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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte DAVID M. BAINES

Appeal 2020-004255
Application 15/197,213
Technology Center 3700

Before JOHN C. KERINS, WILLIAM A. CAPP, and
GEORGE R. HOSKINS, *Administrative Patent Judges*.

CAPP, *Administrative Patent Judge*.

DECISION ON APPEAL

STATEMENT OF THE CASE

Appellant¹ seeks our review under 35 U.S.C. § 134(a) of the final rejection of claims 1–19, 21, and 22 as unpatentable under 35 U.S.C. § 103 over Rubin (US 7,531,219 B2, iss. May 12, 2009), and Chung (US 2016/0037974 A1, pub. Feb. 11, 2016). We have jurisdiction under 35 U.S.C. § 6(b).

We AFFIRM and designate our affirmance of claims 10 and 18 as a NEW GROUND OF REJECTION pursuant to our authority under 37 C.F.R. § 41.50(b).

¹ We use the word “Appellant” to refer to “applicant” as defined in 37 C.F.R. § 1.42(a). Appellant identifies Maytex Mills, Inc. as the applicant and real party in interest. Appeal Br. 1.

THE INVENTION

Appellant's invention relates to shower curtains. Spec. ¶ 2. Claim 1, reproduced below with paragraph indentation added, is illustrative of the subject matter on appeal.

1. A laminated shower curtain comprising:
 - an antimicrobial pre-treated fabric layer comprising a first antimicrobial agent; and
 - an antimicrobial liquid impermeable film layer bonded to and in contact with the antimicrobial pre-treated fabric layer comprising a polymeric material and a second antimicrobial agent,
 - wherein the antimicrobial liquid impermeable film layer comprises a composite layer including a polymeric matrix with molecules or particles of the second antimicrobial agent dispersed therein.

OPINION

Claim 1

The Examiner finds that Rubin discloses the invention substantially as claimed except for the second antimicrobial agent being actually “dispersed in” the film layer, for which the Examiner relies on Chung. Final Act. 2–3. The Examiner concludes that it would have been obvious to a person of ordinary skill in the art at the time of invention to disperse Rubin's agent “within” the film layer, as taught by Chung. *Id.* at 3. According to the Examiner, a person of ordinary skill in the art would have done this to better protect the shower curtain against microbes. *Id.*

Appellant argues that Chung fails to disclose an antimicrobial agent dispersed within a film layer as claimed. Appeal Br. 7–9. Appellant characterizes the Examiner's finding that polyurethane is not naturally antimicrobial as “unsupported.” *Id.* at 8–9.

Appellant further criticizes the Examiner for citing literature that is not explicitly relied on as applied art in the rejection. Appeal Br. 8–9. Appellant challenges the Examiner to provide a “detailed explanation” as to why such literature teaches a film layer that includes a polymeric matrix with a second antimicrobial agent dispersed therein. *Id.* at 9. Appellant contends that Chung’s film layer “naturally” exhibits antimicrobial properties, without the necessity of adding antimicrobial materials. *Id.* According to Appellant, “one skilled in the art would not consider adding a separate antimicrobial agent to a TPU material that already exhibits mould-proof and antibacterial properties as taught by Chung.” *Id.*

In response, the Examiner states that it is generally well-known that polyurethane, in and of itself, is not antimicrobial. Ans. 5–6. The Examiner, therefore, concludes that, in order for Chung’s thermoplastic polyurethane (TPU) layer to have antimicrobial properties as taught in paragraph 15 of Chung, an antimicrobial agent necessarily must have been added to the polyurethane. *Id.* at 6.

[A]s noted by the cited articles regarding the formation of polyurethane, it is generally well known in the art that polyurethane is only antimicrobial or antibacterial when an agent is added to the polyurethane. Consequently, the teaching in paragraph 15 of Chung of a polyurethane with antimicrobial or antibacterial properties is the teaching of a polyurethane with an antimicrobial or antibacterial agent added to it as claimed.

Id. (referring to articles cited at Final Act. 6–8).

In reply, Appellant disputes the Examiner’s findings and reasoning and reiterates that Chung fails to disclose antimicrobial molecules or particles “dispersed in” a polymeric matrix. Reply Br. 5.

Rubin discloses a water resistant and water repellent treated textile fabric. Rubin, col. 2, ll. 33–43. Rubin teaches a process of topically treating a fabric with an aqueous composition that includes one or more antimicrobial agents. *Id.* col. 4, ll. 4–13; col. 6, ll. 28–32. Next, a polymeric film is secured to one side of the fabric. *Id.* col. 2, ll. 43–44. After the polymeric film has been adhered to the fabric, a secondary treatment process is applied that entails coating the film with a polymeric latex, a fluorochemical treating agent, and antimicrobial agents. *Id.* col. 2, ll. 44–46; col. 9, ll. 13–49.

Chung discloses a multi-layer shower curtain. Chung, Abstract. In Chung, a first water-proof layer and a second water-proof layer are attached respectively to the first and second sides of a lace fabric. *Id.* The water proof layers are comprised of a thermoplastic polyurethane (TPU) material. *Id.* ¶ 14. Chung further discloses that the TPU layers have antibacterial capabilities. *Id.* ¶ 15. Chung does not specify how such antibacterial capability is imparted to the TPU layers. *See generally* Chung. However, the details given concerning how the shower curtain is produced leads to a reasonable inference that antibacterial material is not added as a coating to the TPU layers. *Id.* We base this inference, in large part, on the disclosures of paragraphs 14 and 15 which describe how first TPU layer 31 is adhered to lace fabric 10 with adhesive and then pressed by a heater roller. *Id.* ¶ 15. The lace fabric 10 is then turned upside down and the second TPU layer 41 is adhered to the other side of lace fabric 10 by adhesive and, once again, pressed and heated. *Id.* If the antibacterial capability was imparted to the TPU layers by coating, given the remaining context of the disclosure, we

would reasonably expect that Chung would have disclosed this to be the case.

The issue presented, therefore, is how does Chung acquire antibacterial capabilities? The Examiner finds that antibacterial material necessarily is dispersed into the polyurethane to impart such capability. Appellant counters that Chung's polyurethane is naturally antibacterial and, therefore, there is no reason to believe that antibacterial material has been dispersed into it. The Examiner, in turn, counters that it is well-known that polyurethane is not, by nature, antibacterial. Thus, as we understand the rejection, the Examiner concludes that dispersing an antibacterial agent into Chung's polyurethane layers is the only reasonable interpretation of the evidence.

In deciding disputed issues of fact, we are reconciled to the reality that absolute certainty is not generally obtainable in every case. Thus, we are directed to decide disputed issues of fact based on the preponderance of the evidence. *In re Caveney*, 761 F.2d 671, 674 (Fed. Cir. 1985). After weighing the competing positions of the Examiner and Appellant, the Examiner's position that polyurethane is not, by its nature, antibacterial is supported by evidence in the record. Final Act. 6–8. In contrast, Appellant's opposing position relies entirely on unsubstantiated attorney argument, which is entitled to little or no weight. *See In re Geisler*, 116 F.3d 1465, 1470 (Fed. Cir. 1997) (explaining that attorney arguments and conclusory statements that are unsupported by factual evidence are entitled to little probative value).

Furthermore, the Examiner provides a sound basis for believing that Chung's polyurethane layers necessarily have antibacterial material

dispersed therein. “[W]hen the PTO shows sound basis for believing that the products of the applicant and the prior art are the same, the applicant has the burden of showing that they are not.” *In re Spada*, 911 F.2d 705, 708 (Fed. Cir. 1990). Similarly, where the claimed and prior art products are identical or substantially identical, or are produced by identical or substantially identical processes, the PTO can require an applicant to prove that the prior art products do not necessarily or inherently possess the characteristics of his claimed product. *In re Best*, 562 F.2d 1252, 1255 (CCPA 1977). In the instant case, the Examiner provides a sufficient basis to shift the burden of proof on the issue to Appellant. Appellant, however, provides insufficient evidence to carry a burden of proof that Chung’s polyurethane layers lack antibacterial material dispersed therein. Indeed, apart from nakedly asserting that polyurethane is “naturally” antimicrobial, Appellant fails to even offer a superficially plausible alternative explanation as to how antibacterial properties are imparted to Chung. The preponderance of evidence lies with the Examiner.

Appellant’s contention that the Examiner may not rely on published literature apart from the applied references in a rejection is contrary to prevailing law. The Federal Circuit not only permits, but affirmatively encourages us to consider evidence beyond applied references insofar as it aids in the understanding of the background knowledge of the person of ordinary skill in the art. *Randall Mfg. v. Rea*, 733 F.3d 1355, 1361–1363 (Fed. Cir. 2013). Moreover, in the Final Action, the Examiner finds that it is generally “well known” in the art that antibacterial properties are only imparted to polyurethane by means of adding an antibacterial agent. Final Act. 5. Having challenged this finding in the Appeal Brief, Appellant will

not be heard to complain that the Examiner cannot support a position by citing to literature that is available to the person of ordinary skill in the art. This Appeal provides Appellant with a full and fair opportunity to refute the Examiner's case with presentation of conflicting evidence. No such conflicting evidence has been presented by Appellant.

Finally, Appellant argues that products embodying the claimed invention have achieved commercial success. Appeal Br. 10. Appellant supports this position with a declaration from David Baines. *Id.*, Baines Decl. Mr. Baines is the inventor and the President of Appellant, Maytex Mills. *Id.* The declaration provides dollar amounts of sales of figures for so-called "Inventive Shower Curtains" and offers a comparison to sales figures for "Predecessor Shower Curtains" also made and sold by Appellant. The declaration shows that Appellant has experienced a greater volume of sales with its "Inventive" vis-à-vis its "Predecessor" curtains."

Commercial success of a product embodying an invention tends to show nonobviousness when "the commercial success . . . results from the claimed invention" and is "due to the merits of the claimed invention beyond what was readily available in the prior art." *J.T. Eaton & Co. v. Atl. Paste & Glue Co.*, 106 F.3d 1563, 1571 (Fed. Cir. 1997). Commercial success can be demonstrated by significant sales of the claimed product in a relevant market. *Id.* However, sales volume alone is insufficient to establish commercial success. *In re Baxter Travenol Labs.*, 952 F.2d 388, 391 (Fed. Cir. 1991). Moreover, evidence of commercial success is only significant if there is a nexus between the claimed invention and the commercial success. *Ormco Corp. v. Align Tech., Inc.*, 463 F.3d 1299, 1311–12 (Fed. Cir. 2006).

In the instant case, the Examiner correctly discounts Appellant's evidence of purported commercial success. The Baines Declaration merely compares Appellant's product sales to that of its own prior product. There is no attempt to define the relevant market for shower curtains and there is no attempt to demonstrate whether Appellant's market penetration within such undefined market is significant. We have been given no evidence by which to evaluate whether Appellant's "Inventive" product is competitive in the market vis-à-vis third party competitors. We are not given enough information to evaluate whether Appellant's comparatively higher sales of the "Inventive" product is attributable solely to the relative advantages and disadvantages of the "Inventive" and "Predecessor" products as opposed to in relation to the relevant market. Without accurate and persuasive evidence as to the relevant market, mere evidence of sales volume carries little probative value. *Baxter, supra*.

In view of the foregoing discussion, we determine the Examiner's findings of fact are supported by a preponderance of the evidence and that the Examiner's legal conclusion of unpatentability is well-founded. Accordingly, we sustain the Examiner's unpatentability rejection of claim 1.

Claim 10

Claim 10 depends from claim 1 and adds the limitation: "wherein the antimicrobial liquid impermeable film layer comprises a *coextrusion* of the polymeric material and the second antimicrobial agent." Claims App. (emphasis added). To better understand the claim scope, Appellant offers the following definition of "coextrusion."

As used herein, the term "coextrusion", when referring to the antimicrobial liquid impermeable film layer, means that the polymer and the second antimicrobial agent are extruded

together into a film comprising a polymeric matrix and the second antimicrobial agent dispersed therein.

Spec. ¶ 28.

Ordinarily, during examination of a patent application, pending claims are given their broadest reasonable construction consistent with the specification. *In re Am. Acad. of Sci. Tech Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). Under the broadest reasonable interpretation standard, claim terms are given their ordinary and customary meaning as would be understood by one of ordinary skill in the art in the context of the entire disclosure. *In re Translogic Tech., Inc.*, 504 F.3d 1249, 1257 (Fed. Cir. 2007). However, when a patent applicant sets out a definition and acts as its own lexicographer, we will give effect to such definition. *Aventis Pharma S.A. v. Hospira, Inc.*, 675 F.3d 1324, 1330 (Fed. Cir. 2012). “To act as its own lexicographer, a patentee must ‘clearly set forth a definition of the disputed claim term’ other than its plain and ordinary meaning.” *Thorner v. Sony Computer Entm’t Am.*, 669 F.3d 1362, 1365 (Fed. Cir. 2012) (quoting *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1366 (Fed. Cir. 2002)).

Here, Appellant offers a definition that departs from the ordinary and customary meaning of “coextrusion.” Normally, in a coextrusion, two or more separately identifiable layers are extruded simultaneously. Here, Appellant defines the term to mean almost the exact opposite, namely, that two substances are mixed and dispersed into a single, extrusion layer. In the overall context of claim 1, from which claim 10 depends, this is necessarily so as the composite layer has the second antimicrobial agent “dispersed therein.” Claims App., claim 1. Thus, Appellant’s definition of co-extrusion actually just means a single extrusion layer that includes an

additive mixed into the hopper of polymeric material prior to extrusion. In claim 10, the additive is the second antimicrobial agent. Claims App.

Appellant argues that neither Rubin nor Chung teaches an extrusion process as claimed. Appeal Br. 13–16. In response, the Examiner states that Rubin discloses the method step of extruding the film and then hot melt laminating the fabric and film layers together. Ans. 10. The Examiner finds that such laminating step meets the claim limitation directed to coextrusion. *Id.*

The Examiner’s finding is erroneous. A person of ordinary skill in the art would not confuse extrusion with laminating or *vice versa*. However, that does not end our inquiry.

Rubin teaches that its polymeric film is formed by extrusion. Rubín, col. 7, ll. 36–38. Chung discloses that it is known that polyurethane film may be given anti-bacterial properties. Chung ¶ 15. Appellant’s Specification provides essentially no enabling disclosure regarding how the antimicrobial agent is dispersed into the film layer. Spec. ¶¶ 28, 29. The inference to be drawn from this lack of teaching disclosure is that a person of ordinary skill in the art is presumed to already know how to mix additives, such as silver and copper particles, into the hopper of extrusion machinery. This is entirely permissible as a patent need not teach, and preferably omits, what is well known in the art. *Streck, Inc. v. Research & Diagnostic Sys., Inc.*, 665 F.3d 1269, 1288 (Fed. Cir. 2012). The fact that mixing additives to polymeric materials in an extrusion process is well known in the art is confirmed by generic literature on the subject of plastic extrusion. Appendix A (https://en.wikipedia.org/wiki/Plastic_extrusion).

It would have been obvious to a person of ordinary skill in the art at the time of the invention to add antimicrobial particles to the hopper used in extruding Rubin's film layer. Rubin col. 5, ll. 50 (copper compounds). An artisan would have done this to simplify the manufacturing process by reducing the number of coating steps.

Accordingly, we sustain the Examiner's rejection of claim 10. However, because our findings and analysis arguably change the thrust of the Examiner's original rejection, we designate our affirmance as a NEW GROUND OF REJECTION. *See In re Biedermann*, 733 F.3d 329, 337 (Fed. Cir. 2013) (explaining that Appellant is entitled to fair opportunity to react to the thrust of a rejection).

Claim 13

Claim 13 depends from claim 1 and adds the limitation: "wherein the second antimicrobial agent *may* comprise at least one metal, at least one metal compound, at least one organic compound, or a combination thereof." Claims App. Here, Rubin unmistakably discloses metal as an antimicrobial agent. Rubin, col. 5, ll. 50–55. Appellant's arguments concerning whether the metal is "dispersed" as claimed (Appeal Br. 16) are resolved adversely to Appellant in our treatment of claims 1 and 10 above.

We sustain the Examiner's rejection of claim 13.

Claim 14

Claim 14 depends from claim 1 and adds the limitation: "wherein the amount of the second antimicrobial agent comprises from 1 to 20 weight percent based on the total weight of the polymeric material of the antimicrobial liquid impermeable film layer and the weight of the second antimicrobial agent." Claims App. Appellant argues that the applied art

does not disclose the claimed amount. Appeal Br. 16–17. In response, the Examiner states that it would have been obvious to use any amount of antimicrobial agent that an artisan deemed effective and that such is well within the scope of ordinary skill in dealing with a typical design consideration. Ans. 12.

We agree with the Examiner. Once it is determined to use an antimicrobial agent, determining the amount to be used entails no more than routine optimization that is within the ambit of ordinary skill. *In re Applied Materials, Inc.*, 692 F.3d 1289, 1295 (Fed. Cir. 2012). “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” *Id.*, quoting *In re Aller*, 220 F.2d 454, 456 (CCPA 1955). Here, Appellant provides no evidence that the claimed amounts are critical or produce unexpected results. *Applied Materials*, 692 F.3d at 1297 (noting that patentee provided no evidence of criticality or unexpected results).

We sustain the rejection of claim 14.

Claim 15

Claim 15 depends from claim 1 and adds the limitation: “wherein the first antimicrobial agent and the second antimicrobial agent comprise different antimicrobial materials.” Claims App. Appellant argues that the applied art fails to disclose this limitation. Appeal Br. 17. It is unclear whether Appellant is arguing that the art fails to disclose two different antimicrobial agents or whether the art fails to disclose that they are “dispersed” as claimed. *Id.* We have previously dealt with Appellant’s “dispersed” argument and find it no more persuasive here than it was when it was advanced against the rejection of claim 1.

With respect to using two different antimicrobial agents, the Examiner notes that Rubin discloses a plurality of antimicrobial agents. Ans. 12 (citing Rubin, col. 5, ll. 46–55). The Examiner finds that a person of ordinary skill in the art would have understood that the same agent is not required to be applied to both layers.

We agree that it would have been obvious to use a first antimicrobial agent on the fabric layer and a second antimicrobial agent on (or in) the film layer. We sustain the Examiner’s rejection of claim 15.

Claim 18

Claim 18 is an independent claim that is substantially similar in scope to claim 10 except that it recites a method. Claims App. In traversing the rejection, Appellant relies on the same unpersuasive arguments advanced against the rejection of claim 10 which are equally unpersuasive here. Appeal Br. 13–15. We sustain the Examiner’s rejection of claim 18.

Claims 2–9, 11, 12, 16, 17, 19, 21, and 22

These claims depend directly from either claim 1 or claim 18 and are not separately argued. Consequently, we sustain the Examiner’s rejection of claims 2–9, 11, 12, 16, 17, 19, 21, and 22. *See* 37 C.F.R. § 41.37(c)(1)(iv) (failure to separately argue claims constitutes a waiver of arguments for separate patentability).

CONCLUSION

Claims Rejected	§	References	Affirmed	Reversed	New Ground
1–19, 21, 22	103	Rubin, Chung	1–19, 21, 22		10, 18

FINALITY OF DECISION

This decision contains a new ground of rejection. 37 C.F.R. § 41.50(b) provides “[a] new ground of rejection pursuant to this paragraph shall not be considered final for judicial review.”

37 C.F.R. § 41.50(b) also provides that the Appellant, WITHIN TWO MONTHS FROM THE DATE OF THE DECISION, must exercise one of the following two options with respect to the new ground of rejection to avoid termination of the appeal as to the rejected claims:

(1) *Reopen prosecution*. Submit an appropriate amendment of the claims so rejected or new Evidence relating to the claims so rejected, or both, and have the matter reconsidered by the examiner, in which event the prosecution will be remanded to the examiner. . . .

(2) *Request rehearing*. Request that the proceeding be reheard under § 41.52 by the Board upon the same Record. . . .

Further guidance on responding to a new ground of rejection can be found in the Manual of Patent Examining Procedure § 1214.01.

AFFIRMED; 37 C.F.R. § 41.50(b)