UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JAIRAJH MATTAI,
SUMAN CHOPRA,
PETER HILLIARD, JR.,
ERIC GUENIN,
RONALD JACOBY,
and
ELIZABETH LINN,
Appellants

Appeal 2008-4896
Application 10/964,268[1]
Technology Center 1600

Decided: September 9, 2008

Before CAROL A. SPIEGEL, DONALD E. ADAMS, and JEFFREY N. FREDMAN, *Administrative Patent Judges.*

SPIEGEL, *Administrative Patent Judge*.

DECISION ON APPEAL

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[1] Application 10/964,268 ("the 268 application"), *Underarm Products with Superabsorbent Component*, filed 13 October 2004, is a continuation-in-part of application 10/696,764, filed 29 October 2003. The real party in interest is Colgate-Palmolive Company (Appeal Brief under 37 C.F.R. § 41.35, filed 14 December 2007 ("Br."), 2).

I. Statement of the Case

This is an appeal under 35 U.S.C. § 134 from a final rejection of all pending claims, claims 1-22. We have jurisdiction under 35 U.S.C. § 6(b). We AFFIRM.

The subject matter on appeal is directed to a suspension product, such as a stick or soft solid underarm product, comprising a polyacrylate superabsorbent polymer ("SAP") capable of absorbing a minimum defined amount of water in the presence of a salt. Claim 1, the only independent claim, is illustrative and reads (Br. 6-7):

> 1. A stick or soft solid suspension product comprising:
> (a) 0.01-20 weight % of a polyacrylate superabsorbent polymer, with a salt or ionic strength tolerance under a Baseline Absorption Test sufficient to give at least 25 weight % water absorption;
> (b) 10-88 weight % of a volatile silicone having a flash point of 100 degrees C or less; and
> (c) a gelling agent selected from the group consisting of 5-30 weight % stearyl alcohol; 0.1-20 weight % waxes; 0.1-10 weight % (on an actives basis) silicone elastomer; 0.1-3 weight % siliconized polyamides; 0.1-20 weight % low molecular weight polyethylene having a molecular weight in the range of 400-1000 and combinations of the foregoing,
> wherein the water content is ≤ 2 weight % based on added water and excluding any waters of hydration, and
> wherein the Baseline Absorption Test is conducted by:
> (I) preparing an antiperspirant stick having per 100g, 5g of the polyacrylate superabsorbent polymer, 12g of C12-15 alkyl benzoate, 35.8g of cyclomethicone 345, 16g stearyl alcohol, 4g hydrogenated castor oil, 4g PEG-8 distearate, 22g aluminum zirconium tetrachlorohydrox gly antiperspirant active, and 1.2g fragrance by

(i) mixing the cyclomethicone and the C12-15 alkyl benzoate and heating them to 70°C and maintaining 70°C,
(ii) adding the stearyl alcohol until melted,
(iii) adding the PEG-8 distearate until dissolved,
(iv) increasing the temperature to 80°C and maintaining 80°C,
(v) adding the hydrogenated castor oil until dissolved,
(vi) cooling to 75°C,
(vii) adding the antiperspirant and superabsorbent,
(viii) maintaining the temperature at 70-75°C for 15 minutes,
(ix) cooling to 65°C and adding the fragrance,
(x) cooling to 58°C and pouring into a container,

(II) preparing a control sample as in step I without the polyacrylate superabsorbent polymer,
(III) adding 2g of the antiperspirant stick and the control to separate 16x100mm culture tubes at room temperature,
(IV) adding 2 g of water to each tube,
(V) centrifuging each tube for 5 minutes at 3000 rpm,
(VI) measuring the height of water in each tube, and
(VII) calculating % water absorption as 100*(height of water in control-height of water in tube with superabsorbent)/(height of water in control).

Claims 1-22 stand rejected under 35 U.S.C. § 103(a) as obvious over the combined teachings of Chopra,[2] Trandai,[3] Obayashi,[4] and Rork[5] (Ans.[6] 3).

[2] U.S. Patent 6,436,382 B1, *Underarm Products with Water Lock Component*, issued 20 August 2002, to Chopra et al. ("Chopra").
[3] U.S. Patent 5,605,681, *Mild Gel Deodorant Composition Containing Soap, Polymeric Hydrogel Forming Polymer and High Level of Water*, issued 25 February 1997, to Trandai et al. ("Trandai").
[4] U.S. Patent 4,340,706, *Alkali Metal Acrylate or Ammonium Acrylate Polymer Excellent in Salt Solution-Absorbency and Process for Producing Same*, issued 20 July 1982, to Obayashi et al. ("Obayashi").

Since Appellants have not separately argued the patentability of any dependent claim, we decide this appeal on the basis of claim 1. 37 C.F.R. § 1.37(c)(1)(vii).

The dispositive issue is whether Obayashi and/or Rork suggest replacing the starch graft copolymer SAP disclosed in Chopra or the polymeric gelling agent disclosed in Trandai with an SAP meeting the minimum Baseline Absorption Test amount recited in claim 1.

II. Findings of Fact

The following findings of fact are supported by a preponderance of the evidence of record.

A. Appellants' invention

[1] The 268 Specification describes an underarm product comprising "a superabsorbent polymer which is a surface modified sodium polyacrylate salt . . . which . . . allows for greater water absorption in the presence of salt" (Spec. 1:28-30).

[2] According to the 268 Specification, "[t]he water absorption capacity of superabsorbent polymers are [sic] known to be affected by salts, such as sodium chloride or an antiperspirant active" (Spec. 20:15-16).

[3] Thus, "[i]n order to select an appropriate superabsorber which can maintain sufficient capacity in a high salt environment, it has been found that the Baseline Absorption Test is the best predictor of which superabsorbers will work" (Spec. 15:18-21) because "not all superabsorbents will work in this invention" (*id*. 15:14-15).

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[5] U.S. Patent 5,882,682, *Controlled Release Simvastatin Delivery Device*, issued 16 March 1999, to Rork et al. ("Rork").
[6] Examiner's Answer mailed 19 March 2008 ("Ans.").

[4] For example, a baseline absorption test comparing HySorb™ 8100 superabsorbent to a starch graft copolymer of poly(2-propenamide-co-2-propenoic acid) ("SGC") at 20:1 water:superabsorbent was said to show that a formula containing HySorb™ 8100 absorbed 67% of water compared to 16.5% of water for the formula containing SGC (Spec. 20:14 - 22:7).

[5] "Examples of superabsorber materials that work in this invention include HySorb™ 8100 and HySorb™ CL-15 (from BASF, North Carolina) . . . AQUAKEEP J-550 and AQUAKEEP 10SH-N (from Kobo Products, Inc., South Plainfield, NJ) . . ." (Spec. 3:20-25).

B. Chopra

[6] Chopra discloses suspension products formulated as sticks or soft solids comprising:

> (a) 0.01-20 weight % . . . of a water lock superabsorbent polymer selected from the group consisting of starch graft homopolymers and copolymers of poly(2-propenamide-co-2-propenioic acid) sodium salt;
> (b) 10-88 weight % of a volatile silicone having a flash point of 100 degrees C. or less . . ., [and]
> (c) a gelling agent selected from the group consisting of 5-30 weight % stearyl alcohol; 0.1-10 weight % (on an actives basis) silicone elastomer; 0.1-20 weight % waxes . . ., 1-3 weight % siliconized polyamides . . ., 1-20 weight % low molecular weight polyethylene having a molecular weight in the range of 400-1000 . . . and combinations of the foregoing (Chopra 1:63 - 2:19).

C. Trandai

[7] Trandai discloses "gel deodorant compositions with improved mildness and increased amounts of water . . . obtained by incorporating into the product an aqueous gel prepared from a highly

absorbent, polymeric gelling material and a relatively high amount of water" (Trandai 2:18-22).

[8] According to Trandai (Trandai 6:44-51),

> [t]he hydrogel forming polymeric gelling agent hereof is highly absorbent of water, and will generally be able to absorb at least about 40 g water (deionized) per gram of gelling agent, preferably at least about 60 g/g, more preferably at least about 8 gig [sic]. These values, referred to as "Absorptive Capacity" herein can be determined according to the procedure in the Absorptive Capacity "Tea Bag" test in the Experimental Section . . . .

[9] "In general, the hydrogel forming polymeric gelling agent materials . . . are at least partially crosslinked polymers prepared from polymerizable, unsaturated acid-containing monomers which are water-soluble or become water-soluble upon hydrolysis" (Trandai 7:13-17).

[10] "Acrylic acid and combinations of acrylic acid and acrylate salts (e.g., sodium acrylate) are particularly preferred" (Trandai 8:65-67).

[11] Trandai expressly refers to Obayashi (US 4,340,706) for its teaching of a "[p]rior art hydrogel forming polymeric gelling agent synthesis procedure[]" (Trandai 11:31-35).

D. Obayashi

[12] Obayashi discloses "an alkali metal acrylate or ammonium acrylate polymer having excellent water-absorbency and particularly salt solution-absorbency" (Obayashi 1:7-10).

[13] According to Obayashi,

> [a]lthough the hydrolyzate of starch-acrylonitrile graft copolymer has a relatively high deionized water absorbency

> corresponding to 300-500 times its own weight, the saline solution-absorbency of the hydrolysate is only about 30-40 times its own weight and the product cannot be stored for a long period of time because the starch, the main component, rots (Obayashi 1:26-32).

[14] Further according to Obayashi, the disclosed water-absorbent resin has a water-absorbency of at least 800 times its own weight, a saline solution-absorbency of at least 80 times its own weight, and improved stability in the both the powdery state and the water-absorbed state (Obayashi 6:42-48).

[15] Specifically, Obayashi discloses

> a process for producing an alkali metal acrylate or ammonium acrylate polymer . . . by suspending an aqueous solution of acrylic acid and an alkali metal acrylate or ammonium acrylate, the mole ratio of the acrylic acid to the alkali metal acrylate or ammonium acrylate being 50/50 to 2/98, in an alicylic or aliphatic hydrocarbon solvent containing a surfactant having an HLB value of 8-12, subjecting the resulting suspension to inverse suspension polymerization in the presence of a water-soluble radical polymerization initiator and, if necessary, crosslinking the resulting polymer with a cross-linking agent (Obayashi 3:55-68).

E. Rork

[16] Rork states "[t]he 'AQUAKEEP®' polymers are generically described in U.S. Pat. No. 4,340,706", i.e., Obayashi (Rork 4:44-45), e.g., AQUAKEEP J-550 (Rork 4:60).

Other findings of fact follow below.

III. Discussion

A. The Examiner's findings and conclusion

The Examiner found Chopra discloses the subject matter of claim 1 but for "the polyacrylate superabsorbent polymer, or a sodium salt of a polyacrylate superabsorbent polymer, that meets the Baseline Absorption Test Criterias as recited in claim 1" (Ans. 4). The Examiner found Trandai discloses a deodorant composition containing a polymeric gelling material comprising a polymer formed from monomers, such as acrylic acid and sodium acrylate, capable of absorbing at least 40 g of water per gram of gelling agent and a deodorant active that is a salt (Ans. 4-5). The Examiner found Obayashi discloses "an alkali metal acrylate polymer having an improved water absorption rate, and in particular a higher water absorbency and salt-solution absorbency" (Ans. 5). The Examiner further found that Rork teaches Obayashi "generally describes the AQUAKEEP polymers, such as AQUAKEEP J-550" (Ans. 6). "Thus, Rork . . . teaches that the polymers of Obayashi . . . do in fact correspond to those meeting the Baseline Absorption Test as claimed" (Ans. 13).

The Examiner concluded it would have been "obvious to provide the superabsorbing polyacrylate polymer with ionic strength tolerance of Trandai . . . in the underarm product of Chopra . . . because Chopra . . . teaches that the product desirably comprises a superabsorbing polymer to reduce underarm wetness, and Trandai . . . teaches a superabsorbent polymer that is suitable of deodorant products" (Ans. 5). The Examiner further concluded it would have been "obvious to provide the sodium polyacrylate polymer of Obayashi . . . in view of Rork . . . in the composition of Chopra . . . and Trandai . . . because Chopra . . . and Trandai teach that a sodium

polyacrylate polymer that is highly water absorbent can be provided in the composition to reduce underarm wetness, and Obayashi . . . and Rork . . . teach a sodium polyacrylate polymer that is a good absorber of water and salt solutions" (Ans. 6-7).

B. Appellants' position

According to Appellants (Br. 5),

> Neither Chopra . . . nor Trandi . . . provide any motivation to substitute their disclosed superabsorbent polymers with any other superabsorbent polymers, and in particular, those meeting the Baseline Absorption Test. While Rork . . . and Obayashi . . . describe the AQUAKEEP™ polymers, neither disclose or suggest that these polymers should be used in antiperspirant/deodorant compositions, such as those in Chopra . . . or Trandi . . . . Even taking all of these references together, there is nothing in these references to suggest that superabsorbent polymers meeting the Baseline Absorption Test should be used to replace the superabsorbent polymers in the compositions of Chopra . . . or Trandi . . . .

C. Legal principles

A claimed invention is not patentable if it would have been obvious to a person of ordinary skill in the art at the time the invention was made. 35 U.S.C. § 103(a); *KSR Int'l Co. v. Teleflex Inc.*, 127 S.Ct. 1727 (2007); *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1 (1966). Facts relevant to a determination of obviousness include (1) the scope and content of the prior art, (2) any differences between the claimed invention and the prior art, (3) the level of ordinary skill in the art, and (4) any relevant objective evidence of obviousness or nonobviousness. *KSR*, 127 S.Ct. at 1734; *Graham*, 383 U.S. at 17-18.

In addition, as explained in *In re Papesch*, 315 F.2d 381, 391 (CCPA 1963), "a compound and all of its properties are inseparable; they are one and the same thing."

D. Analysis

Here, as recognized by the Examiner (Ans. 4), Chopra discloses the subject matter of claim 1 but for the claimed SAP. Instead, the product of Chopra contains a starch graft copolymer SAP (FF 6). Obayashi recognizes that while starch graft copolymers have a relatively high deionized water absorbency (300-500 times their own weight), their saline absorbency is much lower (30-40 times their own weight) (FF 13). Obayashi's statement is consistent with the statement in the 268 Specification that the water absorbency of SAPs is known to be affected by the presence of salts, such as sodium chloride or antiperspirant active (FF 2). We find that it is commonly known that body fluids, such as sweat, contain sodium chloride.

Obayashi discloses polyacrylate SAPs having a deionized water absorbency of at least 800 times their own weight and a saline absorbency of at least 80 times their own weight (FF 14). The polyacrylate SAPs of Obayashi are AQUAKEEP® SAPs, e.g., AQUAKEEP J-550, as evidenced by Rork (FF 16). According to the 268 Specification, AQUAKEEP® SAPs, e.g., AQUAKEEP J-550, meet the minimum Baseline Absorption Test amount recited in claim 1 (FF 5). Therefore, the polyacrylate SAPs of Obayashi would have been expected to inherently meet the minimum Baseline Absorption Test amount recited in claim 1. *See In re Papesch*, 315 F.2d at 391.

In addition, Trandai teaches SAPs, particularly preferred polyacrylate SAPs, such as those of Obayashi, that are highly absorbent of water (FF 8, 10, and 11).

Therefore, we agree with the Examiner that it would have been *prima facie* obvious to one of ordinary skill in the art to replace the starch graft copolymer of Chopra with a polyacrylate SAP, such as an AQUAKEEP® SAP, e.g., AQUAKEEP J-550, to reduce underarm wetness in view of the teachings of Trandai and/or Obayashi. Specifically, Trandai teaches high water absorbency is obtained with polyacrylate SAPs, such as a polyacrylate SAP as synthesized by Obayashi and Obayashi teaches polyacrylate SAPS, i.e., AQUAKEEP® SAPs, have a higher water absorbency than starch graft copolymers, especially in the presence of salt, i.e., saline. Obayashi's AQUAKEEP® SAPs would have reasonably been expected to inherently meet the minimum Baseline Absorption Test amount recited in claim 1 in view of Appellants' acknowledgement of the suitability of an AQUAKEEP® SAP, e.g., AQUAKEEP J-550. Finally, Appellants have not submitted any evidence of secondary considerations in rebuttal to the Examiner's *prima facie* conclusion of obviousness.

Accordingly, we sustain the rejection of claims 1-22 under § 103(a) over Chopra, Trandai, Obayashi, and Rork.

IV. Order

Upon consideration of the record, and for the reasons given, it is

ORDERED that the decision of the Examiner rejecting claims 1-22 under 35 U.S.C. § 103(a) as unpatentable over the combined teachings of Chopra, Trandai, Obayashi, and Rork is AFFIRMED, and

FURTHER ORDERED that no time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.146(a).

AFFIRMED

qsg

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