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UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

Ex parte JOHN R. HAIGH, MICHAEL PROFIT,
and GREGORY PAUL WEEKS

Appeal 2011-012163
Application 11/748,681
Technology Center 1700

Before RICHARD E. SCHAFER, ROMULO H. DELMENDO, and
BEVERLY A. FRANKLIN, *Administrative Patent Judges*.

DELMENDO, *Administrative Patent Judge*

DECISION ON APPEAL

The named inventors (hereinafter “the Appellants”)¹ seek our review under 35 U.S.C. § 134(a) of a final rejection of claims 1-14 and 16-25. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

STATEMENT OF THE CASE

The invention relates to a sock made of knitted fabric. Specification (“Spec.”) ¶ [0001]. Representative claim 1 is reproduced below:

¹ The Appellants identify the real party in interest as “Invista North America S.à r.l., a *société à responsabilité limitée*.” Appeal Brief filed March 9, 2011 (“Br.”) 2.

1. An article comprising a fabric comprising a blended yarn having
 - (a) at least about 30% by weight high tensile nylon staple; and
 - (b) at least one companion fiber comprising moisture wicking polyester;wherein said fabric is in the form of a sock having a knit construction.
4. The article of claim 1, wherein said fabric comprises the combination of said blended yarn and at least one companion yarn.
12. The article of claim 1 further comprising an elastic fiber.

Br. 7, 8 (Claims App'x.).

The Examiner rejected the claims under 35 U.S.C. § 103(a) as follows:

- I. Claims 1-11, 14, 16-21, and 23-25 as unpatentable over Hebel² and Gallagher;³ and
- II. Claims 12, 13, and 22 as unpatentable over Hebel, Gallagher, and Romay.⁴

Examiner's Answer entered May 13, 2011 ("Ans.") 3-9.

² U.S. Patent 3,321,448 issued May 23, 1967.

³ U.S. Patent 5,555,565 issued September 17, 1996.

⁴ U.S. Patent 6,708,348 B1 issued March 23, 2004.

DISCUSSION

Except for claims 4-7 as a separate group, the Appellants argue the claims subject to Rejection I together. Br. 3-4. With respect to Rejection II, the Appellants argue claims 12, 13, and 22 together. *Id.* at 4-5. Therefore, we confine our discussion to claims 1, 4, and 12.

I.

The Examiner found that Hebeler describes a blended yarn including a high load bearing nylon staple fiber with a high degree of crystallinity and crystalline orientation and other types of fibers such as polyester fibers. Ans. 3. The Examiner further found that Hebeler's high load bearing nylon staple fiber "corresponds to the [Appellant]'s high tensile nylon staple fibers." *Id.* The Examiner acknowledged, however, that Hebeler does not describe the companion polyester fibers as "comprising moisture wicking polyester," as recited in claim 1. *Id.* To account for this difference, the Examiner relied on Gallagher, which was found to teach the use of polyester fibers having moisture wicking properties as part of a fiber blend that may be used to make socks. *Id.* at 3-4. Based on these findings, the Examiner concluded that "it would have been obvious to one having ordinary skill in the art to use polyester fibers, as taught by Gallagher . . . in the fiber blend of Hebeler, since Gallagher . . . teaches that polyester fibers can provide a wicking action to the fabric while providing a strong blend." *Id.* at 4.

With respect to claim 4, the Examiner found that Gallagher teaches the use of various combinations of yarns in specific regions of the sock to provide a combination of [f] support, absorption, and comfort to the wearer.” *Id.* at 5. The Examiner then concluded that “it would have been obvious to one of ordinary skill in the art to use additional yarns or combinations of yarns, as taught by Gallagher . . . in the sock of Hebler, since the combination of fibers, yarns, and materials allows one to optimize the properties of the sock so that the finished product is absorbent, moisture wicking, resilient and supportive.” *Id.* at 5-6.

The Appellants contend that “[t]here is no rationale for combining Hebler with Gallagher since they focus on significantly different problems.” Br. 4. Specifically, the Appellants assert that “[o]ne of skill in the art could not predict that a blended yarn included high tensile nylon staple and the moisture wicking yarn used in Gallagher could achieve a yarn that provided a sock with increased abrasion resistance.” *Id.* According to the Appellants, “the liner sock of Gallagher would not be exposed to surfaces of an outer sock making abrasion resistance unnecessary” and “reducing the amount of moisture wicking yarn to include high tensile nylon would reduce the wicking capacity which is an essential function of Gallagher’s liner sock, thus destroying the purpose of Gallagher.” *Id.*

With respect to claim 4, the Appellants argue that “neither Gallagher nor Hebler teaches to combine a blended yarn with an additional companion yarn or a continuous fiber (i.e., filament).” *Id.*

Thus, the dispositive issues arising from these contentions are:

1. Did the Appellants show reversible error in the Examiner's conclusion that a person of ordinary skill in the art would have been prompted to include Gallagher's moisture wicking polyester fiber as part of Hebeler's blended yarn, thus arriving at an article encompassed by claim 1?

2. Did the Appellants show reversible error in the Examiner's conclusion that a person of ordinary skill in the art would have been prompted to use additional companion yarns, as taught by Gallagher, to make Hebeler's sock in order to obtain a sock having an optimum balance of properties, thus arriving at an article encompassed by claim 4?

The Appellants' arguments are unpersuasive to show reversible error in the Examiner's rejection. Because we find no error in the Examiner's factual findings, analyses, and legal conclusions as set forth in the Answer, we adopt them as our own and add the following comments for emphasis.

Hebeler describes a textile fabric made from a blend of a high load bearing nylon staple fiber and other textile fibers. Col. 1, ll. 15-21; col. 1, l. 61 to col. 2, l. 49. According to Hebeler, the high load bearing nylon staple fiber increases the strength of the blended yarn and imparts improved abrasion resistance to textile fabrics prepared from the blended yarn. Col. 1, ll. 15-21; Figures 2 and 3. Suitable fibers for blending with the high load bearing nylon stable fiber are said to include high modulus natural or naturally-derived staple fibers (e.g., cotton, viscose rayon, acetate rayon, or other cellulosic derivatives), as well as fibers of lower modulus, certain

synthetic fibers, and blends of nylon and polyester fibers used with any one or blend of natural fibers. Col. 2, ll. 39-49. In the working examples, Hebeler describes embodiments in which a specific blended yarn containing either 30% or 50% high load bearing nylon staple fiber is knitted into fabric. Col. 6, l. 54 to col. 7, l. 15. Hebeler further teaches that the fabric may be used to make apparel such as socks. Col. 8, l. 67 to col. 9, l. 3.

It is undisputed that Hebeler's disclosure of the high load bearing nylon staple fiber constitutes a description of the "high tensile nylon staple" limitation recited in claim 1. Ans. 3; Br. 3-4. Thus, Hebeler differs from the subject matter of claim 1 only in that it does not describe the use of a "moisture wicking polyester" as the polyester fiber that is blended with the high load bearing nylon staple fiber.

Gallagher teaches the use of polyester fibers having moisture wicking properties in blends of fibers suitable for making socks in order to promote "the natural cooling action of the body by wicking away moisture, keeping feet ultra-dry and comfortable while minimizing foot odor and bacteria build-up." Col. 5, ll. 24-60; *see also* Abst. and col. 3, ll. 17-23.

Thus, we conclude that the collective teachings of the references would have prompted a person of ordinary skill in the art to add a suitable amount of polyester fibers having moisture wicking properties into Hebeler's blended yarn in order to impart moisture wicking properties to the yarn, as suggested by Gallagher, while maintaining sufficient strength and abrasion resistance, which are characteristics attributed to the high load

bearing nylon staple fiber. *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007) (“[W]hen a patent claims a structure already known in the prior art that is altered by the mere substitution of one element for another known in the field, the combination must do more than yield a predictable result.”).

The Appellants’ contention that “there would be no expectation of success or predictable results,” is mere attorney argument. Br. 4. As we found above, Hebler teaches that the addition of a high load bearing nylon staple fiber increases the strength of the blended yarn and imparts improved abrasion resistance to the blended yarn. We further found that Gallagher teaches that moisture wicking polyester in blended fibers promotes the natural cooling action of the body by wicking away moisture, keeping feet ultra-dry and comfortable while minimizing foot odor and bacteria build-up. A person of ordinary skill in the art would have reasonably expected from these prior art disclosures that the use of a combination of these fibers, each known to impart certain characteristics to blended fibers, would produce a yarn that exhibits the characteristics of both fibers to the extent of their respective proportions in the blended yarn. The Appellants have not directed us to evidence showing that the art is unpredictable. Even in the unpredictable arts, however, only a reasonable expectation of success – not absolute predictability – is required to support a conclusion of obviousness. *In re O’Farrell*, 853 F.2d 894, 904 (Fed. Cir. 1988).

With respect to claim 4, we agree with the Examiner's findings and analysis at pages 5-6 of the Answer. Moreover, Hebeler teaches blended yarns prepared from more than two fibers. Col. 2, ll. 47-49.

For these reasons, we uphold Rejection I.

II.

The Examiner acknowledged that neither Hebeler nor Gallagher describes an article "further comprising an elastic fiber," as recited in claim 12. Ans. 6. The Examiner concluded, however, that "[i]t would have been obvious to one of ordinary skill in the art . . . to incorporate an elastic fiber as suggested by Romay into the sock structure of Hebeler in view of Gallagher . . . motivated by the desire to create a sock which keeps the sock adhered to the contours of the wearer's foot." *Id.* at 7.

In addition to the arguments made in support of claim 1, the Appellants contend that the Examiner's proposed combination of references "would destroy the purpose of Romay." Br. 5. Furthermore, the Appellant argues that "even if one were to prepare the blend of the present claims, there would be no expectation of success or predictable results." *Id.*

Thus, a dispositive issue arising from these contentions is:

Did the Appellants show reversible error in the Examiner's conclusion that a person of ordinary skill in the art would have been prompted to incorporate Romay's elastic fiber into Hebeler's sock in order to create a sock that better adheres to the contours of the wearer's foot?

Again, we find no error in the Examiner's factual findings and reasoning in support of Rejection II. Ans. 6-7.

Romay teaches:

In combination, nylon and spandex fibers keep the sock . . . adhered to the contours of the wearer's foot, reducing movement of the sock relative to the foot and chaffing, and draw moisture to the surface of the sock because the tighter the fiber adheres to the foot, the better moisture is pulled to the outside of the sock.

Col. 3, ll. 43-49. Indeed, Romay further teaches the use of COOLMAX[®] as an additional fiber in the blend for enhanced moisture wicking. Col. 3, ll. 42-44, 53-56.

Romay's disclosure would have prompted a person of ordinary skill in the art to add the combination of nylon, spandex, and COOLMAX[®] to Hebel's blended yarn in order to obtain the predictable result of a making a sock that exhibits improved strength, abrasion resistance, moisture wicking, and adherence to the foot. *O'Farrell*, 853 F.2d at 904.

Thus, we uphold Rejection II.

SUMMARY

The Examiner's rejection under 35 U.S.C. § 103(a) of claims 1-11, 14, 16-21, and 23-25 as unpatentable over Hebel and Gallagher is affirmed.

The Examiner's rejection under 35 U.S.C. § 103(a) of claims 12, 13, and 22 as unpatentable over Hebel, Gallagher, and Romay is affirmed.

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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

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