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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 21

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Ex parte TIMO HYPPANEN

Appeal No. 95-3119
Application No. 08/089,810[1]

ON BRIEF

Before STAAB, McQUADE, and NASE, Administrative Patent Judges.

NASE, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1 through 7, 9 through 24 and 27.[2] Claim 26 has been withdrawn from consideration under 37 CFR § 1.142(b) as being drawn to a nonelected invention. Claims 8 and 25 have been canceled.

[1] Application for patent filed July 12, 1993. According to the appellant, the application is a continuation-in-part of the following three applications: Application No. 08/041,571, filed April 5, 1993; Application No. 08/041,580, filed April 5, 1993; and Application No. 08/066,277, filed May 26, 1993.

[2] Claim 10 has been amended subsequent to the final rejection.

We REVERSE.

BACKGROUND

The appellant's invention relates to transporting solid particles. An understanding of the invention can be derived from a reading of exemplary claims 1 and 10, which appear in the appendix to the appellant's brief.

The prior art references of record relied upon by the examiner as evidence of obviousness under 35 U.S.C. § 103 are:

Rosa et al. (Rosa)	2,819,890	Jan. 14, 1958
Stewart et al. (Stewart)	4,333,909	June 8, 1982
Korenberg	4,688,521	Aug. 25, 1987
Potinkara	5,034,197	July 23, 1991
Hansen et al. (Hansen)	5,069,171	Dec. 3, 1991

Claim 27 stands rejected under 35 U.S.C. § 112, first paragraph, as the specification, as originally filed, does not provide support for the invention as is now claimed.

Claims 1 through 7, 9 through 24 and 27 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the appellant regards as the invention.

Claims 1 through 5, 7, 9 through 14, 16 through 21 and 27 stand rejected under 35 U.S.C. § 103 as being unpatentable over Stewart alone, or in view of Rosa.

Claims 6, 15, 23 and 24 stand rejected under 35 U.S.C. § 103 as being unpatentable over Stewart alone, or in view of Rosa as applied above, and further in view of Hansen and Potinkara.

Claim 22 stands rejected under 35 U.S.C. § 103 as being unpatentable over Stewart alone, or in view of Rosa as applied above, and further in view of Korenberg.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellant regarding the § 103 and § 112 rejections, we make reference to the examiner's answer (Paper No. 17, mailed December 12, 1994) for the examiner's complete reasoning in support of the rejections, and to the appellant's brief (Paper No. 14, filed September 6, 1994) and reply brief

(Paper No. 18, filed January 27, 1995) for the appellant's arguments thereagainst.[3]

OPINION

In reaching our decision in this appeal, we have given careful consideration to the appellant's specification and claims, to the applied prior art references, and to the respective positions articulated by the appellant and the examiner. As a consequence of our review, we make the determinations which follow.

The written description issue

We will not sustain the examiner's rejection of claim 27 under 35 U.S.C. § 112, first paragraph, as the specification, as originally filed, does not provide support for the invention as is now claimed.

[3] The new ground of rejection set forth in the examiner's answer was withdrawn by the examiner (Paper No. 20) due to the appellant filing a terminal disclaimer (Paper No. 19). We note that the terminal disclaimer has not been properly recorded on the face of the filewrapper. The examiner should ensure correct recording of the terminal disclaimer.

The test for determining compliance with the written description requirement is whether the disclosure of the application as originally filed reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter, rather than the presence or absence of literal support in the specification for the claim language. See Vas-Cath, Inc. v. Mahurkar, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1116-17 (Fed. Cir. 1991) and In re Kaslow, 707 F.2d 1366, 1375, 217 USPQ 1089, 1096 (Fed. Cir. 1983).

In applying the above-noted test, we conclude that the language at issue (i.e., "introducing transporting gas only through one side wall opposite to the partition wall in the first chamber") is supported by the original disclosure. In that regard, Figure 5 shows that the only transporting gas introduced in the first chamber (i.e., lower part 318 of return duct 312) is introduced by nozzle 324 through the side wall opposite to the partition wall 322 in the first chamber. Additionally, the specification (page 14) states that

> [t]ransportation gas is introduced through nozzle 324 into the lower part of the return duct 312 for transporting particles through passages 320 into the heat exchanger chamber 314.

The indefiniteness issue

We will not sustain the examiner's rejection of claims 1 through 7, 9 through 24 and 27 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which the appellant regards as the invention.

The second paragraph of 35 U.S.C. § 112 requires claims to set out and circumscribe a particular area with a reasonable degree of precision and particularity. In re Johnson, 558 F.2d 1008, 1015, 194 USPQ 187, 193 (CCPA 1977). In making this determination, the definiteness of the language employed in the claims must be analyzed, not in a vacuum, but always in light of the teachings of the prior art and of the particular application disclosure as it would be interpreted by one possessing the ordinary level of skill in the pertinent art. Id.

The examiner's focus during examination of claims for compliance with the requirement for definiteness of 35 U.S.C. § 112, second paragraph, is whether the claims meet the threshold requirements of clarity and precision, not whether more suitable language or modes of expression are available. Some latitude in

the manner of expression and the aptness of terms is permitted even though the claim language is not as precise as the examiner might desire. If the scope of the invention sought to be patented cannot be determined from the language of the claims with a reasonable degree of certainty, a rejection of the claims under 35 U.S.C. § 112, second paragraph, is appropriate.

Thus, the failure to provide explicit antecedent basis for terms does not always render a claim indefinite. As stated above, if the scope of a claim would be reasonably ascertainable by those skilled in the art, then the claim is not indefinite. See Ex parte Porter, 25 USPQ2d 1144, 1145 (Bd. Pat. App. & Inter. 1992).

Furthermore, appellants may use functional language, alternative expressions, negative limitations, or any style of expression or format of claim which makes clear the boundaries of the subject matter for which protection is sought. As noted by the Court in In re Swinehart, 439 F.2d 210, 160 USPQ 226 (CCPA 1971), a claim may not be rejected solely because of the type of language used to define the subject matter for which patent protection is sought.

With this as background, we analyze the specific rejections under 35 U.S.C. § 112, second paragraph, made by the examiner of the claims on appeal. The examiner determined (answer, p. 5) that (1) "gill-like" in claim 12 is vague; (2) claims 19-21 seem to define the intended use of the apparatus; and (3) "the combustion chamber" in claim 7 lacks antecedent basis.[4]

We agree with the appellant's argument (brief, p. 6) that the term "gill-like" in claim 12 is definite. It is our opinion that an artisan upon reading the appellant's original disclosure (e.g., page 7, 1¶, Figures 1 and 2, etc.) would have considered the term "gill-like" to mean that the passages are narrow slots closely spaced one on top of the other. Since the meaning of the term "gill-like" would have been understood, the term "gill-like" is definite.

We agree with the appellant's argument (brief, p. 7) that claims 19 through 21 are definite. In that regard, we agree with the appellant that the recitations of claims 19 through 21 define positive limitations of the claims, not the intended use of the

[4] We are at a lose to understand why the examiner include claims 1 through 7, 9 through 11, 18, 22 through 24 and 27 in this rejection.

apparatus. Furthermore, even if claims 19-21 did define only the intended use of the apparatus, it is not apparent to us how that would render the claims indefinite.

We agree with the appellant's argument (brief, p. 7) that the lack of antecedent basis in claim 7 does not render the claim indefinite. In that regard, we agree with the appellant that the prior recitation in claim 7 of a fluidized bed combustor necessity implies to the artisan that the combustor has a combustion chamber.[5]

The obviousness issues

We will not sustain the examiner's rejection of claims 1 through 7, 9 through 24 and 27 under 35 U.S.C. § 103.

In rejecting claims under 35 U.S.C. § 103, the examiner bears the initial burden of presenting a case of obviousness. See In re Rijckaert, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993). A case of obviousness is established by presenting evidence that the reference teachings would appear to

[5] For purposes of consistency with claim 6, we suggest that the term "the combustion chamber" in claim 7 be changed to "a combustion chamber."

be sufficient for one of ordinary skill in the relevant art having the references before him to make the proposed combination or other modification. See In re Lintner, 9 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972). Furthermore, the conclusion that the claimed subject matter is obvious must be supported by evidence, as shown by some objective teaching in the prior art or by knowledge generally available to one of ordinary skill in the art that would have led that individual to combine the relevant teachings of the references to arrive at the claimed invention. See In re Fine, 837 F.2d 1071, 1074, 5 USPQ2d 1596, 1598 (Fed. Cir. 1988). Rejections based on § 103 must rest on a factual basis with these facts being interpreted without hindsight reconstruction of the invention from the prior art. The examiner may not, because of doubt that the invention is patentable, resort to speculation, unfounded assumption or hindsight reconstruction to supply deficiencies in the factual basis for the rejection. See In re Warner, 379 F.2d 1011, 1017, 154 USPQ 173, 177 (CCPA 1967), cert. denied, 389 U.S. 1057 (1968). Our reviewing court has repeatedly cautioned against employing hindsight by using the appellant's disclosure as a blueprint to reconstruct the claimed invention from the isolated teachings of the art. See, e.g., Grain Processing Corp. v. American

Maize-Products Co., 840 F.2d 902, 907, 5 USPQ2d 1788, 1792 (Fed. Cir. 1988).

With this as background, we analyze the prior art applied by the examiner in the rejection of the two independent claims on appeal (i.e., claims 1 and 10).

Stewart discloses a fluidized bed boiler. As shown in Figure 1 of Stewart, the fluidized bed boiler comprises a front wall 12, a rear wall 14 and two side walls, one of which is shown by the reference numeral 16. The upper portion of the boiler is not shown for the convenience of presentation, it being understood that it consists of a convection section, a roof and an outlet for allowing the combustion gases to discharge from the boiler, in a conventional manner. A partition 18 is disposed within the boiler and has a vertical portion 18a which extends in a parallel relation to the front wall 12 and the rear wall 14, and a slanted portion 18b which extends from the upper extremity of the vertical portion 18a to the front wall 12 and which has a plurality of openings 18c, for reasons to be described later. The partition 18 defines a first chamber 20 extending between the front wall 12 and the partition 18, and a second chamber 22

extending between the partition and the rear wall 14. Stewart teaches that a bed of particulate material 24 is disposed within the chamber 22 and rests on a perforated grate 26 extending horizontally in the lower portion of the boiler and defining the lower extremities of both chambers 20 and 22. The lower extremity of the vertical portion 18a of the partition 18 can terminate slightly above the grate 26 to form a through passage 28 that permits transfer of material from the chamber 20 to the chamber 22. Alternatively, Stewart discloses that holes can be provided in the lower portion of partition 18 for the same effect. The fluidized bed boiler also includes two air plenum chambers 30 and 32 disposed immediately underneath the chambers 20 and 22. Stewart provides an inlet pipe 38 through the front wall 12 to introduce into the chamber 20 an acceptor, such as raw limestone, for the sulfur produced by the fossil fuel during the combustion process. Stewart teaches that this acceptor would be in the form of a particulate material which would accumulate to a preselected height, such as the one shown in Figure 1, in the chamber 20. In addition, a gas inlet pipe 40 extends through the wall 12 into the chamber 20 for passing a high temperature gas, a combustible gas, or carbon dioxide

rich flue gas into the chamber 20. The pipe 40 can also be connected to an exhaust fan or the like for removing gases from the chambers 20 and 22. An air inlet pipe 44 also extends through the front wall 12 in communication with the lower portion of the chamber 20 and is adapted to receive pressurized air from an external source (not shown) and discharge same toward the passage 28 to assist the movement of the acceptor from the chamber 20 to the chamber 22.

In operation of Stewart's fluidized bed boiler, air is introduced into the chamber 32 via the air inlet 36 whereby it passes upwardly through the grate 26 and the bed 24 of fluidized material in the chamber 22 before it exits through a suitable outlet provided in the top of the boiler. This loosens the particulate material in the bed 24 and fluidizes it. A light-off burner 37 is then fired to heat the material in the bed 24 until the bed reaches a predetermined elevated temperature after which particulate fuel material is introduced into the chamber 22 and the bed 24 via an inlet 46. Upon establishing good combustion the burner 37 can be turned off. As soon as the bed reaches its normal operational temperature, the raw limestone is introduced into the chamber 20 via the inlet 38 where it accumulates in the

latter chamber. A gas, which could be a high temperature gas, a combustible gas, or carbon dioxide-rich flue gas, or the like, is introduced into the chamber 20 as needed via the inlet pipe 40. As a result, a partial pressure of carbon dioxide is maintained in the chamber 20 that is optimum for the calcining operation, and any excess gas, including carbon dioxide, discharges through the openings 18c formed in the partition 18. The air assist pipe 44 is activated to distribute the calcined limestone through the passage 28 into the lower portion of the chamber 22, it being understood that air can be introduced into the chamber 20 via the inlet 34 as needed to fluidize the limestone in the latter chamber and thus assist the movement of the limestone into the chamber 22. The limestone from the chamber 20 integrates with the bed material in the chamber 22 and accepts the sulfur produced as a result of the combustion of the fossil fuel. Alternatively, Stewart teaches that the pipes 40 or 34 could be connected to an exhaust fan and high temperature flue gases of increased carbon dioxide content can be gradually drawn from the chamber 22 through the openings 18c in the partition 18 and evacuated through the pipe 40, or through the grid 30 and pipe 34.

Rosa discloses a counter-current recirculating device for the exchange of heat between a gas and a finely granulated material. As shown in Figure 1, the counter-current recirculating device includes a number of gas ducts 1-5 connected by arcuate members 10, 14, 18 and 22 to form a closed system. Gas enters the duct 1 through tube 26 and leaves duct 5 through tube 33. Each gas duct 1-5 is provided with an oblique sieve 12, 16, 20, 24, or 28. Each sieve consists of flat rails arranged under an angle and overlapping each other in the direction of the flow gas.

The examiner determined (answer, p. 8) that it would have been obvious to one of ordinary skill in the art at the time of the appellant's invention to modify Stewart's passage 28 to be a plurality of passages one above another, especially in view of Rosa's use of slots between the rails of each sieve.

We do not agree.

We agree with the appellant's argument (brief, pp. 11-14) that there is no reason for one of ordinary skill in this art to modify Stewart's passage 28 to be a plurality of passages one

above another. It appears to us that the examiner has resorted to speculation, unfounded assumption or hindsight reconstruction to supply the above-noted deficiency in Stewart. In that regard, it is our opinion that Rosa would not have provided any suggestion or motivation to modify Stewart's passage 28. Furthermore, we view Stewart's own teaching that the passage 28 could alternatively be holes provided in the lower portion of partition 18 for the same effect to be insufficient by itself to suggest modifying Stewart's passage 28 to be a plurality of passages one above another.

We have also reviewed Korenberg, Hansen and Potinkara but find nothing therein which makes up for the deficiency of Stewart discussed above. Accordingly, we cannot sustain any of the examiner's rejection of appealed claims 1 through 7, 9 through 24 and 27 under 35 U.S.C. § 103.

CONCLUSION

To summarize, the decision of the examiner to reject claim 27 under 35 U.S.C. § 112, first paragraph, is reversed; the decision of the examiner to reject claims 1 through 7, 9 through 24 and 27 under 35 U.S.C. § 112, second paragraph, is reversed; and the decision of the examiner to reject claims 1 through 7, 9 through 24 and 27 under 35 U.S.C. § 103 is reversed.

REVERSED

LAWRENCE J. STAAB Administrative Patent Judge	)
JOHN P. McQUADE Administrative Patent Judge	) BOARD OF PATENT) APPEALS) AND) INTERFERENCES
JEFFREY V. NASE Administrative Patent Judge	)

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APPEAL NO. 95-3119 - JUDGE NASE
APPLICATION NO. 08/089,810

APJ NASE

APJ STAAB

APJ McQUADE

DECISION: **REVERSED**

Prepared By: Delores A. Lowe

DRAFT TYPED: 06 Apr 98

FINAL TYPED: