

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

Paper No. 12

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte LARRY L. RUSSELL and LOUIS MOHAR

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Appeal No. 1997-4285  
Application No. 08/420,852

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ON BRIEF

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Before FRANKFORT, STAAB, 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 to 10, which are all of the claims pending in this application.

We REVERSE.

#### BACKGROUND

The appellants' invention relates to a wastewater treatment process (specification, p. 1). A copy of the claims

under appeal is set forth in the appendix to the appellants' brief.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Landreth 1921	1,364,387	Jan. 4,
Nugent 1985	4,536,286	Aug. 20,
Pahmeier et al. 1988 (Pahmeier)	4,724,084	Feb. 9,
Capella 1989	4,834,840	May 30,

Claims 9 and 10 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to provide adequate support for the invention as now claimed.<sup>1</sup>

Claims 1 to 3 and 5 to 10 stand rejected under 35 U.S.C. § 103 as being unpatentable over Pahmeier in view of Capella and Nugent.

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<sup>1</sup> The rejection of claims 1 to 8 under this basis was withdrawn by the examiner to reduce the issues on appeal (answer, p. 4).

Claim 4 stands rejected under 35 U.S.C. § 103 as being unpatentable over Pahmeier in view of Capella and Nugent as applied above, and further in view of Landreth.

Rather than reiterate the conflicting viewpoints advanced by the examiner and the appellants regarding the above-noted rejections, we make reference to the final rejection (Paper No. 7, mailed August 9, 1996) and the answer (Paper No. 11, mailed April 2, 1997) for the examiner's complete reasoning in support of the rejections, and to the brief (Paper No. 9, filed January 16, 1997) for the appellants' arguments thereagainst.

#### OPINION

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

**The rejection under 35 U.S.C. § 112**

We will not sustain the rejection of claims 9 and 10 under 35 U.S.C. § 112, first paragraph.

The examiner stated (answer, p. 4) that claims 9 and 10 were rejected under 35 U.S.C. § 112, first paragraph, "because the term 'reactive settling agent' lacks clear antecedent basis in the specification as originally filed."

The appellants argue (brief, pp. 4-5) that while the phrase "reactive settling agent" may not be stated word for word in the original specification, the phrase is supported by the original specification, e.g., page 6, line 12 through page 7, line 23; page 9, lines 5-12.

The first paragraph of 35 U.S.C. § 112 states

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same, and shall set forth the best mode contemplated by the inventor of carrying out his invention.

We understand the examiner's rejection as being based upon the written description requirement of the first paragraph of 35 U.S.C. § 112. However, we note that there is no specific requirement set forth in the first paragraph of 35 U.S.C. § 112 that claimed terms have clear antecedent basis in the specification as originally filed. 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 our view the phrase "reactive settling agent" is supported by the original specification. The original specification (e.g., pp. 8-9, 15) clearly provides that a water purifying composition is added to the wastewater in the

reactor/settling tank to assist in separating the wastewater into sludge and supernatant. The original specification (pp. 8-9) also clearly provides that the preferred purifying composition is American Colloid Company product number RM1080N4 which does not change the pH of the wastewater solution but does cause the wastewater to form a sweep floc causing the heavy metal, oil, and grease impurities to settle at the bottom of the reactor/settling tank. The original specification (p. 9) then states that "[o]ther water purification reactants commonly contain aluminum sulfate or lime which alter the pH of the wastewater." In our view, this disclosure in the application as originally filed reasonably conveys to the artisan that the inventor had possession at that time of the later claimed subject matter (i.e., "reactive settling agent"). Moreover, it is our view that the phrase "reactive settling agent" as used by the appellant is interchangeable with the phrases "water purifying composition" and "water purification reactant."

For the reasons set forth above, the decision of the examiner to reject claims 9 and 10 under 35 U.S.C. § 112, first paragraph, is reversed.<sup>2</sup>

**The rejections under 35 U.S.C. § 103**

We will not sustain the rejection of claims 1 to 10 under 35 U.S.C. § 103.

Upon evaluation of all the evidence before us (i.e., the applied prior art), it is our conclusion that the evidence adduced by the examiner is insufficient to establish a prima facie case of obviousness with respect to claims 1 to 10. In rejecting claims under 35 U.S.C. § 103, the examiner bears the initial burden of presenting a prima facie case of obviousness. See In re Rijckaert, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993). A prima facie case of

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<sup>2</sup> Since 37 CFR § 1.75(d)(1) provides that "phrases used in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description," we encourage the appellants to amend the specification to provide clear antecedent basis for the phrase "reactive settling agent."

obviousness is established by presenting evidence that would have led one of ordinary skill in the art 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) and In re Lintner, 458 F.2d 1013, 1016, 173 USPQ 560, 562 (CCPA 1972).

In this case, it is our view that even if it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have modified Pahmeier in the manner set forth by the examiner (final rejection, pp. 3-4), such modifications would not have arrived at the claimed invention for the reasons that follow.

Pahmeier discloses a system 10 for treating wastewater discharged from airplane manufacturing operations. The system 10 includes a variety of sequential chemical adjustments to the waste stream which can remove substantially all toxic organics and heavy metals therefrom. As shown in Figure 1, a water waste stream, including any of the toxic organics and metals described previously, is input into the system at 12.

The waste stream is first held in one of two holding tanks 14, 16. Then, the waste stream is transferred to a third holding tank 18 where its pH is adjusted to approximately 5.0, as shown at 20. By way of example, pH adjustment is accomplished by adding either lime or hydrosulfuric acid to make the waste stream more basic or acidic, respectively. After pH adjustment, ferrous sulfate and hydrogen peroxide are continuously added to the waste stream in a mixer reactor 22 as shown at 24, 26. The ferrous sulfate is first added in the reactor 22 in an amount based on the initial phenol concentration in the waste stream. The hydrogen peroxide is added into the mixer reactor 22 after the ferrous sulfate. The iron in the ferrous sulfate catalyzes the hydrogen peroxide causing it to oxidize the phenol in the waste stream. The pH and the amount of unoxidized hydrogen peroxide is sensed at 28 and 30, respectively, shortly after the waste stream leaves the mixer reactor 22. Oxidation of the hydrogen peroxide can be sensed by measuring its oxidation reduction potential (ORP), a process which would be well familiar to a person skilled in the art.

Pahmeier teaches that if the hydrogen peroxide is not sufficiently oxidized, it may be recycled as shown at 32 to the third holding tank 18. Otherwise, it is held in a holding tank 34 for approximately one hour. This ensures a maximum amount of phenol will be oxidized. Then, more ferrous sulfate may be added to the waste stream at 36 by means of a mixer 37, to remove any residual hydrogen peroxide that remains after the one hour holding period. If no residual hydrogen peroxide is present, then no ferrous sulfate is added at this particular point. The amount of residual hydrogen peroxide is sensed at 38 by ORP measurements. The waste stream is then transferred to a clarifier 40. In the clarifier, the pH of the waste stream is again adjusted by using lime to a pH ranging between 8.5 to 9.5.

This pH adjustment is followed by adding a polymer, which causes flocculation in the waste stream and produces sludge. The sludge, which contains heavy metals, is removed from the clarifier as shown at 42, and is thickened in a sludge tank 44. The remaining liquid effluent from the clarifier 40 is transferred as shown at 46 to one of two holding tanks 48, 50. Sludge in the tank 44 is thickened and transferred to a filter

press 86. Water effluent from the sludge tank is recycled as indicated at 88. The filter press 86 dewateres the sludge and forms it into a fairly solid cake-like material which is removed from the filter press as shown at 88. This material may then be transported to a hazardous waste disposal site. Water effluent from the filter press 86 is recycled through the system 10 as indicated at 90.

Claim 1 reads as follows:

A method for removing heavy metals, paint residues, fats, oils and grease from wastewater and processing the resulting solid wastes in an apparatus, the method comprising the steps of:

- a) placing wastewater into a reactor/settling tank;
- b) additively mixing a water purifying composition and an oxidant into the wastewater to yield a mixture;
- c) neutralizing the pH of the mixture to 7.5-9.4;
- d) allowing the mixture to stand until the purifying composition forms a sludge at the bottom of the tank leaving an essentially heavy metal and oil free supernatant;
- e) pumping the resulting supernatant through a filter to yield recyclable wastewater suitable for disposal or reuse;
- f) pumping the sludge to a holding tank where the sludge is thickened; and
- g) pumping the sludge to a solar dewatering unit, wherein said sludge is dewatered to a water content of less than 50%, wherein the reactor/settling tank, the holding tank and solar dewatering unit of the apparatus are arranged to form a portable unit.

Claim 9 reads as follows:

A method for treating wastewater, processing the resulting solid wastes and producing reusable water in an apparatus, comprising the steps of:

- a) adding an oxidizing agent and a reactive settling agent to the wastewater in a reactor/settling tank, thereby forming a mixture;
- b) adjusting, in the reactor/settling tank, the pH of the mixture to 7.5 to 9.4 with a base;
- c) allowing the mixture to stand in the reactor/settling tank, until the settling agent forms a sludge at the bottom of the reactor/settling tank and a supernatant;

d) pumping the supernatant from the reactor/settling tank through a filter to yield wastewater suitable for disposal or reuse;

e) pumping the sludge from the reactor/settling tank to a holding tank where the sludge is thickened; and

f) pumping the sludge from the holding tank to a solar dewatering unit, wherein the sludge is dewatered to have a water content of less than 50%, and wherein the reactor/settling tank, the holding tank and the solar dewatering unit of the apparatus are arranged to form a portable unit.

With regard to the independent claims on appeal (i.e., claims 1 and 9), the examiner ascertained (final rejection, p. 3) that the claims differ from Pahmeier **only** by reciting that the sludge is pumped to a solar dewatering unit and the components of the apparatus are arranged to form a portable unit. We do not agree. We agree with the appellants (brief, p. 6) that Pahmeier lacks the method steps carried out in a single reactor/settling tank.

Claim 9 requires that steps (a), (b) and (c) be performed in a reactor/settling tank. While Pahmeier's clarifier 40 is a tank in which steps (b) and (c) are performed, step (a) is not performed in Pahmeier's clarifier 40. In that regard, Pahmeier's oxidizing agent (i.e., hydrogen peroxide) is not

added to the wastewater in the clarifier 40 as required by claim 9 but is added to the wastewater in mixer reactor 22.

Thus, step (a) of claim 9 is not taught by Pahmeier.

It is our view that claim 1 requires that steps (a), (b), (c) and (d) be performed in a reactor/settling tank. We reach this conclusion based upon

(1) step (a) reciting placing **wastewater** into a **reactor/settling tank**;

(2) step (b) reciting additively mixing a water purifying composition and an oxidant **into the wastewater** to yield a **mixture**;

(3) step (c) reciting neutralizing the pH of **the mixture** to 7.5-9.4; and

(4) step (d) reciting allowing **the mixture** to stand until the purifying composition forms a sludge at **the bottom of the tank** leaving an essentially heavy metal and oil free supernatant.

While Pahmeier's clarifier 40 is a tank in which steps (a),

(c) and (d) are performed, step (b) is not performed in

Pahmeier's clarifier 40. In that regard, Pahmeier's oxidizing

agent (i.e., hydrogen peroxide) is not added to the wastewater in the clarifier 40 as required by claim 1 but is added to the wastewater in mixer reactor 22. Thus, step (b) of claim 1 is not taught by Pahmeier.

We have also reviewed the other references applied by the examiner but find nothing therein which makes up for the deficiency of Pahmeier discussed above.

For the reasons set forth above, the decision of the examiner to reject independent claims 1 and 9, and claims 2 to 8 and 10 dependent thereon, under 35 U.S.C. § 103 is reversed.

CONCLUSION

To summarize, the decision of the examiner to reject claims 9 and 10 under 35 U.S.C. § 112, first paragraph, is reversed and the decision of the examiner to reject claims 1 to 10 under 35 U.S.C. § 103 is reversed.

REVERSED

CHARLES E. FRANKFORT	)	
Administrative Patent Judge	)	
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	)	BOARD OF PATENT
LAWRENCE J. STAAB	)	APPEALS
Administrative Patent Judge	)	AND
	)	INTERFERENCES
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JEFFREY V. NASE	)	
Administrative Patent Judge	)	

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