

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. 21

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte ERIK SIMONSON, MATS WALLIN,
SUNE BENGTSSON and ERIK DAHLQVIST

Appeal No. 1997-4399
Application 08/505,338

HEARD: January 24, 2001

Before JOHN D. SMITH, WARREN, and DELMENDO, *Administrative Patent Judges*.

WARREN, *Administrative Patent Judge*.

Decision on Appeal and Opinion

This is an appeal under 35 U.S.C. § 134 from the decision of the examiner finally rejecting claims 1 through 11.¹

We have carefully considered the record before us, and based thereon, find that we cannot sustain the ground of rejection of claims 1 through 8 and 11 under 35 U.S.C. § 103 as being unpatentable over Murray and Anderson et al., and the ground of rejection of claims 9 and 10 under 35 U.S.C. § 103 as being unpatentable over Kignell in view of Murray and Perry et al.^{2,3}

¹ See the amendments of August 29, 1996 (Paper No. 8) and September 18, 1996 (Paper No. 10).

² The references are listed at page 3 of the answer.

It is well settled that “[t]he consistent criterion for determination of obviousness is whether the prior art would have suggested to one of ordinary skill in the art that [the claimed process] should be carried out and would have a reasonable likelihood of success, viewed in the light of the prior art. [Citations omitted] Both the suggestion and the expectation of success must be founded in the prior art, not in the applicant’s disclosure.” *In re Dow Chem. Co.*, 837 F.2d 469, 473, 5 USPQ2d 1529, 1531 (Fed. Cir. 1988). Thus, a *prima facie* case of obviousness is established by showing that some objective teaching, suggestion or motivation in the applied prior art taken as a whole and/or knowledge generally available to one of ordinary skill in the art would have led that person to the claimed invention as a whole, including each and every limitation of the claims, without recourse to the teachings in appellants’ disclosure. *See generally, In re Rouffet*, 149 F.3d 1350, 1358, 47 USPQ2d 1453, 1458 (Fed. Cir. 1998); *Pro-Mold and Tool Co. v. Great Lakes Plastics Inc.*, 75 F.3d 1568, 1573, 37 USPQ2d 1626, 1629-30 (Fed. Cir. 1996); *In re Oetiker*, 977 F.2d 1443, 1447-48, 24 USPQ2d 1443, 1446-47 (Fed. Cir. 1992) (Nies, J., concurring); *In re Laskowski*, 871 F.2d 115, 10 USPQ2d 1397 (Fed. Cir. 1989); *In re Fine*, 837 F.2d 1071, 1074-76, 5 USPQ2d 1596, 1598-1600 (Fed. Cir. 1988). We agree with appellants that the examiner has failed to carry his burden of making out a *prima facie* case of obviousness with respect to the claimed invention.

We find that the process for the selective removal of hydrogen sulphide from gas containing hydrogen and carbon dioxide by absorption in carbonate-containing alkaline solutions is specified in appealed claim 1 to “multiple stages of circulating carbonate-containing alkaline solutions” and “adjusting the pH in each stage . . . to about 9-12 by the addition of a hydroxide” to obtain a “total sulphide content exceeding about 0.30 mole/l in the outgoing solution.” Thus, the claim requires at least that the hydrogen sulphide must be recovered as a sulphide.

We find that Murray discloses that the prior art process of merely absorbing hydrogen sulphide in an alkaline solution from a gas containing the sulphide and carbon dioxide is inefficient (col. 2, lines 19-33). Murray teaches that the absorption of hydrogen sulfide by maintaining the aqueous alkaline solution, which contains sodium ions and preferably carbonate ions, at a pH of about 9.0 and above so

³ The examiner withdrew the ground of rejection of claims 1 through 8 and 11 under § 103 as being

that “*continuous* absorption of the sulphur containing compounds may be achieved through the removal of the absorbed sulphide ions in the aqueous solution by oxidation with an oxygen containing gas,” wherein the “principal oxidation product is the thiosulphate ion with lesser amounts of sulphate and sulphite ions as well as minor amounts of elemental sulphur” (col. 2, lines 34-48; emphasis supplied). While Murray teaches that it is “critical . . . that the pH of the aqueous alkaline solution is maintained about 9.0 and above throughout the absorption” (col. 3, lines 31-43), it is clear from the reference that the disclosed process “substantially increase hydrogen sulphide absorption by maintaining the equilibrium partial pressure of the hydrogen sulfide [sic] at a level near zero . . . by reducing the effective concentration of sodium sulfide [sic] . . . [which is] kept at a level near zero by the oxidation of the hydrogen sulfide [sic] absorbed in the solution” (col. 3, lines 62-73). We find that Anderson discloses a process (col. 4, lines 29-39), without stating the pH at which it is conducted, that is similar to the process which Murray acknowledged to be in the prior art.

Upon comparing the claimed invention with the applied combination of references, we cannot agree with the examiner’s position that one of ordinary skill in this art would “by-pass the oxidation step . . . of Murray” in order to obtain a “sulphide solution” that can be used to prepare “white liquor” as suggested by Anderson in a similar process (answer, e.g., pages 5-6 and 10-13). Indeed, as appellants point out in their brief, there is no apparent suggestion, teaching or motivation in the combined teachings of the references which would have led one of ordinary skill in this art to delete the oxidation step taught by Murray to be necessary for the “continuous” absorption of hydrogen sulphide. We also fail to find in the applied references any apparent suggestion, teaching or motivation to modify the prior art process acknowledged by Murray to be inefficient by using multiple stages of circulating carbonate-containing alkaline solutions, each maintained at a pH of about 9-12, to achieve the amount of total sulphide content specified in appealed claim 1. Thus, on this record, we must conclude that the examiner’s position is based on impermissible hindsight. *See generally, Dow Chem. Co., supra.*

We have considered the apparatus encompassed by appealed claim 9 with respect to the specific structure recited therein, that is, without respect to the material intended to be worked on by the

unpatentable over Kent in view of Kignell (answer, page 2).

apparatus or to the manner in which the apparatus is intended to be employed. *Cf. Ex parte Masham*, 2 USPQ2d 1647, 1648 (Bd. Pat. App. & Int. 1987), and cases cited therein. Thus, we interpret claim 9 to specify an apparatus comprising at least “a container . . . containing packing arranged in a number of successive stages” and means for supplying, treating and moving a fluid in, through and between the stages.

In comparing the claimed apparatus encompassed by claim 9 with the teachings of the applied combination of references, we must agree with appellants (brief, e.g., pages 19-20) that the differences between the structure of the apparatus disclosed in Kignell and the structure of the claimed apparatus are not merely (1) the means for supplying a reagent to a solution in each stage and (2) the absence of packing in “one of the scrubbing stages” as contended by the examiner (answer, pages 6-8; emphasis supplied; see also pages 13-14). Indeed, claim 9 specifies that the packing creates “successive stages” and the means for intra- and inter-stage movement of a solution. At best, Murray would have suggested means to add a reagent to one stage as shown in that reference and Perry et al. disclose “impingement separators” which, in the absence of an explanation, do not appear to involve fluid flow with respect to “stages” in the manner specified for the claimed apparatus.

Thus, in considering the claimed apparatus encompassed by appealed claim 9 as a whole, including each and every claim limitation, we fail to find in the combination of references applied by the examiner any teaching, suggestion or motivation in the applied prior art taken as a whole which would have led one of ordinary skill in this art to the claimed apparatus. Indeed, the modifications suggested by Murray and/or Perry et al. would not have resulted in any limitation of the claimed apparatus. *Uniroyal, Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 1050-54, 5 USPQ2d 1434, 1438-41 (Fed. Cir. 1988). Therefore, it is manifest from the record that the examiner had to rely on hindsight gained from appellants’ invention in order to reach his conclusion that the invention encompassed by the appealed claims would have been obvious from the applied prior art. *See generally, Fine, supra.*

The examiner's decision is reversed.

Reversed

JOHN D. SMITH)	
Administrative Patent Judge)	
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CHARLES F. WARREN)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
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ROMULO H. DELMENDO)	
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