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opinion in support of the decision being entered today (1) was not written for publication in a law journal and (2) is not binding precedent of the Board.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. 13

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DONALD J. GOODMAN,
RAYMOND E. KEROLLIS,
ALBERT B. MINDLER
and BRUCE BRUNS

Appeal No. 96-0920
Application 08/186,343[1]

ON BRIEF

Before GARRIS, OWENS and LIEBERMAN, **Administrative Patent Judges**.

LIEBERMAN, ***Administrative Patent Judge***.

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 of claims 2 through 8 and 12 through 20, which are all of the claims remaining in the application. [2]

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[1] Application for patent filed January 25, 1994.

[2] The Notice of Appeal, dated February 13, 1995, paper No. 8, included claims 2 through 10, and 12 through 21. The Answer, stated that upon reconsideration, claims 9, 10, and 21 were

THE INVENTION

Appellants' invention is directed to a method of removing selenium, including selenium oxide from a waste solution by reducing selenium oxide with carbohydrazide to elemental selenium.

THE CLAIMS

Claim 2 is illustrative of appellants' invention and is reproduced below.

2. A method of removing selenium from a waste solution including selenium oxide comprising reducing the selenium oxide with carbohydrazide, thereby precipitating elemental selenium.

THE REFERENCES OF RECORD

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

Vaaler	2,835,558	May 20, 1958
Elfline	4,678,584	July 7, 1987
Marcantonio	4,915,928	Apr. 10, 1990
Bossler et al. (Bossler)	5,108,624	Apr. 28, 1992

THE REJECTIONS

Claims 2, 4 through 8, 12 through 15, and 17 through 20 stand rejected under 35 U.S.C. § 103 as being unpatentable over Elfline in view of Bossler.

Claim 3 stands rejected under 35 U.S.C. § 103 as being unpatentable over Elfline in view of Bossler as applied to claims 2, and further in view of Vaaler.

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allowable. Hence the claims remaining for decision are 2 through 8 and 12 through 20.

Claim 16 stands rejected under 35 U.S.C. § 103 as being unpatentable over Elfline in view of Bossler as applied to claim 2 and further in view of Marcantonio.

OPINION

Appellants submit that claim 8 now on appeal does not stand or fall together with the other claims. Brief, page 6. Appellants however, have not argued the separate patentability of the balance of the claims. Accordingly, we will treat the balance of the claims as standing or falling together. We select claim 2 as representative of appellants' claimed subject matter and limit our consideration to claims 2 and 8. 37 CFR § 1.192(c)(5)(1994).

We have carefully considered appellants' arguments for patentability. However, we are essentially in complete agreement with the examiner that the claimed subject matter is unpatentable in view of the applied prior art. Accordingly, we will sustain the examiner's rejections for essentially those reasons expressed in the Answer, and we add the following primarily for emphasis.

The dispositive issue before us is whether the reference to Bossler constitutes analogous art and is combinable with Elfline. There is a two step analysis to determine if a reference is analogous art. ***See In re Wood***, 599 F.2d 1032, 1036, 202 USPQ 171, 174 (CCPA 1979). "First we decide if the reference is within the field of the inventor's endeavor. If it is not, we determine whether the reference is reasonably pertinent to the particular problem with which the inventor is involved." Appellants argue that Bossler does not pertain to appellants' field of endeavor. See Brief, page 7. In this respect we concur. However, our analysis of the second step differs from and disagrees with appellants.

Both Bossler and appellants address the problem of replacing a highly toxic reducing agent hydrazine with a less toxic reducing agent. Kirk-Othmer explicitly describes the toxicity of hydrazine and states that, "Hydrazine is known to be highly toxic and readily absorbed by oral, dermal, or inhalation exposure. It is irritating to the skin, eyes, and respiratory tract. Permanent damage to the cornea may occur if the liquid is splashed into the eyes. At high doses it is a strong convulsant, but even low doses may cause depression of the central nervous system. Death from acute exposure results from convulsions, respiratory arrest, and cardiovascular collapse."[3] Appellants acknowledge the problem in the specification by employing a reducing agent, "significantly less toxic than hydrazine." Specification, page 2. Bossler likewise acknowledges the same problem at column 1, lines 34 - 35, and 58 - 60 stating that hydrazine, "poses significant health and safety problems." Based on the above considerations, we conclude that both appellants and Bossler face the problem of finding a less toxic reducing agent than hydrazine. Accordingly, the solution offered by Bossler to replace toxic hydrazine with a less toxic reducing agent is reasonably pertinent to the particular problem with which appellants are involved. Bossler solves the problem with a suggestion of numerous reducing agents in place of hydrazine. However the preferred reducing agent is a hydrazine derivative, carbohydrazide. See column 23, lines 12 - 14, 37 - 38 and Examples 1- 4. We conclude that it was reasonable for the examiner to rely on the teachings of Bossler to show the advantages of a less toxic reducing agent, i.e. carbohydrazide.

Based on the above considerations, we conclude that it would have been obvious to one of

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[3] Encyclopedia of Chemical Technology, Kirk-Othmer, Third Edition, Volume 12, pages 760 - 761, John Wiley and Sons, New York 1980 (copy attached).

ordinary skill in the art to use the carbohydrazide reducing agent of Bossler in place of Elfline's toxic hydrazine reducing agent.

We next turn to consideration of claim 8, which additionally requires the reduction of ions which interfere with the reduction of selenium oxide. We essentially agree with and incorporate the examiner's position as set forth in the Answer, page 7. We add only the following brief comment for emphasis. The examiner argued therein that the "skilled artisan would obviously take steps to eliminate, or at least minimize, these interfering ions from the solution undergoing treatment in the primary reference process." Elfline clearly recognized the need to, "destroy certain interfering ions," as a pretreatment step prior to performance of his process. See column 4, lines 8 - 17. We conclude that it would have been obvious to one of ordinary skill in the art to reduce the levels of interfering ions by following the express suggestions of Elfline.

DECISION

The rejection of claims 2, 4 through 8, 12 through 15, and 17 through 20 under 35 U.S.C. § 103 as being unpatentable over Elfline in view of Bossler is affirmed.

The rejection of claim 3 under 35 U.S.C. § 103 as being unpatentable over Elfline in view of Bossler as applied to claims 2, and further in view of Vaaler is affirmed.

The rejection of claim 16 under 35 U.S.C. § 103 as being unpatentable over Elfline in view of Bossler as applied to claim 2 and further in view of Marcantonio 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

BRADLEY R. GARRIS Administrative Patent Judge	)
TERRY J. OWENS Administrative Patent Judge	) BOARD OF PATENT) APPEALS AND) INTERFERENCES
PAUL LIEBERMAN Administrative Patent Judge	)

PL/dal

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