality of through-holes or apertures, to wit:

Column 6, lines 14-15, "...through the *pair* of through-hole [sic] 46. The total sectional area of the *through holes* 46 ...";

Column 6, lines 65-67, "the oil mist is drawn through the *through-holes* 46..."; and

Column 7, lines 31-32, "[T]he oil reservoir chamber 22 communicates with the crank chamber 23 through the *through-holes* 46...".

(Answer 5)(emphasis added).

Appellants counter that only a single through-hole 46 is illustrated in the Ryu patent, and that the specification describes only a single through-hole, citing to Column 5, ll. 54-56 and ll. 61-64 of Ryu. (Appeal Br. 7). Appellants further contend that the passage at Column 6, lines 14-15 of Ryu contains a typographical error, and that the "pair of through hole [sic] 46" referred to in that passage, when considered in the context of the rest of the paragraph in which it is found, is actually making reference to a pair of through holes **52** that communicate between the oil return chamber 50 and the oil reservoir 22. (*Id.*). Appellants urge that the Examiner's finding that Ryu discloses the claimed plurality of apertures is erroneous because the finding is based on speculation as to what the Ryu patent discloses, and is not consistent with the illustrated embodiment and the disclosures at Column 5, lines 54-56 and 61-64. (Appeal Br. 8-9; Reply Br. 2).

We agree with Appellants that the passage at Column 6, lines 14-15, of Ryu inaccurately uses reference numeral 46, and instead, given the context of the subject matter disclosed in the paragraph containing that passage, should have used reference numeral 52 in the description of those

particular through-holes. (FF2). That alone does not resolve the issue, however.

Appellants fail to address the other portions of the Ryu disclosure relied on by the Examiner as evidence that Ryu teaches the use of a plurality of apertures allowing communication between a crank chamber and an oil reservoir. Ryu, in discussing the lubrication of the crankshaft, explicitly discloses that,

...when the pressure in the crank chamber is reduced by the elevating movement of the piston 8, the oil mist is drawn through the *through-holes 46* into the crank chamber 23 to lubricate portions around the crank portion 13a and the piston 8.

Ryu, Column 6, line 64-Column 7, line 1 (emphasis added).

The Ryu patent shortly thereafter reiterates that, “[T]he oil reservoir chamber 22 communicates with the crank chamber 23 through the *through-holes 46* ...”. (Ryu, Col. 7, ll. 31-32)(emphasis added). It is not disputed that these portions of the Ryu patent correctly employ reference numeral 46 in referring to the element permitting communication between a crank chamber and an oil reservoir.

Appellants have not persuaded us that it was error on the Examiner’s part in relying on these two passages in the Ryu patent as disclosing to persons of ordinary skill in the art that plural through-holes or apertures are appropriately used for communication between a crank chamber and an oil reservoir. While the passage which Appellants latch onto (Ryu, Col. 5, ll. 54-64) describes the construction illustrated in Figure 2 as including only a single through-hole or aperture 46, the Ryu disclosure as a whole is not limited to that specifically illustrated embodiment. Ryu also describes this

aspect of the invention at the other two places in the specification noted above as allowing for plural apertures or through holes. There is no requirement that this different embodiment be specifically shown in the drawings in order to inform persons of ordinary skill in the art that plural apertures are suitably used in the Ryu device.

We will affirm the rejection of Claims 21, 22 and 27 under 35 U.S.C. § 102(e) as anticipated by Ryu.

*Claims 23, 24, and 28*

Appellants contend, with respect to these claims, that the Ryu patent does not disclose an engine in which a divider that separates a crank chamber and an oil reservoir has an aperture formed therein. (Appeal Br. 9-10). This argument pertains to the Examiner's reliance on a first embodiment disclosed in the Ryu patent, as illustrated in Figures 1-10. Appellants further contend that, to the extent that a second Ryu embodiment (Figures 15-25) is relied upon as anticipating these claims, the Ryu patent fails to disclose a device in which a pressure difference is created between a crank chamber and an oil reservoir. (Appeal Br. 10).

As to the former contention, Appellants point out that, in the first embodiment in Ryu, the aperture or through-hole in the Ryu engine extends through the crankshaft, whereas Claim 23 requires an aperture formed in a divider.<sup>1</sup> (Appeal Br. 9-10). They further assert that neither the crankshaft

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<sup>1</sup> Appellants also make reference to a "partition wall", which is recited in Claim 28 within this grouping of claims. Appellants make no distinction between the "divider" recited in representative Claim 23 and the "partition wall" of Claim 28, and have not asserted or presented any arguments to the effect that Claim 28 is believed to be separately patentable from Claim 23.

13 of Ryu, nor the combination of elements 14, 15, 16, and the crankshaft 13, can reasonably be considered to be a divider as set forth in the rejected claims, in that the claims separately recite a crankshaft and a divider.

We are not persuaded that the Examiner erred in finding that elements 14, 15, 16, and the crankshaft 13 meet the claim elements in Claim 23 that require a divider, and an aperture formed in the divider. The term “divider” is not further structurally defined in the claim, nor is it given a specific definition in the Specification. An ordinary and commonly accepted meaning of “divider” is, “a ... thing that divides”. (FF3). The assembly of elements in Ryu relied upon by the Examiner do indeed divide the crank chamber from the oil reservoir. (FF4). As such, they form a “divider”, giving that claim term its broadest reasonable meaning. *In re Zletz*, 893 at 321-22.

We are further not persuaded that the separate recitation of a crankshaft and a divider in Appellants’ claims dictates that a crankshaft can not operate as a crankshaft as well as, due to its positioning relative to other components, form a part of a “divider”. Again, Claim 23 includes no structural features required of the claimed divider, other than that it must separate a crank chamber from an oil reservoir, and that it must have an aperture formed therein. Even if we were to accept Appellants’ argument that the divider may not include the crankshaft as a component thereof, Ryu discloses that, instead of providing a through-hole in the crankshaft 13, a through-hole could be provided in plane bearing 16 or in a partition wall between the oil reservoir and the crank chamber. (FF5).

Appellants do not contend that this first embodiment of Ryu fails to disclose an engine capable of having a pressure difference exist between the

crank chamber and the oil reservoir. Accordingly, we find that Appellants have failed to persuade us that error exists in the rejection of Claim 23 as anticipated by the first embodiment disclosed in Ryu. We will therefore affirm the rejection of Claims 23, 24, and 28 under 35 U.S.C. § 102(e) as being anticipated by this first embodiment in Ryu.

We will also address the rejection of this second group of claims as anticipated by the second embodiment (Figures 15-25) disclosed in the Ryu patent, because the same issue is raised with respect to the rejection of the third group of claims (Claims 25, 26, and 29).

Appellants' sole challenge to the propriety of an anticipation rejection of Claim 23 based on the second embodiment in Ryu, is that, in this second embodiment, it is argued that no pressure difference is created across partition wall 134 between the crank chamber and the oil reservoir. (Appeal Br. 10). Appellants observe that, in this embodiment in Ryu, an oil dipper 135 is provided to move oil to aid in lubricating components within the crank chamber, and that there is no reliance on a pressure difference to do so. (*Id.*; Reply Br. 3). Appellants add that the provision of an oil dipper teaches away from a construction in which a pressure differential is used to move oil between the crank chamber and the oil reservoir.

Dispensing first with the assertion that the Ryu construction teaches away from the claimed device, we note that "teaching away" is not a relevant factor in a rejection made under 35 U.S.C. § 102. *Bristol-Myers Squibb Co.*, 246 F.3d at 1378. Accordingly, we attach no probative value to arguments made in this regard.

The Ryu engine employs the oil dipper to agitate and scatter the lubricating oil in the oil reservoir and lower portion of the crank chamber to

produce an oil mist in the crank chamber. (FF6). Notwithstanding that the use of an oil dipper might eliminate a complete reliance on pressure differentials to move oil between a crank chamber and an oil reservoir, Appellants have not persuaded us that the Examiner has erred in finding that the Ryu engine will create pressure differences between the crank chamber and the underlying oil reservoir.

The Examiner, citing to the disclosure in Ryu that a pressure pulsation occurs in the crank chamber, asserts that the movement of the piston in the cylinder necessarily creates a pressure rise and fall in the crank chamber, and that this pulsing gives rise to a pressure difference between the crank chamber and the oil chamber, which are in fluid communication via opening or aperture 133. (Answer 7). Appellants counter that this disclosure refers only to pressure differences in the crank chamber, and does not disclose that a pressure difference is created “across the divider wall”. (Reply Br. 3).

Given that Appellants’ device also relies on the reciprocating movement of the piston to generate pressure pulses within the crank chamber, and that this movement and pulsation is disclosed as creating a pressure difference between the crank chamber and the oil reservoir which are in fluid communication via one or more apertures (Specification, p. 21, ll. 11-26), we fail to discern a difference between Appellants’ claimed invention and the engine disclosed in the second embodiment in the Ryu patent. Appellants have not identified any structural elements or limitations in Claim 23 that distinguish the claim from the Ryu disclosure. We are therefore not persuaded that error exists in the rejection of Claim 23 as anticipated by the second embodiment in Ryu.

We will affirm the rejection of Claims 23, 24, and 28 under 35 U.S.C. § 102(e) in view of the Ryu disclosure.

*Claims 25, 26, and 29*

These claims include an element or limitation requiring that the divider be formed in an arcuate shape around a rotational axis of the crankshaft. (Appeal Br., Claims Appendix). The rejection of the claims is on the basis of the second embodiment of the engine disclosed in the Ryu patent. (Answer 4, 7).

Appellants argue that these claims are not anticipated by Ryu solely on the basis that the Ryu device does not disclose that, “the slot 133 in the partition 134 ... creates [a] pressure differential[s] to move lubricant from the oil reservoir portion to the crank chamber portion.” (Appeal Br. 11). As was the case with respect to the discussion above pertaining to Claim 23, we are not persuaded that Claim 25 includes any elements or limitations that give rise to a difference between the engine disclosed in Ryu and the engine set forth in Claim 25. In both devices, a pressure differential is created by a pulsating pressure generated by the reciprocating piston. In both devices, the crank chamber and the oil reservoir are in fluid communication via an aperture or apertures.

Appellant has thus failed to persuade us that the rejection of Claims 25, 26, and 29 under 35 U.S.C. § 102(e) is in error. We will affirm the rejection.

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### CONCLUSIONS OF LAW

We conclude that Appellants have failed to establish that reversible error exists in the rejection of Claims 21-29 under 35 U.S.C. § 102(b) as lacking novelty over Ryu.

### ORDER

The decision of the Examiner to reject Claims 21-29 under 35 U.S.C. § 102(b) is AFFIRMED.

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

AFFIRMED

vsh

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