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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ROLAND BAYER

Appeal 2014-008810
Application 13/089,971
Technology Center 1700

Before BEVERLY A. FRANKLIN, MICHELLE N. ANKENBRAND, and JEFFREY R. SNAY, *Administrative Patent Judges*.

ANKENBRAND, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant[1] appeals under 35 U.S.C. § 134(a) from the Examiner's decision[2] rejecting claims 1, 7, 9, 11, 14, 16, and 18–22. We have jurisdiction under 35 U.S.C. § 6(b).

We affirm.

Background

The subject matter on appeal relates to a composition for extrusion-molded bodies comprising inorganic material and a methylhydroxyethyl

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[1] Appellant identifies The Dow Chemical Company as the real party in interest. App. Br. 3.
[2] Advisory Action mailed December 17, 2013.

cellulose ("MHEC"). Spec. Abstract, 1:9. According to the specification, known compositions for extrusion-molded bodies comprising a methylcellulose or MHEC as a binder/plasticizer required high extrusion pressures, which resulted in both technical and economical disadvantages, including increased power expenditure and increased wear of the extruder. *Id.* at 2:28–31. The recited composition is said to overcome those disadvantages by utilizing an MHEC having specific ranges of degrees of methyl substitution ("DS(methyl)") and hydroxyethyl substitution ("MS(hydroxyethyl)"), thereby enabling extrusion at lower extrusion pressures. *Id.* at 3:21–26. Claim 1, is representative of the claims on appeal, and is reproduced below from the Claims Appendix to the Appeal Brief:

> 1. A composition for extrusion-molded bodies comprising
>
> a) from 90 to 99.3 weight percent of an inorganic material that sets as a result of baking or sintering, said inorganic material comprising a clay, and an oxide that forms cordierite or mullite when mixed with the clay; and
>
> b) from 0.7 to 10 weight percent of a methylhydroxyethyl cellulose having a DS(methyl) of from 1.50 to 1.90, an MS(hydroxyethyl) of from 0.30 to 0.70 and a sum of the DS(methyl) and the MS(hydroxyethyl) of from 2.10 to 3.20,
>
> the percentages a) and b) being based on the weight of the inorganic material a) and the methylhydroxyethyl cellulose.

App. Br. 15 (Claims App'x). Claim 14, the other independent claim on appeal, recites "[a]n extrusion-molded body produced from a composition comprising" the same components in the same ranges recited in claim 1. *Id.* at 15–16.

The References

Schlesiger	US 7,041,168 B2	May 9, 2006
Lu	US 7,887,897 B2	Feb. 15, 2011

The Rejection

The Examiner maintains the rejection of claims 1, 7, 9, 11, 14, 16, and 18–22 under 35 U.S.C. § 103(a) as unpatentable over the combination of Lu and Schlesiger. Ans. 2–7.

OPINION

Appellant argues the claims as a group, relying on limitations that are common to independent claims 1 and 14. *See* App. Br. 9–13. We, therefore, limit our discussion to claim 1. The remaining claims on appeal stand or fall with claim 1.

After having considered the evidence presented in this Appeal and each of Appellant's contentions, we are not persuaded that Appellant identifies reversible error, and we affirm the Examiner's § 103(a) rejection for the reasons expressed in the Final Action, the Answer, and below.

As is relevant to Appellant's arguments on appeal, the Examiner finds that Lu discloses an extrusion-molding composition comprising methylcellulose derivatives as a binder, but does not teach other derivatives that can be used as a binder. Advisory Act. 3. The Examiner finds that Schlesiger teaches extrusion compositions comprising additives containing cellulose derivatives, including MHEC. *Id.* at 3–4. The Examiner further finds that Schlesiger discloses an extrusion composition comprising an irreversibly crosslinked MHEC with a DS(methyl) value of from 1.2 to 1.7 and an MS(hydroxyethyl) value of from 0.15 to 0.65. *Id.* at 4–5.

The Examiner concludes that it would have been obvious to the ordinarily skilled artisan to use Schelsiger's irreversibly crosslinked MHEC as a cellulose derivative in Lu's extrusion composition in order "to enhance the surface quality of the extrudate, permit a high exit velocity and achieve shape stability of the extrudate," as disclosed in Schlesiger. *Id.* at 5. The Examiner also concludes that the ordinary artisan would have considered the recited DS(methyl) and MS(hydroxyethyl) ranges obvious because the "MS values, DS values and sum of the DS and MS values" taught by the combination of Lu and Schlesiger overlap Appellant's recited ranges. *Id.* at 5–6.

Appellant argues that neither Lu nor Schlesiger discloses MHEC. App. Br. 9–10. More specifically, Appellant asserts that Schlesiger "teaches the use of certain irreversibly cross-linked MHEC," but the ordinary meaning of MHEC and the description of MHEC in the specification "exclude irreversibly cross-linked [MHEC]." *Id.* (citing Sigma Aldrich Product Catalogue; Spec. 5:9–16); Reply Br. 3.

It is well established that "the PTO must give claims their broadest reasonable construction consistent with the specification. . . . Therefore, we look to the specification to see if it provides a definition for claim terms, but otherwise apply a broad interpretation." *In re ICON Health & Fitness, Inc.*, 496 F.3d 1374, 1379 (Fed. Cir. 2007). "[A]s applicants may amend claims to narrow their scope, a broad construction during prosecution creates no unfairness to the applicant or patentee." *Id.*

Appellant's specification does not provide a definition of MHEC or limit the MHEC to a particular chemical formula. Further, although Appellant points to the specification's discussion of "dissolving the MHEC

component in an aqueous diluent," and contrasts that with Schlesiger's teaching that crosslinked MHEC "form[s] a gel," Appellant does not argue persuasively that the two properties are mutually exclusive, or that the crosslinked MHEC cannot dissolve in an aqueous diluent. In that regard, Schlesiger discloses "[t]he crosslinking [of the MHEC] can be carried out before or after the etherification reaction to give the *water-soluble* cellulose derivative." Schlesiger, 6:66–7:1 (emphasis added); *see also id.* at 7:26–29 ("The inventively used cellulose derivatives are preferably cellulose ethers, the water solubility of which is achieved by the etherification with hydroxyalkyl groups and/or with alkyl groups."), 9:54–57 (explaining that crosslinked MHEC is dissolved in water before conducting rheological measurements). We, therefore, find that the portion of the specification on which Appellant relies embraces both non-crosslinked and crosslinked MHEC. In view of that finding, and the fact that the specification does not place limitations on the definition or chemical formula of MHEC, we agree with the Examiner that the broadest reasonable interpretation of MHEC does not exclude crosslinked MHEC.

Appellant argues that the combination of Lu and Schlesiger is improper because the two references provide no motivation for their combination. App. Br. 11–13. In particular, Appellant argues that Lu and Schlesiger employ chemically different materials with different end uses, produce different sizes and types of microstructures, and use different extrusion profiles and pressures. *See id.*

We are not persuaded by Appellant's arguments. First, it is not necessary that the requisite motivation or reason to combine references be from the prior art. Rather, the reason to modify the prior art "may be found

in any number of sources, including common knowledge, the prior art as a whole, or the nature of the problem itself." *Dystar Textilfarben GmbH & Co. Deutschland KG v. C.H. Patrick Co.*, 464 F.3d 1356, 1361 (Fed. Cir. 2006). Nevertheless, the Examiner provides a rationale for combining the teachings of Lu and Schlesiger that is based on Schlesiger's description of the advantages that an extrusion composition comprising irreversibly crosslinked MHEC provides over a similar composition comprising non-crosslinked methylcellulose derivatives—namely, enhanced surface quality, higher exit velocity, and shape stability. Advisory Act. 5; Ans. 10; *see* Schlesiger 1:58–2:30 (explaining that, although it was known to use methylcellulose and MHEC as additives for cement extrusion, those additives "do not display the desired property profile.").

Further, the fact that Lu and Schlesiger utilize different materials, sizes, and extrusion pressures does not militate against combining their teachings because both references disclose utilizing a cellulose derivative as an additive in the extrusion composition. In other words, the Examiner substitutes one known cellulose additive (i.e., Schlesiger's irreversibly crosslinked MHEC) for another (i.e., Lu's methylcellulose) in an extrusion composition, which would have provided the predictable result of producing an extrudate or extruded structure. Advisory Act. 9; *see KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007).

Appellant argues that the combination of Lu and Schlesiger does not suggest the particular degrees of methyl and hydroxyethyl substitution required by the claims. App. Br. 10–11. In that regard, Appellant contends that "[a]ll Examples in Schlesiger" have a degree of substitution that falls outside the recited ranges. *Id.* at 11.

We are not persuaded. Although Schlesiger exemplifies certain degrees of substitution, it is well established that a reference is not limited to its examples or preferred embodiments. *Merck & Co. v. Biocraft Labs, Inc.*, 874 F.2d 804, 807 (Fed. Cir. 1989). Instead, all disclosures therein must be evaluated for what they would have fairly suggested to one of ordinary skill in the art. *In re Boe*, 355 F.2d 961, 965 (CCPA 1966). As the Examiner finds, Schlesiger teaches using irreversibly crosslinked mixed ethers of MHEC having DS(methyl) values from 1.2 to 1.7 and MS(hydroxyethyl) values from 0.15 to 0.65 for extrusion. Advisory Act. 5; Schlesiger 7:53–56. The ranges for degree of methyl and hydroxyethyl substitution disclosed in Schlesiger overlap Appellant's recited ranges and, therefore, render them prima facie obvious. *In re Peterson*, 315 F.3d 1325, 1329–30 (Fed. Cir. 2003) ("In cases involving overlapping ranges, we and our predecessor court have consistently held that even a slight overlap in range establishes a *prima facie* case of obviousness."). Accordingly, the burden shifts to Appellant to show that the particular recited ranges are critical, e.g., achieve unexpected results relative to the prior art ranges. *Id.* at 1330.

Appellant argues that the Examples in Table 1 of the specification show that the recited composition "reduces the extrusion pressure of clay compositions by at least 2 bar as compared with similar compositions that lack the claimed MHEC component." App. Br. 13.

When evidence of secondary considerations is submitted, we begin anew and evaluate the rebuttal evidence, including the evidence of secondary considerations, along with the evidence upon which the conclusion of prima facie obviousness was based. *In re Rinehart*, 531 F.2d 1048, 1052 (CCPA 1976). The burden rests with Appellant to establish that

the alleged unexpected results presented as being associated with the claimed invention are, in fact, unexpected, as well as commensurate in scope with the claimed subject matter. *See, e.g.*, *In re Klosak*, 455 F.2d 1077, 1080 (CCPA 1972).

Table 1 includes data illustrating resulting extrusion pressure for compositions comprising MHEC or methylcellulose with varying degrees of DS(methyl) and MS(hydroxyethyl) substitution. Spec. 8:20–32. Examples 1–4 provide results from compositions comprising MHEC within the recited DS(methyl) and MS(hydroxyethyl) substitution ranges, and the remaining examples are comparative. *Id.*

As the Examiner finds, the Table 1 data are not commensurate in scope with claim 1, which encompasses broad ranges of DS(methyl) substitution, MS(hydroxyethyl) substitution, and sums of the two. Final Act. 8. And Appellant does not provide any explanation why a person of ordinary skill in the art would have accepted the limited showing in Table 1 as evidence of unexpected results sufficient to outweigh the Examiner's evidence of obviousness. *See, e.g.*, *In re Harris*, 409 F.3d 1339, 1344 (Fed. Cir. 2005) ("Even assuming that the results were unexpected, Harris needed to show results covering the scope of the claimed range. Alternatively Harris needed to narrow the claims."); *In re Greenfield*, 571 F.2d 1185, 1189 (CCPA 1978) ("Establishing that one (or a small number of) species gives unexpected results is inadequate proof, for 'it is the view of this court that objective evidence of non-obviousness must be commensurate in scope with the claims which the evidence is offered to support.'") (quoting *In re Tiffin*, 448 F.2d 791, 792 (CCPA 1971)).

Appellant argues in the Reply Brief that the Examiner erred in finding that "cellulose is known in the art as starch" because, although both cellulose and starch are classified as polysaccharides, they are "different polymers having different chemical natures." Reply Br. 4–5 (quoting Ans. 5). Appellant further contends the Examiner's finding was raised for the first time in the Answer, and seeks two alternative forms of relief: (1) Appellant asks the Board "to take official notice that cellulose and starch are different from each other," or (2) "if the Board cannot take such official notice," Appellant asks that the "appeal be remanded so that evidence [regarding the differences between cellulose and starch] can be presented." *Id.* at 5.

We decline to grant either request for relief. First, we note that the issue of whether the Examiner's Answer includes a new ground of rejection is a petitionable matter that does not fall within the Board's jurisdiction. *See* 37 C.F.R. 1.181; 37 C.F.R. § 41.40(a). Accordingly, we lack authority to remand the case for consideration of new evidence.

In addition, we find that it would be inappropriate for the Board to take judicial notice of the alleged differences between cellulose and starch, and we decline to do so. *See In re Eynde*, 480 F.2d 1364, 1370 (CCPA 1973) (facts constituting the state of the art are normally subject to the possibility of rational disagreement among reasonable people and are not amenable to the taking of official notice). Even assuming judicial notice of Appellant's facts is appropriate, and that the Examiner errs in finding "cellulose is known in the art as starch," we consider that error harmless because such a finding is not necessary to support the Examiner's prima facie case of obviousness. Accordingly, we affirm the rejection of claims 1, 7, 9, 11, 14, 16, and 18–22 under 35 U.S.C. § 103(a).

DECISION/ORDER

The Examiner's rejection of claims 1, 7, 9, 11, 14, 16, and 18–22 under 35 U.S.C. § 103(a) is 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).

AFFIRMED