

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 30

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte TOMOYA YAMAKAWA, MASAHIRO KAWAI,
YUTAKA OHASHI, YUICHI SAKAI,
AKIRA YAMASHITA, and KAZUHIKO TSUTSUMI

Appeal No. 2002-2082
Application No. 09/289,393

HEARD: AUGUST 21, 2003

Before RUGGIERO, BARRY, and LEVY, Administrative Patent Judges.
LEVY, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the examiner's final rejection of claims 5-7, 9 and 10, which are all of the claims pending in this application.

BACKGROUND

Appellants' invention relates to a thermo-sensitive flow rate sensor. An understanding of the invention can be derived

from a reading of exemplary claim 5, which is reproduced as follows:

5. A thermo-sensitive flow rate sensor for measuring a flow rate of a fluid, said thermo-sensitive flow rate sensor comprising:

a plate-like substrate having a central portion which is removed so that a cavity is provided therein;

a diaphragm portion formed by a thin layer disposed above said cavity in such a manner as to be integral with said plate-like substrate;

a heating element formed by a thermo-sensitive electrically resistant film disposed on said diaphragm portion;

a temperature measuring element, spaced apart from said diaphragm portion and formed on said plate-like substrate, for detecting a temperature of said fluid to be measured; and

a control circuit for controlling a heating current to be supplied to said heating element so that a temperature of said heating element is higher than a temperature of said fluid by a predetermined number of degrees, thereby measuring a flow rate of said fluid according to the heating current for said heating element,

wherein a plurality of holes are provided in an outer peripheral portion of said diaphragm portion which is other than a part located upstream of said heating element so as to penetrate said diaphragm portion.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Nagata et al. (Nagata)	5,291,781	Mar. 8, 1994
Morimasa et al. (Morimasa)	5,804,720	Sep. 8, 1998

Claims 5-7, 9, and 10 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Nagata in view of Morimasa¹. Rather than reiterate the conflicting viewpoints advanced by the examiner and appellants regarding the above-noted rejection, we make reference to the examiner's answer (Paper No. 16, mailed May 2, 2002) for the examiner's complete reasoning in support of the rejection, and to appellants' brief (Paper No. 15, filed March 25, 2002) and reply brief (Paper No. 18, filed July 2, 2002) for appellants' arguments thereagainst. Only those arguments actually made by appellants have been considered in this decision. Arguments which appellants could have made but chose not to make in the briefs have not been considered. See 37 CFR 1.192(a).

OPINION

In reaching our decision in this appeal, we have carefully considered the subject matter on appeal, the rejection advanced by the examiner, and the evidence of obviousness relied upon by

¹ The examiner (answer, pages 2 and 4) lists and refers to several additional references not relied upon in the rejection of the claims. On page 6 of the answer, the examiner refers to a number of references of record that have not been applied in the rejection under appeal. These references will be given no consideration since they were not included in the statement of the rejection. See Ex parte Raske, 28 USPQ2d 1304, 1305 (Bd. Pat. App. & Int. 1993). In re Hoch, 428 F.2d 1341, 1342 n.3, 166 USPQ 406, 407 n.3 (CCPA 1970).

the examiner as support for the rejection. We have, likewise, reviewed and taken into consideration, in reaching our decision, appellants' arguments set forth in the briefs along with the examiner's rationale in support of the rejection and arguments in rebuttal set forth in the examiner's answer.

It is our view, after consideration of the record before us, that the evidence relied upon and the level of skill in the particular art would not have suggested to one of ordinary skill in the art the invention as set forth in claims 5-7, 9, and 10. Accordingly, we reverse, essentially for the reasons set forth by appellants.

In rejecting claims under 35 U.S.C. § 103, it is incumbent upon the examiner to establish a factual basis to support the legal conclusion of obviousness. See In re Fine, 837 F.2d 1071, 1073, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). In so doing, the examiner is expected to make the factual determinations set forth in Graham v. John Deere Co., 383 U.S. 1, 17, 148 USPQ 459, 467 (1966), and to provide a reason why one having ordinary skill in the pertinent art would have been led to modify the prior art or to combine prior art references to arrive at the claimed invention. Such reason must stem from some teaching, suggestion or implication in the prior art as a whole or knowledge generally

available to one having ordinary skill in the art. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir. 1988); Ashland Oil, Inc. v. Delta Resins & Refractories, Inc., 776 F.2d 281, 293, 227 USPQ 657, 664 (Fed. Cir. 1985); ACS Hosp. Sys., Inc. v. Montefiore Hosp., 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). These showings by the examiner are an essential part of complying with the burden of presenting a prima facie case of obviousness. Note In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992). If that burden is met, the burden then shifts to the applicant to overcome the prima facie case with argument and/or evidence. Obviousness is then determined on the basis of the evidence as a whole. See id.; In re Hedges, 783 F.2d 1038, 1039, 228 USPQ 685, 686 (Fed. Cir. 1986); In re Piasecki, 745 F.2d 1468, 1472, 223 USPQ 785, 788 (Fed. Cir. 1984); and In re Rinehart, 531 F.2d 1048, 1052, 189 USPQ 143, 147 (CCPA 1976).

We begin with independent claim 5. The examiner's position (answer, page 3) is that "Nagata does not teach the hole shaped to have [sic; an] obtuse corner or no corner or circular or oval." The examiner additionally asserts (id.) that "[f]ormation of slits at various positions surrounding the heating element is also a matter of design choice since no criticality is mentioned

in doing so." The examiner adds that Morimasa teaches formation of slits at various positions surrounding the heating element, and (answer, page 4) that to provide holes at various locations would have been obvious in view of the slits of Nagata and Morimasa.

Appellants assert (brief, page 7) that "the location and pattern of the holes in the diaphragm is not merely a matter of design choice but rather is a critical feature of Applicant's invention which produces a significant changes in the performance of the flow sensor device of the present invention as compared with conventional devices. In particular, the present invention is directed to preventing the measured flow rate of the fluid from being affected by the accumulation of dust contained in the fluid on the end portions of the walls of holes."

Appellants asserts (answer, page 8) that in Nagata and Morimasa, the slits or holes are provided both upstream and downstream of the heating element. Appellants argue (brief, page 10) that the examiner's assertion "[f]ormation of slits at various positions surrounding the heating element is ... a matter of design choice since no criticality is mentioned in doing so' is without merit."

Before addressing the examiner's rejections based upon prior art, it is an essential prerequisite that the claimed subject matter be fully understood. Analysis of whether a claim is patentable over the prior art under 35 U.S.C. § 103 begins with a determination of the scope of the claim. The properly interpreted claim must then be compared with the prior art. Claim interpretation must begin with the language of the claim itself. See Smithkline Diagnostics, Inc. v. Helena Laboratories Corp., 859 F.2d 878, 882, 8 USPQ2d 1468, 1472 (Fed. Cir. 1988). Accordingly, we will initially direct our attention to appellants' independent claim 5 to derive an understanding of the scope and content thereof.

We find that the claim language "wherein a plurality of holes are provided in an outer peripheral portion of said diaphragm portion which is other than a part located upstream of said heating element so as to penetrate said diaphragm portion" of claim 5 requires that there are no holes upstream of the heating element. Turning to the prior art, we agree with the examiner that the slits of Nagata can be considered "holes." However, we agree with appellants that neither Nagata nor Morimasa discloses having no holes upstream of the heating element. In both references, holes are located both upstream and

downstream of the heating element. We do not agree with the examiner's assertion (answer, page 3) that "formation of slits at various positions surrounding the heating element is also a matter of design choice since no criticality is mentioned in doing so" for two reasons. First, the examiner's assertion is misplaced as "criticality" is not the correct standard to be applied. This is not a situation where the only difference between the prior art and the claimed invention are dimensional limitations which do not specify a device which performs and operates any differently from the prior art. See Gardner v. TEC Systems, Inc., 725 F.2d 1338, 1349, 220 USPQ 777,786 (Fed. Cir. 1994). Second, we find that appellants' specification sets forth (pages 21 and 22) that "[i]n the case of the flow rate sensor employing the flow rate detecting device 14A constructed as described above, no holes are provided upstream of the heating element 4. Thus, even if dust contained in the fluid is accumulated on the end portions of the walls of the holes, the condition of flow of the fluid at a part, at which the flow rate of the fluid is measured of the heating element 4 does not change. Therefore, even if the flow rate sensor using this flow rate detecting device 14A is applied to an intake air flow rate sensor of an automotive internal combustion engine, the flow rate

detecting characteristics of the flow rate sensor does not vary. Consequently, the detecting characteristics of the flow rate sensor are stably maintained over a long time period." Thus, we find from appellants' disclosure the benefit derived from having no holes upstream of the heating element 4. The limitation regarding having no holes upstream of the heating element is a structural limitation that should have been given weight by the examiner. The examiner's unsupported, conclusionary, statement regarding obvious design choice is not a substitute for evidence. As the examiner has not pointed to any teaching or suggestion in the prior art that would have suggested having no holes upstream of the heater element, we find that the examiner has failed to establish a prima facie case of obviousness of independent claim 5, and claims 6 and 7, dependent therefrom. Accordingly, the rejection of claims 5-7 under 35 U.S.C. § 103(a) is reversed.

We turn next to independent claim 9. The claim requires that a plurality of holes are provided at locations upstream and downstream of the heating element, and that the holes provided upstream of the heating element are spaced further from the heating element than the holes downstream of the heating element.

Appellants asserts (brief, page 9) that neither Nagata nor Morimasa teach or suggest this limitation, and that the

examiner's assertion "[f]ormation of slits at various positions surrounding the heating element is ... a matter of design choice since no criticality is mentioned in doing so' is without merit."

The examiner is silent as to claim 9. We presume that the examiner's earlier assertion that "[f]ormation of slits at various positions surrounding the heating element is also a matter of design choice since no criticality is mentioned in doing so" was meant to apply to independent claim 9 as well.

As stated, supra, with respect to claim 5, we do not agree with the examiner's position that "[f]ormation of slits at various positions surrounding the heating element is a matter of design choice since no criticality is mentioned in doing so' is without merit." We agree with appellants that the examiner's position is without merit. The specification discloses (page 24) that "holes 31a to 31e are provided upstream of the heating element 4 in such a manner as to be spaced more apart from the heating element 4, in comparison with the group of holes 32. Thus, even if dust contained in the fluid is accumulated on the end portions of the walls of the holes 31a to 31e, change in the condition of flow of the fluid at a part, at which the flow rate of the fluid is measured, of the heating element 4 is very largely suppressed. Consequently, the flow rate detecting

characteristics of the flow rate sensor are stably maintained over a long time period." Thus, appellants' specification sets forth the benefits of spacing the upstream holes further from the heater element than the downstream holes. The limitation regarding spacing the upstream holes further apart from the heating element than the downstream holes is a structural limitation that should have been given weight by the examiner. The examiner's unsupported, conclusionary, statement regarding obvious design choice is not a substitute for evidence. As the examiner has not pointed to any teaching or suggestion in the prior art that would have suggested spacing the upstream holes farther from the heater element than the downstream holes, we find that the examiner has failed to establish a prima facie case of obviousness of independent claim 9, and claim 10, dependent therefrom. Accordingly, the rejection of claims 9 and 10 under 35 U.S.C. § 103(a) is reversed.

CONCLUSION

To summarize, the decision of the examiner to reject claims 5-7, 9, and 10 under 35 U.S.C. § 103(a) is reversed.

REVERSED

JOSEPH F. RUGGIERO)	
Administrative Patent Judge)	
)	
)	
)	
)	BOARD OF PATENT
LANCE LEONARD BARRY)	APPEALS
Administrative Patent Judge)	AND
)	INTERFERENCES
)	
)	
)	
STUART S. LEVY)	
Administrative Patent Judge)	

Appeal No. 2002-2082
Application No. 09/289,393

Page 13

SSL/kis
SUGHRUE, MION, ZINN, MACPEAK & SEAS
2100 PENNSYLVANIA AVENUE, N.W.
WASHINGTON, DC 20037