

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 28

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte TOSHIHIDE IMAMURA and KANICHI KADOTANI

Appeal No. 1998-0294
Application 08/318,726

ON BRIEF

Before ABRAMS, FRANKFORT and NASE, Administrative Patent Judges.

ABRAMS, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the decision of the examiner finally rejecting claims 1-9, which constitute all of the claims of record in the application.

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The appellants' invention is directed to a humidifier (claims 1, 8 and 9) and to an elongate hollow yarn body (claims 2-7). The claims on appeal have been reproduced in an appendix to the Brief.

THE REFERENCES

The references relied upon by the examiner to support the final rejection are:

Schladitz 1975	3,869,242	Mar. 4,
Desage	4,748,314	May 31, 1988
Japanese publication Kawasaki et al. (Japanese reference) ¹	2-4147	Jan. 11, 1990

THE REJECTIONS

The following rejections under 35 U.S.C. § 103 are before us:²

¹Our understanding of this reference was obtained from a PTO translation, a copy of which is enclosed.

²Apparently because he inadvertently omitted claim 9 from the final rejection, the examiner made two new rejections in the answer, encompassing all nine claims, while maintaining the two original rejections. However, inconsistencies exist between the two sets of rejections. We have set forth the examiner's positions, as we understand them to be, in the following two expressions of the rejections.

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(1) Claims 1, 8 and 9 on the basis of the Japanese reference
and Schladitz.

(2) Claims 2-7 on the basis of the Japanese reference,
Schladitz and Desage.

Rather than attempt to reiterate the examiner's full
commentary with regard to the above-noted rejections and the
conflicting viewpoints advanced by the examiner and the
appellants, we make reference to the Examiner's Answers
(Papers No. 20 and 23) and to the Appellants' Briefs (Papers
No. 19 and 21).

OPINION

In reaching our decision on the issues raised in this
appeal, we have carefully assessed the claims, the prior art
applied against the claims, and the respective views of the
examiner and the appellants as set forth in the Answer and the
Brief. As a result of our review, and applying the guidance
provided by our reviewing court, we have determined that none
of the rejections should be sustained. Our reasoning in
support of this conclusion follows.

The test for obviousness is what the combined teachings
of the prior art would have suggested to one of ordinary skill

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in the art. See, for example, In re Keller, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). In establishing a *prima facie* case of obviousness, it is incumbent upon the examiner to provide a reason why one of ordinary skill in the art would have been led to modify a prior art reference or to combine reference teachings to arrive at the claimed invention. See Ex parte Clapp, 227 USPQ 972, 973 (Bd. Pat. App. & Int. 1985). To this end, the requisite motivation must stem from some teaching, suggestion or inference in the prior art as a whole or from the knowledge generally available to one of ordinary skill in the art and not from the appellant's disclosure. See, for example, Uniroyal ,Inc. V. Rudkin-Wiley Corp., 837 F.2d 1044, 1052, 5 USPQ2d 1434, 1052 (Fed. Cir.), *cert. denied*, 488 U.S. 825 (1988).

The appellants' invention relates to a humidifier and to a hollow yarn body. The objectives of the invention are to provide a humidifier that can quickly humidify a large volume of air, can be controlled with precision, is compact, and utilizes a hollow yarn body of high durability. In furtherance of these goals, the invention is manifested in

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independent claim 1 by upper and lower water tanks, a plurality of hollow yarn bodies formed of heat resistant and hydrophilic material which fluidly communicates with the water tanks and has an external surface that is exposed to a flow of air, and a plurality of thin metal heater wires disposed on the external surface of the hollow yarns bodier for heating the thin water film that forms on each for promoting evaporation therefrom.

It is the examiner's view that all of the subject matter recited in claim 1 is found in the Japanese reference, except for the thin heating wires on the outside of the hollow yarn bodies. However, the examiner states that such a heating means for an evaporator is taught by Schladitz, and concludes that it would have been obvious to one of ordinary skill in the art to replace the internal heaters disclosed in the Japanese system with external wires. We do not agree.

The Japanese reference discloses a system in which a stream of air flows from a cooling unit through a humidifier on its way to cool a space. The humidifier comprises a

plurality of metal casings (9) within which are heating elements (11a), and on the outside of which is filter material (10) that is in contact with water in a reservoir (7). Water flows to the surface of the filter material where it is frozen by the airflow from the cooling unit so that a layer of ice is established on the external surface of the filter material. When the heating elements on the inside of the metal casings are energized, the heat flows through the casings and the filter material and causes some of the ice to be sublimated, which results in a desired amount of vapor being mixed with a passing stream of cool air.

Schladitz is directed to an apparatus for vaporizing fuel oil prior to supplying it to a burner. To accomplish this, Schladitz discloses a housing (10) within which is a perforated fuel oil supply pipe (4) that is surrounded by a porous body (1) of polycrystalline metal whiskers or the like. The porous body is heated so that the fuel oil "is being transformed into vapor during its passage . . . [and] emerges as a vapor from the outer peripheral surface" (column 1, line

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53 *et seq.*). This reference teaches that the porous body can be heated by the direct passage of current through it, or by "an insulated electrical heating coil arranged on the inner peripheral surface, i.e., around the central longitudinal duct 4, or on the outer peripheral surface 17 or even inside the porous body 1," in which cases "heating takes place by heat convection" (column 3, lines 21-26).

It is axiomatic that the mere fact that the prior art structure could be modified does not make such a modification obvious unless the prior art suggests the desirability of doing so. See In re Gordon, 733 F.2d 900, 902, 221 USPQ 1125, 1127 (Fed. Cir. 1984). In the Japanese device, a layer of ice that is being maintained on the surface of a filter material is heated by means located internally in a support tube to cause sublimation of the ice into a vapor. This is profoundly different in theory, structure and operation from the Schladitz system, in which a liquid is vaporized while passing through a porous member owing to heat being applied to the porous member from the outside (in the example chosen by the examiner). In our view, the examiner's conclusion that one of

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ordinary skill in the art would have been motivated to modify the Japanese reference in the manner proposed by the examiner because the system disclosed by Schladitz is an "alternative" to that of the Japanese reference that would provide "improved evaporation of the liquid" (Answer, page 4) is speculation, unsupported by evidence. From our perspective, there is no teaching, suggestion or incentive in either reference which would have led the artisan to modify the apparatus of the Japanese reference by removing the heaters that are installed inside the filter material and replacing them with a plurality of thin metal wires located on the external surface of the filter material. In this regard, it would appear that placing a heating device on the outside of the filter material in the Japanese system would necessitate a major reconstruction of the system and revision of its manner of operation, and would be fraught with questions as to whether placing a heating wire on the external surface of the filter material would continue to provide the desired humidification function and would not adversely effect the flow of cooling air. This, in our view, would have been a disincentive to one of ordinary skill in the

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art to make the examiner's proposed changes.

It is our opinion that the combined teachings of the Japanese reference and Schladitz fail to establish a *prima facie* case of obviousness with regard to the subject matter recited in claim 1, and we will not sustain the rejection.

Independent claim 8 also stands rejected on the basis of the Japanese reference and Schladitz. It is drawn to a humidifier having a plurality of hollow tubular bodies of heat resistant and hydrophilic yarn with metal heating wires disposed on the external surface, and further requires that the hollow yarn bodies fluidly communicate with the water tanks as to be constantly filed with water. This arrangement is not present in the Japanese reference, where the yarn is saturated with water but does not have a hollow interior filled with water, or in Schladitz, where the body does not have a hollow interior. Therefore, in addition to the shortcomings of the two basic references with regard to placing wires on the outer surface of

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the yarns in the Japanese reference, the above-mentioned feature of claim 8 also is not taught. A *prima facie* case of obviousness therefore has not been established with regard to the subject matter of claim 8, and we will not sustain the rejection.

Independent claim 9 recites a structure that is essentially the same as that of claim 8, and we will not sustain the rejection for the same reasons as were expressed above with regard to claim 8.

Independent claim 2 is directed to a hollow yarn body formed by winding a thin metal wire as a heater on the outer periphery of a hollow yarn formed by weaving of a fiber of a heat resistant and hydrophilic material. It stands rejected as being unpatentable over the Japanese reference in view of Schladitz and Desage. The comments we made above with regard to the lack of suggestion to combine the teachings of the Japanese reference and Schladitz also are applicable here. They are not cured by further considering Desage, which was cited for its teaching of using fiber materials for making a hollow yarn body. A *prima facie* case of obviousness thus has

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not been established with regard to the subject matter of claim 2, and we will not sustain the rejection of this claim or of claims 3-7, which depend therefrom.

SUMMARY

The rejections of claims 1-9 are not sustained.

The decision of the examiner is reversed.

REVERSED

NEAL E. ABRAMS)
Administrative Patent Judge)
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) BOARD OF PATENT
CHARLES E. FRANKFORT)
Administrative Patent Judge) APPEALS AND
)
) INTERFERENCES
)
JEFFREY V. NASE)
Administrative Patent Judge)

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