

UNITED STATES PATENT AND TRADEMARK OFFICE

**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Ex parte HIDEYUKI ISHIKAWA

Appeal 2008-0027
Application 09/864,836
Technology Center 3700

Decided: January 29, 2008

Before ERIC GRIMES, NANCY J. LINCK, and JEFFREY N. FREDMAN,
Administrative Patent Judges.

FREDMAN, *Administrative Patent Judge.*

DECISION ON APPEAL

This is an appeal under 35 U.S.C. § 134 involving claims to a disposable diaper, which the Examiner has rejected under 35 U.S.C. § 102(b), 35 U.S.C. § 103(a) and 35 U.S.C. § 112, first paragraph. We have jurisdiction under 35 U.S.C. § 6(b). We affirm.

BACKGROUND

“The disposable diaper of prior art enables the topsheet and the backsheet to be stretched so as to offer good fitness around the wearer's waist as the diaper is put on the wearer's body” (Specification 1-2). According to the Specification, due to stretching of the topsheet and backsheet, “there is an anxiety that sideways leak of excretion might occur along the elastic members associated with the leg-openings” (Specification 2).

Appellant teaches that it is “an object of this invention to provide[] a disposable diaper designed so that the wearer's crotch and waist regions can be covered by an elastically stretchable covering member without deteriorating a desired effect of preventing excretion leakage from occurring around wearer's leg” (Specification 2).

The Claims

Claims 1-6 and 8-9 are on appeal.

The claimed subject matter is reflected in representative claims 1, 5, and 8, which read as follows:

1. A disposable diaper comprising:
 - an elastically stretchable covering member for covering a diaper wearer's crotch and waist regions;
 - a liquid-pervious sheet having a skin contactable surface for contacting with skin of said diaper wearer;
 - a liquid-absorbent core member sandwiched between said liquid-pervious sheet and said covering member;
 - discrete elastic members provided along transverse side edges of said diaper to extend circumferentially along leg-openings that are defined when the diaper is put on the diaper wearer;
 - said covering member consisting of an elastically stretchable first layer and an inelastically stretchable second layer formed of a

plurality of continuous fibers, said continuous fibers being fixed to said elastically stretchable first layer in bonding zones spaced apart from each other so that a ratio of L_1/D_1 , where L_1 is a length of said continuous fibers extending between a first pair of said bonding zones in a centrally located first zone on said covering member and D_1 is a distance in a straight line between said first pair of bonding zones in said first zone of said covering member is larger than a ratio of L_2/D_2 , where L_2 is a length of said continuous fibers extending between a second pair of said bonding zones in a second zone on said covering member and D_2 is a distance in a straight line between said second pair of bonding zones in said second zone of said covering member, whereby said covering member is more easily stretched in a direction away from the skin contactable surface in said first zone than in said second zone of said covering member, and said first zone being adjacent said liquid-absorbent core member and at least substantially coextensive with said liquid-absorbent core member, so that pressure exerted on said covering member by said liquid-absorbent core member will stretch the first zone in said direction of the skin contactable surface without exerting any pressure on said discrete elastic members.

5. The diaper according to Claim 1, wherein said elastically stretchable first layer is formed from a liquid-impervious sheet and lies inside said second layer.

8. The diaper according to Claim 1, wherein said elastically stretchable first layer is formed of a nonwoven fabric made of crimped fibers.

The Issues

The Examiner relies on the following prior art references to show unpatentability:

Divo et al., European Patent 650,714, May 3, 1995 (hereafter “Divo”).

Serbiak et al., U.S. Patent 5,846,232, December 8, 1998 (hereafter “Serbiak”).

Morman et al., U.S. Patent 4,655,760, April 7, 1987 (hereafter “Morman”).

Estey et al., U.S. Patent 5,853,881, December 29, 1998 (hereafter “Estey”).

The rejections as presented by the Examiner are as follows:

- A. Claims 1-6 and 8-9 stand rejected under 35 U.S.C. § 112, first paragraph as failing to comply with the written description requirement.
- B. Claims 1-3 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Divo. Claims 1-3, 5, and 6 stand rejected as obvious under 35 U.S.C. § 103(a) over Divo, Serbiak and Morman.
- C. Claims 4 and 8-9 stand rejected under 35 U.S.C. § 103(a), as being obvious over Divo, Serbiak, Morman and Estey.

Appellant has provided separate arguments for claims 1, 5, and 8. Accordingly, we limit our discussion to claims 1, 5, and 8. Pursuant to 37 C.F.R. § 41.37(c)(1)(vii)(2006), claims 2-4 and 9 will stand or fall with claim 1 and claim 6 will stand or fall with claim 5.

A. § 112, first paragraph rejection of claims 1-6, 8 and 9

The Examiner argues that the “last three lines of claim 1 claim the exact opposite of what is originally described, i.e. claims stretching toward the skin contactable surface rather than away therefrom” (Answer 7).

The claim as presented in Appellant’s appeal brief states “so that pressure exerted on said covering member by said liquid-absorbent core member will stretch the first zone in said direction of the skin contactable surface” (Claim 1).

Appellant argues that the claim was amended to recite “in said direction away from the skin contactable surface” (App. Br. 7, underlining in original).

It is clear that the Examiner and Appellant agree that the claim should read differently than “in said direction of the skin contactable surface” and the issue is whether Appellant has amended the claim to include the “away from” language. The April 24, 2006 amendment was not entered by the Examiner as noted in the May 9, 2006 advisory action and therefore the claim is presented before us without the amendment.

Since the Appellant has not challenged the merits of the 35 U.S.C. § 112, first paragraph rejection, we affirm this rejection.

B. § 102(b) over Divo or § 103(a) over Divo, Serbiak and Morman

The Examiner’s position is that Divo discloses a disposable diaper that has all of the required elements of claim 1 (*see* Answer 7). In particular, the Examiner notes that Divo teaches a “backsheet consisting of the

composite elastic member wherein only parts of the composite are activated or extensible while others are not” (Answer 8).

Appellant contends that unlike “appellant's invention which requires the centrally located range A (first zone) to be have a larger L/D ratio that range B (second zone), Divo et al. depicts attaching the composite elastic member 37 to waist regions 34 and/or the areas 27 defining the leg openings (Col. 17, lines 31-35)” (App. Br. 10).

The Examiner also argues that Divo teaches providing elasticity to the back sheet and that Serbiak and Mormon disclose that “it is known in the diaper art to provide elasticity to a backsheet consisting of a composite elastic member wherein only the transverse middle zone part is extensible while the remainder is not. Such structure is for the purposes of better fit and comfort” (Answer 8).

Appellant responds that “the characteristics and nature of the extensible and stretchable composite sheets of Serbiak et al. and Morman et al. are taught as being such that any force or pressure applied to the respective absorbent core would affect force or pressure on any adjacent leg elastic members” (App. Br. 13). Appellant argues that this interaction fails to comply with claim 1, which requires that stretching occur “without exerting any pressure on said discrete elastic members”.

In view of these conflicting positions, we frame the issue before us as follows:

(1) At the time the invention was made, would Divo alone have taught one of ordinary skill in the art elastic panels that stretch more easily

in a direction away from the skin contacting surface without exerting pressure on the leg elastic members?

(2) At the time the invention was made, would the combination of Divo, Serbiak and Morman have taught or suggested to one of ordinary skill in the art elastic panels that stretch more easily in a direction away from the skin contacting surface without exerting pressure on the leg elastic members¹?

Findings of Fact

1. Divo disclosed a disposable diaper with an elastic waist (*see* Divo, col. 16, ll. 5-19).

2. Divo discloses a backsheet which may comprise a composite elastic member (*see* Divo, col. 6, ll. 31-39).

3. Divo teaches that the backsheet 26 covers the crotch region (Divo, figure 13).

4. Divo teaches “an absorbent core 28 positioned between the topsheet 24 and the backsheet 26” (Divo, col. 12, ll. 30-31).

5. Divo discloses elastic side members including side cuffs and side panels (*see* Divo, col. 15, ll. 42-58 and col. 17, lines 19-30).

6. Divo teaches that the covering member can be composed of elastic and nonelastic layers fixed to one another (Divo, col. 3, ll. 29-45).

7. Divo teaches that the “topsheet or backsheet comprising or consisting of a composite elastic member according to the invention, can be provided with regions of different extensibility by selectively activating

¹ We note that Appellant and the Examiner agree that the claim contains an error as discussed in the written description rejection (*supra* at p. 5).

parts of the topsheet and/or backsheet while leaving other parts un-activated and hence unelongatable” (Divo, col. 6, ll. 32-39).

8. Divo teaches that the backsheet can be “elasticated in specific areas” (Divo, col. 18, l. 6).

9. Divo teaches

a training pants, which comprises the composite elastic member 37 in side panels 53, 55, around the margins of the leg openings 61, 63, in the crotch area 59 and in the waist region 65. The amount of extensibility and the elasticity in the different elasticated areas of training pants 50 can easily be adjusted by varying the number and/or spacing of the parallel activation lines.

(Divo, col. 17, ll. 36-44.)

10. Serbiak teaches that “any embodiment shown may include extensible zones 30 with an elastic layer 28 and/or extensible zones 30 without an elastic layer 28” (Serbiak, col. 12, ll. 27-30).

11. Serbiak teaches multilayer materials for the outer cover which comprise elastic films (Serbiak, col. 6, ll. 44-67).

12. Serbiak teaches elastic films in the outer cover that are impervious to liquids (Serbiak, col. 7, ll. 18-20).

13. Morman suggests that the absorbent pad should “permit expansion and contraction of the latter to provide a smooth and comfortable fit on the wearer” (Morman, col. 8, ll. 44-46).

14. Morman teaches an elastic region located in the transverse middle of the disposable diaper (Morman, figure 4).

15. Morman teaches that the stretch may occur in only one direction (Morman, col. 9, ll. 59-65).

Discussion of Claim 1 - § 102(b) over Divo

In analyzing claim 1, we must first interpret the meaning of the limitation

said elastically stretchable first layer in bonding zones spaced apart from each other so that a ratio of L_1/D_1 , where L_1 is a length of said continuous fibers extending between a first pair of said bonding zones in a centrally located first zone on said covering member and D_1 is a distance in a straight line between said first pair of bonding zones in said first zone of said covering member is larger than a ratio of L_2/D_2 , where L_2 is a length of said continuous fibers extending between a second pair of said bonding zones in a second zone on said covering member and D_2 is a distance in a straight line between said second pair of bonding zones in said second zone of said covering member.

(Claim 1.) This limitation only requires that the L_1/D_1 ratio is larger than the L_2/D_2 ratio. However, no specific lengths or distances for L_1 , D_1 , L_2 , or D_2 are required by claim 1. In fact, no specific orientation is required for these elements in claim 1, so they may be vertical, horizontal or any other orientation. The Specification does not impose any specific orientation or structural requirements to these ratios (*see* Specification 9).

We therefore interpret this comparison of the L_1/D_1 ratio to the L_2/D_2 ratio as requiring that the elastically stretchable layer achieve the claim goal of a covering member that “is more easily stretched in a direction away from the skin contactable surface in said first zone than in said second zone of said covering member . . . without exerting any pressure on said discrete

elastic members” (Claim 1). *See, e.g., In re Hyatt*, 211 F.3d 1367, 1372 (Fed. Cir. 2000) (“[D]uring examination proceedings, claims are given their broadest reasonable interpretation consistent with the specification.”).

We find that Divo teaches a disposable diaper comprising all of the required elements of claim 1 including the stretching away from the skin contactable surface (*see* FF 1-9). In particular, Divo teaches a disposable diaper that has selectively activatable elastic regions meeting the ratio requirements of claim 1 (FF 7-8). Divo specifically discloses a composite elastic member in the crotch area, which will result in stretching away from the skin contactable surface without exerting pressure on the leg elastic members (*see* FF 9).

We reject Appellant’s argument that Divo does not teach the structure of claim 1. As we discussed above, no specific structure is required by claim 1. Appellant argues the “configuration of the first and second zones and their particular L/D ratios and stretchabilities in relationship to the discrete elastic members that are provided adjacent the leg-opening provides a unique, structurally-related function in appellant's invention” (App. Br. 10). We are not persuaded, because the particular L/D ratios and their stretchabilities do not require any specific structure other than the region of different extensibility, an element taught by Divo (*see* FF 7-9).

Discussion of Claims 1 and 5 - § 103(a) over Divo, Serbiak, and Morman

Having found Divo anticipates claim 1, we turn to the next rejection of the Examiner: obviousness of claims 1 and 5 over Divo, Serbiak, and Morman.

On this record, Appellant has modified the backsheet of a disposable diaper to permit a region of selective extensibility that is taught by Divo (*see* FF 1-9). The Examiner indicates that while Divo teaches a region of selective extensibility in the backsheet, Divo does not specifically place this region in the transverse middle part (*see* Answer 8). The Examiner relies upon Serbiak and Morman to suggest the desirability of placing a selectively extensible region in the middle of the diaper (Answer 8, FF 10, 13-15).

Morman teaches the placement of extensible layers in the middle of a disposable diaper (FF 14-15). Morman provides a specific reason for incorporating elastic materials into the disposable diaper (FF 13). On this record, Morman and Serbiak provide additional teachings which, when combined with Divo, independently render the claim obvious (*see* FF 1-15). Such a combination is merely a “predictable use of prior art elements according to their established functions.” *KSR*, 127 S. Ct. at 1740. Accordingly, we find no error in the Examiner’s *prima facie* case of obviousness, and conclude that claim 1 would have been obvious to an artisan of ordinary skill in the art at the time the invention was made in view of the combination of Divo, Serbiak and Morman (*see* FF 1-15).

We reject Appellant’s arguments that Serbiak and Morman are insufficient because they “are taught as being such that any force or pressure applied to the respective absorbent core would affect force or pressure on any adjacent leg elastic members” (App. Br. 15). Divo teaches this element as discussed above (*see* FF 7-9). Therefore, in combination of Divo, Serbiak and Morman render this element obvious.

With regard to the obviousness of claim 5, which requires that the covering member consists of a liquid impervious, elastically stretchable layer inside an inelastically stretchable layer, the Examiner notes that Divo “only discloses such elastic layer as being elastic films or nonwovens and coextensive with the second layer initially and the desire that the backsheet be liquid impervious and have a clothlike appearance” (Answer 10). The Examiner notes that Serbiak teaches multilayer outer covers with elastic that is impervious to liquid (Answer 10, FF 11-12).

When there is motivation

to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp. If this leads to anticipated success, it is likely the product not of innovation but of ordinary skill and common sense. In that instance the fact that a combination was obvious to try might show that it was obvious under § 103.

KSR Int’l Co. v. Teleflex Inc., 127 S. Ct. 1727, 1742 (2007). This reasoning is applicable here. The skilled artisan would have had reason to apply the solution of Serbiak in optimizing the outer cover of the disposable diapers of Divo (*see* FF 1-12).

For the foregoing reasons, we affirm the rejection of claims 1 and 5 under 35 U.S.C. § 103(a) as being unpatentable over the combination of Divo, Serbiak and Morman. Claims 2, 3, and 6 fall together with claims 1 and 5.

C. § 103(a) over Divo, Serbiak, Morman, and Estey

The Examiner's position is that Estey teaches crimped nonwoven fibers and that there is "interchangeability of elastic films and nonwovens of noncrimped fibers with elastic nonwoven webs of crimped fibers and the interchangeability of polyethylene nonwoven nonelastic for polypropylene or propylene copolymer nonelastic nonwovens" (Answer 9).

Appellant argues that the crimping of Estey "is not at all related to the crimping taught by Divo" (App. Br. 16). Appellant also argues that "crimping the fibers to bulk the composite members of Divo et al. would hinder the desire to impart elastical elongatability inasmuch as if the individual crimped fibers were stretched to become uncrimped or less crimped or deformed, they would not be effectively activated as required by Divo" (App. Br. 16).

In view of these conflicting positions, we frame the issue before us as follows:

Would the ordinary artisan have considered it obvious to interchange crimped fibers as taught by Estey for the uncrimped fibers of Divo?

Findings of Fact

16. Estey teaches "[n]onelastic materials 12 used in this invention may be microfiber webs, such as those made by spunbound and meltblown processes and the microfibers may be crimped or uncrimped" (Estey, col. 8, ll. 37-41).

17. Estey teaches "[e]lastic materials used in this invention may be microfiber webs, such as nonwoven webs made by the spunbound and meltblown processes and the microfibers may be crimped or uncrimped" (Estey, col. 9, ll. 22-26).

Discussion

In *KSR*, the Supreme Court reasoned that

When a work is available in one field of endeavor, design incentives and other market forces can prompt variations of it, either in the same field or a different one. If a person of ordinary skill can implement a predictable variation, § 103 likely bars its patentability.

KSR v. Teleflex Inc., 127 S. Ct. 1727, 1740 (2007).

Applying the *KSR* standard of obviousness to the Examiner's findings and our findings of fact, we conclude that the substitution of crimped fibers in nonwoven fabric represents a "simple substitution of one known element for another." *KSR*, 127 S. Ct. at 1740. We find express discussion of their equivalence in *Estey*, who notes "microfibers may be crimped or uncrimped" (*Estey*, col. 9, ll. 26, FF 16-17).

Appellant has not provided any evidence to rebut the *Estey* evidence of equivalence but simply argues that the reasons for crimping differ from those of *Divo*. See *In re Pearson*, 494 F.2d 1399, 1405 (CCPA 1974) ("Attorney's argument in a brief cannot take the place of evidence.")

We also reject Appellant's argument that "crimping the fibers to bulk the composite members of *Divo et al* would hinder the desire to impart elastical elongability" (App. Br. 16). There is no language in *Divo* which directly or indirectly states or indicates that crimping is undesirable. There is express teaching in *Estey* that elastic fibers can be crimped (FF 17). Like our appellate reviewing court, "[w]e will not read into a reference a teaching away from a process where no such language exists." *DyStar Textilfarben*

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GmbH & Co. Deutschland KG v. C.H. Patrick Co., 464 F.3d 1356, 1364
(Fed. Cir. 2006).

For the foregoing reasons, we affirm the rejection of claim 8 under 35 U.S.C. § 103(a) as being unpatentable over the combination of Divo, Serbiak, Morman, and Estey. Claims 4 and 9 fall together with claim 8.

SUMMARY

We affirm the rejection of claim 1 as anticipated by Divo; the rejection of claims 1 and 5 as obvious in view of Divo, Serbiak and Morman; and the rejection of claim 8 as obvious in view of Divo, Serbiak, Morman and Estey. Pursuant to § 41.37(c)(1)(vii)(2006), we also affirm the 35 U.S.C. § 103(a) rejection of claims 2-4, 6 and 9, as these claims were not argued separately. We also affirm the 35 U.S.C. § 112, first paragraph, rejection of claims 1-6, 8 and 9.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv) (2006).

AFFIRMED

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