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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte CARL HASSLER, JOHN BURBA, and ROBERT CABLE

Appeal 2020-001367[1]
Application 13/433,097
Technology Center 1700

Before TERRY J. OWENS, BRADLEY W. BAUMEISTER, and BRIAN D. RANGE, *Administrative Patent Judges*.

BAUMEISTER, *Administrative Patent Judge*.

DECISION ON APPEAL

Appellant appeals under 35 U.S.C. § 134(a) from the Examiner's Final rejection of claims 1–3, 5–9, 11, 12, 14–21, 23–26 and 28–31. Appeal Br. 5.

We have jurisdiction under 35 U.S.C. § 6(b). The Board conducts a limited *de novo* review of the appealed rejections for error based upon the issues identified by Appellant, and in light of the arguments and evidence produced thereon. *Ex parte Frye*, 94 USPQ2d 1072, 1075 (BPAI 2010) (precedential). We REVERSE.

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[1] Appellant identifies Secure Natural Resources LLC as the real party in interest. Appeal Br. 1 (Appeal Brief filed June 20, 2019 ("Appeal Br.").

CLAIMED SUBJECT MATTER

Appellant describes the present invention as being directed to the use of rare-earth-containing additives comprising rare earths of plural oxidation states to remove non-metal-containing contaminants from drinking water and aqueous streams. Spec. 3 (Specification filed Mar. 28, 2012, hereinafter "Spec.").

Independent claim 1, reproduced below, illustrates the subject matter of the appealed claims:

> 1. A method, comprising:
>
> (a) receiving an oxyanion-containing water, the oxyanion-containing water comprising at least one non-metal-containing oxyanion, wherein the at least one non-metal-containing oxyanion comprises one or more of hypophalite (XO^-), hypochlorite (ClO^-), hypobromite (Bro^-), hypoidite (IO^-), halites (OXO^-), chlorite ($OClO^-$), bromite ($OBrO^-$), halate (XO_3^-), chlorate (ClO_3^-), bromate (BrO_3^-), iodate (IO_3^-), perhalates (XO_4^-), perchlorate (ClO_4^-), perbromate (BrO_4^-), periodate (IO_4^-, IO_6^{4-}, $I_{2+n}O_{10+4n}^{(6+n)-}$, where n is positive integer greater than zero), sulfurous (SO_3^{2-}), disulfurous ($S_2O_5^{2-}$), thiosulfate ($S_2O_3^{2-}$), dithionite ($S_2O_4^{2-}$), polythionate ($S_nO_6^{2-}$), peroxodisulfate ($S_2O_8^{2-}$), disulfate ($S_2O_7^{2-}$), trisulfate ($S_3O_{10}^{2-}$), tetrasulfate ($S_4O_{13}^{2-}$), and pentasulfate ($S_5O_{16}^{2-}$); and
>
> (b) after step (a), contacting the oxyanion-containing water with a separate component comprising a rare earth to remove more than 50% of the oxyanions from the oxyanion-containing water.

STATEMENT OF THE REJECTIONS

Claims 1, 3, 5–7, 9, 11, 14–16, 18, 20, 21, 25, 26, and 28–30 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Fischmann (Fischmann, US 2012/0024794 A1; published Feb. 2, 2012) and McNew

(McNew et al., US 7,338,603 B1; issued Mar. 4, 2008, "McNew"). Final Act. 6–9 (Final Action mailed Dec. 20, 2018, hereinafter "Final Act.").

Claims 8, 17, and 31 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Fischmann, McNew, and Hughes (Hughes et al., US 2011/0297616 A1; published Dec. 8, 2011, "Hughes"). Final Act. 9–10.

Claim 23 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Fischmann, McNew, and Smith et al. (US 2011/0168567 A1; published July 4, 2011, "Smith"). Final Act. 10–11.

DETERMINATIONS AND CONTENTIONS

The Examiner finds that Fischmann discloses a process that corresponds to the first step of claim 1—receiving an aqueous stream that contains oxyanion-containing stream. Final Act. 6. More specifically, the Examiner finds that Fischmann discloses oxyanion-containing aqueous streams comprising hypochlorite or persulfate. *Id.* (citing Fischmann ¶¶ 165, 175).

The Examiner finds that Fischmann discloses contacting the oxyanion-containing stream with a separate composition to remove substantially all of the oxyanions from the oxyanion-containing stream, but does not teach that this separate composition contains a rare-earth element. Final Act. 6 (citing Fischmann ¶ 171).

The Examiner finds that McNew teaches a process that uses the rare earth element, cerium (Ce), instead of conventional sorbents to remove oxyanions from aqueous streams. Final Act. 6 (citing McNew, col. 1, l. 25; col. 2, ll. 58–60; col. 4, ll. 8–16).

The Examiner concludes that it would have been obvious "to combine the process of Fischman with the rare earth of NcNew in order to dechlorinate the water with an alternate sorbent material [f]or the added benefit of additional sorption of toxic materials from industrial waters." Final Act. 7 (citing McNew, col. 1, ll. 22–41) (emphasis omitted). The Examiner determines, "[s]uch a modification would [have] provide[d] predictable results [because] both Fischman and McNew have the motivation for improving techniques of cleaning industrial wastewater." *Id.* (citing MPEP 2141.III(A) (setting forth that one rationale for supporting obviousness rejections under 35 U.S.C. 103 is to combine prior art elements according to known methods to yield predictable results.) (emphasis omitted).

Appellant first argues that Fischmann does not constitute prior art. Appeal Br. 7–12. Appellant also argues that even if Fischmann does constitute prior art, the Examiner's substitution of McNew's composition into the dechlorination process of Fischmann is improper. Appeal Br. 12–13. We address these two arguments in the Analysis section, below.

ANALYSIS

I.

Appellant argues that the obviousness rejections are improper because the present application claims priority back to the effective filing date of at least March 16, 2011, a date that predates Fischmann's provisional filing date of March 30, 2011. *See e.g.*, Appeal Br. 5–7. More Specifically, Appellant contends that the present application claims priority to Hassler (Hassler et al., US 2011/0309017 A1; published Dec. 22, 2011). Appellant

further contends that Hassler, in turn, claims priority to two provisional applications: US 61/323,758 (filed Apr. 13, 2010, "the '758 provisional") and US 61/325,996 (filed Apr. 20, 2010, "the '996 provisional," collectively, "the Hassler provisional applications") and that the present application incorporates by reference the two Hassler provisional applications. Appeal Br. 5–6.

Appellant additionally contends,

> both of the Hassler provisions incorporate by reference three earlier non-provisional application: 12/616, 653, filed November 11, 2009 ("the '653 application"); 12/725,114, filed March 16, 2010 ("the '114 application"); and 12/757,788, filed April 9, 2010 ("the '788 application") (collectively, "the incorporated applications"). All three of the incorporated applications define the terms "oxyanion" and "target material-containing oxyanion" the same way the Hassler provisionals do.

Appeal Br. 7–8 (citing '653 application, ¶ 67; '114 application ¶ 44; and '788 application, ¶ 75).

The Examiner determines that the claim of priority to the Hassler provisionals is improper and that Fischmann, therefore, does constitute prior art. Ans. 3–16 (Examiner's Answer mailed Sept. 19, 2019, hereinafter "Ans.").

In particular, the Examiner determines that the Hassler provisionals do not support the claimed subject matter in a manner that complies with the written description requirement of 35 U.S.C. § 112(a) (or pre-AIA § 112, ¶ 1). *Id.* at 11. The Examiner explains that the '758 provisional describes the oxyanions generally as A_xO_y, with A being a metal, metalloid, or non-metal, but that the '758 provisional does not disclose any species of non-

metal oxyanions other than selenium.[2] Ans. 13 (citing '758 provisional application 4). The Examiner further determines that the '996 provisional discloses essentially the same subject matter as the '758 provisional. *Id.*

The Examiner further determines the'653 application similarly fails to disclose all of the Markush elements recited in independent claim 1. Ans. 13. More specifically, the Examiner acknowledges that the '653 application discloses oxyanion that include metals, metalloids, and non-metals, such as selenium, fluorine, and iodine. Ans. 13. But according to the Examiner, the '653 application fails to disclose oxyanions that include, *inter alia*, sulfur or chlorine, as claimed. Ans. 13.

Appellant does not dispute that the Hassler provisionals fail to expressly disclose the particular Markush species that are claimed. Appeal Br. 7–8. But Appellant argues that the Hassler provisionals do disclose a genus of oxyanions generally. *Id.* at 8. Appellant contends, "the fact that the Hassler provisionals do not define non-metal oxyanions other than selenium oxyanions as 'target-material containing' oxyanions does not limit the scope of the genus of 'oxyanions' generally." *Id.* at 8.

Appellant further argues that in order to be afforded priority, "the disclosure of [a] prior-filed application must provide adequate support and

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[2] The term "metalloid" generally refers to element of the periodic table that are at the boundary between the table's metal and non-metal elements. These metalloids generally include at least bismuth, silicon, germanium, arsenic, antimony, and tellurium, but the definition is not universally accepted. Some sources define "metalloid" to additionally include the radioactive elements polonium and polonium and astatine, and other sources include selenium. *Cf., e.g.*, https://byjus.com/questions/what-are-metalloids/ (excluding selenium) *with* https://www.britannica.com/science/selenium (characterizing selenium as a metalloid).

enablement for the claimed subject matter of the later-filed application in compliance with the requirements of 35 U.S.C. § 112(a)." Appeal Br. 8 (citing MPEP 211.05(I)). And Appellant continues, "in assessing a disclosure for compliance with 35 U.S.C. § 112(a) . . . '[w]hat is conventional or well known to one of ordinary skill in the art need not be disclosed in detail.'" *Id.* (citing MPEP § 2163(II)(A)(3)(a)).

"Appellant respectfully submits that it [was] well known to those of ordinary skill in the art that the term 'oxyanion' refers to any anion 'containing one or more oxygen atoms bonded to another element.'" Appeal Br. 8 (citation omitted).

Appellant argues,

> Any ambiguity that a person of ordinary skill in the art might harbor about the scope of the term "oxyanion" is eliminated by the Hassler provisionals' disclosure of the general chemical formula $A_xO_y^{z-}$; such a formula, even standing alone, provides adequate disclosure for the genus of oxyanions because, "[i]n claims involving chemical materials, generic formulae usually indicate with specificity what the generic claims encompass [and] [a]ccordingly, such a formula is normally an adequate description of the claimed genus."

Appeal Br. 8 (citing *Regents of the University of California v. Eli Lilly,* 119 F .3d 1559, 1568 (Fed. Cir. 1997); and MPEP 2163(II)(A)(3)(a)).

Appellant's arguments are unpersuasive. Appellant is correct that a Specification does not necessarily need to disclose what is well-known and conventional in order to satisfy the *enablement* prong of section 112, first paragraph:

> The enablement requirement is often more indulgent than the written description requirement. The specification need not explicitly teach those in the art to make and use the invention; the requirement is satisfied if, given what they already know, the

> specification teaches those in the art enough that they can make and use the invention without "undue experimentation."

Amgen, Inc., v. Hoechst Marion Roussel, Inc., 314 F.3d 1313, 1334 (Fed. Cir. 2003).

However, written description and enablement are separate requirements under 35 U.S.C. § 112(a) or pre-AIA § 112, ¶ 1. Whether oxyanions, as a class, were well known to one or ordinary skill does not address the separate inquiry of whether the Hassler provisional applications provide adequate the written-description to establish a claim to priority for the presently claimed invention. "Adequate written description means that the applicant, in the specification, must 'convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the [claimed] invention.'" *Agilent Techs., Inc. v. Affymetrix, Inc.*, 567 F.3d 1366, 1379 (Fed. Cir. 2009) (citation omitted), *reh'g en banc denied* Sept. 18, 2009.

It is well settled that "one cannot disclose a forest in the original application, and then later pick a tree out of the forest and say here is my invention." *Purdue Pharma L.P. v. Faulding Inc.*, 230 F.3d 1320, 1326 (Fed. Cir. 2000). Rather, the Specification must provide some guides or "blaze marks" that disclose the claimed invention "specifically, as something appellants actually invented." *Ariad Pharm., Inc. v. Eli Lilly & Co.*, 598 F.3d 1336, 1348 (Fed. Cir. 2010) (en banc).

To summarize, Appellant does not sufficiently demonstrate that any of the references that were relied upon for priority conveys with reasonable clarity to those skilled in the art that, as of the filing date sought, Appellant was in possession of all of the Markush species currently claimed. Accordingly, Appellant does not establish that the present application can

claim priority to an effective filing date that predates the effective date of Fischmann.

II.

We next inquire whether the Examiner has established that claim 1 is unpatentable over the combination of Fischmann and McNew.

Appellant argues, "[t]here is no overlap between the oxyanions removed by the processes of the present invention and the oxyanions removed by the processes of McNew, and so McNew does not teach removing the oxyanions of the present invention by a rare earth." Appeal Br. 12. Appellant further argues, "[n]othing in either Fischmann or McNew indicates a recognition of any equivalence between the dechlorination methods of Fischmann (i.e. treatment with sodium bisulfite or metabisulfite and/or activated carbon) and the rare earths of McNew." *Id.* at 12–13. Appellant urges, "as a consequence of McNew's conspicuous silence regarding non-metal-containing oxyanions, the Examiner's combination of Fischmann with McNew is inapposite because nothing in McNew suggests that the rare earths of McNew are effective to remove hypochlorite, the only oxyanion disclosed by Fischmann." *Id.* at 12.

The Examiner subsequently re-summarizes the rejection, as follows:

> McNew is prior art disclosing the use of rare earth as a better sorbent material than conventional activated carbon for treating contaminants in water. Fishmann is prior art disclosing treating water containing a contaminant such as hypochlorite and removing it with a conventional sorbent material such as activated carbon. The combination [would have been] obvious in improving water treatment with better or alternative sorbent materials[,] as stated in the rejection.

Ans. 17 (emphasis omitted).

Appellant's arguments are persuasive. The Examiner has established that Fischmann uses activated carbon to remove the non-metal oxyanion, hypochlorite (ClO^-), from an aqueous stream. Final Act. 6. And the Examiner has established that McNew uses oxides of rare-earth elements (e.g., CeO_2) to remove oxyanions generally. *Id.* And to be sure, McNew expressly defines the term "oxyanion" broadly as "include[ing] any anion containing oxygen in combination with one or more other elements." McNew, col. 2, ll. 58–60, *cited in* Final Act. 6.

However, McNew further explains that the invention more specifically relates to removing oxyanions of toxic, heavy metals and their radioactive isotopes. McNew, col. 1, ll. 7–12, 45–51, col. 2, ll. 19–28. McNew provides examples of these metal oxyanions, including CrO_4^{-2}, WO_4^{-2}, MoO_4^{-2}, SbO_3^{-1}, MnO_4^{-2}, UO_4^{-2}, and VO_4^{-2}. *Id.* col. 4, ll. 20–32.

The Examiner does not cite to any example of McNew using the disclosed rare-earth composition to sorb non-metal oxyanions. *See generally* Final Act. The Examiner has not set forth sufficient evidence or technical reasoning to support the conclusion that one of ordinary skill reasonably would have expected that McNew's rare-earth compositions would adequately sorb non-metal oxyanions, as well as metal oxyanions. Ans. 17. The Examiner does not provide a technical basis for concluding that McNew's rare earths would sorb hypochlorite better than would Fischmann's activated carbon. *See generally*, Final Act.; and Ans.

The Examiner merely reasons that McNew's rare-earth compositions would have been obvious alternatives that provide predictable results because "both Fischmann and McNew have the motivation for improving techniques of cleaning industrial wastewater." Final Act. 7 (emphasis

omitted). But this reasoning is too sweeping. Wastewater can contain an extremely wide range of impurities. The fact that a given composition might remove one given impurity is insufficient to presume that the composition will remove other impurities. And within the universe of aqueous impurities, even the genus of oxyanions—any anion containing oxygen in combination with one or more other elements—covers a wide range of compositions with potentially different chemical properties.

For the reasons stated above, the Examiner has not established that it would have been obvious to substitute McNew's rare-earth compositions for Fischmann's activated-carbon sorbent. We, therefore, reverse obviousness rejection of independent claim 1. We, likewise, reverse the obviousness rejection of claims 3, 5–7, 9, 11, 14–16, 18, 20, 21, 25, 26, and 28–30, which either depend from claim 1 or otherwise include similar limitations regarding a water stream comprising non-metal-containing oxyanions. With respect to the remaining rejections of dependent claims 2, 8, 12, 17, 19, 23, 24, and 31, the Examiner does not rely on Whitehead, Hughes, or Smith in a manner that sufficiently cures the above-noted deficiency of the obviousness rejection of claim 1. *See* Final Act. 8–11. We, therefore, reverse the obviousness rejections of these claims for the reasons set forth in relation to independent claim 1.

CONCLUSION

In summary:

Claims Rejected	35 U.S.C. §	Basis/Reference(s)	Affirmed	Reversed
1, 3, 5–7, 9, 11, 14–16, 18, 20, 21, 25, 26, 28–30	103	Fischmann, McNew		1, 3, 5–7, 9, 11, 14–16, 18, 20, 21, 25, 26, 28–30
2, 12, 19, 24	103	Fischmann, McNew, Whitehead		2, 12, 19, 24
8, 17, 31	103	Fischmann, McNew, Hughes		8, 17, 31
23	103	Fischmann, McNew, Smith		23
Overall Outcome				1–3, 5–9, 11, 12, 14–21, 23–26, 28–31

REVERSED