

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.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

Appeal No. 2001-0964
Application No. 09/069,442

ON BRIEF

Before GARRIS, WARREN, and LIEBERMAN, Administrative Patent Judges.

GARRIS, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on an appeal from the final rejection of claims 1-17 and 19-21. The only other claim in the application, which is claim 18, has been allowed.

The subject matter on appeal relates to an electroplating bath and to an electrodeposit (i.e., resulting from use of the electroplating bath) wherein the bath and the electrodeposit are free of cobalt, cadmium and nickel ions. This appealed subject matter is adequately illustrated by independent claims 1 and 4 which read as follows:

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1. An electrodeposit which contains about 1.25 to about 1.55% w/w iron, about 1 to 2 ppm zirconium, and about 97.7 to 98.7 [sic, %] gold, wherein the electrodeposit has a pale yellow colour less than about 3N on the NIHS 03-50 scale, wherein the electrodeposit is free of cobalt, cadmium and nickel ions.

4. An electroplating bath comprising a cyanide-containing gold compound, an iron compound selected from the group consisting of a soluble salt, a complex and mixtures thereof, a zirconium compound selected from the group consisting of a soluble salt, a complex and mixtures thereof, a citrate, a weak acid, and optionally a heterocyclic sulphonate, wherein the bath is free of cobalt, cadmium and nickel ions.

The references set forth below are relied upon by the examiner in the Section 102 and Section 103 rejections before us:

Korbelak et al. (Korbelak)	4,075,065	Feb. 21, 1978
Hendriks et al. (Hendriks)	5,169,514	Dec. 8, 1992
Moon	5,552,031	Sep. 3, 1996

Claims 4, 7, 9, 13, 14, 20 and 21 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Korbelak.

Claims 5, 6 and 8 stand rejected 35 U.S.C. § 102(b) as being anticipated by, or alternatively under 35 U.S.C. § 103(a) as being obvious over, Korbelak.

Claims 1-3, 10 and 15 stand rejected under 35 U.S.C. § 103(a) as being obvious over Korbelak.

Claims 11, 12 and 19 stand rejected under 35 U.S.C. § 103(a) as being obvious over Korbelak in view of Moon.

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Finally, claims 16 and 17 stand rejected under 35 U.S.C. § 103(a) as being obvious over Korbelak in view of Hendriks.

As indicated on pages 3-5 of the brief, the appealed claims have been grouped separately. Accordingly, in assessing the merits of the above noted rejections, we have individually considered each of the appealed claims which have been separately grouped and argued in the brief and reply brief. See 37 CFR § 1.192(c)(7)(8)(1999).

We refer to the brief and reply brief and to the answer for a complete exposition of the opposing viewpoints expressed by the appellant and by the examiner concerning the rejections before us.

OPINION

We cannot sustain any of the examiner's Section 102 rejections. Additionally, we cannot sustain the examiner's Section 103 rejection of claim 19 based on Korbelak in view of Moon. However, we will sustain each of the other Section 103 rejections advanced by the examiner on this appeal. In addition, pursuant to 37 CFR § 1.196(b), we make a new rejection below of certain claims under 35 U.S.C. § 103(a). Our reasons follow.

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The Section 102 Rejections

It is well settled that anticipation under 35 U.S.C. § 102 is established only when a single prior art reference discloses, expressly or under principles of inherency, each and every element of a claimed invention. RCA Corp. v. Applied Digital Data Sys., Inc., 730 F.2d 1440, 1444, 221 USPQ 385, 388 (Fed. Cir), cert. dismissed, 468 U.S. 1228 (1984). In particular, for a Section 102 rejection to be proper, the prior art reference "must clearly and unequivocally disclose the claimed [invention] or direct those skilled in the art to the [invention] without any need for picking, choosing, and combining various disclosures not directly related to each other by the teachings of the cited reference"; In re Arkley, 455 F.2d 586, 587-88, 172 USPQ 524, 526 (CCPA 1972).

Korbelak discloses an electroplating bath comprising five components plus water and discloses numerous effective compounds for each of these components. As correctly indicated by the examiner, each of the compounds required by appealed independent claim 4 are among the many taught by patentee as possible ingredients in his electroplating bath. However, as correctly argued by the appellant, the Korbelak reference contains no disclosure that the bath should be free of cobalt, cadmium and

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nickel ions as required by the claim under review. To the contrary, patentee explicitly discloses cobalt, nickel and cadmium as among the many metals, including the here claimed iron, which are listed for use as a hardener in his electroplating bath (e.g., see lines 42-55 in column 2).

On page 10 of the answer, the examiner responds to the appellant's above noted argument with the following rebuttal:

Korbelak et al. on col. 2, lines 42-55 merely disclose a laundry list of additives which may or may not be added to the electroplating bath. Korbelak et al. do nothing to specify which of said metals indicated in col. 2, lines 42-55 are most desirable and it is therefore left to one of ordinary skill in the art to determine which of said metals to use in an electroplating bath.

The examiner's rebuttal is not persuasive of his anticipation finding. There is simply nothing in the Korbelak reference, including the examples, which "clearly and unequivocally" discloses the here claimed bath or directs those skilled in the art to the here claimed bath "without any need for picking, choosing, and combining various disclosures not directly related to each other by the teachings of the cited reference." In re Arkley, 455 F.2d at 587-88, 172 USPQ at 526. Instead, the here claimed bath is obtained only by picking, choosing and combining selected compounds from among the many disclosed by Korbelak.

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For example, a zirconium compound must be selected from many other compounds as the second component of patentee's bath and combined with an iron compound which itself must be selected from the many other compounds listed as patentee's fifth component while simultaneously avoiding use of the cobalt, nickel and cadmium compounds which are also taught by patentee as effective ingredients for use as his fifth component. This is improper under 35 U.S.C. § 102. Id. Indeed, as aptly stated by the examiner in the aforementioned quotation from page 10 of the answer, "it is . . . left to one of ordinary skill in the art to determine which of said metals [disclosed by Korbelak] to use in an electroplating bath." Such a determination relates to obviousness under Section 103 rather than anticipation under Section 102.

In light of the foregoing, it is apparent that the examiner's finding of anticipation is improper. We cannot sustain, therefore, the examiner's Section 102 rejection of independent claim 4 or of claims 7, 9, 13, 14, 20 and 21 (which depend from claim 4) as being anticipated by Korbelak. Likewise, we cannot sustain the examiner's alternative Section 102 rejection of claims 5, 6 and 8 (which depend from claim 4) as being anticipated by Korbelak.

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The Section 103 Rejections

Concerning the Section 103 rejection of appealed independent claim 1, we agree with the examiner's conclusion that it would have been obvious for an artisan with ordinary skill to formulate an electroplating bath and thereby obtain an electrodeposit which contain ingredients such as the here claimed iron, zirconium and gold and which are free of cobalt, cadmium and nickel ions. This is because KorbelaK expressly teaches formulating an electroplating bath (and consequently an electrodeposit) from a listing of ingredients which includes iron, zirconium and gold (as well as a citrate, and a weak acid; compare appealed independent claim 4) as fully explained in the answer. Although KorbelaK discloses a large number of possible ingredient formulations for his electroplating bath and does not highlight the particular formulation here claimed, an obviousness conclusion is appropriate because each of the formulations embraced by patentee's broad disclosure are generically taught as being effective and because Section 103 does not require that the here claimed formulation be taught by the prior art as preferred. Merck & Co. v. Biocraft Labs., Inc., 874 F.2d 804, 807-08, 10 USPQ2d 1843, 1846 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989).

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In support of his opposing view, the appellant argues that, "of all the exemplary [sic] electroplating solutions disclosed by KorbelaK . . . , eleven (11) of the seventeen (17), or 65%, contain either cobalt or nickel" and that "[t]herefore, one of ordinary skill in the art would not look to KorbelaK . . . for guidance on producing an electroplating bath which is free of cobalt, nickel and cadmium" (brief, page 8). While the appellant's finding regarding the examples of KorbelaK may be correct, it does not support the subsequent conclusion that one "would . . . not look to KorbelaK . . . for guidance on producing an electroplating bath which is free of cobalt, nickel and cadmium." On the contrary, by the appellant's implicit concession, six of patentee's exemplary electroplating solutions do not contain cobalt, nickel or cadmium. This fact would have suggested a formulation free of these ingredients and would have led an artisan to reasonably expect such a formulation to be successful. See In re O'Farrell, 853 F.2d 894, 903-04, 7 USPQ2d 1673, 1680-81 (Fed. Cir. 1988) (for obviousness under Section 103, all that is required is a reasonable expectation of success).

The appellant's other arguments concerning the Section 103 rejections based on KorbelaK alone are unpersuasive for the reasons expressed by the examiner in the answer.

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In particular, we fully agree with the examiner's basic position that the pale yellow color range for the here claimed electrodeposit, which is based on the NIHS 03-50 scale, is indistinguishable from the yellow to white color range disclosed by patentee (e.g., see lines 42-45 in column 3), which is not described in terms of the aforementioned NIHS 03-50 scale. Under these circumstances, it is appropriate to require the appellant to prove that Korbelak's electrodeposit does not actually possess the same color characteristic as the here claimed electrodeposit, and the fairness of so allocating this burden of proof is evinced by the inability of the Patent and Trademark Office to manufacture products or to obtain and compare prior art products. In re Best, 562 F.2d 1252, 1254-55, 195 USPQ 430, 433-34 (CCPA 1977). On the record before us, the appellant has proffered no such proof.

Similarly, we share the examiner's conclusion that it would have been obvious for an artisan with ordinary skill to develop workable or even optimum ranges for the here claimed parameters, such as ingredient concentration, since these parameters are evinced by Korbelak to be known in the prior art as result-effective variables. In re Woodruff, 919 F.2d 1575, 1578,

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16 USPQ2d 1934, 1936-37 (Fed. Cir. 1990); In re Boesch, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980); In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955).

For these reasons and those expressed in the answer, we will sustain the Section 103 rejection of claims 1-3, 10 and 15 as being obvious over KorbelaK as well as the alternative Section 103 rejection of claims 5, 6 and 8 as being obvious over KorbelaK.¹

Concerning the Section 103 rejection based on KorbelaK in view of Moon, we again share the examiner's obviousness conclusion, namely, that it would have been obvious to provide the electroplating bath formulations of KorbelaK with diammonium hydrogen citrate to obtain the conductive salt function thereof in accordance with the teachings of Moon. Contrary to the appellant's belief, this obviousness conclusion is not forestalled simply because Moon's electroplating bath includes palladium as well as gold. This is because the enhancements achieved by Moon's conductive salts would have been desirable in

¹It is appropriate to here clarify that we sustain the examiner's Section 103 rejection of dependent claims 5, 6 and 8 (as well as dependent claims 10 and 15) based upon an obviousness conclusion rather than an anticipation finding with respect to the subject matter of parent independent claim 4.

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the context of Korbelač's electrodeposits. Therefore, we will sustain the examiner's Section 103 rejection of claims 11 and 12 as being obvious over Korbelač in view of Moon.

However, the corresponding Section 103 rejection of claim 19 as being obvious over Korbelač in view of Moon cannot be sustained. This is because neither Korbelač nor Moon contains any teaching or suggestion concerning the ammonium zirconium citrate complex which is required by claim 19. Concerning this issue, it is the examiner's position that, "[a]lthough Moon does not specifically disclose an ammonium zirconium citrate complex, Moon does disclose that said conductive salts may be mixed (col. 4 [sic, 3], line 44) which would result in a complex depending on the specific admixture" (answer, page 8). The examiner's aforequoted position is not well taken since it is plainly based on conjecture, speculation or assumption, and it is well settled that a Section 103 rejection must rest on a factual basis rather than conjecture, speculation or assumption. In re Warner, 379 F.2d 1011, 1017, 154 USPQ 173, 178 (CCPA 1967), cert. denied, 389 U.S. 1057 (1968), reh'g denied, 390 U.S. 1000 (1968).

Finally, we also will sustain the examiner's Section 103 rejection of claims 16 and 17 as being obvious over Korbelač in view of Hendriks. The appellant's arguments against this

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rejection are unpersuasive for the reasons expressed in the answer. These arguments are additionally unpersuasive because the specific heterocyclic sulfonates and concentrations thereof, which are recited in these dependent claims, are optional by the express language of parent independent claim 4. That is, these claims simply define specific compounds and concentrations for the optional heterocyclic sulfonate of the parent claim if the sulfonate is present but do not actually require the sulfonate to be present. Viewed from this perspective, it is apparent that claims 16 and 17 merely describe subject matter which is optional and therefore fail to patentably distinguish over Korbelaak alone in terms of 35 U.S.C. § 103(a).

The rejection pursuant to 37 CFR § 1.196(b)

We make the following rejection in accordance with our authority under 37 CFR § 1.196(b).

Claims 4-10, 13-15, 20 and 21 are rejected under 35 U.S.C. § 103(a) as being obvious over Korbelaak.²

As previously explained, the Korbelaak reference, though not anticipatory, unquestionably teaches ingredients for an

²For clarity of exposition and completeness, we have applied this new rejection against claim 4 and all claims depending therefrom which were rejected by the examiner based on Korbelaak alone.

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electroplating bath which include the ingredients required by the here rejected claims. Thus, it would have been obvious for one with ordinary skill in the art to select from Korbelak's ingredient-lists the specific ingredients under consideration based upon patentee's teaching that such ingredients are effective in his desired electroplating bath formulations.

Merck & Co. v. Biocraft Labs., Inc., 874 F.2d at 807-08, 10 USPQ2d at 1846.

These specific ingredients include: a cyanide-containing gold compound such as potassium gold cyanide as Korbelak's first component (e.g., see lines 50-54 in column 1); an iron compound such as iron sulfate as patentee's fifth component (e.g., see lines 42-55 in column 2); a zirconium compound such as zirconium sulfate as his second component (e.g., see line 57 in column 1, lines 3-14 in column 2 and Table II in column 6); a citrate compound such as a metal citrate as patentee's fourth component (e.g., see lines 29-41 in column 2) or as patentee's fifth component (again see lines 42-55 in column 2); and a weak acid such as citric, malic, lactic, glycolic or tartaric acid as patentee's third component (e.g., see lines 19-28 in column 2).

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Moreover, the concentration ranges taught by KorbelaK for these ingredients encompass, and thus either expressly disclose or at least would have suggested, concentration values of the type here claimed.

Finally, for a number of reasons, the artisan in formulating the above discussed electroplating bath would not have used the cobalt, nickel or cadmium compounds which patentee includes (along with iron compounds) as possible ingredients for his fifth component. First of all, the KorbelaK reference contains no teaching that cobalt, nickel or cadmium compounds are required in order to formulate an effective electroplating bath. Secondly, patentee expressly discloses several effective bath formulations which do not include cobalt, nickel or cadmium compounds (e.g., see solutions E, G, H, I, J and M in columns 4-6). This last mentioned disclosure would have led the artisan to reasonably expect success in formulating an electroplating bath which is free of cobalt, cadmium and nickel ions as required by the claims under consideration. In re O'Farrell, 853 F.2d at 903-04, 7 USPQ2d at 1681.

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Summary

For the reasons set forth above, we have not sustained the examiner's Section 102 rejections of claims 4-9, 13, 14, 20 and 21 as being anticipated by KorbelaK or his section 103 rejection of claim 19 as being obvious over KorbelaK in view of Moon. However, we have sustained the examiner's Section 103 rejections of claims 1-3, 5, 6, 8, 10-12 and 15-17 based on KorbelaK alone or in view of Moon or Hendriks. In addition, we have made a new Section 103 rejection of claims 4-10, 13-15, 20 and 21 as being obvious over KorbelaK alone.

In addition to affirming the examiner's rejection of one or more claims, this decision contains a new ground of rejection pursuant to 37 CFR § 1.196(b). 37 CFR § 1.196(b) provides that "[a] new ground of rejection shall not be considered final for purposes of judicial review."

Regarding any affirmed rejection, 37 CFR § 1.197(b) provides:

(b) Appellants may file a single request for rehearing within two months from the date of the original decision

37 CFR § 1.196(b) also provides that the appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of

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rejection to avoid termination of proceedings (37 CFR § 1.197(c))
as to the rejected claims:

(1) Submit an appropriate amendment of the claims so rejected or a showing of facts relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the application will be remanded to the examiner

(2) Request that the application be reheard under § 1.197(b) by the Board of Patent Appeals and Interferences upon the same record

Should the appellant elect to prosecute further before the Primary Examiner pursuant to 37 CFR § 1.196(b)(1), in order to preserve the right to seek review under 35 U.S.C. §§ 141 or 145 with respect to the affirmed rejection, the effective date of the affirmance is deferred until conclusion of the prosecution before the examiner unless, as a mere incident to the limited prosecution, the affirmed rejection is overcome.

If the appellant elects prosecution before the examiner and this does not result in allowance of the application, abandonment or a second appeal, this case should be returned to the Board of Patent Appeals and Interferences for final action on the affirmed rejection, including any timely request for rehearing thereof.

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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; 37 CFR § 1.196(b)

BRADLEY R. GARRIS)	
Administrative Patent Judge)	
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CHARLES F. WARREN)	BOARD OF PATENT
Administrative Patent Judge)	APPEALS AND
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BRG:hh

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