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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte MICHAL KACZMAREK, ANTJE RICHTER,
LUKAS BEDRNIK, and ERIC SIBÄCERGE

Appeal 2019-003683
Application 15/503,735
Technology Center 1700

Before BRADLEY R. GARRIS, JEFFREY B. ROBERTSON, and
JANE E. INGLESE, *Administrative Patent Judges*.

INGLESE, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant¹ requests our review under 35 U.S.C. § 134(a) of the Examiner's decision to finally reject claims 1–11.² We have jurisdiction over this appeal under 35 U.S.C. § 6(b).

We AFFIRM.

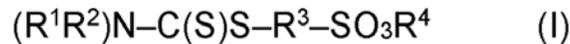
¹ We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42. Appellant identifies Atotech Deutschland GmbH as the real party in interest. Appeal Brief filed January 15, 2019 (“Appeal Br.”) at 2.

² Final Office Action entered August 29, 2018 (“Final Act.”) at 1.

CLAIMED SUBJECT MATTER

Appellant claims an acidic zinc-nickel alloy plating bath composition. Appeal Br. 3. Claim 1, the sole pending independent claim, illustrates the subject matter on appeal, and is reproduced below with contested language italicized:

1. An acidic zinc-nickel alloy plating bath composition comprising
 - a source for zinc ions,
 - a source for nickel ions,
 - a source for chloride ions and
 - having a pH value in the range of 2 to 6.5,
 - characterized in that the composition further comprises at least one dithiocarbamyl alkyl sulfonic acid or salt thereof represented by formula (I)*



wherein

- R¹ and R² are independently selected from the group consisting of hydrogen, methyl, ethyl, 1-propyl, 2-propyl, 1-butyl, 2-butyl, and tert-butyl,
- R³ is selected from the group consisting of methylene, ethylene, propylene, butylene, pentylene and hexylene and
- R⁴ is selected from the group consisting of hydrogen and a cation, and
- the composition is free of polyalkyleneglycols and other alloying metals than zinc and nickel ions,*
- wherein the concentration of the at least one dithiocarbamyl alkyl sulfonic acid or salt thereof ranges from 0.5 to 100 mg/l; and
- wherein the concentration of zinc ions ranges from 5 to 100 g/l.

Appeal Br. 14 (Claims Appendix) (emphasis and spacing added).

Appellant's Specification indicates that the "technical effect of the at least one dithiocarbamyl alkyl sulfonic acid or salt thereof in the acidic

plating bath composition according to the present invention is an improved throwing power of said acidic plating bath composition when depositing a zinc or zinc-nickel alloy layer onto a substrate” having “a complex shape,” which results in a more uniform thickness distribution of the deposited layer. Spec. 7, ll. 5–11; 11, ll. 8–17.

REJECTIONS

The Examiner maintains the following rejections in the Examiner’s Answer entered February 26, 2019 (“Ans.”):

I. Claims 1–8 under 35 U.S.C. § 103 as unpatentable over Kim³ in view of Capper;⁴

II. Claims 9 and 10 under 35 U.S.C. § 103(a) as unpatentable over Kim in view of Capper and Del;⁵ and

II. Claim 11 under 35 U.S.C. § 103 as unpatentable over Kim in view of Capper.

FACTUAL FINDINGS AND ANALYSIS

Upon consideration of the evidence relied upon in this appeal and each of Appellant’s timely contentions,⁶ we affirm the Examiner’s rejections of claims 1–11 under 35 U.S.C. § 103 for the reasons set forth in the Final Action, the Answer, and below.

³ KR 10-2002-051276, published June 28, 2002.

⁴ US 2005/0189231 A1, published September 1, 2005.

⁵ FR 2723595 A3, published February 16, 1996.

⁶ We do not consider any new argument Appellant presents in the Reply Brief that Appellant could have raised in the Appeal Brief. 37 C.F.R. § 41.37(c)(1)(iv); 37 C.F.R. § 41.41(b)(2) (arguments raised for the first time in the Reply Brief that could have been raised in the Appeal Brief will not be considered by the Board unless good cause is shown).

We review appealed rejections for reversible error based on the arguments and evidence the appellant provides for each issue the appellant identifies. 37 C.F.R. § 41.37(c)(1)(iv); *Ex parte Frye*, 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential) (cited with approval in *In re Jung*, 637 F.3d 1356, 1365 (Fed. Cir. 2011) (explaining that even if the Examiner had failed to make a prima facie case, “it has long been the Board’s practice to require an applicant to identify the alleged error in the examiner’s rejections”)).

Appellant does not present arguments directed to any particular rejection or claim. Appeal Br. 4–13. We accordingly select claim 1 as representative, and decide the appeal as to claims 1–11 based on claim 1 alone. 37 C.F.R. § 41.37(c)(1)(iv).

Kim discloses an acidic zinc-nickel alloy electroplating solution that contains zinc chloride, nickel chloride, and chlorine ions, and is free of polyalkyleneglycols and other alloying metals. Kim Abstr., ¶¶ 2, 10, 11, 21, 29. Kim discloses that electroplating the solution on the surface of a steel plate yields a plating layer (or coating) having “good luminous intensity” and a good degree of whiteness, with suppressed surface roughness. Kim Abstr., ¶¶ 2, 10, 11, 29. As the Examiner finds (Final Act. 6–7), Kim does not disclose that the electroplating solution includes at least one dithiocarbamyl alkyl sulfonic acid or salt of the formula recited in claim 1.

Capper, however, discloses a zinc-nickel alloy electroplating bath including zinc ions, nickel ions, one or more additional metal ions, and an auxiliary brightening agent, such as DPS (N, N dimethyl-dithiocarbamyl propyl sulfonic acid sodium salt). Capper ¶¶ 21, 86, 87, 88.

In view of the above disclosures in Kim and Capper, the Examiner

concludes that it would have been obvious to one of ordinary skill in the art before the effective filing date of the present application to include DPS (N,N-dimethyl-dithiocarbamyl propyl sulfonic acid sodium salt) as disclosed in Capper in Kim's zinc-nickel alloy electroplating solution, to brighten a coating produced by electroplating Kim's solution. Final Act. 7.

Appellant argues that one of ordinary skill in the art seeking to create a bath for electrodepositing a zinc-nickel binary alloy with improved throwing power resulting in more even deposit on substrates having complex shapes would have had no reason to look for an auxiliary brightener of any sort, and, thus, would have had no reason, interest, or motivation to look to Capper, because Capper utilizes DPS in a plating bath composition as a brightening agent, which is "a completely different purpose" than improving throwing power. Appeal Br. 4, 5, 7-8. Appellant argues that Kim does not include any disclosure "that would have suggested one look to Capper for anything," much less "any suggestion to add a brightener." Appeal Br. 12. Appellant argues that Kim also does not disclose anything "relating to throwing power or deposition onto complex surfaces." *Id.* Appellant argues that the Examiner's rejection is, therefore, based on impermissible hindsight. Appeal Br. 4-5.

Appellant's arguments do not identify reversible error in the Examiner's rejection, for reasons that follow.

As discussed above, Kim discloses that electroplating the zinc-nickel alloy electroplating solution described in the reference on the surface of a steel plate yields a plating layer (or coating) exhibiting "good luminous intensity" and a good degree of whiteness, characteristics which reflect the appearance of the coating. One of ordinary skill in the art seeking to

develop a zinc-nickel alloy electroplating solution that would yield a coating having an appearance as disclosed in Kim—with good luminous intensity and whiteness—and seeking to enhance the coating’s appearance by increasing its brightness, reasonably would have been led to include a brightening agent as disclosed in Capper, such as DPS, in the electroplating solution. Thus, although neither Kim nor Capper discloses that an auxiliary brightening agent such as DPS improves the throwing power of a zinc-nickel alloy electrodeposition solution, one of ordinary skill in the art nonetheless would have had a reason to include Capper’s DPS in Kim’s zinc-nickel alloy electroplating solution—to increase the brightness of a coating produced with the solution. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 419 (2007) (explaining that “[i]n determining whether the subject matter of a patent claim is obvious, neither the particular motivation nor the avowed purpose of the patentee controls”); *see also In re Kemps*, 97 F.3d 1427, 1430 (Fed. Cir. 1996) (“Although the motivation to combine here differs from that of the applicant, the motivation in the prior art to combine the references does not have to be identical to that of the applicant to establish obviousness.”); *In re Beattie*, 974 F.2d 1309, 1312 (Fed. Cir. 1992) (“[T]he law does not require that the references be combined for the reasons contemplated by the inventor.”).

Furthermore, Appellant’s argument that Kim does not include any disclosure “that would have suggested one look to Capper for anything,” much less “any suggestion to add a brightener” is improperly based on Kim alone, and does not take into consideration Capper’s disclosure of the suitability of using DPS as a brightening agent in a zinc-nickel alloy electroplating solution. Appellant’s argument, therefore, is not based on

what the combined disclosures of Kim and Capper reasonably would have suggested to one of ordinary skill in the art at the time of filing—use of DPS to brighten a coating produced by Kim’s zinc-nickel alloy electroplating solution, as discussed above. *In re Merck & Co., Inc.*, 800 F.2d 1091, 1097 (Fed. Cir. 1986) (“Non-obviousness cannot be established by attacking references individually where the rejection is based upon the teachings of a combination of references.”); *In re Keller*, 642 F.2d 413, 425 (CCPA 1981) (The test for obviousness “is what the combined teachings of the references would have suggested to those of ordinary skill in the art.”).

Contrary to Appellant’s arguments, the Examiner’s rejection is, therefore, not based on impermissible hindsight, but is based on explicit disclosures in Kim and Capper, and what a combination of those disclosures reasonably would have suggested to one of ordinary skill in the art before the effective filing date of the present application. *In re McLaughlin*, 443 F.2d 1392, 1395 (CCPA 1971) (A rejection does not rely on improper hindsight reconstruction so long as it “takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made and does not include knowledge gleaned only from applicant’s disclosure.”)

Appellant argues that “Capper, in contrast to the present invention, deposits only ternary or higher alloys containing zinc, nickel and one or more additional metal, and explicitly requires the presence of compounds such as polyalkyleneglycols.” Appeal Br. 4. Appellant argues that “additional metals and polyalkyleneglycols are explicitly excluded from the present claims, and in clear contrast, Capper explicitly requires these ingredients.” *Id.* Appellant argues that “a person looking to deposit a binary

alloy would not be interested in prior art that relates to ternary or higher alloys,” and “[t]he person could have no reasonable expectation of success, since there would be no reason to employ ingredients required by the reference but excluded from the claimed composition.” Appeal Br. 5–6. Appellant argues that “there can be no possible ‘reasonable expectation of success’ in taking anything from Capper, since Capper discloses a completely different bath” than the plating bath recited in claim 1. Appeal Br. 7–8.

Appellant’s arguments again do not identify reversible error in the Examiner’s rejection. Although Capper’s zinc-nickel alloy electroplating bath does include one or more additional metal ions (§ 21), and *may* include “one or more non-ionogenic, surface active polyoxyalkylene compound” (§ 63), we find no disclosure in Capper indicating that a polyalkyleneglycol is a required component of Capper’s electroplating bath, and Appellant does not identify any such actual disclosure in Capper.

Nonetheless, as discussed above, the Examiner’s rejection is based on including the DPS auxiliary brightening agent disclosed in Capper in Kim’s zinc-nickel alloy electroplating solution—which is free of polyalkyleneglycols and other alloying metals. The zinc-nickel alloy electroplating solution resulting from the proposed combination would, therefore, be free of polyalkyleneglycols and alloying metals other than zinc and nickel, as recited in claim 1.

Although Capper’s zinc-nickel alloy electroplating bath does include one or more metal ions in addition to zinc and nickel, we find no evidence on the record before us indicating that the DPS auxiliary brightening agent disclosed as suitable for use in Capper’s zinc-nickel alloy electroplating bath

would not function as a brightening agent in Kim’s zinc-nickel alloy electroplating solution. For example, the record before us is bereft of any evidence demonstrating that the presence of additional metal ions in a zinc-nickel alloy electroplating solution other than zinc and nickel are necessary for DPS to function as a brightening agent. Thus, in view of the similarity of Kim’s and Capper’s zinc-nickel alloy electroplating baths, one of ordinary skill in the art would reasonably would have expected that DPS would successfully function as a brightening agent in Kim’s zinc-nickel alloy electroplating solution. *KSR Int’l Co. v. Teleflex Inc.*, 550 U.S. 398, 417 (2007) (quoting *Sakraida v. Ag Pro, Inc.*, 425 U.S. 273, 282 (1976) (“[W]hen a patent ‘simply arranges old elements with each performing the same function it had been known to perform’ and yields no more than one would expect from such an arrangement, the combination is obvious.”); *In re O’Farrell*, 853 F.2d 894, 903–04 (Fed. Cir. 1988) (“Obviousness does not require absolute predictability of success. . . . [A]ll that is required is a reasonable expectation of success.”).

Appellant’s unsupported arguments asserting that one of ordinary skill in the art would not have reasonably expected that DPS could be successfully used in Kim’s electroplating solution do not constitute the necessary evidence required to demonstrate lack of a reasonable expectation of success in the proposed combination of Kim and Capper. *In re Geisler*, 116 F.3d 1465, 1470 (Fed. Cir. 1997) (“An assertion of what seems to follow from common experience is just attorney argument and not the kind of factual evidence that is required to rebut a prima facie case of obviousness.”); *Icon Health & Fitness, Inc. v. Strava, Inc.*, 849 F.3d 1034, 1043 (Fed. Cir. 2017) (“Attorney argument is not evidence” and cannot

rebut other admitted evidence.).

Appellant argues that “nothing whatsoever in Capper” would have suggested use of DPS for any purpose other than a brightening agent. Appeal Br. 7. Appellant argues that “[b]rightening agents are not known for increasing throwing power; rather, they are known for brightening metal deposits. There is no relationship between these properties.” Appeal Br. 8.

Although Capper may not indicate that DPS increases throwing power, including DPS in Kim’s zinc-nickel alloy electroplating solution nonetheless would have increased the throwing power of the solution. *In re Spada*, 911 F.2d 705, 709 (Fed. Cir. 1990) (explaining that a chemical composition and its properties are inseparable.). Appellant’s recognition that dithiocarbamyl alkyl sulfonic acids or salts, such as DPS, increase throwing power of zinc-nickel alloy plating bath compositions does not impart patentability to the plating bath recited in claim 1, because this function of DPS would have naturally flowed from following the suggestion stemming from the combined disclosures of Kim and Capper to include DPS in Kim’s zinc-nickel alloy electroplating solution (discussed above). *PAR Pharm., Inc. v. TWI Pharm., Inc.*, 773 F.3d 1186, 1195 (Fed. Cir. 2014) (concept of inherency, when applied to obviousness, is present “when the limitation at issue is the ‘natural result’ of the combination of prior art elements”); *Ex parte Obiaya*, 227 USPQ 58, 60 (BPAI 1985) (“The fact that appellant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious.”).

Appellant argues that even if one of ordinary skill in the art would have looked to Capper, “there is absolutely no reason that person of ordinary

skill would [have] select[ed] the one and only dithiocarbamyl alkyl sulfonic acid or salt disclosed by Capper as an auxiliary brightener, out of the huge, long list of hundreds of possible auxiliary brighteners disclosed by Capper.”
Appeal Br. 5.

As discussed above, however, one of ordinary skill in the art seeking to brighten a coating produced by Kim’s zinc-nickel alloy electroplating solution reasonably would have been led to add an auxiliary brightening agent as disclosed in Clapper to the solution. Although Clapper discloses numerous suitable brightening agents, it is well-established that “[r]eading a list and selecting a known compound to meet known requirements is no more ingenious than selecting the last piece to put in the last opening in a jig-saw puzzle.” *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327 (1945)). Capper’s disclosure of a multitude of effective auxiliary brightening agents does not render any particular brightening agent less obvious, because Capper is available for all that it would have suggested to one of ordinary skill in the art at the time of Appellant’s invention—that each of the auxiliary brightening agents disclosed in the reference would be suitable for brightening a coating produced by a zinc-nickel alloy electroplating solution. *Merck & Co., Inc. v. Biocraft Labs., Inc.*, 874 F.2d 804, 807 (Fed. Cir. 1989) (“That the ’813 patent discloses a multitude of effective combinations does not render any particular formulation less obvious.”).

We, accordingly, sustain the Examiner’s rejection of claim 1, and claims 2–8, which each depend from claim 1, under 35 U.S.C. § 103. We also sustain the Examiner’s rejections of claims 9–11 under 35 U.S.C. § 103 because the Examiner does not rely on any additional prior art applied in

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these rejections for any disclosure that remedies the deficiencies of Kim and Capper, discussed above.

CONCLUSION

Claims	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1-8	103	Kim, Capper	1-8	
9, 10	103	Kim, Capper, Del	9, 10	
11	103	Kim, Capper	11	
Overall Outcome			1-11	

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv).

AFFIRMED