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EXAMINER
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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte ANNA NIHLSTRAND, INGE GABRIELII, and BENGT HAGSTROM

Appeal 2014-007838
Application 12/673,839
Technology Center 1700

Before TERRY J. OWENS, JEFFREY T. SMITH, and BRIAN D. RANGE, *Administrative Patent Judges*.

RANGE, *Administrative Patent Judge*.

DECISION ON APPEAL

SUMMARY

Appellants[1] appeal under 35 U.S.C. § 134(a) from the Examiner's decision rejecting claims 1–28. An oral hearing was held on September 15, 2016.[2] We have jurisdiction. 35 U.S.C. § 6(b). We REVERSE.

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[1] According to the Appellants, the real party in interest is SCA Hygiene Products AB. Appeal Br. 2.

[2] A written transcript of the oral hearing will be entered into the record when the transcript is made available.

STATEMENT OF THE CASE

Appellants describe the present invention as a multi-component fiber for use in, for example, clothes. Spec. 1:5–4:25. The fiber includes a phase change material ("PCM") that helps regulate body temperature. Spec. 2:30–2:3. Claim 1, reproduced below with emphases added to certain key recitations, is illustrative of the claimed subject matter:

> 1. A multi-component melt-spun fibre, comprising:
>
> at least two elongated **melt-spun fibre bodies**, wherein a first fibre body consists of a first material comprising a phase change material (PCM) in raw form and a second fibre body consists of a second material and encloses the first fibre body,
>
> wherein the first material is a blend comprising the phase change material and a viscosity modifier selected from **polyolefines having a density in the range of 890-970 kg/m^3** as measured at room temperature according to ISO 1183-2 and a melt flow rate in the range 0.1-60 g/10 minutes as measured at 190 °C with a 21.6 kg weight according to ISO 1133,
>
> wherein the PCM is present in more than 65% by weight, calculated on the total weight of the first fibre body.

Appeal Br.[3] Claims Appendix - 1.

REJECTION

The Examiner rejects claims 1–24 under 35 U.S.C. § 103 as unpatentable over Magill et al. (US 2005/0208300 A1, Sep. 22, 2005) (hereinafter "Magill") in view of Voortmans (WO 2007/065644 A1, June 14, 2007).

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[3] In this decision, we refer to the Final Office Action mailed October 9, 2013 ("Final Act."), the Appeal Brief filed March 5, 2014 ("Appeal Br."), the Examiner's Answer mailed May 8, 2014 ("Ans."), and the Reply Brief filed July 7, 2014 ("Reply Br.").

ANALYSIS

Claim 1 recites "melt-spun fiber bodies" and "polyolefines having a density in the range of 890–970 kg/m^3 . . . and a melt flow rate in the range 0.1–60 g/10 minutes . . . ." Appeal Br. Claims Appendix - 1. The Examiner finds that Magill does not disclose the recited polyolefin. Final Act. 13. The Examiner relies on Voortmans for teaching such a polyolefin. *Id.* at 14.

Appellants argue that a person of skill in the art would not have combined Magill with Voortmans because Voortmans teaches a high density polyethylene polymer that is not relevant to and would not work for melt-spinning. Appeal Br. 7–8. Appellants support this position with the August 18, 2013, Declaration of Dr. Bengt Hagström (hereinafter "Hangström Decl.") that explains in some detail why a person of skill in the art would regard the polymer described by Voortmans as "useless for melt spinning of textile fibers . . . ." Hangström Decl. ¶ 11. In particular, Dr. Hangström testifies that the polyethylene of Voortmans would result in "fibers break[ing] during the melt drawing process between the spinneret exit and the take-off roller." *Id.* at ¶ 10.

The Examiner states that the Hangström Declaration is unpersuasive because Voortmans teaches it can be employed in the manufacture of "any suitable article" including "fibers." Final Act. 5; Voortmans 11:26–31. Voortmans, however, does not state that its polymer is suitable for melt-spinning. The Examiner also finds that one Magill embodiment discloses that the first polymeric material can include a mixture of low molecular weight polymer and a high molecular weight polymer. Final Act. 5–6; Magill ¶ 91 (explaining that a high molecular weight polymer "has enhanced physical properties . . . but can have a high viscosity when heated to form a

melt" and that mixing with a low molecular weight polymer can facilitate manufacture). The Examiner finds that such a combination would have enabled a Magill/Voortman's combination suitable for melt spinning. *Id*. at 6.

The Examiner's analysis is persuasive with respect to combining Magill and Voortmans, but combining the two references is not the only issue at hand. Claim 1 also recites "the PCM [phase change material] is present in more than 65% by weight, calculated on the total weight of the first fibre body." Appellants argue that a Magill/Voortmans combination making use of a mixture of low molecular weight polymer and high molecular weight polymer would not meet this recitation because Magill teaches that Magill's embodiment having a mixture of a high and low molecular weight polymers has only a small amount of temperature regulating material. Appeal Br. 9. In particular, Magill describes that "[a]ccording to some embodiments of the invention," the member includes about 10 percent to about 30 percent temperature regulating material. Magill ¶ 92. In one preferred embodiment, the elongated member is 15 percent low molecular weight polymer, 70 percent high molecular weight polymer, and 15 percent temperature regulating material. *Id*.

To address the 65% PCM recitation, the Examiner emphasizes Magill's teaching that "[a]ccording to some embodiments of the invention," the elongated members can include "up to about 100 percent by weight of a temperature regulating material" or can "include up to about 90 percent by weight of a temperature regulating material." Magill ¶ 80; Final Act. 12; Ans. 7–8. The Examiner also finds that Magill teaches an embodiment where Magill's temperature regulating material includes only phase change

material in raw form. Ans. 6; Magill ¶ 59 ("Here, a temperature regulating material 62 includes a phase change material in a raw form (e.g., the phase change material is non-encapsulated . . .).") The Examiner thus finds that Magill teaches or suggests greater than 65% phase change material. Final Act. 12; Ans. 3–5.

The problem with the Examiner's analysis is that, to reach the limitations of claim 1, a person of ordinary skill would have had to (1) choose to employ Voortman's polymer in combination with Magill, (2) choose to employ Magill's embodiment that employs both low and high weight polymers so that Voortman's polymer could work in melt spinning, and (3) choose to combine Magill's embodiment of teaching up to 90% or up to 100% temperature regulating material while also (4) choosing to combine Magill's embodiment where the temperature regulating material is pure phase change material (or largely phase change material). While it is true that all embodiments and even unpreferred embodiments in the prior art must be considered in the obvious analysis (*In re Lamberti*, 545 F.2d 747, 750 (CCPA 1976), the Examiner does not identify adequate guidance from Magill or provide other reasoning that would have led one of skill to this particular combination over the myriad of other possibilities offered by Magill. This is especially true because Magill, although far from clear, more suggests that an embodiment employing both low and high weight polymers would have had a lower percentage of temperature regulating material. Appeal Br. 9; Magill ¶ 92.

Therefore, while we appreciate the Examiner's reasoned efforts, we do not sustain the Examiner's rejection of claim 1 based upon the present

record. We also do not sustain the Examiner's rejection of claims 2–4, 6–26, and 28 which each depend from claim 1.

Independent claim 5 has different recitations than claim 1. Claim 5 does not recite that "the PCM is present in more than 65% by weight." Claim 5 recites, however, that the multi-component fibre comprises a first material having a PCM efficiency . . . of at least 82.9%. Appeal Br. Claims Appendix – 2. Claim 5 also requires the high density polyolefin as recited in claim 1.

The Examiner finds that PCM efficiency is directly correlated with the amount of temperature regulating material is included in the first material, and that the Magill/Voortmans combination having up to 90% phase change material would have the recited PCM efficiency. Final Act. 11; Ans. 12–13. As explained above, the present record does not adequately support that a person of skill would have arrived at a combination of Magill and Voortmans while also having a relatively high percentage of phase change material. Thus, the record also does not support a combination of Magill and Voortmans having the recited PCM efficiency. Appeal Br. 10.

We thus do not sustain the Examiner's rejection of claim 5 or of claim 27 which depends from claim 5.

DECISION

For the above reasons, we reverse the Examiner's rejection of claims 1–28.

REVERSED