

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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. 37

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

---

*Ex parte* JAMES L. DYE, AHMED S. ELLABOUDY and KUO-LIH TSAI

---

Appeal No. 1998-2257  
Application 08/692,310

---

ON BRIEF

---

Before OWENS, TIMM, and DELMENDO, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge*.

*DECISION ON APPEAL*

This is an appeal from the examiner's final rejection of claims 32 and 37-39, which are all of the claims remaining in the application.

*THE INVENTION*

The appellants' claimed invention is directed toward an AuZn, AuCu or ZnCu alloy made by reducing metal salts with an

Appeal No. 1998-2257  
Application 08/692,310

electride or alkalide reducing agent. Claim 32 is  
illustrative:

32. An alloy of two or more metals as particles produced by reducing two or more metal salts with a reducing agent selected from the group consisting of an electride and an alkalide alone in absence of an oxidizing atmosphere wherein the alloys are selected from the group consisting of AuZn, AuCu and ZnCu and the alloy is shown by an X-ray photoelectron spectrum and by a scanning electron microscope as shown in Figures 36 to 42.

#### THE REFERENCES

Ballas et al. (Ballas)	3,890,455	Jun. 17, 1975
Sinfelt et al. (Sinfelt)	3,989,674	Nov. 2, 1976
Dye et al. (Dye '180)	4,107,180	Aug. 15, 1978
Sedlak et al. (Sedlak)	4,294,608	Oct. 13, 1981
Goretta et al. (Goretta)	4,363,752	Dec. 14, 1982
Bushey	4,678,505	Jul. 7, 1987
Bogdanovic et al. (Bogdanovic)	4,713,110	Dec. 15, 1987
Nakajima et al. (Nakajima)	5,091,114	Feb. 25, 1992
		(filed Aug. 18, 1989)
McCormick et al. (McCormick)	5,328,501	Jul. 12, 1994
		(§ 102(e) date Aug. 19,

1991)<sup>1</sup>

James L. Dye (Dye article), "Macrocyclic chemistry in reducing environments: From concentrated metal solutions to crystalline electrides", 61 *Pure & Appl. Chem.* 1555-62 (1989).

Melvyn Kilner et al. (Kilner), "A New Technique for the Preparation of Metallic Magnetic Fluids from Metal Atoms", *J. Chem. Soc., Chem. Commun.* 356-57 (1987).

---

<sup>1</sup>McCormick is not prior art.

Appeal No. 1998-2257  
Application 08/692,310

Reuben D. Rieke, (Rieke) "Preparation of Organometallic Compounds from Highly Reactive Metal Powders", 246 *Science* 1260-64 (1989).

*THE REJECTIONS*

Claims 32 and 37-39 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 appellants regard as the invention. The claims stand rejected under 35 U.S.C. § 103 as follows: claims 32 and 37-39 over Rieke in view of Dye '180 or the Dye article, further in view of Kilner and Nakajima; claims 32 and 37 over Ballas in view of Nakajima; claims 32 and 38 over Sinfelt in view of Nakajima; claims 32 and 39 over Goretta in view of Nakajima; claims 32 and 37-39 over Bogdanovic in view of Sedlak and Nakajima; claims 32 and 37-39 over Bushy in view of Nakajima; and claims 32 and 37-39 over McCormick in view of Nakajima.

*OPINION*

We reverse the aforementioned rejections. We need to address only claim 32.

*Rejection under 35 U.S.C. § 112, second paragraph*

Appeal No. 1998-2257  
Application 08/692,310

The relevant inquiry under 35 U.S.C. § 112, second paragraph, is whether the claim language, as it would have been interpreted by one of ordinary skill in the art in light of appellants' specification and the prior art, sets out and circumscribes a particular area with a reasonable degree of precision and particularity. See *In re Moore*, 439 F.2d 1232, 1235, 169 USPQ 236, 238 (CCPA 1971).

The examiner argues that "[c]laim 32 is vague and indefinite because the expression 'as shown in Figures 36 to 42' is indefinite because it does not set forth specially [sic, specifically] which figure limits which alloy and does not set forth specifically what characteristics of which alloys are being shown, in fact Fig(C) shows characteristics of 'Au only'" (answer, page 4).<sup>2</sup> The examiner, however, does not explain why the claim language, as it would have been interpreted by one of ordinary skill in the art in light of

---

<sup>2</sup>Citations herein are to the examiner's answer mailed on March 11, 1998 (according to the file wrapper), paper no. 33.

Appeal No. 1998-2257  
Application 08/692,310

the appellants' specification and the prior art, fails to set out and circumscribe a particular area with a reasonable degree of precision and particularity. The examiner's mere assertion that the figures do not set forth the alloy to which they apply is not such an explanation. Moreover, the descriptive titles of the figures which show that figures 36(B) and 37-39 pertain to AuZn, figures 40 and 41 pertain to AuCu, and figure 42 pertains to ZnCu, indicate that the examiner's assertion is incorrect.

Accordingly, we reverse the rejection under 35 U.S.C. § 112, second paragraph.

*Rejection under 35 U.S.C. § 103 over Rieke  
in view of Dye '180 or the Dye article,  
further in view of Kilner and Nakajima*

The examiner argues (answer, pages 4-5) that Rieke discloses producing finely divided powders by the reduction of metal salts and that convenient systems of reducing agents and solvents include potassium and tetrahydrofuran, sodium and 1,2-dimethoxyethane, and sodium or potassium with benzene or toluene (page 1261), the Dye article discloses electrides as reductants (page 1555), Dye '180 discloses alkali metal anion

Appeal No. 1998-2257  
Application 08/692,310

salts of alkali metal cations of bicyclic polyoxadiazine compounds as two-electron reducing agents (col. 6, lines 44-48), and Kilner discloses the desirability of preparing small metallic particles (page 356). The examiner argues that it would have been obvious to one of ordinary skill in the art to use an electride in an organic solvent as a reductant for the production of metal powders because electrides are strong reductants in organic solvents, and that Rieke, Dye '180 and the Dye article would have suggested making alloys (answer, page 5).

In order for a *prima facie* case of obviousness to be established, the teachings from the prior art itself must appear to have suggested the claimed subject matter to one of ordinary skill in the art. See *In re Rinehart*, 531 F.2d 1048, 1051, 189 USPQ 143, 147 (CCPA 1976). The mere fact that the prior art could be modified as proposed by the examiner is not sufficient to establish a *prima facie* case of obviousness. The examiner does not explain why the prior art itself would have fairly suggested, to one of ordinary skill in the art, combining the teachings therein so as to arrive at the claimed

Appeal No. 1998-2257  
Application 08/692,310

invention. Instead, the examiner relies upon impermissible hindsight in view of the appellants' disclosure to piece together the teachings of the references so as to reach his conclusion of obviousness. See *W.L. Gore & Associates v. Garlock, Inc.*, 721 F.2d 1540, 1553, 220 USPQ 303, 312-13 (Fed. Cir. 1983), *cert. denied*, 469 U.S. 851 (1984); *In re Rothermel*, 276 F.2d 393, 396, 125 USPQ 328, 331 (CCPA 1960).

The examiner argues that in a declaration by Dye (filed February 5, 1996, paper no. 14), it is admitted that Rieke's method may produce some alloy (answer, page 6). Rieke does not disclose the alloys recited in the appellants' claim 32. Even if, however, Rieke would have fairly suggested, to one of ordinary skill in the art, using reagents which produce some of an alloy recited in the appellants' claim 32, the examiner has

not established that Rieke's method, which does not use an electrider or alkalide as a reducing agent, would produce an alloy having characteristics shown in the appellants' figures

Appeal No. 1998-2257  
Application 08/692,310

36 to 42 as required by claim 32.

The examiner argues that it would have been obvious to one of ordinary skill in the art to use Nakajima's testing method (col. 3, lines 27 and 66) to test the product which would be produced by following the combined teachings of the other applied references (answer, page 6). The appellants' claim 32, however, does not recite a testing step but, rather, recites, in the form of figures 36-42, alloy characteristics which are measured by the recited techniques. It is these characteristics which the prior art relied upon by the examiner must possess or have fairly suggested to one of ordinary skill in the art, and the examiner has not established that the relied-upon prior art meets this requirement.

For the above reasons, we conclude that the examiner has not carried the burden of establishing a *prima facie* case of obviousness of the claimed invention over Rieke in view of Dye '180 or the Dye article, further in view of Kilner and Nakajima. Consequently, we reverse the rejection over these references.

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

In the rejections over Ballas, Sinfelt, Goretta and McCormick, each in view of Nakajima,<sup>3</sup> the examiner points out that Ballas (col. 2, line 62), Sinfelt (col. 1, line 59), Goretta (col. 2, line 3) and McCormick (col. 5, line 3) each discloses an alloy recited in claim 32, and argues that the appellants' recited alloys would have been suggested by the references even if the alloys are made by a different process (answer, pages 6-11). The examiner provides a similar argument regarding alloys produced by the combined teachings of Bogdanovic and Sedlak (answer, pages 7-8 and 11), and alloys suggested by Bushey (col. 6, lines 66-68). Although the examiner's argument is that the applied references suggest the claimed alloy (answer, pages 10-11), the examiner provides no explanation as to why the references would have led one of ordinary skill in the art to modify their teachings so as to arrive at an alloy having characteristics according to the appellants' figures 36-42.

---

<sup>3</sup>Nakajima is relied upon only for a disclosure of a testing method as discussed above.

Appeal No. 1998-2257  
Application 08/692,310

The appellants' claim 32 is a product-by-process claim. Whether a rejection of such a claim is under 35 U.S.C. § 102 or § 103, when the appellants' product and that of the prior art appear to be identical or substantially identical, the burden shifts to the appellants to provide evidence that the prior art product does not necessarily or inherently possess the relied-upon characteristics of the appellant's claimed product. See *In re Fitzgerald*, 619 F.2d 67, 70, 205 USPQ 594, 596 (CCPA 1980); *In re Best*, 562 F.2d 1252, 1255, 195 USPQ 430, 433-34 (CCPA 1977); *In re Fessmann*, 489 F.2d 742, 745, 180 USPQ 324, 326 (CCPA 1974). The reason is that the Patent and Trademark Office is not able to manufacture and compare products. See *Best*, 562 F.2d at 1255, 195 USPQ at 434; *In re Brown*, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972). The examiner, however, has provided no evidence or technical reasoning which shows that the appellants' alloys and any of the prior art alloys appear to be identical or substantially identical. The examiner apparently assumes that alloys

inherently have the same characteristics regardless of how they are made. When an examiner relies upon a theory of inherency, however, "the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art." *Ex parte Levy*, 17 USPQ2d 1461, 1464 (Bd. Pat. App. & Int. 1990). Inherency "may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient." *Ex parte Skinner*, 2 USPQ2d 1788, 1789 (Bd. Pat. App. & Int. 1986). The examiner has not provided such a basis in fact and/or reasoning in support of his argument.<sup>4</sup>

For the above reasons we reverse the examiner's rejections over Ballas in view of Nakajima, Sinfelt in view of Nakajima, Goretta in view of Nakajima, Bogdanovic in view of Sedlak and Nakajima, Bushy in view of Nakajima, and McCormick in view of Nakajima.

---

<sup>4</sup>The rejection over McCormick further is improper because this reference is not prior art.

Appeal No. 1998-2257  
Application 08/692,310

*DECISION*

The rejection of claims 32 and 37-39 under 35 U.S.C. § 112, second paragraph, and the rejections under 35 U.S.C. § 103 of claims 32 and 37-39 over Rieke in view of Dye '180 or the Dye article, further in view of Kilner and Nakajima, claims 32 and 37 over Ballas in view of Nakajima, claims 32 and 38 over Sinfelt in view of Nakajima, claims 32 and 39 over Goretta in view of Nakajima, claims 32 and 37-39 over Bogdanovic in view of Sedlak and Nakajima, claims 32 and 37-39 over Bushy in view of Nakajima, and claims 32 and 37-39 over McCormick in view of Nakajima, are reversed.

*REVERSED*

TERRY J. OWENS )  
Administrative Patent Judge )  
)  
)  
) BOARD OF PATENT  
CATHERINE TIMM )

Appeal No. 1998-2257  
Application 08/692,310

Administrative Patent Judge ) APPEALS AND  
)  
) INTERFERENCES  
)  
ROMULO H. DELMENDO )  
Administrative Patent Judge )

TJO:pgg  
Ian C. McLeod  
2190 Commons Parkway  
Okemos, MI 48864