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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 20

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte YE-MON CHEN,
JAMES W. NIELSON, JR.
and DAVID J. BROSTEN

Appeal No. 98-1640
Application 08/535,850[1]

ON BRIEF

Before COHEN, MEISTER and NASE, Administrative Patent Judges.

COHEN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal from the final rejection of claims 1, 11 through 17, and 19. Claims 2 through 9 stand allowed. These claims constitute all of the claims remaining in the

[1] Application for patent filed September 28, 1995.

application.

Appellants' invention pertains to a feed nozzle assembly. A basic understanding of the invention can be derived from a reading of exemplary claim 11, a copy of which appears in the APPENDIX to the amended appeal brief (Paper No. 16).

As evidence of obviousness, the examiner has applied the document specified below:

Nielsen 5,174,889 Dec. 29, 1992

The following rejection is before us for review.

Claims 1, 11 through 17, and 19 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Nielsen.

The full text of the examiner's rejection and response to the argument presented by appellants appears in the answer

(Paper Nos. 17 and 19), while the complete statement of appellants' argument can be found in the main and reply briefs (Paper Nos. 16 and 18).

In the main brief (page 6), appellants indicate that claims 1, 11 through 17, and 19 stand or fall together. Accordingly, we select claim 11, the broadest independent claim, for review, consistent with 37 CFR § 1.192(c)(7). However, since appellants make reference to claim 1 in their argument, we shall also address the argued aspects of claim 1. Claims 12 through 17, and 19 will stand or fall with claim 11.

OPINION

In reaching our conclusion on the obviousness issue raised in this appeal, this panel of the board has carefully considered appellants' specification and claims 1 and 11, the applied patent[2] and the respective viewpoints of appellants and the examiner. As a consequence of our review, we make the

[2] In our evaluation of the applied patent, we have considered all of the disclosure thereof for what it would have fairly taught one of ordinary skill in the art. See In re Boe, 355 F.2d 961, 965, 148 USPQ 507, 510 (CCPA 1966). Additionally, this panel of the board has taken into account not only the specific teachings, but also the inferences which one skilled in the art would reasonably have been expected to draw from the disclosure. See In re Preda 401 F.2d 825, 826, 159 USPQ 342, 344 (CCPA 1968).

determination which follows.

We affirm the examiner's rejection of claims 1 and 11. It follows that the rejection of claims 12 through 17, and 19 is likewise affirmed, since these claims stand or fall with claim 11, as earlier indicated.

At the outset, we point out that, as disclosed by appellants (specification, page 7), the openings in the first nozzle tip are for the passage of the steam out of the inner steam conduit and into the heavy petroleum hydrocarbon passing through the outer heavy petroleum hydrocarbon conduit. This results in a "mixture" of steam and heavy hydrocarbon. The angle of steam flow, relative to the longitudinal axis of the steam conduit, depends on the usage of the nozzles (specification, page 7). The function of the second nozzle tip is for the passage of the "mixture" of steam and heavy petroleum hydrocarbon out of the feed nozzle to substantially uniformly atomize the "mixture" of steam and heavy petroleum hydrocarbon into a catalytic cracking reactor riser. The distance the outlet end of the second nozzle tip extends

beyond the outlet end of the first nozzle tip is adapted to

substantially uniformly atomize the “mixture” of steam and heavy petroleum hydrocarbon (specification, page 8). The angle of slits in the second nozzle, relative to the longitudinal axis of the hydrocarbon conduit, for the passage of the “mixture” of steam and heavy petroleum hydrocarbon, will depend on the usage of the nozzles (specification, page 9).

We turn now to the patent applied by the examiner.

The Nielsen patent (Figure 6) teaches a nozzle, suitable for use in a catalytic cracking unit, which provides good atomization of a heavy oil feed (column 1, lines 38 through 40). Oil and atomizing gas are “mixed” by a sheet of atomizing gas breaking down a sheet of oil to effect a “mixture” of oil droplets in the atomizing gas (column 2, lines 11 through 26 and column 5, line 61 to column 6, line 16). “Optimal atomization” can be obtained where the sheet of steam and the sheet of oil flow into each other in a generally orthogonal relationship (column 6, lines 17 through 19).

At this juncture, we recognize the comparable structures shown by appellants in Figure 2 and the patentee Nielsen in Figure 6.

Considering the subject matter of each of claims 1 and 11, as a whole, in view of the knowledge and level of skill in the art as reflected by the Nielsen document, we reach the conclusion, as did the examiner, that the feed nozzle of these claims would have been obvious to one having ordinary skill in the art when appellants' invention was made.

Appellants' argument has not persuaded us that the examiner erred in rejecting the content of claims 1 and 11 under 35 U.S.C. § 103. In particular, the arguments set forth in the briefs focus upon the following matters, which we now address.

In the main brief (page 18), appellants emphasize the recitation in claim 1 of the second nozzle tip being adapted to substantially uniformly atomize a mixture of steam and heavy petroleum hydrocarbon. As we indicated above, Nielsen

seeks

optimal atomization. With this in mind, it is apparent to us that one having ordinary skill in the art would have appreciated that the comparable second slot or nozzle tip of Nielsen (Figure 6) is adapted to substantially uniformly atomize a mixture of steam (gas) and heavy petroleum hydrocarbon (liquid), as set forth in claim 1 (claim 11).

As to the argued (brief, page 13) “essential” plurality of holes for the gas outlet (claim 11 only requires at least one passageway), it is apparent to this panel of the board that the choice of a plurality of holes or passageways by one having ordinary skill in the art would have simply been an obvious matter of selection from among the known options in the art of one (Figure 6 of Nielsen) or more passageways (multi-air jets shown in Figure 2.38 of Exhibit A to appellants’ brief or the multiple side steam outlets 8 in the PRIOR ART showing in appellants’ application Figures 6A, 6B).

It is additionally argued (main brief, page 14) that the “most critical dimension” is the distance between the gas outlets and the second outlet of gas-liquid mixture (about

one-quarter

inch to about one and one-quarter inches as in claim 1). We note that claim 11 simply sets forth a distance adapted to substantially uniformly atomize the mixture of gas and liquid. As explained by appellants (main brief, page 14), if the distance is too short or too long this circumstance would be "detrimental to atomization". It is readily apparent to this panel of the board that one having ordinary skill in the art would have, in configuring the nozzle of Nielsen for "[o]ptimal atomization", determined from routine experimentation, working distances that would have been expected to fall within the distance range of claim 1. Nothing before us convinces us otherwise.

As to the argument addressed to the passageways being angled with respect to the longitudinal axis of the conduits (main brief, pages 17 and 18), Exhibit A appended to appellants' main brief reveals to us the alternative option in the art (Figure 4.41), obviously known and available to those having ordinary skill, of angling passages relative to a longitudinal axis of nozzle passages when such would be desirable for a particular nozzle usage.

Appellants also a) assert that "the instant invention is an internal mixing nozzle" unlike the nozzle of Nielsen (main brief, page 7), b) acknowledge that the claims make no reference to "internal" or "external" (reply brief, page 2), and c) indicate that the argument in the brief was made to explain the differences between appellants' invention and the reference (reply brief, page 2). We are not convinced by appellants' argument that one having ordinary skill in the art would have understood with certainty that the Nielsen atomizing nozzle of Figure 6 with its internal mixing (comparable to appellants' Figure 2) was other than an internal mixing nozzle. This view is considered to be supported by the showing of the internal-mixing air-assist atomizer (left embodiment) in Figure 4.38 of Exhibit A appended to the main brief.

In summary, this panel of the board has affirmed the rejection of claims 1, 11 through 17, and 19 under 35 U.S.C. § 103(a) as being unpatentable over Nielsen.

The decision of the examiner is affirmed.

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

AFFIRMED

IRWIN CHARLES COHEN Administrative Patent Judge	)	
JAMES M. MEISTER Administrative Patent Judge	)	BOARD OF PATENT APPEALS AND INTERFERENCES
JEFFREY V. NASE Administrative Patent Judge	)	

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