

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 41

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JAMES A. BRIERLEY
and
DAVID L. HILL

Appeal No. 1998-1855
Application No. 08/459,537

ON BRIEF

Before OWENS, LIEBERMAN, and PAWLIKOWSKI, Administrative Patent Judges.

LIEBERMAN, Administrative Patent Judge.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 from the final rejection of claims 1 through 17, 27 through 31, 33 through 35, 37, 38, 40 through 42, 44, 45, 47 through 49, 51 and 52 and the decision of the examiner refusing to allow claims 32, 36, 39, 43, 46 and 50 as amended subsequent to the final rejection. See the amendment received April 16, 1997, and the Advisory action dated May 2, 1997.

THE INVENTION

The invention is directed to a process for the recovery of metal values from an ore containing the metal values. The ore additionally contains sulfur having an oxidation state of zero or less. The process requires forming particulates from particles of the ore and a bacterial inoculate. The ore present contains at least 0.2% by weight sulfide and less than 12% moisture. Additional features of the claimed subject matter are set forth in the following illustrative claims.

THE CLAIMS

Claims 1, 27, and 33 are illustrative of appellants' invention and are reproduced below:

1. A process for the recovery of one or more metal values from a metal ore material comprising those one or more values and a matrix material having a sulfur content wherein the sulfur is present in an oxidation-reduction state of zero or less consisting essentially of the following steps:
 - a. forming particulates from particles of said metal ore material and an inoculate comprising bacteria capable of at least partially oxidizing the sulfur content;
 - b. forming a heap of said particulates;
 - c. biooxidizing the sulfur content and
 - d. recovering said one or more values, wherein said ore contains at least 0.2% by weight sulfide and said particulates comprise less than 12% by weight moisture.

27. A process for the recovery of one or more metal values from a metal ore material containing said one or more values and a matrix material having a sulfur content wherein the sulfur is present in an oxidation-reduction state of zero or less comprising:

- a. forming particulates from particles of said metal ore material and an inoculate comprising bacteria capable of at least partially oxidizing the sulfur content;
- b. forming a heap of said particulates;
- c. biooxidizing the sulfur content and
- d. recovering said one or more values, wherein said heap is essentially free of manganese or manganese-containing compounds, said ore contains at least 0.2% by weight sulfide and said particulates comprise less than 12% by weight moisture.

33. The process as claimed in claim 1, wherein the metal ore material comprises less than 0.08 oz/ton of said one or more metal values.

THE REFERENCES OF RECORD

As evidence of obviousness, the examiner relies upon the following references:

Krebs-Yuill et al. (Krebs-Yuill)	4,740,243	Apr. 26, 1988
Clough et al. (Clough)	4,765,827	Aug. 23, 1988
Hackl et al. (Hackl)	4,888,293	Dec. 19, 1989
Gross	4,898,611	Feb. 06, 1990
Brierley et al. (Brierley '942)	5,127,942	Jul. 07, 1992
Brierley et al. (Brierley '486)	5,246,486	Sep. 21, 1993
Brierley et al. (Brierley '559)	5,332,559	Jul. 26, 1994

THE REJECTIONS

Claims 1 through 17 and 27 through 52 stand rejected under 35 U.S.C. § 112,

first paragraph as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 1 through 17 and 32 through 45 stand rejected under 35 U.S.C. § 112, first and second paragraphs, as the claimed invention is not described in such full, clear, concise and exact terms as to enable any person skilled in the art to make and use the same, and/or for failing to particularly point out and distinctly claim the subject matter which appellants regard as the invention.

Claims 37, 44 and 51 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 appellants regard as the invention.

Claims 1 through 3, 6 through 17, and 27 through 52 stand rejected under 35 U.S.C. § 103 as being unpatentable over Hackl taken with Krebs-Yuill.

Claims 4 and 5 stand rejected under 35 U.S.C. § 103 as being unpatentable over Hackl taken with Krebs-Yuill and further in view of Gross.

Claims 1 through 17 and 27 through 52 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 through 37 of U. S. Patent No. 5,246,486 (Brierley '486).

Claims 1 through 17 and 27 through 52 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims

Appeal No. 1998-1855
Application No. 08/459,537

5

1 through 19 of U. S. Patent No. 5,127,942 (Brierley '942) in view of Clough and
Gross.

Claims 1 through 17 and 27 through 52 stand rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 through 29 of U. S. Patent No. 5,332,559 (Brierley '559).

OPINION

We have carefully considered all of the arguments advanced by the appellants and the examiner, and agree with the appellants that the rejections of claims 1 through 17 and 27 through 52 under §§ 103 and 112 are not well founded. Accordingly, we reverse these rejections. We also reverse the rejections under the judicially created doctrine of obviousness-type double patenting over Brierley '559, or Brierley '942. We sustain the rejection under the judicially created doctrine of obviousness-type double patenting over Brierley '486.

"[T]he examiner bears the initial burden, on review of the prior art or on any other ground, of presenting a *prima facie* case of unpatentability," whether on the grounds of anticipation or obviousness. In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).

The New Matter Rejections

In a rejection under the first paragraph of 35 U.S.C. § 112, "written description requirement," it is sufficient if the originally filed disclosure would have conveyed to one of ordinary skill in the art that an appellant had possession of the concept of what is claimed.

In re Anderson, 471 F.2d 1237, 1240-41, 176 USPQ 331, 333 (CCPA 1973).

There is no requirement that the language of the claimed subject matter be present in the specification in ipsissima verba.

It is the examiner's position that there is no basis for the terms, "said particulates comprise less than 12% by weight moisture," "less than 0.08 oz/ton," and "said heap is essentially free of manganese or manganese-containing compounds."

We however, find adequate basis for each of the above terms. The phrase, "that the added liquid forms a total moisture content in the ore of about 8% to 12% at maximum," is found in the specification, page 28, lines 19-20, and discloses that the maximum amount of moisture is 8% to 12% which encompasses amounts of moisture that is less than the stated amounts. We conclude accordingly that adequate support exists for the term, "said particulates comprise less than 12% by weight moisture."

As to the term, "less than 0.08 oz/ton," the specification page 15, lines 12-13, provides for, "a gold-containing ore of less than about 0.07 oz/ton of ore."

Furthermore, the specification, page 17, lines 2-3 provides for "a gold content as low as 0.07 oz/ton."

When taken together with the disclosure of Example 7 on page 52 of the specification of an ore having a gold content of "about 0.083 oz. per ton," we find adequate basis for the aforesaid claim limitation.

With respect to the term, "said heap is essentially free of manganese or manganese-containing compounds," at least the embodiment directed to the Genesis Mine ore accounts for all of the minerals present in the ore and is free of manganese. Accordingly, that single embodiment provides for an ore substantially free of manganese or manganese-containing compounds.

The Indefiniteness Rejection

"The legal standard for definiteness [under the second paragraph of 35 U.S.C. § 112] is whether a claim reasonably apprises those of [ordinary] skill in the art of its scope." In re Warmerdam, 33 F.3d 1354, 1361, 31 USPQ2d 1754, 1759 (Fed. Cir. 1994). The inquiry is to determine whether the claim sets out and circumscribes a particular area with a reasonable degree of precision and particularity. The definiteness of the language employed in a claim must be analyzed not in a vacuum, but in light of the teachings of the particular application. In re Moore, 439 F.2d 1232, 1235, 169 USPO 236, 238 (CCPA 1971).

It is the examiner's position that the claimed subject matter is indefinite in utilization of the transitional phrases, "consisting essentially of the following steps," and "critical bacterial population size." As to the transitional language, it is well settled that, "[a]lthough 'consisting essentially of' is typically used and defined in the context of compositions of matter, we find nothing intrinsically wrong with the use of such language

as a modifier of method steps as here. Accordingly, we consider the language 'consisting essentially of,' when used as a modifier of method steps to render the claim[s] open only

for the inclusion of steps which do not materially affect the basic and novel characteristics of the claimed method." See Ex parte Hoffman, 12 USPQ2d 1061, 1063-64 (Bd. Pat. App. & Int. 1989).

As to the phrase, "critical bacterial population size," we find the disclosure in the specification, page 48 together with the data in Table 2 sufficient to understand that the rate of oxidation occurs in less time as compared with bacteria used in an alternative manner. On this record, we accordingly conclude that the specification provides a reasonable standard for understanding the metes and bounds of the terms, supra when the claim is read in light of the specification. Seattle Box Co. v. Industrial Crating & Packing, Inc., 731 F.2d 818, 826, 221 USPQ 568, 573-74 (Fed. Cir. 1984). Accordingly, we reverse the rejection of the examiner.

The Rejection under § 103

On the record before us, the examiner relies upon a combination of at least two references to reject the claimed subject matter and establish a prima facie case of obviousness. The examiner's rejection is predicated on the conclusion that, "[t]he particulates would appear to contain less than 12% by weight moisture." See Answer, page 5. We disagree.

We find that Hackl is directed to the utilization of bacterial cultures including *I. ferrooxidans* for oxidizing sulfur in multi-metallic sulfide ores. See Abstract, column 1, lines 6-9, and column 3, lines 52-59. We find that the finely ground ore is leached in

agitated, air sparged tanks with the bacteria present. See column 3, lines 52-59.

Typically, the finely ground ore is slurried with water and fed to a series of bioleach reactors. See column 5, lines 1-8. We find however that Hackl discloses that, “[i]n a variation of the process, the material can be treated by conventional heap leach methods, in which case the oxidation step would require 1-12 months to complete.” See column 5, lines 31-35. We find that Example 3 is directed to a conventional heap leach method. In that example however, the sample of ore is placed in a column, initially saturated with water and following acidification thereafter inoculated with a mixed bacterial culture. We conclude that there is no suggestion or motivation to utilize particulates which comprise less than 12% by weight moisture.

Krebs-Yuill likewise discloses a process for recovering at least one first metal from a metal sulfide containing ore utilizing *T. ferrooxidans* in an amount effective to increase the rate of liberating the first metal. See Abstract and column 4, lines 1-3 and column 5, lines 24-31. We find that the process may be performed in a heap. See column 8, lines 58-60. We further find that, “[t]he ore and material particles are mixed with sufficient aqueous acid (H₂SO₄), and if desired, bacteria.” See column 9, lines 40-42. There is however no guidance that the particulates comprise less than 12% by weight moisture. Accordingly, there is no support for the examiner’s statement that the particles would appear to contain less than 12% by weight moisture.

Based upon the above considerations, even if the examiner was correct in

combining Hackl with Krebs-Yuill in the manner described in the Answer, the omission of the requisite limitation with regard to the moisture content from the disclosure of each of the prior art references, as required by the claimed subject matter would result in a process created that would, in any event, fall short of the invention defined by the claimed subject matter, as the aforesaid claimed subject matter requires features that cannot be achieved by combining the references. Uniroyal, Inc. v. Rudkin-Wiley Corp., 837 F.2d 1044, 1051, 5 USPQ2d 1434, 1438 (Fed. Cir.), cert. denied, 488 U.S. 825 (1988). Accordingly, the examiner has not established a prima facie case of obviousness.

The Obviousness-type Double Patenting Rejections

As an initial matter, the appellants have argued that, “[t]he presently pending claims are not believed to stand or fall together.” See Brief, page 9. Throughout the discussion of the rejection on the grounds of obviousness, separate arguments are presented with respect to limitations present in claims argued separately. With respect to the rejections on the grounds of obviousness-type double patenting however, no such separate arguments are present by the appellants. Accordingly, we select claim 1 as representative of the claimed subject matter and limit our consideration of the obviousness-type double patenting rejection thereto. See 37 § CFR 1.192 (c)(7) (1997).

All proper double patenting rejections rest on the fact that a patent has been

issued and a later issuance of a second patent will continue protection beyond the date of expiration of the first patent of the very same invention claimed therein or of a mere

variation of that invention which would have been obvious to those of ordinary skill in the relevant art. See In re Kaplan, 789 F.2d 1574, 1579-80, 229 USPQ 678, 683 (Fed. Cir. 1986).

Our analysis of the examiner's rejection of claims 1 and 3 through 5 under the doctrine of judicially created double patenting parallels that for a section 103 rejection. While the double patenting rejection is analogous to a failure to meet the non-obviousness requirement of 35 U.S.C. § 103, that section is not itself involved in double patenting rejections because the patent principally underlying the rejection is not usually prior art. In re Braat, 937 F.2d 589, 592-93, 19 USPQ2d 1289, 1291-92 (Fed. Cir. 1991); In re Longi, 759 F.2d 887, 892-93, 225 USPQ 645, 648 (Fed. Cir. 1985); In re Braithwaite, 379 F.2d 594, 600 n. 4, 154 USPQ 29, 34 n. 4 (CCPA 1967). When considering whether the claimed subject matter is an obvious variation of the invention defined in the claims of the Brierley patents, the disclosure of the patent may not be used as prior art. The specification however can always be used as a dictionary to learn the meaning of a term in the patent claim. In re Boylan, 392 F.2d 1017, 1018 n.1, 157 USPQ 370, 371 n.1 (CCPA 1968).

We find that the claims of the Brierley '559 and Brierley '942 patents fail to provide for particulates comprising less than 12% by weight moisture as required by the claimed subject matter. Furthermore, the oxidative bioleaching of Brierley '942 does not disclose the limitation of "forming particulates from particles and an inoculate comprising

bacteria capable of at least partially oxidizing the sulfur content," as required by the claimed subject matter. Accordingly, we reverse the obviousness-type double patenting rejections over the claims of Brierley '559 or Brierley '942.

With respect to Brierley '486, the appellants state that, "[t]he present claims do not teach or suggest (a) the use of a bacteria capable of attacking, by biooxidation, sulfides and/or elemental sulfur and ferrous iron in the ore particles; (b) the use of nutrients in an acidic medium recirculated within a static heap; (c) or biooxidation aided by ferric iron in a solution." See Brief, page 32. We find, however, that independent claim 4 of Brierley '486 is directed to a process for biooxidation of sulfur values having an aqueous content of from 4% to 12% by weight as required by the claimed subject matter. Furthermore claim 4 is free of requirements for the presence of ferrous and ferric iron and nutrients in an acidic medium recirculated within a static heap. We further find that claim 4 provides for particulates that are formed from particles of the ore and an inoculant. We find that a heap is thereafter formed, the sulfur content in the particulates are biooxidized and metal values are recovered.

The meaning of the term, "sulfide values" is gleaned from the specification that discloses that reference is directed to a "low sulfide and low-concentration metal values in an ore." See Brierley '486, column 5, lines 25-26. It is further stated that, "[b]y low sulfur content it is meant ores of less than about 0.2 to 0.3% sulfide by weight." See Brierley '486, column 5, lines 52-53. As further stated at column 12, lines 56-59 of

Brierley '486, we find that the candidate ores, "should have at least 0.2% sulfide present." Accordingly, we conclude that the definition of the term "sulfide values" constitutes an ore having a low sulfur content generally of at least about 0.2 to 0.3% by weight as required by the claimed subject matter.

Based upon our interpretation of the term, "sulfide values," supra, we conclude that the claimed subject matter substantially overlaps the claims of Brierley '486 and would continue protection beyond the expiration date of the Brierley '486 patent. Accordingly, we sustain the rejection of the examiner.

DECISION

The rejection of claims 1 through 17 and 27 through 52 under 35 U.S.C. § 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention is reversed.

The rejection of claims 1 through 17 and 32 through 45 under 35 U.S.C. § 112, first and second paragraphs, as the claimed invention is not described in such full, clear, concise, and exact terms as to enable any person skilled in the art to make and use the same, and/or for failing to particularly point out and distinctly claim the subject matter which appellants regard as the invention is reversed.

The rejection of claims 37, 44, and 51 under 35 U.S.C. § 112, second

paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which appellants regard as the invention is reversed.

The rejection of claims 1 through 3, 6 through 17, and 27 through 52 under 35 U.S.C. § 103 as being unpatentable over Hackl taken with Krebs-Yuill is reversed.

The rejection of claims 4 and 5 under 35 U.S.C. § 103 as being unpatentable over Hackl taken with Krebs-Yuill and further in view of Gross is reversed.

The rejection of claims 1 through 17 and 27 through 52 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 through 19 of U. S. Patent No. 5,127,942 (Brierley '942) in view of Clough and Gross is reversed.

The rejection of claims 1 through 17 and 27 through 52 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 through 29 of U. S. Patent No. 5,332,559 (Brierley '559) is reversed.

The rejection of claims 1 through 17 and 27 through 52 under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1 through 37 of U. S. Patent No. 5,246,486 (Brierley '486) is affirmed.

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

	TERRY J. OWENS)	
	Administrative Patent Judge)	
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)	BOARD OF PATENT
)	PAUL LIEBERMAN
)	APPEALS)	
	Administrative Patent Judge)	AND
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	BEVERLY A. PAWLIKOWSKI)	
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Appeal No. 1998-1855
Application No. 08/459,537

19

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