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PPG Industries, Inc. IP Law Group One PPG Place 39th Floor Pittsburgh, PA 15272			JONES JR., ROBERT STOCKTON	
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte TJIAN HONG ANG and JOHN WEIJNEN

Appeal 2019-001015
Application 15/101,653
Technology Center 1700

Before LINDA M. GAUDETTE, MONTÉ T. SQUIRE, 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 1–13, 15, and 16.² 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 PPG Europe B. V. as the real party in interest. Appeal Brief filed June 30, 2018 (“Appeal Br.”) at 2.

² Final Office Action entered January 30, 2018 (“Final Act.”) at 1.

CLAIMED SUBJECT MATTER

Appellant claims a drier composition for an autoxidizable alkyd-based coating composition. Appeal Br. 4. Claim 1 illustrates the subject matter on appeal and is reproduced below:

1. A drier composition for an autoxidizable alkyd based coating composition, comprising:
 - a) at least one Fe complex comprising Fe and at least one nitrogen donor ligand, wherein said at least nitrogen donor ligand is selected from the group comprising tridentate, tetradentate, pentadentate and hexadentate nitrogen donor ligands;
 - b) at least one metal salt of a carboxylic acid, wherein the metal is selected from the group comprising: Mn, Ce, V, and Cu; and
 - c) at least one ligand comprising at least one moiety selected from the group comprising 1,4,7-tri-azacyclononyl, 2,2'-bipyridyl, 1,10-phenantrolinyl, imidazolyl, pyrazolyl, porphyrinyl, aliphatic, cycloaliphatic, and aromatic amines.

Appeal Br. 12 (Claims Appendix).

REJECTIONS

The Examiner maintains the following rejections in the Examiner's Answer entered September 25, 2018 ("Ans."):

I. Claims 1–3, 5–7, 9–13, 15, and 16 under 35 U.S.C. § 103 as unpatentable over Hage;³ and

³ Hage et al. (WO 2012/093250 A1, published July 12, 2012). Appellant does not contest the Examiner's reliance on Hage et al. (US 2013/0331487 A1, published December 12, 2013) as "the US equivalent" of WO 2012/093250 A1. Citations to "Hage" in this decision, therefore, refer to the U.S. patent application.

II. Claims 1–13, 15, and 16 under 35 U.S.C. § 103 as unpatentable over Weijnen⁴ as evidenced by Glassey.⁵

FACTUAL FINDINGS AND ANALYSIS

Upon consideration of the evidence relied upon in this appeal and each of Appellant’s contentions, we affirm the Examiner’s rejection of claims 1–3, 5–7, 9–13, 15, and 16 under 35 U.S.C. § 103 as unpatentable over Hage, and rejection of claims 1–13, 15, and 16 under 35 U.S.C. § 103 as unpatentable over Weijnen as evidenced by Glassey, for the reasons set forth in the Final Action, the Answer, and below.

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) (2017); *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.”)).

⁴ Weijnen et al. (WO 2012/079624 A1, published June 21, 2012). Appellant does not contest the Examiner’s reliance on Weijnen et al. (US 2013/0274386 A1, published October 17, 2013) as “the US equivalent” of WO 2012/079624 A1. Citations to “Weijnen” in this decision, therefore, refer to the U.S. patent application.

⁵ Glassey et al. (US 2015/0307724 A1, published October 29, 2015).

Rejection I: Claims 1–3, 5–7, 9–13, 15, and 16 under 35 U.S.C. § 103 as Unpatentable over Hage

Appellant presents arguments directed to the subject matter of claim 1 only, to which we accordingly limit our discussion. Appeal Br. 5–8; 37 C.F.R. § 41.37(c)(1)(iv).

Hage discloses an oxidatively curable coating composition comprising an alkyd-based resin, and a polydentate accelerant ligand transition metal drier. Hage ¶¶ 1, 17, 22, 24, 25, 43. Hage discloses that suitable polydentate accelerant ligand transition metal driers include “iron or manganese complexes of tridentate, tetradentate, pentadentate[,] or hexadentate nitrogen donor ligands” (at least one Fe complex comprising Fe and at least one nitrogen donor ligand, wherein said at least nitrogen donor ligand is selected from the group comprising tridentate, tetradentate, pentadentate, and hexadentate nitrogen donor ligands). Hage ¶ 43. Hage discloses that suitable tetradentate, pentadentate, or hexadentate nitrogen donor ligands include 1, 4, 7-triazacyclononate (at least one ligand comprising at least one moiety selected from the group comprising 1, 4, 7-triazacyclononany, 1, 2, 2'-bipyridyl, 1, 10-phenantrolinyl, imidazolyl, pyrazolyl, porphyrinyl, aliphatic, cycloaliphatic, and aromatic amines). Hage ¶¶ 40, 72.

Hage discloses that the polydentate accelerant ligand may be provided in iron and manganese complexes “of one or more” of the exemplary formulae set forth in paragraph 42 of the reference. Hage ¶ 42. Appellant does not dispute the Examiner’s finding that this disclosure “indicates that more than one accelerant ligand complex may be present” in Hage’s coating composition. *Compare* Final Act. 3, *with* Appeal Br. 5–8. In view of this disclosure in Hage, the Examiner concludes that it would have been obvious

to one of ordinary skill in the art at the time of Appellant's invention to not only include an iron or manganese complex of a tridentate, tetradentate, pentadentate, or hexadentate nitrogen donor ligand drier in Hage's coating composition, but to also include a second transition metal accelerant ligand complex in the composition, such as a 1, 4, 7-triazacyclononate transition metal complex, because Hage explicitly discloses the suitability of using such a complex as a drier in Hage's coating composition. Final Act. 3.

Hage further discloses that one or more auxiliary driers may be present in the coating composition described in the reference, such as fatty acid soaps of vanadium or cerium (at least one metal salt of a carboxylic acid, wherein the metal is selected from the group comprising: Mn, Ce, V, and Cu). Hage ¶ 106.

Appellant argues that arriving at the composition of claim 1 from Hage "requires the improper use of hindsight to pick and choose the components" recited in claim 1 "from literally tens of thousands of permutations" presented in Hage. Appeal Br. 6–7. Appellant also argues that Hage does not teach or suggest the use of a separate ligand (c) as recited in claim 1, because while paragraph 42 of Hage exemplifies particular complexes that may be used as Hage's primary drier, it "does not suggest the use of a separate ligand corresponding to component c)" of claim 1. *Id.*

Appellant's arguments are unpersuasive of reversible error in the Examiner's rejection. Although Hage broadly discloses polydentate accelerant ligand transition metal driers (¶ 29), and describes numerous ligands (¶¶ 33, 40, 43–103) and transition metals (¶ 30) suitable for use in the driers, Hage nonetheless includes much more narrow disclosures directed to a limited number of specific driers. As discussed above, Hage

explicitly discloses polydentate accelerant ligand transition metal driers that are “iron or manganese complexes of tridentate, tetradentate, pentadentate, or hexadentate nitrogen donor ligands,” which encompass only two possible transition metals, one of which (iron) is part of the component (a) complex recited in claim 1. Hage ¶ 43. And the tetradentate, pentadentate, or hexadentate nitrogen donor ligands of these explicitly disclosed driers in Hage are the same as the tetradentate, pentadentate, or hexadentate nitrogen donor ligands of the component (a) complex recited in claim 1.

Furthermore, although Hage discloses several classes of suitable polydentate accelerant ligands, and discloses specific suitable ligands within each class (¶¶ 43–103), Hage initially describes 1, 4, 7-triazacyclononate nitrogen donor ligands in paragraph 40, before going on to describe the additional suitable ligands. Hage’s explicit disclosure in paragraph 40 of the suitability of 1, 4, 7-triazacyclononate ligands—to the exclusion of other types of ligands—would have suggested to one of ordinary skill use of such ligands as the tridentate, tetradentate, pentadentate, or hexadentate nitrogen donor ligand in the iron or manganese complexes described in the reference.

In addition, as discussed above, it is undisputed on this appeal record that Hage’s disclosure in paragraph 42 of providing the polydentate accelerant ligand in “one or more” iron or manganese complexes would have suggested including more than one of such complexes in a coating composition as described in the reference. Hage’s disclosure that suitable polydentate accelerant ligand transition metal driers include “iron or manganese complexes of tridentate, tetradentate, pentadentate, or hexadentate nitrogen donor ligands” would have suggested the use of such a complex as a first iron or manganese complex of a polydentate accelerant

ligand in Hage's coating composition. Hage's further explicit singling out of the 1, 4, 7-triazacyclononate accelerant ligand would have suggested use of such a ligand in a suggested additional transition metal polydentate accelerant ligand complex included in Hage's composition.

As for Appellant's argument that Hage would not have suggested use of a "separate ligand corresponding to component c)" recited in claim 1, the claim does not exclude additional, unrecited components from the claimed composition due to the recitation of a "comprising" transitional phrase separating the preamble from the body of the claim. *Gillette Co. v. Energizer Holdings, Inc.*, 405 F.3d 1367, 1371–72 (Fed. Cir. 2005) ("The word 'comprising' transitioning from the preamble to the body signals that the entire claim is presumptively open-ended."). As discussed above, Hage would have suggested including a transition metal complex including a 1, 4, 7-triazacyclononate ligand in the composition described in the reference as a second transition metal polydentate accelerant ligand complex present in the composition. The transition metal included in such a complex is not excluded by claim 1, and the ligand in the complex corresponds to the component (c) ligand recited in claim 1.

Although Hage generally discloses that an auxiliary drier can be included in the composition described in the reference, Hage specifically discloses a limited number of particular suitable auxiliary driers: fatty acid soaps of zirconium, bismuth, barium, vanadium, cerium, calcium, lithium, strontium, or zinc (metal salts of carboxylic acids). Hage ¶ 106. Notably, two of the nine metal salts included in the auxiliary driers disclosed in Hage (vanadium and cerium) are included among the four possible metal salts in component (b) recited in claim 1.

Accordingly, in view of Hage's explicit disclosure of iron complexes of tridentate, tetradentate, pentadentate, or hexadentate nitrogen donor ligands from among only two possible types of such complexes, explicit singling out of 1, 4, 7-triazacyclononate as a suitable polydentate accelerant ligand for the complexes described in the reference, and explicit disclosure of fatty acid soaps of vanadium and cerium as auxiliary ligands, from among only nine possible types of such fatty acid soaps, the Examiner's rejection of claim 1 over Hage is not based on the use of "improper . . . hindsight to pick and choose the components" recited in claim 1 "from literally tens of thousands of permutations" presented in Hage, but, rather, is based on Hage's explicit disclosure of components corresponding to those recited in claim 1 from among a limited number of possibilities.

Appellant argues that the component (c) ligand recited in claim 1 is present in the claimed drier composition to react with component (b), and Hage does not teach or suggest this feature of the claimed drier composition. Appeal Br. 7–8.

As the Examiner explains (Ans. 11), however, claim 1 does not require a reaction between components (b) and (c). Consequently, Appellant's argument is unpersuasive of reversible error in the Examiner's rejection because it is based on subject matter that is not claimed. *In re Self*, 671 F.2d 1344, 1348 (CCPA 1982) ("[A]ppellant's arguments fail from the outset because . . . they are not based on limitations appearing in the claims.").

We, accordingly, sustain the Examiner's rejection of claims 1–3, 5–7, 9–13, 15, and 16 under 35 U.S.C. § 103 as unpatentable over Hage.

Rejection II: Claims 1–13, 15, and 16 under 35 U.S.C. § 103 as
Unpatentable over Weijnen as Evidenced by Glassey

Appellant presents arguments directed to the subject matter of claim 1 only, to which we accordingly limit our discussion. Appeal Br. 8–10; 37 C.F.R. § 41.37(c)(1)(iv).

Weijnen discloses a drier composition for alkyd-based coating formulations that comprises “at least one metal complex” comprising iron or manganese and at least one monodentate, bidentate, tridentate, tetradentate, pentadentate, or hexadentate nitrogen donor ligand. Weijnen ¶¶ 15–17. Weijnen discloses that preferred iron complexes include Oxy Coat, which the Examiner finds meets the component (a) limitation of claim 1. Weijnen ¶¶ 92–93; Final Act. 5. Weijnen discloses that preferred manganese complexes include DryCoat, which Glassey evidences has CAS number 1381939-25-8. Weijnen ¶¶ 94–95; Glassey ¶ 45. Because claim 8 of the instant application, which depends from claim 1, recites that “components (b) and (c) of the drier composition are provided as the complex defined by CAS 1381939-25-8,” the Examiner finds that the DryCoat disclosed in Weijnen is a complex including components (b) and (c) recited in claim 1. Final Act. 5–6.

In view of Weijnen’s disclosure of including “at least one metal complex” in the drier composition disclosed in the reference, the Examiner determines that “[i]t would have been obvious to one of ordinary skill in the art at the time of the invention to modify Weijnen to combine both Oxy Coat and Drycoat, as Weinjen [sic] teaches toward combinations of such compounds and the cited compounds are disclosed as equivalents suitable for the same purpose.” Final Act. 5 (citing *In re Kerkhoven*, 626 F.2d 846, 850 (CCPA 1990)).

Appellant argues that Weijnen “consistently and exclusively” teaches use of an iron complex having at least one nitrogen donor ligand, and use of a manganese complex having at least one nitrogen donor ligand, “in the alternative.” Appeal Br. 9 (emphasis omitted). Appellant argues that “[t]here is no teaching or suggestion in the reference to use them together for any reason because there is no need. Each metal complex is sufficient unto itself for the purposes outlined in the Weijnen reference.” Appeal Br. 9–10.

Contrary to Appellant’s arguments, Weijnen consistently and repeatedly discloses including “at least one metal complex” comprising iron or manganese and at least one monodentate, bidentate, tridentate, tetradentate, pentadentate, or hexadentate nitrogen donor ligand in the drier composition described in the reference, which explicitly teaches including one *or more* of such metal complexes in the composition. Weijnen Abstr., ¶¶ 17, 32, 37, 110, 118, 128, claim 1. This disclosure, in view of Weijnen’s teaching that preferred iron complexes include Oxy Coat, and preferred manganese complexes include DryCoat, reasonably would have suggested including both such complexes in Weijnen’s drier composition. Weijnen ¶¶ 92–95.

Furthermore, as the Examiner points out (Final Act. 5; Ans. 12), even absent Weijnen’s explicit disclosure of including at least one complex comprising iron or manganese and at least one monodentate, bidentate, tridentate, tetradentate, pentadentate, or hexadentate nitrogen donor ligand in the coating composition described in the reference, Weijnen discloses that the iron nitrogen donor ligand complexes, such as Oxy Coat, and the manganese nitrogen donor ligand complexes, such as DryCoat, described in the reference, are used for the same purpose—as driers for alkyd-based

coating formulations. It is well-established that “[i]t is prima facie obvious to combine two compositions each of which is taught by the prior art to be useful for the same purpose, in order to form a third composition which is to be used for the very same purpose. . . . [T]he idea of combining them flows logically from their having been individually taught in the prior art.”

Kerkhoven, 626 F.2d at 850.

Appellant argues that “although the Examiner asserts that the reference teaches combining Oxy Coat and Drycoat . . . in fact it appears that the examples show the use of one or the other, but not both.” Appeal Br. 10.

Weijnen’s disclosures, however, are not limited to the experimental examples provided in the reference, and the entirety of Weijnen’s disclosures must be considered for what they would have fairly suggested to one of ordinary skill in the art at the time of the invention. *In re Fracalossi*, 681 F.2d 792, 794 n.1 (CCPA 1982) (explaining that a prior art reference’s disclosure is not limited to its examples); *In re Mercier*, 515 F.2d 1161, 1165 (CCPA 1975) (“[A]ll of the relevant teachings of the cited references must be considered in determining what they fairly teach to one having ordinary skill in the art.”). For reasons discussed above, Weijnen’s disclosures as a whole would have suggested a drier composition including both Oxy Coat and DryCoat.

Appellant argues that Weijnen “teaches the superiority of K salts to those of Mn, Ce and Cu, such that one would not simply substitute a Mn, Ce or Cu salt therefor in an effort to arrive at the present invention.” Appeal Br. 10.

We note initially that Appellant does not direct us to or provide any specific citations to Weijnen identifying the asserted disclosure of the

“superiority of K salts.” Appeal Br. 10. Nonetheless, as discussed above, Weijnen explicitly discloses including “at least one metal complex” comprising *iron or manganese* and at least one monodentate, bidentate, tridentate, tetradentate, pentadentate, or hexadentate nitrogen donor ligand in the drier composition described in the reference. Including two such complexes in the drier composition as explicitly taught by Weijnen, such as Oxy Coat and DryCoat, would result in a composition including a complex (Oxy Coat) corresponding to component a) recited in claim 1, and a second complex (DryCoat) that includes components b) and c) recited in the claim.

We, accordingly, sustain the Examiner’s rejection of claims 1–13, 15, and 16 under 35 U.S.C. § 103 as unpatentable over Weijnen as evidenced by Glassey.

CONCLUSION

Claims Rejected	35 U.S.C. §	Reference(s)/Basis	Affirmed	Reversed
1–3, 5–7, 9–13, 15, 16	103	Hage	1–3, 5–7, 9–13, 15, 16	
1–13, 15, 16	103	Weijnen, Glassey	1–13, 15, 16	
Overall Outcome			1–13, 15, 16	

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