

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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 15

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte GREGORY T. BIELAWSKI, PERVAJE A. BHAT,
DENNIS W. JOHNSON and ROBERT B. MYERS

Appeal No. 1998-0387
Application 08/566,192

ON BRIEF

Before CALVERT, ABRAMS, and STAAB, Administrative Patent Judges.

CALVERT, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1, 2, 7, 8 and 10 to 12, all the claims remaining in the application.

Appeal No. 1998-0387
Application 08/566,192

The appealed claims are drawn to a system (claims 1, 2, 10 and 11) or method (claims 7, 8 and 12) for removing contaminants from a flue gas, and are reproduced in Appendix A of appellants' brief.

The references applied in the final rejection are:

Hilger	1,861,158	May 31, 1932
Berman	3,473,298	Oct. 21, 1969
Warner	4,705,101	Nov. 10, 1987
Marchand et al (Marchand)	5,080,696	Jan. 14, 1992

The claims on appeal stand finally rejected under 35 USC § 103(a) as unpatentable over the following combinations of references:

- (1) Claims 1, 2, 7 and 8, Berman in view of Marchand and Hilger;
- (2) Claims 10 to 12, Berman in view of Marchand, Hilger and Warner.

Rejection (1)

We will first consider appellants' contention (brief, page 14) that Hilger is nonanalogous art.

A reference is analogous art if it satisfies one of two criteria: (1) it is from the same field of endeavor as that of the applicant, or (2) if not, it is reasonably pertinent to

Appeal No. 1998-0387
Application 08/566,192

the particular problem with which the applicant was involved.

In re Clay, 966 F.2d, 656, 658, 23 USPQ2d 1058, 1060 (Fed. Cir. 1992). In the present case it is evident that Hilger does not satisfy criterion (1), since it relates to the field of refrigeration, while appellant's field of endeavor is the removal of contaminants. As for criterion (2), the examiner asserts that Hilger is analogous because any device which contacts a gas with a liquid (such as Hilger's sprays 14) is broadly a wet scrubber, "as such liquid will always cool/heat and remove pollutants from the gaseous feed stream" (answer, page 6). However, the gas (air) being sprayed in Hilger is not contaminated, and, as disclosed by Hilger at page 2, lines 16 to 27, the purpose of the sprays 14 is to spray brine to aid in the refrigeration process. Thus, since Hilger is not concerned with appellants' particular problem, it is nonanalogous art and will not be considered in evaluating the merits of the rejection.

In the system and method disclosed by Berman, exhaust gas enters the bottom of the housing at 25, and passes sequentially through a counter-current spray chamber 12, a

demister 18, a tubular condensing heat exchanger 14 and another demister 20, before exiting the housing at outlet 34. Berman does not disclose a gas liquid contact means situated beneath the sprays 22 or an "array" of tubular condensing heat exchangers, but the examiner takes the position that it would have been obvious to provide such features in the Berman system in view of Marchand.

With regard to the gas liquid contact means, the examiner takes the position at page 6 of the answer that the provision of such a means in the absorber section (spray chamber) of Berman would have been obvious in view of Marchand's disclosure of "packing substance" 8, consisting of "metal or plastic grids or rings" (col. 2, line 54) below sprays 13. We consider this position to be well taken, noting that it was raised for the first time by the examiner in the examiner's answer,¹ and has not been controverted by appellants in a

¹In view of the examiner's reliance on Marchand's disclosure of packing substance 8, the examiner's statement on page 7 of the answer that Marchand is relied on solely to show that a condenser can be made up of a plurality of tubular heat exchangers 5 is clearly incorrect.

Appeal No. 1998-0387
Application 08/566,192

reply brief or otherwise.

We also agree with the examiner that it would have been obvious in view of Marchand to utilize an "array" of tubular heat exchangers, as claimed, instead of Berman's single tubular heat exchanger.

In the rejection, the examiner relied upon Hilger for a teaching that it would have been obvious to vertically arrange the components of the Berman system, i.e., the spray chamber 12, heat exchanger 14, and demister 20. As discussed above, the

Hilger patent is nonanalogous art and will not be considered; nevertheless, we conclude that claims 1 and 2 are unpatentable over Berman in view of Marchand.

It is fundamental that, during examination proceedings, claims are to be given their broadest reasonable interpretation, and limitations are not to be read into the claims from the specification. In re Van Geuns, 988 F.2d 1181, 1184, 26 USPQ2d 1057, 1059 (Fed. Cir. 1993). Looking at the language of claim 1 with this principle in mind, we note

that the first recited element is a "vertically arranged wet scrubber housing having an inlet at a bottom end . . . and an outlet at an opposite top end . . ." We consider that Berman meets these limitations. There is an inlet 25 at the bottom of the housing, which consists of successive sections containing spray chamber 12, heat exchanger 14 and region 16, and an outlet 34 at the top of the housing. As for the requirement that the housing be "vertically arranged," Berman's housing meets that requirement when the term "vertically arranged" is given its broadest reasonable interpretation, because each succeeding section of Berman's housing is at a higher elevation than its predecessor.

The other limitation in claim 1 relating to the vertical arrangement of components is in lines 14 to 17, where it is recited that the array of tubular condensing heat exchangers is positioned "above" the spray means. However, the use of the term "above" does not distinguish over Berman's apparatus, in which the heat exchanger portion of the housing is offset

to the right of the spray chamber 12, because the term "above" may mean "in or to a higher place than."² Since Berman's heat exchanger 14 is at a higher elevation than sprays 22, it is "above" the sprays as called for by claim 1.

We therefore conclude that claim 1 is unpatentable over Berman in view of Marchand alone, Hilger being superfluous to the rejection when the terms of the claim are given their broadest reasonable interpretation.

The means for eliminating mist recited in claim 2 reads on demister 20 of Berman. Appellants' argument that it does not because Berman mixes the exhaust gases with ambient air (brief, page 16) is not persuasive, since Berman discloses that

"remaining water droplets are removed" at demister 20 (col. 3, lines 70 and 71), and claim 2 does not preclude any subsequent mixing with ambient air.

On the other hand, we do not consider claim 7 to be

²Webster's Third New International Dictionary (1971).

Appeal No. 1998-0387
Application 08/566,192

unpatentable over the combination of Berman and Marchand, since in line 14 of the claim is recited the step of "passing the flue gas upwardly through an array of tubular condensing heat exchangers . . ." (emphasis added). This differs from the Berman system, where the gas is passed horizontally through heat exchanger 14, and we find no teaching in Berman or Marchand which would have suggested modifying the Berman system to pass the gas "upwardly" through heat exchanger 14.

In view of the foregoing, rejection (1) will be sustained as to claims 1 and 2, and reversed as to claims 7 and 8 (dependent on claim 7).

Rejection (2)

The rejection of claim 10 will be sustained. Warren's teachings of the advantages of covering the tubes of heat exchangers used in a flue gas scrubber with a fluoroplastic polymer such as Teflon (e.g., col. 2, lines 14 to 18, and col. 3, lines 61 to 66) would readily have suggested to one of ordinary skill the application of such a coating to the heat exchanger tubes 26 of Berman. Contrary to appellants' argument (brief, pages 19 to 20), the fact that Warner's heat

Appeal No. 1998-0387
Application 08/566,192

exchangers may be arranged differently relative to the wet scrubber does not vitiate its teaching of the desirability of using a corrosion-proof coating. Nonobviousness cannot be shown by attacking references individually where, as here, the rejection is based on a combination of references. In re Merck & Co., Inc., 800 F.2d 1091, 1097, 231 USPQ 375, 380 (Fed. Cir. 1986), cert. denied, 493 U.S. 975 (1989).

The rejection of claim 11 will also be sustained, since it would have been obvious to use a plurality of heat exchanger stages in the Berman apparatus instead of the one stage 14 illustrated in Fig. 1, depending on the heat exchange capacity required for a particular installation.

Inasmuch as the rejection of claim 7 will not be sustained, the rejection of claim 12 likewise will not be, since Warner does not supply the deficiency of the Berman-Marchand combination discussed above.

Summary

The examiner's decision to reject claims 1, 2, 7, 8 and 10 to 12 is affirmed as to claims 1, 2, 10 and 11 and reversed as to claims 7, 8 and 12.

Appeal No. 1998-0387
Application 08/566,192

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

IAN A. CALVERT)
Administrative Patent Judge)
)
)
) BOARD OF PATENT
NEAL E. ABRAMS)
Administrative Patent Judge) APPEALS AND
)
) INTERFERENCES
)
LAWRENCE J. STAAB)
Administrative Patent Judge)

Appeal No. 1998-0387
Application 08/566,192

IAC:pgg
Daniel S. Kalka
McDermott Incorporated patent Department
20 S Van Buren Avenue
Barberton, OH 44203