

**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. 17

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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**Ex parte** OREST G. SYMKO, THIERRY KLEIN and DAVID KIEDA

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Appeal No. 1997-4194  
Application No. 08/357,435

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ON BRIEF

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Before JOHN D. SMITH, OWENS and LIEBERMAN, **Administrative Patent Judges.**

LIEBERMAN, **Administrative Patent Judge.**

**DECISION ON APPEAL**

This is an appeal under 35 U.S.C. § 134 from the examiner's refusal to allow claims 1 through 24 which are all the claims remaining in the application.

**THE INVENTION**

The invention is directed to a quasi crystal line metal alloy film having a thickness of less than about 3000 Å thick. The film is an alloy of the general formula AlCuFe which may have compositional limitations as established by the claimed subject matter.

### THE CLAIMS

Claims 1 and 11 are illustrative of appellants' invention and are reproduced below.

1. An article of manufacture, comprising:

a quasicrystalline metal alloy film less than about 3000 Å thick, said film having a composition of the general formula  $A_{1-a}Cu_bFe_cX_dI_e$ , where X represents one or more optional alloy elements and I represents manufacturing impurities, and where  $a = 100-b-c-d-e$ ;  $24 < b < 26$ ;  $12 < c < 13$ ;  $0 < d < 10$ ; and  $0 < e < 3$ .

11. An article of manufacture, comprising:

a quasicrystalline A1CuFe alloy film less than about 3000 Å thick, formed by depositing in sequence on a substrate through radio frequency sputtering a stoichiometric amount of each respective alloy material and then annealing said layers, whereby to form said film through solid state diffusion.

### THE REFERENCE OF RECORD

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

Dubois et al. (Dubois)	5,204,191	April 20, 1993
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### THE REJECTIONS

Claims 1 through 24 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 applicant regards as his invention.

Claims 1 through 24 stand rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative under 35 U.S.C. § 103 as obvious over Dubois.

## OPINION

We have carefully considered all of the arguments advanced by appellant and the examiner and agree with the appellants that the aforementioned rejections under 35 U.S.C. § 112 and the rejection of claims 1 through 19 under 35 U.S.C. § 102(b), and 35 U.S.C. § 103 are not well founded. Accordingly, we will not sustain these rejections. However, we will sustain the rejection of claims 20 through 24 under both sections 102(b) and 103.

### ***The Rejection under Section 112 -- Indefiniteness***

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 USPQ 236, 238 (CCPA 1971).

It is the examiner's position that the claimed subject matter is indefinite in several respects. With respect to claims 1 and 20 the examiner states that the phrase, "optional alloy elements" is indefinite in that the optional elements are not recited in the claims. See Answer, page 3. As to claim 11, the examiner submits that the claim is indefinite because the AlCuFe alloy cannot be identified by the properties. Id.

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Similarly, as to claims 19 and 22, the examiner rejects the claims as indefinite because the thickness ratios could not be identified after the annealing step. See Answer, pages 3 and 4. We disagree.

As to the "optional alloy elements," both the specification, page 2, and claim 2 specifically identifies the elements at issue as including V, Mo, Ti, Zr, Nb, Cr, Mn, Ru, Rh, Ni, Mg, W, Si and the rare earth elements. Similarly, the specification and claims identify the ratio of each of the elements entering into the AlCuFe alloy. See the paragraph bridging pages 3 and 4 of the specification and claim 1.

Finally, the examiner's determination that claims 19 and 22 are indefinite because the thickness ratios could not be identified after annealing is not understood. Both claims 19 and 22 recite process steps in product claims. The thickness of the final film is disclosed in both the specification and claims.

On this record, we 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, 573-574 (Fed. Cir. 1983). Accordingly, we reverse the rejection of the examiner.

***The Rejections under 35 U.S.C. 102(b) and 103***

In order for a claimed invention to be anticipated under 35 U.S.C. § 102(b), all of the elements of the claim must be found in one reference. ***Scripps Clinic & Research Found. v. Genentech Inc.***, 927 F.2d 1565, 1576, 18 USPQ2d 1001, 1010 (Fed. Cir. 1991).

The examiner relies on the Dubois reference as anticipating the claimed subject matter. However, the examiner states that, “[t]he reference does not explicitly disclose the instantly claimed alloy film thickness.” See Answer, page 5. Both independent claims 1 and 11 and dependent claims 2 through 10 and 12 through 19 dependent thereon require the presence of a metal alloy film less than about 3,000 D thick. That omission from the teachings of Dubois, in and of itself is sufficient to constitute grounds for reversal of the rejection on the grounds of anticipation.

As for the rejection under section 103, we find that Dubois discloses an AlCuFe alloy having ratios within the scope of the claimed subject matter. See Abstract. However, as stated at column 3, lines 15-17, column 13, lines 38-41, column 14, lines 53-54 and claim 1, the mean grain size of the crystallites in the crystalline phase is greater than 1000 nm, corresponding to 10,000D. Stated otherwise, 3,000D units, of the claimed subject matter, converts to 300 nm. Accordingly, we find no suggestion or motivation for preparing a composition of the thickness of the claimed subject matter. Moreover, Dubois expressly teaches that the undesirability of microcrystalline material having a grain size below 100 nm or

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1000 nm or material which is essentially amorphous and prepared in accordance with a prior art process. See Example 8, column 8, lines 38-49.

Accordingly, we conclude that no motivation exists for the formation of a metal alloy film having the requisite film thickness required by the claimed subject matter. In view of the above analysis, we have determined that the examiner's legal conclusion of obviousness is not supported by the facts. "Where the legal conclusion [of obviousness] is not supported by the facts it cannot stand." *In re Warner*, 379 F.2d 1011, 1017, 154 USPQ 173, 178 (CCPA 1967).

We next turn to the rejection of claims 20 through 24 which are devoid of the limitation, "less than about 3000 D thick." In the absence of the aforesaid limitation, the claimed subject matter reads on a coating layer of any thickness including the 1,000 nm disclosed by Dubois. See Abstract. As for the general formula of the claimed subject matter, we find that the formula disclosed by Dubois, column 3, lines 7-17 overlaps that of the claimed subject matter. We further find that the specific formulas at column 5, line 16 and column 7, lines 53-54 anticipates the formula of the claimed subject matter. As for the requirement of a quasi crystalline film, we find that Dubois discloses a coating material that contains, "at least 40% by mass of a quasi crystalline phase." See column 3, line 15, and preferably, "at least 80% of quasi-crystalline phase." See column 4, lines 60-61. Furthermore, we find no distinction between the "film" of the claimed subject matter and the "coating"

disclosed by Dubois as a film is defined as a thin covering or coating.<sup>1</sup> The sole distinction between the claimed subject matter and Dubois relates to the method of forming the composition having the formula of the claimed subject matter. Nonetheless both the claimed subject matter and Dubois react a stoichiometric amount of each constituent element. See Example 1 of Dubois and compare the disclosure therein with the requirement in claim 20 for a "stoichiometric amount of each respective alloy material."

It is well settled that the patentability of a product claimed in a product-by-process claim is determined based on the product itself, not on the method of making it. *In re Thorpe*, 777 F.2d 695, 697, 227 USPQ 964, 966 (Fed. Cir. 1985) ("If the product in a product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior art product was made by a different process."). Whether a rejection is under 35 U.S.C. § 102 or § 103, when appellants' product and that of the prior art appears to be identical or substantially identical, the burden shifts to appellants to provide evidence that the prior art product does not necessarily or inherently possess the relied-upon characteristics of appellants' claimed product. *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. *In re Best*, 562 F.2d 1252, 1255,

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<sup>1</sup> Webster's Ninth New Collegiate Dictionary, page 463, Merriam-Webster, Inc., Springfield, MA, 1986.

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195 USPQ 430, 434 (CCPA 1977); *In re Brown*, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972).

In view of the identity of the formulas taught by Dubois and appellants and the stoichiometry required by the claimed process of Dubois, it is reasonable to conclude that appellants claimed quasi crystalline alloy as defined by claims 20-24 and that of Dubois are the same or substantially the same. Thus, the burden has shifted to appellants to demonstrate a difference between their metal alloy film and that of the Dubois reference, and appellants have not carried this burden.

For the above reasons, we conclude, based on the preponderance of the evidence, that the inventions recited in appellants' claims 20-24 are anticipated by or would have been obvious to one of ordinary skill in the art within the meaning of 35 U.S.C. § 102(b) and 35 U.S.C. § 103.

### **DECISION**

The rejection of claims 1 through 24 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 applicant regards as his invention is reversed.

The rejection of claims 1 through 19 under 35 U.S.C. § 102(b) as anticipated by or, in the alternative under 35 U.S.C. § 103 as obvious over Dubois is reversed.

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The rejection of claims 20 through 24 under 35 U.S.C. § 102(b) as anticipated by or, in the alternative under 35 U.S.C. § 103 as obvious over Dubois is affirmed.

The decision of the examiner is affirmed-in-part.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 CFR § 1.136(a).

AFFIRMED-IN-PART

JOHN D. SMITH	)	
Administrative Patent Judge	)	
	)	
	)	
	)	
	)	BOARD OF PATENT
TERRY J. OWENS	)	APPEALS
Administrative Patent Judge	)	AND
	)	INTERFERENCES
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PAUL LIEBERMAN	)	
Administrative Patent Judge	)	

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