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UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE PATENT TRIAL AND APPEAL BOARD

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*Ex parte* COLIN SCOTT and PHILIPPE CUGY

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Appeal 2018-002890  
Application 13/880,929  
Technology Center 1700

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Before TERRY J. OWENS, BRIAN D. RANGE, and  
DEBRA L. DENNETT, *Administrative Patent Judges*.

DENNETT, *Administrative Patent Judge*.

DECISION ON APPEAL<sup>1</sup>

STATEMENT OF THE CASE

Appellants appeal under 35 U.S.C. § 134(a) from a rejection of claims 1–7, 15, and 17–20. We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM.

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<sup>1</sup> In our Opinion, we refer to the Specification filed April 22, 2013 (“Spec.”); the Final Office Action mailed February 9, 2017 (“Final Act.”); the Appeal Brief filed June 30, 2017 (“Appeal Br.”); the Examiner’s Answer mailed November 24, 2017 (“Ans.”); and the Reply Brief filed January 22, 2018 (“Reply Br.”).

The claims are directed to hot-rolled or cold-rolled steel plate comprising specified amounts of specified elements. Claim 1, reproduced below from the Claims Appendix of the Appeal Brief, illustrates the claimed subject matter:

1. A hot-rolled or cold-rolled steel plate, wherein the steel plate comprises the following elements in weight percent:

$$0.6\% \leq C \leq 0.9\%;$$

$$17\% \leq Mn \leq 22\%;$$

$$0.2\% \leq Al \leq 0.9\%;$$

$$0.2\% \leq Si \leq 1.1\%;$$

$$\text{with } 0.85\% \leq Al + Si \leq 1.9\%;$$

$$1.2\% \leq Cu \leq 1.9\%;$$

$$S \leq 0.030\%;$$

$$P \leq 0.080\%;$$

$$N \leq 0.1\%;$$

$$0 < Nb \leq 0.25\%;$$

$$0 < V \leq 0.5\%;$$

$$0 < Ti \leq 0.5\%$$

$$0 < Ni \leq 2\%;$$

$$\text{trace amounts } \leq Cr \leq 2\%; \text{ and}$$

$$B \leq 0.010\%;$$

the remainder being iron and impurities resulting from production of the steel plate.

## REFERENCES

The Examiner relies on the following prior art in rejecting the claims on appeal:

Guelton et al. ("US '338") <sup>2</sup>	US 6,358,338 B1	Mar. 19, 2002
Sohn et al. ("WO '994")	WO 2007/074994 A1	July 5, 2007

## REJECTIONS

The Examiner maintains and Appellants seek review of the following rejections under 35 U.S.C. § 103(a): (1) claims 1–6, 15, and 17–20 over US '338; (2) claims 1–7, 15, and 17–20 over WO '994; and (3) claim 7 over US '338 in view of WO '994. Final Act. 4–12; App. Br. 5–20.

## OPINION

*Rejection of claims 1–6, 15, and 17–20 as obvious over US '338*

Appellants argue claims 1–3, 5, 6, 15, and 17–20 as a group. App. Br. 7–14. We select claim 1 as representative of the group. Claims 2, 3, 5, 6, 15, and 17–20 will stand or fall with claim 1. 37 C.F.R. § 41.37(c)(1)(iv). Appellants argue separately for patentability of claim 4 (App. Br. 14–15), and we address it separately below.

With respect to claim 1, the Examiner finds that US '338 discloses a composition that overlaps the claimed composition range, and concludes that a prima facie case of obviousness exists. Final Act. 4–5.

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<sup>2</sup> Although we typically refer to prior art patents by the first inventor's surname, here we follow the Examiner's and Appellants' use of patent numbers for ease of reference to the record.

Appellants argue that four criteria are critical for the ability of the claimed steel plate to resist corrosion. App. Br. 8. These criteria are:

1.  $0.2\% \leq \text{Al} \leq 0.9\%$ ;
2.  $0.2\% \leq \text{Si} \leq 1.1\%$ ;
3.  $0.85\% \leq \text{Al} + \text{Si} \leq 1.9\%$ ;
4.  $1.2\% \leq \text{Cu} \leq 1.9\%$ .

*Id.* Appellants contend that one obtains good results in corrosion under stress and mechanical properties only by observing these four criteria. *Id.* at 10.

Appellants' argument does not overcome the obviousness presumption. "[T]he burden of showing unexpected results rests on he who asserts them." *In re Klosak*, 455 F.2d 1077, 1080 (CCPA 1972). Unexpected results must be established by factual evidence. *In re de Blauwe*, 736 F.2d 699, 705 (Fed. Cir. 1984). Further, a party asserting unexpected results as evidence of nonobviousness has the burden of proving that the results are *unexpected*. *In re Geisler*, 116 F.3d 1465, 1469–70 (Fed. Cir. 1997) (Overcoming a prima facie case of obviousness by showing improved performance in a range that is within or overlaps with a range disclosed in the prior art requires showing that the claimed range is *critical*, generally by "show[ing] that the claimed range achieves unexpected results relative to the prior art range.") (quoting *In re Woodruff*, 919 F.2d 1575, 1578 (Fed. Cir. 1990)). To overcome the rejection, Appellants must at least establish: (1) that there actually is a difference between the results obtained through the claimed invention and those of the prior art; and (2) that the difference actually obtained would not have been expected by one skilled in the art at the time of invention. *In re Freeman*, 474 F.2d 1318, 1324 (CCPA 1973).

Appellants rely on quotations from the Specification and a declaration from co-inventor Colin Scott (“Scott Decl.”) to support their argument that the four criteria are critical. *See* App. Br. 8–14. Neither source supports that the results are “unexpected.” *See, generally*, Spec. and Scott Decl. The Specification describes the four criteria as producing “good” results in corrosion under stress and mechanical properties. Spec. 12. Mr. Scott declares: “it is only by observing all the conditions posed on the Si, Al and Cu contents that one obtains both the good results in terms of corrosion under stress, []while keeping mechanical properties fit for the automotive industry.” Scott Decl. ¶ 8. These assertions are inadequate to show the results are unexpected. *See Pfizer, Inc. v. Apotex, Inc.*, 480 F.3d 1348, 1371 (Fed. Cir. 2007) (“[A]ny superior property must be *unexpected* to be considered as evidence of non-obviousness.”). Appellants’ arguments to the contrary cannot take the place of evidence. *In re Geisler*, 116 F.3d at 1471; *In re De Blauwe*, 736 F.2d 699, 705 (Fed. Cir. 1984); *see also In re Greenfield*, 571 F.2d 1185, 1189 (CCPA 1978); and *In re Pearson*, 494 F.2d 1399, 1405 (CCPA 1974).

Moreover, any alleged unexpected results must also be “commensurate in scope with the degree of protection sought by the claim[s]” on appeal. *In re Harris*, 409 F.3d 1339, 1344 (Fed. Cir. 2005; *see also In re Graselli*, 713 F.2d 731, 743 (Fed. Cir. 1983) (It is well settled “that objective evidence of non-obviousness must be commensurate in scope with the claims which the evidence is offered to support.”). Claim 1, however, recites limitations that are broader than the evidence in the

Specification.<sup>3</sup> For example, claim 1 requires: (1) a weight percent of Cu of  $1.2\% \leq \text{Cu} \leq 1.9\%$ , but the Specification contains no data on amounts of Cu above 1.7 weight percent; and (2) a combined weight percent of Al and Si of  $0.85\% \leq \text{Al} + \text{Si} \leq 1.9\%$ , but no data is provided for combined weight percent above 1.6 weight percent. *See* Spec. 11 (Table 1). In addition, Appellants provide no test data on compositions containing weight percent of Si outside of the claimed range ( $0.2\% \leq \text{Si} \leq 1.1\%$ ). *See* Spec. 11 (Table 1). Appellants fail to show the criticality of the claimed range of Si.

For the above reasons, we sustain the rejection of claim 1 over US '338. We sustain the rejection of claims 2, 3, 5, 6, 15, and 17–20 for the same reasons under 37 C.F.R. § 41.37(c)(1)(iv).

*Rejection of claim 4 as obvious over US '338*

Appellants argue separately for patentability of claim 4 over US '338. App. Br. 14–15. Claim 4 depends from claim 1 and further requires “wherein in weight percent  $17\% \leq \text{Mn} \leq 18\%$ .” *Id.* at 22–23 (Claims Appx.).

Appellants contend that the Examiner did not explain why the Scott Declaration and the data in Table 2 of the Specification are insufficient to rebut a prima facie case of obviousness of claim 4. *Id.* at 15.

All samples in the Specification that satisfy the four “critical” criteria discussed above comprise 17 weight percent or 18 weight percent Mn, which is a narrower range of Mn than in claim 1 (claiming  $17\% \leq \text{Mn} \leq 22\%$ ). Spec. 11 (Table 1). The narrower range of Mn does not have any

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<sup>3</sup> The Scott Declaration does not cite to any data other than that in the Specification. *See, generally*, Scott Decl.

implications on the lack of unexpected results as discussed in relation to claim 1, therefore, does not confer patentability of claim 4.

We sustain the rejection of claim 4 over US '338.

*Rejection of claims 1–7, 15, and 17–20 as obvious over WO '994*

Appellants argue claims 1–3, 5–7, 15, and 17–20 as a group. App. Br. 15–19. We select claim 1 as representative of the group. Claims 2, 3, 5–7, 15, and 17–20 will stand or fall with claim 1. 37 C.F.R. § 41.37(c)(1)(iv). Appellants argue separately for patentability of claim 4 over WO '994, and we address claim 4 separately below. App. Br. 19–20.

Appellants first argue that a skilled artisan would not have considered WO '994 because the reference discloses corrosion resistance of a galvanized steel substrate, which is a steel substrate having a zinc coating. App. Br. 15. With this argument, Appellants essentially contend that WO '994 is non-analogous art.

“The analogous art inquiry is a factual one, requiring inquiry into the similarities of the problems and the closeness of the subject matter as viewed by a person of ordinary skill.” *Scientific Plastic Products, Inc. v. Biotage AB*, 766 F.3d 1355, 1360 (Fed. Cir. 2014). The scope of analogous art is to be construed broadly. *Wyers v. Master Lock Co.*, 616 F.3d 1231, 1238 (Fed. Cir. 2010). For the Examiner to rely upon a reference as a basis for an obviousness rejection of Appellants' claims, the reference must either: (1) be in the field of the inventor's endeavor; or (2) be reasonably pertinent to the particular problem with which the inventor was concerned. *In re Kahn*, 441 F.3d 977, 986–87 (Fed. Cir. 2006). WO '994 concerns high-manganese hot-dip coated steel sheet exhibiting high ductility and high strength for use in inner and outer panels of automobiles. WO '994 Abstract. The



Specification gives the purpose of the claimed invention as providing automobile manufacturers with Fe-Mn steels in the form of hot-rolled or cold-rolled plates having high mechanical properties, such as tensile strength, and a large capacity in plastic deformation, but also having high resistance to corrosion under stress. *See* Spec. 3. WO '994, therefore, is at least reasonably pertinent to the Appellants' problem, and is analogous art.

In addition, we disagree that the skilled artisan would turn away from the disclosure of WO '994 because the reference teaches a zinc coating. *See* App. Br. 15. Claim 7, which depends from claim 1, recites a Zn or Zn alloy coating obtained by electro-galvanization. App. Br. 23 (Claims Appx.). This, and the use of the open transitional term "comprising" in claim 1 suggests that the skilled artisan would consider prior art compositions with a zinc coating.

The Examiner finds that WO '994 discloses a composition that overlaps the ranges of elements claimed in claim 1. Final Act. 8–9. The Examiner concludes that a prima facie case of obviousness exists, citing *In re Wertheim*, 541 F.2d 257 (CCPA 1976) and *In re Woodruff*, 919 F.2d 1575 (Fed. Cir. 1990). *Id.* at 8–9.

Where there is a range disclosed in the prior art, and the claimed invention falls within that range, there is a presumption of obviousness. *In re Peterson*, 315 F.3d 1325, 1329 (Fed. Cir. 2003). The presumption will be rebutted if it can be shown: (1) that there are new and unexpected results relative to the prior art, *Woodruff*, 919 F.2d at 1578; or (2) that the prior art taught away from the claimed invention, *Geisler*, 116 F.3d at 1471. Appellants do not persuasively make either showing.

As in the rejection of claim 1 over US '338, Appellants argue that the relationship of Al, Si, and Cu is critical, and WO '994 does not teach or suggestion the claimed relationship. App. Br. 16–17. For the reasons discussed above in relation to the rejection of claim 1 over US '338, Appellants do not show that the relationship of Al, Si, and Cu provides unexpected results, therefore they do not rebut the prima facie case of obviousness on this basis.

Appellants also contend that WO '994 provides no basis for selecting the claimed ranges of Si, Al, Al + Si, or Mn, or the combination of ranges of Al, Si, Al + Si, Cu, and Mn. App. Br. 17. However, WO '994 discloses the claimed ranges of each of Al, Si, Al + Si, Cu, and Mn. *See, e.g.,* WO '994 Abstract, ¶¶16–20, Table 1. “[F]or purposes of [section] 103, a reference is prior art for all that it discloses.” *Symbol Techs., Inc. v. Opticon, Inc.*, 935 F.2d 1569, 1578 (Fed. Cir. 1991); *see also Merck & Co. v. Biocraft Labs., Inc.*, 874 F.2d 804, 807 (Fed. Cir. 1989) (in a rejection based on obviousness, prior art is considered for all that it teaches and suggests). Appellants’ argument does not overcome the presumption of obviousness.

Appellants argue that one of ordinary skill in the art at the time of the invention would not have selected the claimed range of Al because none of the eleven examples in WO '994 include an amount of Al within the claimed range. App. Br. 17. This argument is not persuasive of reversible error in the rejection. “[A] reference is not limited to the disclosure of specific working examples.” *In re Mills*, 470 F.2d 649, 651 (CCPA 1972). Disclosed examples do not constitute a teaching away from a broader disclosure, as in the present case. *See In re Susi*, 440 F.2d 442, 446 n.3 (CCPA 1971). “[I]n a section 103 inquiry, the fact that a specific

[embodiment] is taught to be preferred is not controlling, since all disclosures of the prior art, including unpreferred embodiments, must be considered.” *Merck & Co., Inc. v. Biocraft Labs., Inc.*, 874 F.2d 804, 807 (Fed. Cir. 1989).

Appellants contend that “WO ’994 provides no support or basis for selecting Mn content of ‘ $17 \leq \text{Mn} \leq 18$ ’ as recited in instant claim 1.” App. Br. 17. In fact, claim 1 recites “ $17\% \leq \text{Mn} \leq 22\%$ .” Appellants acknowledge that WO ’994 discloses Mn content in the inventive examples of 5.11 to 35.0%. *Id.* Appellants argue, however, that WO ’994 teaches away from the claimed amount of Mn because the reference states: “[w]hen the content of Mn exceeds 10%,[] the mechanical toughness of the coating layer decreases” and that “it is preferable to limit the content of Mn to be 0.1 to 10%.” *Id.* (citing WO ’994 ¶ 118).

As noted above, an applicant may rebut a prima facie case of obviousness by showing that the prior art teaches away from the claimed invention any material aspect. *In re Geisler*, 116 F.3d at 1469 (citing *In re Malagari*, 499 F.2d 1297, 1303 (CCPA 1974)). Whether a reference teaches away from a claimed invention is a question of fact. *Para-Ordnance Mfg., Inc. v. SGS Importers Int’l, Inc.*, 73 F.3d 1085, 1088 (Fed. Cir. 1995). Teaching away requires that a reference “criticize, discredit, or otherwise discourage the solution claimed” by Appellant. *In re Fulton*, 391 F.3d 1195, 1201 (Fed. Cir. 2004). An obvious composition does not become patentable simply because it has been described as somewhat inferior to some other product for the same use. *In re Gurley*, 27 F.3d 551, 553 (Fed. Cir. 1994).

The indication in WO ’994 that MN content is preferably 0.1 to 10% does not criticize, discredit, or otherwise discourage use of Mn content in the

claimed range. Therefore, WO '994 cannot be said to teach away from the claimed invention.

For the above reasons, we sustain the rejection of claim 1 over WO '994. We sustain the rejection of claims 2, 3, 5–7, 15, and 17–20 pursuant to 37 C.F.R. § 41.37(c)(1)(iv).

*Rejection of claim 4 as obvious over WO '994*

Appellants argue separately for patentability of claim 4 over WO '994. App. Br. 19–20. Claim 4 depends from claim 1 and further requires “wherein in weight percent  $17\% \leq \text{Mn} \leq 18\%$ .” *Id.* at 22 (Claims Appx.).

Appellants contend that the Examiner did not explain why the Scott Declaration and the data in Table 2 of the Specification are insufficient to rebut a prima facie case of obviousness of claim 4. *Id.* at 20.

All samples in the Specification that satisfy the four “critical” criteria discussed above comprise 17 weight percent or 18 weight percent Mn, which is a narrower range of Mn than in claim 1 (claiming  $17\% \leq \text{Mn} \leq 22\%$ ). Spec. 11 (Table 1). The narrower range of Mn does not have any implications on the lack of unexpected results as discussed in relation to claim 1, therefore, does not confer patentability of claim 4.

We sustain the rejection of claim 4 over WO '994.

*Rejection of claim 7 as obvious over US '338 in view of WO '994*

Claim 7 depends from claim 1 and further requires that the steel plate comprises a Zn or Zn alloy coating obtained by electro-galvanization. App. Br. 23 (Claims Appx.).

The Examiner finds that US '338 discloses the claimed ranges of elements, as discussed for claim 1, but does not teach the steel having a Zn or Zn alloy coating. Final Act. 11. The Examiner finds that WO '994

teaches Zn/Zn alloy coating of steel sheets. *Id.* at 12. The Examiner finds that it would have been obvious to one of ordinary skill in the art at the time of the invention to have applied a Zn or Zn alloy coating, as taught by WO '994, to the steel disclosed in US '338 in order to obtain the advantage of the Zn/Zn alloy coating exhibiting high corrosion resistance. *Id.*

Appellants argue that US '338,<sup>4</sup> fails to teach the invention and WO '994 does not remedy the deficiencies of US '338. App. Br. 20.

For the reasons discussed above with respect to claim 1, US '338 discloses the composition except for the Zn/Zn alloy coating. WO '994 discloses coating steel sheets with Zn/Zn alloy. WO '994 ¶¶ 109–114. One of ordinary skill in the art at the time of the invention would have been motivated to combine the composition of US '338 with the Zn/Zn alloy of WO '994 according to known methods to yield the predictable result of improved corrosion resistance. *KSR Int'l Co. v. Teleflex, Inc.*, 550 US 398, 401 (2007).

We sustain the rejection of claim 7 as obvious over US '338 in view of WO '994.

#### DECISION

The rejections of claims 1–7, 15, and 17–20 are affirmed.

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

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<sup>4</sup> Appellants mistakenly refer to US '883, rather than US '338.