

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

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Ex parte YAR-MING WANG,  
HONG-HSIANG KUO AND  
SHEILA FARROKHALAEE KIA

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Appeal No. 2005-1579  
Application No. 09/963,625

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ON BRIEF

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Before WALTZ, KRATZ, and TIMM, Administrative Patent Judges.  
KRATZ, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal from the examiner's final rejection of claims 1 and 3-7, which are all of the claims pending in this application.

BACKGROUND

Appellants' invention relates to a method of forming a clear anodized coating on an aluminum alloy article surface wherein the surface includes more than 3 weight percent magnesium. A further

understanding of the invention can be derived from a reading of exemplary claim 1, which is reproduced below:

1. A method of forming a colored bright anodized coating on a surface of an aluminum alloy article, where said alloy contains more than three percent by weight magnesium;

anodizing said surface in an aqueous sulfuric acid bath containing 100 to 200 grams of sulfuric acid per liter of bath at a temperature in the range of 18 to 25°C and at a current density in the range of about 3 A/ft<sup>2</sup> to 10 A/ft<sup>2</sup> that produces a desired thickness of a clear anodized layer suitable for color finishing; and

coloring said clear anodized layer to produce said colored coating.

The prior art references of record relied upon by the examiner in rejecting the appealed claims are:

Komatsubara et al. (Komatsubara)	5,181,969	Jan. 26, 1993
Askin et al. (Askin)	5,616,231	Apr. 01, 1997
Gillich	5,760,981	Jun. 02, 1998
Korte	6,309,427	Oct. 30, 2001

Claims 1 and 5 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Korte in view of Gillich in separately stated rejections. Claims 3 and 4 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Korte in view of Gillich, Askin and Komatsubara and claims 6 and 7 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the same combination of references in a separately stated rejection.

We refer to the brief and reply brief and to the answer for a complete exposition of the opposing viewpoints expressed by appellants and the examiner concerning the issues before us on this appeal.

OPINION

Having carefully considered each of appellants' arguments set forth in the brief and reply brief, appellants have not persuaded us of reversible error on the part of the examiner with regard to the examiner's rejection of claims 1 and 5. Accordingly, we will affirm the examiner's rejection of those claims for substantially the reasons set forth by the examiner in the answer. However, our disposition of the examiner's separate rejection of claims 3, 4, 6, and 7 is another matter. Concerning these latter claims, we are in agreement with appellants that the examiner's rejection thereof should be reversed. Our reasoning follows.

With regard to the rejection of claims 1 and 5, appellants maintain that the appealed claims are argued separately (brief, page 6). However, appellants rely on the same arguments for the patentability of claim 5 as was presented for claim 1. See page 14 of the brief. Consequently, we consider claims 1 and 5 to stand or fall together on this record. We select claim 1 as

being representative of claims 1 and 5 and will decide this appeal as to the examiner's ground of rejection thereof based on representative claim 1. See 37 CFR § 1.192(c)(7) and (c)(8), as in effect at the time of filing of appellant's brief, and In re McDaniel, 293 F.3d 1379, 1383, 63 USPQ2d 1462, 1465 (Fed. Cir. 2002) ("[i]f the brief fails to meet either requirement, the Board is free to select a single claim from each group of claims subject to a common ground of rejection as representative of all claims in that group and to decide the appeal of that rejection based solely on the selected representative claim").

Concerning representative claim 1 and the examiner's first stated obviousness rejection over Korte and Gillich, appellants essentially acknowledge (brief, pages 7-9) that Korte discloses a method of forming an anodized coating on a surface of an article made of an aluminum alloy that can include magnesium followed by coloring the anodized coating, wherein the coating is formed using an acid anodizing step performed at temperature and current density conditions that overlap or are inclusive of those claimed herein.<sup>1</sup> See, e.g., pages 7-9 of the brief. In this regard, it

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<sup>1</sup> See the conversion factor for current density as acknowledged by appellants at page 7 of the brief and as calculated at page 8 of the brief for Korte, which calculation is not disputed by the examiner.

is well settled that when ranges recited in a claim overlap with ranges disclosed in the prior art, a prima facie case of obviousness typically exists and the burden of proof is shifted to the applicants to show that the claimed invention would not have been obvious. In re Peterson, 315 F.3d 1325, 1329-30, 65 USPQ2d 1379, 1382-83 (Fed. Cir. 2003); In re Geisler, 116 F.3d 1465, 1469, 43 USPQ2d 1362, 1365 (Fed. Cir. 1997); In re Woodruff, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936-37 (Fed. Cir. 1990).

As for the claimed amount of sulfuric acid employed per liter in the anodizing step (bath), the examiner recognizes that Korte does not disclose the concentration of sulfuric acid used and turns to Gillich for a teaching as to a conventional sulfuric acid concentration (20 percent) used in anodizing an aluminum alloy, which concentration the examiner has found to be consonant with the sulfuric acid concentration in grams per liter claimed by appellants.<sup>2</sup> In this regard, we are in agreement with the examiner's assessment that it would have been obvious to one of ordinary skill in the art at the time of the invention to determine the workable sulfuric acid concentrations for Korte's

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<sup>2</sup> Appellants do not challenge the examiner's concentration conversion.

process and in so doing arrive at a sulfuric acid concentration within the here claimed range, especially given the disclosure of Gillich as to the reported workable concentration of sulfuric acid for a similar anodizing step. In this regard, see Application Example D of Korte wherein a sulfuric acid concentration of from 17-22 percent is employed in an anodization step.

As for the claim requirement for a clear anodized layer suitable for color finishing, we note that the anodized layer of Korte is suitable for color finishing and Gillich (column 2, line 10) teaches that the anodized layers obtained can be clear to yellowish depending on conditions of treatment and the use of high purity aluminum in the alloy. See column 1, line 66 through column 2, line 29 of Gillich. Thus, we agree with the examiner that obtaining a clear anodized layer in Korte prior to the coloring step would have been a reasonably expected option that would have been well within the skill of the art based on the teachings of the applied references.

Appellants argue that the combined teachings of Korte and Gillich provide no reasonable suggestion or expectation of success in obtaining a clear anodized coating for an alloy of a magnesium content, as claimed herein. In this regard, appellants

(reply brief, page 2) maintain that a clear coating is not necessarily obtained by anodizing, as evidenced by the subject specification, Korte, Gillich, and Komatsubara.

We do not find those arguments persuasive. Initially, we note that Korte is concerned with forming and coloring anodized aluminum oxide layers for structural parts, including means of transport, and teaches employing a magnesium content up to six percent by weight in those parts together with using a current density during anodization that overlaps the claimed range for producing a porous oxide layer that can be subsequently dyed (colored). See, e.g., column 1, lines 5-18 and column 5, line 55 through column 6, line 57 of Korte. While Korte does suggest that the dyes employed therein can be used to cover a pre-dyed layer, a fair reading of Korte reveals that the anodized layer need not be colored; that is, Korte reasonably would have inferentially suggested to one of ordinary skill in the art that the anodized layer to be colored can be clear as one option, as would reasonably be expected to be desirable for subsequent dyeing steps where a reproducible bright color is desired. In this regard, Gillich expressly teaches in the Background section of the patent that a transparent and colorless anodized oxide layer can be obtained using sulfuric acid during the anodization

when the alloy to be oxidized, including an AlMg alloy, is made starting with a relatively pure aluminum. See column 2, lines 20-28 of Gillich.

While the examiner does not rely on Komatsubara in rejecting representative claim 1, appellants assert that Komatsubara teaches that anodizing aluminum alloys with magnesium contents, as here claimed, result in grey or black coatings while employing a temperature within the claimed range, a sulfuric acid concentration of 15 percent and a current density of 19.9 A per square foot (a value above the claimed maximum of 10 A per square foot).

We are not convinced by appellants' assertion (reply brief, page 2) that Komatsubara suggests that one of ordinary skill in the art would not expect that a clear coating can be obtained when using an alloy containing more than three weight percent magnesium and employing current densities within the range taught by Korte. In this regard, Korte teaches current densities both within and outside appellants' claimed range and appellants appear to be trying to establish the criticality of current density in obtaining a clear anodized coating to rebut any obviousness based on the overlapping ranges of current density taught by Korte. We are not persuaded.

Komatsubara is directed to obtaining a grey or black anodized surface and teaches that such is assured by restricting the size of Mn based precipitates and the amount of Si in precipitates. See, e.g., column 2, lines 37-42 of Komatsubara. As further explained at columns 3 and 4 of Komatsubara, manganese is essential to obtaining gray or black anodized films with the magnesium content serving to precipitate the Mn. For example, alloy No. 7 of Komatsubara had a magnesium content of 4.3 weight percent, a value within the here claimed range, but no manganese, which resulted in no color after anodizing as reported in Table 7. Thus, appellants' contention to the effect that the black or grey coloring sought by Komatsubara would be considered inevitable when employing high magnesium content alloys as claimed is not supported by the evidence relied upon by appellants.

Consequently, we determine that the examiner has presented a prima facie case of obviousness with respect to the subject matter of representative claim 1 which has not been persuasively rebutted by appellants on this record. It follows that we shall sustain the examiner's rejection of claims 1 and 5.

The examiner additionally relies on Askin and Komatsubara in rejecting the remaining appealed claims. All of

the claims subject to that rejection require an acid pretreatment for reducing the magnesium content at the surface to be anodized to less than three weight percent. Askin teaches that aluminum alloys containing up to 10 weight percent magnesium, including AA 5000 series alloys<sup>3</sup>, that are useful in such applications as forming auto trim can be brightened by treatment in an acidic solution, such as a solution including phosphoric acid and sulfuric acid, prior to anodization and coloring. Askin teaches that the acidic solution may be maintained at temperatures overlapping those recited in representative claim 3 and can include an amount of sulfuric acid overlapping the amount called for in that representative claim. See, e.g. column 2, line 14 through column 3, line 8 of Askin.

The examiner has taken the position that it would have been obvious to one of ordinary skill in the art to employ a brightening step as taught by Askin prior to the anodizing step of Korte to obtain the advantageous brightening associated therewith. In so doing, the examiner has determined that the inclusion of such a brightening step in Korte would decrease the magnesium content of the alloy to be anodized at the surface

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<sup>3</sup> See page 4, line 14 of appellants' specification wherein appellants teach the use of a AA 5083 alloy in their invention.

thereof just as appellants acid treatment does. According to the examiner, such a reduction of magnesium would be advantageous as suggested by Komatsubara.

The difficulty we have with the examiner's obviousness position with respect to claims 3, 4, 6 and 7 is that all of the claims require that the alloy surface is immersed in the acid bath for a period of time sufficient to achieve the magnesium content reduction. Here, the examiner has not established that the time and conditions of treatment for the brightening step of Askin corresponds to the time and conditions employed by appellants for the required magnesium reduction. As such, the examiner's presentation falls short in making out a prima facie case of obviousness as to claims 3, 4, 6 and 7.

Consequently, we reverse the examiner's rejection of claims 3, 4, 6 and 7.

#### CONCLUSION

The decision of the examiner to reject claims 1 and 5 under 35 U.S.C. § 103(a) as being unpatentable over Korte in view of Gillich in separately stated rejections is affirmed. The decision of the examiner to reject claims 3, 4, 6 and 7 under 35 U.S.C. § 103(a) as being unpatentable over Korte in view of

Gillich, Askin and Komatsubara in separately stated rejections is reversed.

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

Thomas A. Waltz	)	
Administrative Patent Judge	)	
	)	
	)	
	)	
	)	BOARD OF PATENT
Peter F. Kratz	)	APPEALS
Administrative Patent Judge	)	AND
	)	INTERFERENCES
	)	
	)	
Catherine Timm	)	
Administrative Patent Judge	)	

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