

THIS OPINION WAS NOT WRITTEN FOR PUBLICATION

The opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.

Paper No. 16

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte RICHARD W. SMITH, Jr.
and MARK D. HOWARD

Appeal No. 96-3130
Application 08/225,653¹

ON BRIEF

Before MEISTER, ABRAMS and STAAB, Administrative Patent Judges.
MEISTER, Administrative Patent Judge.

DECISION ON APPEAL

Richard W. Smith, Jr. and Mark D. Howard (the appellants) appeal from the final rejection of claims 2, 11, 22, 23, 26 and 28.² Claims 9 and 10 stand allowed. On page 5 of the answer, the examiner states that claims 3, 4, 12-21, 27 and 29-33, the

¹ Application for patent filed April 11, 1994. According to appellants, the application is a continuation-in-part of Application 08/145,885, filed October 29, 1993, now abandoned.

² Claims 2, 11 and 22 have been amended subsequent to final rejection.

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only other claims remaining in the application, are allowable subject to the requirement that they be rewritten to include all the subject matter of the claims from which they depend.

We AFFIRM-IN-PART and, pursuant to our authority under the provisions of 37 CFR § 1.196(b), enter a new rejection of claim 2.

The appellants invention pertains to a cylinder head for an internal combustion engine. Independent claims 2, 11, 22 and 28 are further illustrative of the appealed subject matter and copies thereof may be found in EXHIBIT A of the appellants' brief.

The references relied on by the examiner are:

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|--------|-----------|---------------|
| Sperry | 4,159,011 | Jun. 26, 1979 |
| Piatti | 5,148,781 | Sep. 22, 1992 |

Claim 2 is rejected under 35 U.S.C. § 102(e) as being anticipated by Piatti.

Claims 11, 22, 23, 26 and 28 are rejected under 35 U.S.C. § 103 as being unpatentable over Piatti in view of Sperry.

The examiner's rejections are explained on pages 3-5 of the answer. The arguments of the appellants and examiner in support of their respective position may be found on pages 14-34 of the

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brief, pages 1-9 of the reply brief and pages 6-10 of the answer.

OPINION

We have carefully reviewed the appellants' invention as described in the specification, the appealed claims, the prior art applied by the examiner and the respective positions advanced by the appellants in the brief and reply brief and by the examiner in the answer. As a consequence of this review, we will sustain the rejection of claims 11 and 28 under 35 U.S.C. § 103. We will not, however, sustain the rejection of claim 2 under 35 U.S.C. § 102(e) or the rejection of claims 22, 23 and 26 under 35 U.S.C. § 103. Additionally, we will enter a new rejection of claim 2 under 35 U.S.C. § 112, second paragraph.

Considering first the rejection of claim 2 under 35 U.S.C. § 102(e), the appellants note that claim 2 expressly requires a "means for restricting the amount of cross flow scavenging³ between said intake valve port and said exhaust valve port" (footnote added) and thereafter assert that there is no such

³ Page 3 of the specification indicates that scavenging is "the fuel passing directly between the inlet and exhaust valve during valve overlap (that period of time during which both the intake and the exhaust valves are simultaneously open" (lines 10-12).

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structure in Piatti. On the other hand, the examiner is of the opinion that this means plus function clause "is so broad as to read on both the exhaust valve and the intake valve" (answer, page 3).

Since the limitation in question is drafted in a means-plus-function format, the scope thereof is governed by 35 U.S.C. § 112, sixth paragraph. *In re Donaldson*, 16 F.3d 1189, 1195, 29 USPQ2d 1845, 1850 (Fed. Cir. 1994). See also *Valmont Indus., Inc. v. Reinke Mfg. Co., Inc.*, 983 F.2d 1039, 1042, 25 USPQ2d 1451, 1454 (Fed. Cir. 1993) (Paragraph 6 of Section 112 "limits the applicant to the structure, material, or acts in the specification and their equivalents").

Reviewing the appellants' specification, it appears that there are **at least** five distinct structural arrangements which perform, or at least contribute to, this function: (1) the positioning of the intake valve at an angle which is different from the exhaust valve (see page 5, lines 5-20; page 6, lines 14-17); (2) the valve seats for each cylinder being offset from one another (see page 6, lines 1-5 and 9-13; (3) a restriction in the exhaust passage (see page 6, lines 5-11); (4) the wedge-shaped combustion chamber (see page 6, lines 25-29); and (5) a protuberance in the intake passage (see page 8, lines 1-16). As

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to exactly which (or combination thereof) of these distinct structural arrangements the appellants intended to encompass by the means-plus-function clause, it might be speculated that the appellants intended that arrangements (1) and (4) should not be encompassed by the "means" clause inasmuch as they have been previously set forth in claim 2. It also might be argued that arrangement (5) should not be encompassed by the "means" clause since no intake passage has been set forth, although this again is at least somewhat speculative. With respect to arrangements (2) and (3), one is left to complete speculation as to which one (or both) of these two arrangements the appellants intend to encompass by the "means" clause.

From the above, in comparing the claimed subject matter with the applied prior art, it is apparent to us that considerable speculations and assumptions are necessary in order to determine what in fact is being claimed. Since a rejection on prior art cannot be based on speculations and assumptions (**see In re Steele**, 305 F.2d 859, 862-63, 134 USPQ 292, 295-96 (CCPA 1962) and **In re Wilson**, 424 F.2d 1382, 1385, 165 USPQ 494, 496 (CCPA 1970)), we are constrained to reverse the examiner's rejection of claim 2 under 35 U.S.C. § 102(e). We hasten to add that this is a procedural reversal rather than one based upon the merits of

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the § 102(e) rejection.

Turning now to the rejection of claims 11 and 28 under 35 U.S.C. § 103 as being unpatentable over Piatti in view of Sperry, it is the examiner's position that:

Sperry discloses that it is known in the art to provide the configuration described above including the choke, protuberance, and abrupt change of direction of the intake passage (see Fig. 2 wherein 58 is the choke and 60 is the protuberance). It would have been obvious to one with ordinary skill in the art at the time the invention was made to provide the intake passage of Piatti with the configuration of the intake passage of Sperry, in order to increase the speed of air flow therethrough. [Answer, pages 4 and 5.]

With respect to the question of whether the protuberance 60 in the intake passage of Sperry enhances the fragmentation and/or vaporization of the fuel, the examiner's position is that:

the structure of the Sperry reference is so similar to appellant's that it would necessarily inherently function in the same way even though it is recognized that this result was not intended by Sperry (compare Fig. 2 of Sperry with Fig. 8 of the instant application). [Answer, page 8.]

In response to the appellants' arguments that the structure of

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Sperry would not inherently function "in the same way," the examiner challenged the appellants to prove that Sperry's structure would not, citing *In re Ludtke*, 441 F.2d 660, 664, 169 USPQ 563, 566-67 (CCPA 1971) as authority.

The appellants argue that there is no suggestion to combine the teachings of the references in the manner proposed by the examiner. This is particularly the case, in the appellants' view, since the references are not concerned with the appellants' problem and "don't even recognized the desire, or need, to enhance fragmentation and/or vaporization of the fuel droplets as they pass through the intake passages within the cylinder head" (see brief, page 25). With respect to the examiner's position that the protuberance of Sperry would inherently function to enhance fragmentation and/or vaporization of the fuel droplets, the appellants contend that "[t]here is no mention, nor is there a scintilla of evidence that supports the conclusion, that the Appellants' further vaporization is inherent to the Sperry configuration" (see brief, page 21).

We are unpersuaded by the appellants' arguments. While there must be some teaching, reason, suggestion, or motivation to combine existing elements to produce the claimed device (**see ACS Hospital Systems, Inc. v. Montefiore Hospital**, 732 F.2d 1572,

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1577, 221 USPQ 929, 933 (Fed. Cir. 1984)), it not necessary that the cited references or prior art specifically suggest making the combination (***B.F. Goodrich Co. V. Aircraft Braking Systems Corp.***, 72 F.3d 1577, 1582, 37 USPQ2d 1314, 1318 (Fed. Cir. 1996) and ***In re Nilssen***, 851 F.2d 1401, 1403, 7 USPQ2d 1500, 1502 (Fed. Cir. 1988)). Rather the test for obviousness is what the combined teachings of the references would have suggested to one of ordinary skill in the art. ***In re Young***, 927 F.2d 588, 591, 18 USPQ2d 1089, 1091 (Fed. Cir. 1991) and ***In re Keller***, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981).

Here, Piatti discloses a cylinder head 1 including a deck surface (the bottom surface of the head 1), a combustion chamber having first and second wedge portions (see Figs. 2-4 and 10), an exhaust valve port having an exhaust valve seat 1b disposed at a first angle relative to the deck surface, an intake valve port having an intake valve seat 1a that is disposed at a second angle relative to the deck surface, the second angle being less than the first angle (see column 6, lines 52-59; Figs. 1-4 and 10) and an intake passage (see Figs. 2-4 and 10). Sperry discloses a cylinder head 18 having a deck surface (that surface adjacent gasket 22), a combustion chamber having wedge portions 20, inlet and exhaust ports 26, 24, an intake passage 4 which includes a

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sharp, angular change in direction just prior to inlet valve seat 46 (much the same as that depicted by Piatti in Fig. 10), a flow constricting projection 58 (which is stated in column 3, lines 41-43, to "increase the amount of airflow" and thus would necessarily provide for increased velocity in much the same manner as the appellants' flow constricting means or choke 99)

and a V-shaped protuberance 60 that includes a reaction surface (the sides of the protuberance), which protuberance is stated to

divide the flow of air or mixture passing through the port and direct it relatively smoothly around the protruding valve guide portion and the associated valve stem.
[Column 3, lines 20-23.]

In our view, one of ordinary skill in this art would have found it obvious to provide the head of Piatti with (1) a flow constricting means as taught by Sperry at 58 (which of necessity increases the velocity) in order to achieve Sperry's expressly stated advantage of increasing the amount of airflow and (2) a V-shaped protuberance in order to achieve Sperry's expressly stated advantage directing the airflow "relatively smoothly."

As to the appellants' contention that neither Piatti nor Sperry recognizes the problem that they were attempting to solve,

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we must point out that "[a]s 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" (*In re Beattie*, 974 F.2d 1309, 1312, 24 USPQ2d 1040, 1042 (Fed. Cir. 1992)) and all the utilities or benefits of the claimed invention need not be explicitly disclosed by the prior art references to render the claim unpatentable under section 103 (*see In re Dillon*, 919 F.2d 688, 692, 696, 16 USPQ2d 1897, 1901, 1904 (Fed. Cir. 1990) (in banc), *cert. denied*, 500 U.S. 904 (1991)). *See also In re Kemps*, 97 F.3d 1427, 1429, 40 USPQ2d 1309, 1311 (Fed. Cir. 1996) ("all the benefits of the claimed invention need not be explicitly disclosed to render the claim unpatentable under section 103"). We also observe that "[t]he fact that appellant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise have been obvious" (*Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Int. 1985), *aff'd.mem.*, 795 F.2d 1017 (Fed. Cir. 1986)). Similarly, the mere recognition of latent properties in an otherwise obvious product in the prior art does not render such a product

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nonobvious. **See *In re Prindle***, 297 F.2d 251, 254, 132 USPQ 282, 283-84 (CCPA 1962).

With respect to the appellants' contention that there is no "evidence" that fuel droplets will impact against the sides of the protuberance of Sperry and at least partially fragmentize, we observe that when relying upon the theory of inherency, the examiner has the initial burden of establishing a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the prior art. **See *Ex parte Levy***, 17 USPQ2d 1461 (Bd. Pat. App. & Int. 1990). Here, the examiner has noted the great similarity between the structure depicted by Sperry in Fig. 2 and by the appellants in Fig. 8 and, accordingly, has established a sound basis to conclude the claimed subject matter may in fact be an inherent characteristic of Sperry. Where, as here, there is a sound basis to believe that the critical function for establishing novelty in the claimed subject matter may, in fact, be an inherent characteristic of the prior art device, it was incumbent upon the appellants to prove that the device of Sperry does not in fact possess the characteristics relied on. **See *In re Schreiber***, 128 F.3d 1473, 1477, 44 USPQ2d 1429, 1432 (Fed. Cir. 1997); ***In re Spada***, 911

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F.2d 705, 708, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990); *In re Fitzgerald*, 619 F.2d 67, 70, 205 USPQ 594, 597 (CCPA 1980); *In re Best*, 562 F.2d 1252, 1254-55, 195 USPQ 430, 433 (CCPA 1977); *In re Glass*, 474 F.2d 1015, 1019, 176 USPQ 529, 532 (CCPA 1973); *In re Ludtke, supra*; and *In re Swinehart*, 439 F.2d 210, 212-13, 169

USPQ 226, 229 (CCPA 1971). The appellants, however, have not satisfied this burden.

In response to the examiner's challenge to prove that the structure of Sperry does not in fact inherently perform the critical function, the appellants merely argue that the, inasmuch as Sperry's structure is stated to provide a "fairing," it cannot perform the function in question. First, we observe that counsel's arguments in the brief cannot take the place of evidence. *See In re De Blauwe*, 736 F.2d 699, 705, 222 USPQ 191, 196 (Fed. Cir. 1984), *In re Payne*, 606 F.2d 303, 315, 203 USPQ 245, 256 (CCPA 1979) and *In re Pearson*, 494 F.2d 1399, 1405, 181 USPQ 641, 646 (CCPA 1974). Second, it does not follow that just because in lines 15 and 16 of column 3, Sperry describes the **leading edge** of his protuberance as a "fairing," that the **sides** of the protuberance do not perform the function in question as

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the examiner contends. Indeed, the appellants characterize the leading edge of their protuberance to be a "knife edge" and, thus, it appears that their leading edge would be more of a "fairing" than the leading edge of Sperry.

The appellants also rely on decisions such as *In re Spormann*, 363 F.2d 444, 150 USPQ 449 (CCPA 1966) and *In re Newell*, 891 F.2d 899, 13 USPQ2d 1248 (Fed. Cir. 1989) as authority for the notion that reliance on inherency is improper in the present case. We must point out, however, this is not an instance wherein the examiner concluded that the reference (i.e., Sperry) inherently performs the function and then utilized this "inherent function" as a basis for modifying or combining the teachings of the references.⁴ Here, the structure of Sperry appears to inherently perform the function in question with no modification whatsoever. Moreover, as we have noted above, ample motivation for combining the teachings of the references is present separate and apart from the inherent function in question. It should also be noted that the principle of inherency is equally applicable to a rejection based on

⁴ Although the examiner has relied on the combined teachings of Piatti and Sperry, it appears to us that there is response in Sperry alone for all the limitations as broadly set forth in claim 28.

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obviousness. *See, e.g., In re Fitzgerald, supra,* and *In re Best, supra.*

In view of the foregoing, we will sustain the rejection of claims 11 and 28 under 35 U.S.C. § 103 based on the combined teachings of Piatti and Sperry.

Considering now the rejection of claims 22, 23 and 26 under 35 U.S.C. § 103 as being unpatentable over Piatti in view of Sperry, we observe that independent claim 22 expressly requires that the first and second wedge portions are successively adjacent each other in the longitudinal direction. In Piatti, however, these wedge portions are located opposite one another in the transverse direction. Although the examiner's position with respect to this limitation is less than clear, apparently the examiner is of the opinion that such an orientation can be dismissed as a matter of design choice. We disagree. It is self-evident that Piatti's arrangement, wherein the exhaust and intake valves (and hence the wedges) are inclined in direction toward each other would promote (rather inhibit) scavenging. Accordingly, we will not sustain the rejection of claims 22, 23 and 26 under 35 U.S.C. § 103 based on the combined teachings of Piatti and Sperry.

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Under the provisions of 37 CFR § 1.196(b) we make the following new rejection.

Claim 2 is rejected under 35 U.S.C. § 112, second paragraph, for failing to particularly point out and distinctly claim the subject matter that the appellants regard as the invention. For the reasons stated above with respect to the § 102(e) rejection of claim 2, considerable speculations and assumptions would be necessary in order to in fact determine what structure the appellants intended to be encompassed by the means-plus-function clause and, therefore, the appellants have failed to set forth the claimed invention with the requisite precision and particularity. As our reviewing court stated in *In re Donaldson*, 16 F.3d at 1195, 29 USPQ2d at 1850:

Although paragraph six statutorily provides that one may use means-plus-function language in a claim, one is still subject to the requirement that a claim "particularly point out and distinctly claim" the invention. Therefore, if one employs means-plus-function language in a claim, one must set forth in the specification an adequate disclosure showing what is meant by that language. If an applicant fails to set forth an adequate disclosure, the applicant has in effect failed to particularly point out and distinctly claim the invention as required by the second paragraph of section 112.

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In summary:

The rejections of claim 2 under 35 U.S.C. § 102(e) and claims 22, 23 and 26 under 35 U.S.C. § 103 are reversed.

The rejection of claims 11 and 28 under 35 U.S.C. § 103 is affirmed.

A new rejection of claim 2 under 35 U.S.C. § 112, second paragraph, has been made.

In addition to affirming the examiner's rejection of one or more claims, this decision contains a new ground of rejection pursuant to 37 CFR § 1.196(b) (amended effective Dec. 1, 1997, by final rule notice, 62 Fed. Reg. 53,131, 53,197 (Oct. 10, 1997), 1203 Off. Gaz. Pat. & Trademark Office 63,122 (Oct. 21, 1997)). 37 CFR § 1.196(b) provides, "A new ground of rejection shall not be considered final for purposes of judicial review."

Regarding any affirmed rejection, 37 CFR § 1.197(b) provides:

(b) Appellant may file a single request for rehearing within two months from the date of the original decision

37 CFR § 1.196(b) also provides that the appellants, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of

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the following two options with respect to the new ground of rejection to avoid termination of proceedings (37 CFR § 1.197(c)) as to the rejected claims:

(1) Submit an appropriate amendment of the claims so rejected or a showing of facts relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the application will be remanded to the examiner. . . .

(2) Request that the application be reheard under § 1.197(b) by the Board of Patent Appeals and Interferences upon the same record. . . .

Should the appellants elect to prosecute further before the Primary Examiner pursuant to 37 CFR § 1.196(b)(1), in order to preserve the right to seek review under 35 U.S.C. §§ 141 or 145 with respect to the affirmed rejection, the effective date of the affirmance is deferred until conclusion of the prosecution before the examiner unless, as a mere incident to the limited prosecution, the affirmed rejection is overcome.

If the appellants elect prosecution before the examiner and

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this does not result in allowance of the application, abandonment or a second appeal, this case should be returned to the Board of Patent Appeals and Interferences for final action on the affirmed rejection, including any timely request for rehearing thereof.

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

AFFIRMED-IN-PART

37 CFR § 1.196(b)

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| JAMES M. MEISTER |) | |
| Administrative Patent Judge |) | |
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| |) | BOARD OF PATENT |
| NEAL E. ABRAMS |) | |
| Administrative Patent Judge |) | APPEALS AND |
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) INTERFERENCES
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