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DeNight et al.

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[54] **DIAPER SYSTEM AND ABSORBENT PAD THEREFOR**

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[73] Assignee: **Scott Paper Company**, Delaware, Pa.

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[52] **U.S. Cl.** **128/287**

[51] **Int. Cl.** **A61f 13/16**

[58] **Field of Search** 128/284, 286, 287, 128/290

[56] **References Cited**

UNITED STATES PATENTS

2,788,003	4/1957	Morin	128/284
2,952,260	9/1960	Burgeni	128/290 R
3,065,751	11/1962	Gobbo, Sr. et al.	128/287
3,430,629	3/1969	Murphy	128/284
3,603,314	9/1971	Aberg	128/284
3,171,773	3/1965	Estes et al.	128/287

FOREIGN PATENTS OR APPLICATIONS

660,343	3/1963	Canada	128/284
986,406	3/1965	Great Britain	128/284
1,145,618	3/1969	Great Britain	128/284

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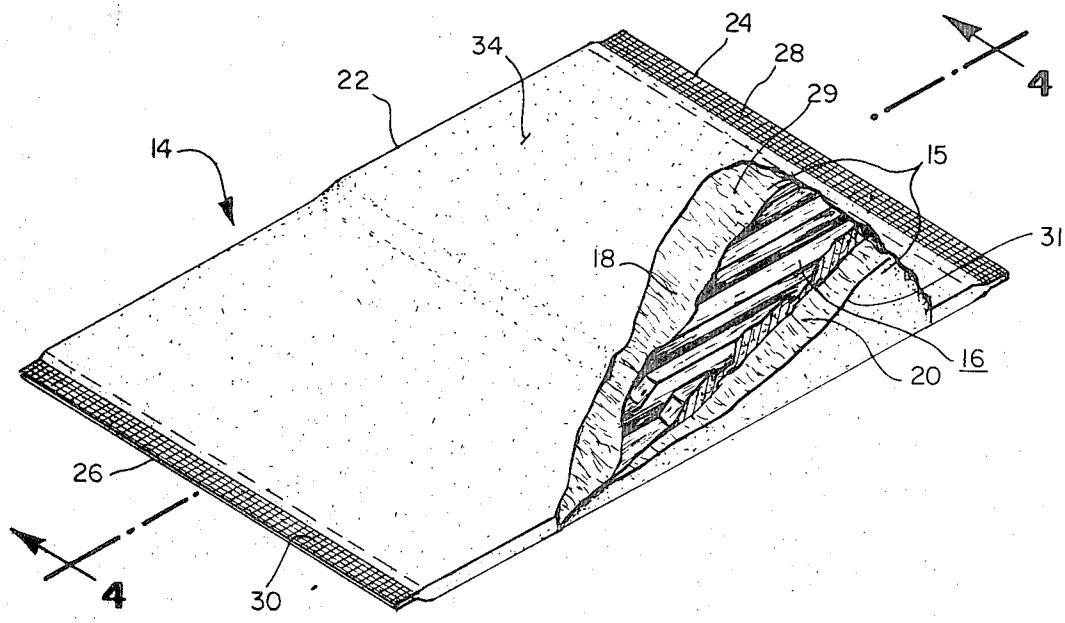
[57] **ABSTRACT**

A diaper system having an elongate, fluid impervious pad-retaining garment and an elongate, disposable absorbent pad retained in the garment. The elongate, disposable absorbent pad includes an absorbent layer disposed within a covering envelope, and the covering envelope has a porous facing layer and a backing layer. The absorbent layer includes a fluff batt of cellulosic fibers which is substantially rectangular and which has a forward section with a greater weight of fibers therein than a rearward section. An embossed pattern in the fluff batt includes compressed regions in the form of transversely spaced, elongate channels which extend for substantially the entire elongate extent of the fluff batt for transmitting body fluids in the direction of elongation of the fluff batt, and elongate high loft regions between channels for storing urine in the fluff batt.

11 Claims, 5 Drawing Figures



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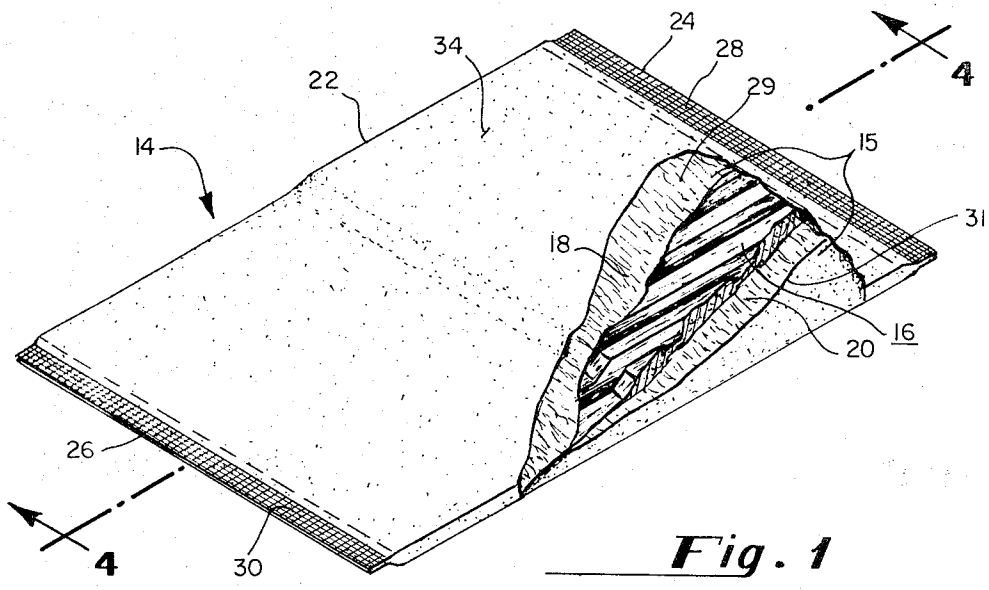

Fig. 1

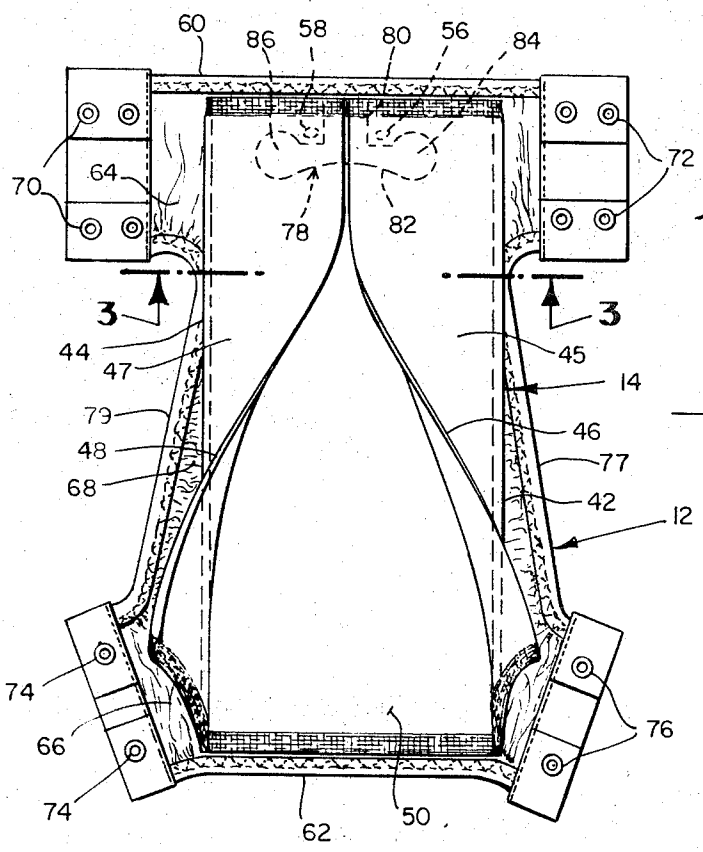

Fig. 2

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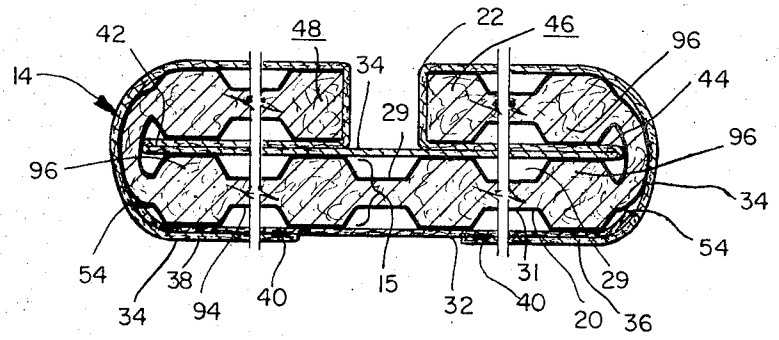


Fig. 3

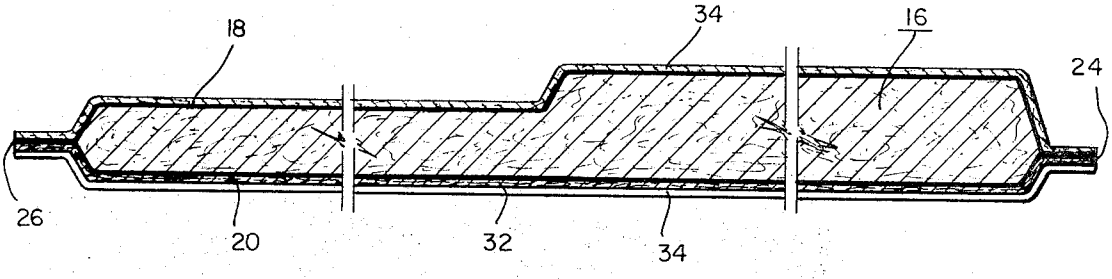
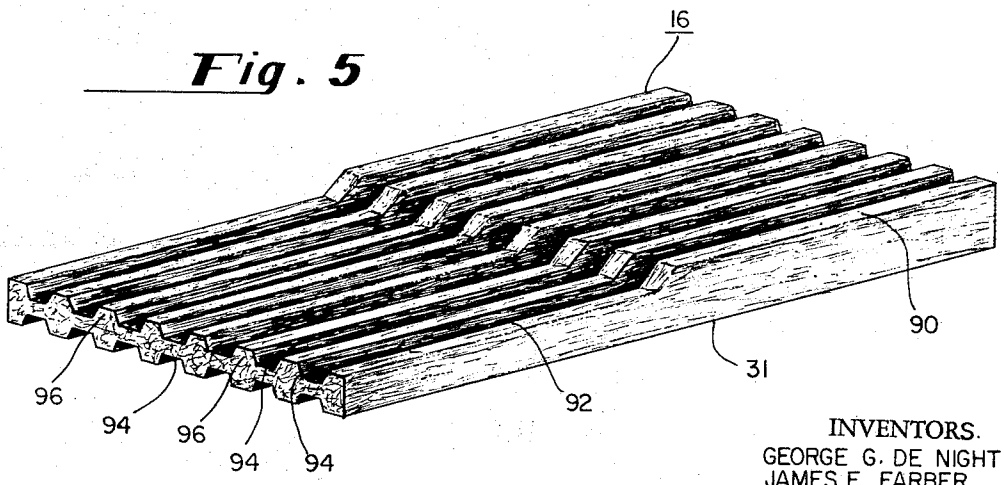


Fig. 4

Fig. 5



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DIAPER SYSTEM AND ABSORBENT PAD THEREFOR

BACKGROUND OF THE INVENTION

1. Field of the Invention

This invention relates to a diaper system, and to an absorbent pad for use in said diaper system. More specifically, this invention relates to a diaper system having an elongate, disposable absorbent pad for use with a fluid impervious pad-retaining garment; and to the elongate, disposable absorbent pad per se.

2. Description of the Prior Art

Absorbent pads for use with fluid impervious pad-retaining garments in a diaper system are known in the prior art. One such absorbent pad has been manufactured by Scott Paper Company and is sold under its trademark babyScott. This prior art absorbent pad includes an absorbent layer disposed within a covering envelope having a fluid pervious facing layer which is adapted to face a child during use of the diaper system. In use, the diaper system is worn in a bikini fashion below the abdomen of a child about 2 to 3 inches above the crotch, or uro-genital area. The absorbent layer includes a fluff batt of cellulosic fibers, which are of a short paper-making length, and this fluff batt has a substantially uniform fiber weight distribution over its entire extent, i.e., unprofiled. The diaper system utilizing above described abovedescribed absorbent pad has not retained satisfactorily the volume of urine normally emitted by a baby between diaper changes. The urine tends to escape from the confines of the diaper system thereby wetting outer garments and bedding. One major source of leakage results from the urine striking completely through the thickness of the fluff batt in the region in which it is initially impinged before a substantial volume of said urine can be directed into other areas of the fluff batt for containment in said other areas.

It has been suggested in the prior art, as exemplified by Canadian Pat. No. 820,551, to form profiled, fluff batts of cellulosic fibers for use in disposable diapers in which the greatest weight of absorbing fibers in the fluff batt is disposed in the region where the greatest volume of urine must be stored, or contained. Even these prior art disposable diapers have proven unsatisfactory in storing a sufficient volume of urine to prevent excessive leakage of urine onto outer garments and bedding. Furthermore, a disposable diaper for use by a boy baby will require a differently constructed (i.e. differently profiled) fluff batt than a disposable diaper for use by a girl baby. Therefore, different equipment must be utilized to form the differently constructed fluff batts, and this adds to the cost of manufacture of disposable diapers.

It has been suggested in the prior art to provide an embossed pattern in an unprofiled fluff batt of a disposable diaper to aid in wicking urine along said fluff batt to utilize effectively the absorbent material thereof. In an application filed on even date, titled THROW-AWAY BOY AND GIRL DIAPERS, and assigned to Scott Paper Company, a throw-away diaper including a profiled embossed fluff batt is disclosed. Except for the above-referred-to application filed on even date herewith, it has never been suggested to emboss a profiled fluff batt of a diaposable diaper. Therefore, there is no suggestion in the prior art of embossing a profiled fluff batt for use in an absorbent pad of a two-piece diaper system, which forms the subject matter of this application. Prior art fluff batts have been profiled to provide the greatest weight of fibrous material wherein the greatest urine storing capacity is required. It has been thought that the inclusion of an embossed pattern running through regions of greatest fiber weight of a fluff batt would seriously detract from the storing ability of said regions, and therefore, would directly defeat the purpose for profiling; namely, to provide regions having desirable fluid storing capabilities.

SUMMARY OF THE INVENTION

This invention relates to an elongate, disposable absorbent pad for use as an insert in a pad-retaining garment to define a diaper system for use by both boy and girl babies. The absorbent pad includes an absorbent layer having an elongate, profiled fluff batt of cellulosic fibers with a greater weight of fibers in a forward elongate section than in a rearward elongate section. An embossed pattern defining compressed regions in the form of channels is disposed in at least one surface of the fluff batt and these channels define continuous compressed regions extending for substantially the entire elongate extent of the fluff batt for transmitting urine in the direction of elongation of said fluff batt. High loft regions are defined between compressed regions, and these high loft regions have excellent fluid storing capability.

The term "profiled", as used throughout this application in describing the structure of a fluff batt, refers to a fluff batt wherein the weight of fibers through the thickness per unit surface area of a first section is greater than the weight of fibers through the thickness per unit surface area of a second section. Therefore, the first section will have a greater thickness than the second section in a profiled, fluff batt of substantially uniform density, and the first section will have a greater fiber density than said second section in a profiled, fluff batt of substantially uniform thickness.

Reference to "weight of fibers" or to "fiber weight" throughout this application, including the claims, refers to the weight of fibers per unit area through the thickness of the section referred to, unless clearly indicated to the contrary.

In the preferred embodiment of this invention the absorbent layer includes opposed layers of creped paper wadding between which the fluff batt is disposed, and the embossed pattern described in the preceding paragraph is impressed into either one, or both of the layers of creped paper wadding, and into a major surface of the fluff batt aligned with the respective layer of creped paper wadding. These layers of creped paper wadding, along with the embossed pattern impressed into said layers of creped paper wadding and underlying fluff batt stabilize the fluff batt to prevent the fluff batt from losing its structural integrity by breaking up into separated fiber clumps during use of the absorbent pad. Loss of structural integrity of the fluff batt results in a reduction in the fluid-absorbing capability of said fluff batt.

This invention also relates to a diaper system including, in addition to the above-described profiled, embossed, disposable absorbent pad, a fluid impervious pad-retaining garment to which the absorbent pad is removably secured. The pad-retaining garment has fastening means thereon for permitting the retaining garment to be secured to a child, and in use, the diaper system is worn in a bikini fashion below the abdomen of

a child. When the diaper system is worn in bikini fashion the upper end margin of the pad-retaining garment is disposed approximately 2 to 3 inches above the crotch area of the child to thereby position the forward section of the absorbent pad in the crotch area to initially receive the direct impingement of urine whether the diaper system is worn by a boy or a girl baby.

It is an object of this invention to provide a diaper system which effectively retains urine without leakage when used by both boy and girl babies.

It is a further object of this invention to provide a diaper system which includes an absorbent pad, and wherein the absorbent pad is of the same construction when the diaper system is used on both boy and girl babies.

It is a further object of this invention to provide a diaper system which includes an absorbent pad for effectively retaining urine and which is removably secured to a fluid impervious pad retaining garment which is adapted to be secured on a child, and in use, is worn in a bikini fashion below the abdomen of a child.

It is a further object of this invention to provide an absorbent pad for effectively retaining urine and which is adapted to be used with a fluid impervious pad-retaining garment to define a diaper system.

Other objects and advantages of this invention will be readily understood by referring to the detailed description which follows, taken in conjunction with the accompanying drawings, wherein like reference characters refer to similar elements throughout the several views.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is an isometric view of the absorbent pad of this invention;

FIG. 2 is a plan view of the diaper system of this invention with the absorbent pad shown in FIG. 1 removably secured to a fluid impervious pad-retaining garment;

FIG. 3 is a transverse sectional view taken along line 3—3 of FIG. 2;

FIG. 4 is a longitudinal sectional view along line 4—4 of FIG. 1;

FIG. 5 is an isometric view of the fluff batt utilized in the absorbent pad of this invention.

DESCRIPTION OF THE PREFERRED EMBODIMENT OF THE INVENTION

Referring to FIGS. 1 and 2, the diaper system 10 of this invention includes a pad-retaining garment 12 and a unique, elongate, disposable absorbent pad 14. The elongate, disposable absorbent pad 14 has an absorbent layer 15 which includes an elongate, profiled, embossed, fluff batt 16 of cellulosic fibers, preferably of a short paper-making length less than 1/4 inch, disposed between upper and lower layers of creped paper wadding 18 and 20, respectively. These upper and lower layers of creped paper wadding aid in supporting said fluff batt during formation and use of the absorbent pad 14. The number of plies of creped paper wadding which is utilized in each of the upper and lower layers can be varied within wide limits, but in practice, two plies of creped paper wadding in each of the upper and lower layers has proved satisfactory to support the fluff batt 16.

The absorbent layer 15 is disposed within a covering envelope 22, and the covering envelope 22 has forward and rearward end margins 24, 26 which extend beyond end margins of the fluff batt 16. These end margins are closed by transverse end seal bands 28, 30, respectively. The upper and lower layers of creped paper wadding 18 and 20 are also included in these seal bands. The specific structure of the transverse end seal bands 28 and 30 does not form a part of the present invention but is preferably of the structure indicated in co-pending application Ser. No. 137,839, filed Apr. 27, 1971, and assigned to Scott Paper Company.

Referring to FIGS. 1 and 3, the covering envelope 22 according to the preferred embodiment of this invention defines a fluid pervious facing layer in overlying relationship with facing surface 29 of the absorbent layer 15, and a backing layer in overlying relationship with backing surface 31 of said absorbent layer. The covering envelope 22 includes an elongate, backing cover web 32 of a suitable wet strength paper stock; and an elongate, porous facing cover web 34. The facing cover web 34 is preferably constructed of a highly permeable, fibrous material such as a nonwoven web of adhesively bonded carded staple rayon fibers.

The elongate backing cover web 32 is disposed adjacent the lower layer 20 of creped paper wadding and has greater wet toughness (a measure of energy absorbing capacity) than the layers of creped paper wadding to aid in maintaining the structural integrity of the absorbent pad 14 during use. The porous, elongate, facing cover web 34 extends over the upper layer 18 of creped paper wadding and has side margins 36, 38 extending around side margins of the absorbent layer 15, and overturned upon and secured to the backing cover web 32 by elongate, securing stripes 40 of a suitable adhesive, or the like (FIG. 3). The facing cover web 34 has a wet toughness which is greater than the wet toughness of the backing cover web 32 to aid in maintaining the structural integrity of the absorbent pad 14 during use. The facing cover web 34 is also more permeable to urine than the backing cover web 32 and permits the urine to pass substantially instantaneously into the absorbent layer 15 which has a high absorptive capacity, i.e., ability to store large quantities of fluid without excessive leakage.

Referring to FIGS. 2 and 3, side regions of the absorbent pad 14 are infolded along elongate fold lines 42, 44 to form side panels 46, 48 in overlying relationship with the elongate, facing cover web 34 in a center region 50 of said absorbent pad 14. The side panels 46, 48 are retained in their infolded position by suitable securing means such as securing dots or tacks 56, 58, of a suitable adhesive, or the like. Representative adhesives which have been found suitable for use as securing tacks 56, 58 are polyvinyl acetate, latex emulsions, and the like. These securing tacks 56, 58 are disposed adjacent the forward end margins 20 of the covering envelope 22 between the side panels 46, 48 and the facing layer of the covering envelope 22. The upper exposed surfaces 45 and 47 of the side panels 46 and 48 are defined by the portion of facing cover web 34 which initially extended around the back side of the absorbent pad.

Since the backing cover web 32 has a lower wet toughness than the facing cover web 30, the backing cover web 32 will act as a shock absorber to loads encountered by the absorbent pad 14 during use of the diaper system 10. To further explain, the loads which are initially applied to the facing cover web during use

of the diaper system are transmitted around marginal edges of the absorbent pad to the backing cover web. Since the backing cover web has a lower wet-cross-direction energy absorption level than the facing cover web, it will tend to tear and relieve stresses prior to the applied load reaching, or exceeding the energy absorption level of the facing cover web to thereby prevent the facing cover web from tearing and exposing inner components of the absorbent pad to the skin of a child during use of the diaper system.

The elongate, backing cover web **32** has a transverse dimension defined between elongate side margins **52, 54** which are disposed adjacent the fold lines **42, 44** so that the backing cover web **32,** which is less permeable than the facing cover web and the creped paper wadding layers, is excluded from the regions of side panels **46** and **48** which are initially impinged with urine. The absorbent pad construction including a reduced width backing cover web **32** is the invention of Richard W. Schutte and is covered in a patent application filed on even date, titled DIAPER SYSTEM AND ABSORBENT PAD THEREFOR, and assigned to the assignee of this application.

Covering envelopes other than the one described in the preceding paragraph and identified by the numeral **22,** can be utilized in the disposable absorbent pad **14** of this invention. Covering envelopes which can be used in the absorbent pad **14** of this invention must have sufficient wet toughness to assure that the structural integrity of the absorbent pads is not unduly impaired during use, and also must have a fluid pervious facing layer to assure that body fluids impinged on said facing layer pass through it for retention in the fluff batt **16.** Reference to a "covering envelope" in the specification and claims of this application is intended to include all covering envelopes meeting the above criteria, and is not intended to be limited to any specific numbers or types of webs unless clearly indicated to the contrary.

The pad-retaining garment **12** preferably is made from a fluid impervious flexible sheet material, such as polyethylene, polypropylene, or polyvinyl chloride. The garment **12** has a forward marginal edge **60** adapted to be positioned around the front area of the child and a rearward marginal edge **62** adapted to be positioned around the rear area of a child (FIG. 3). A forward region **64** of the retaining garment **12** is interconnected to a rearward region **66** through the intermediate region **68.** The intermediate region **68** has a reduced transverse dimension defining the crotch and thigh encircling region of the retaining garment **12.** Opposite transverse edges of the forward region **64** are provided with male snap elements **70, 72,** which are adapted to cooperate with opposed female snaps **74, 76,** respectively, which are disposed adjacent opposite transverse edges of the rearward region **66** to fasten the retaining garment on a child. The diaper system **10** is worn by a child in a bikini fashion with the forward marginal edge **60** of the pad-retaining garment **12** disposed below the abdomen of a child about 2 or 3 inches above the crotch, or uro-genital area. Any suitable fastening means can be utilized in place of the male and female snap fasteners; the particular fastening means not forming a part of this invention. To insure that the impervious retaining garment **12** closely conforms to the legs and waist region of a child, elastic material is fastened adjacent the forward marginal edge **60,** the rearward marginal edge **62** and opposed longitudinal edges **77, 79** defining the intermediate region **68** of the retaining garment **12.**

A holding device **78** is secured to the forward marginal edge **60** of the pad-retaining garment and has a stem portion **80** extending rearwardly from said forward marginal edge and terminating in a cross member **82.** The cross member **82** has pad-retaining members **84, 86,** respectively, disposed rearwardly of the securing tacks **56, 58** to retain the absorbent pad **14** within the pad-retaining garment **12.** The holding device **78** is the invention of Paul J. Jarusik et al., and is covered in co-pending application Ser. No. 101,292, now U.S. Pat. No. 3,693,621, assigned to Scott Paper Company.

In use, the rear portion of the absorbent pad **14** is manually flared open as is shown in FIG. **3** to provide a wide confining region for feces. This wide region is desirable to prevent soiling of the retaining garment **12** and to prevent the feces from escaping from the diaper system **10.** A wide confining structure is not required in the forward section of the diaper into which urine is initially directed, and this portion remains folded during use to provide a high absorptive capacity for urine.

During use of the diaper system **10** on either a boy or girl baby, the urine is directed initially to the forward one-half of the elongate absorbent pad and is initially confined in this region. This is believed attributable to the fact that the diaper system **10** is worn in a bikini fashion as described above, thereby disposing the forward one-half of the elongate absorbent pad **14** in the regions wherein urine is initially directed regardless of whether the diaper system **10** is worn by a boy or girl baby. Merely providing additional weight of fibrous material in the forward section of the absorbent pad does not reduce urine leakage from the diaper system **10** to an acceptable level.

Applicants' invention resides in an elongate, disposable absorbent pad **14** for use as an insert in a pad-retaining garment which is adapted to be worn in a bikini fashion by a child. The absorbent pad has an absorbent layer **15** which includes an elongate fluff batt **16** of cellulosic fibers having a forward elongate section **90** with a greater weight of fibers therein than a rearward elongate section **92,** and an embossed pattern disposed in the opposed major surfaces of the fluff batt **16** to form compressed regions in the form of transversely spaced, elongate channels **94** separated by elongate high loft regions **96.** The high loft regions **96** have a sufficiently high absorptive capacity to store the volume of urine emitted by a child between changes with a minimum of leakage while the compressed elongate channels **94** wick the urine along substantially the entire elongate extent of the fluff batt to provide for effective utilization of absorbent material. The elongate channels **94** and elongate high loft regions **96** are preferably straight; however, other configurations defining continuous channels extending in substantially the elongate direction of the fluff batt can be utilized, such as zig-zag or wavy configurations, or even closed pattern configurations such as diamonds or the like. If desired, the compressed channels **94** can be omitted from the side regions of the fluff batt which are included in the side panels **46, 48.** Since embossing tends to stiffen the fluff batt, the omission of compressed channels from the side panels **46, 48** makes the side panels more flexible, softer and more absorbent than the section of the absorbent pad which includes the embossed pat-

tern. Since the side panels of the absorbent pad will be in contact with a child during use of the diaper system, the absorbent pad will be comfortable to wear and substantially non-chafing as a result of the flexible nature of said side panels.

Preferably, the forward and rearward elongate sections **90** and **92** of the fluff batt **16** each extend for approximately one-half of the elongate extent of said fluff batt. The fluff batt **16** is profiled such that the forward section **90** is thicker and/or more dense than the rearward section **92.**

In the preferred embodiment of this invention, the embossed pattern is impressed into the fluff batt **16** through the upper and lower layers of creped paper wadding **18, 20,** respectively, to aid in stabilizing the fluff batt to prevent loss of structural integrity of said fluff batt.

It is within the scope of this invention to provide the above-described embossed pattern in only one of the major surfaces of the fluff batt. It is important that the embossed pattern define elongate high loft regions for storing urine, and elongate compressed channels for wicking, or transmitting urine along the elongate extent of the fluff batt. Such an embossed pattern is achievable by embossing only one of the facing and backing surfaces **33** and **35.**

It is also within the scope of this invention to eliminate the upper and lower layers of creped paper wadding from the absorbent layer **15,** or in the alternative, to form the embossed pattern in the profiled fluff batt **16** prior to the placement of said fluff batt between the upper and lower layers of creped paper wadding.

EXAMPLE

One absorbent pad according to this invention is 14 3/4 inches long and 12 inches wide, and weighs 36 grams. The weight of material of the absorbent pad is distributed as follows:

Forward one-half section of fluff — 13.83 grams
Rearward one-half section of fluff — 6.92 grams
Creped paper wadding (two plies — 9.33 grams on each side of fluff batt) —
Backing paper cover web — 2.27 grams
Facing nonwoven carded rayon web — 3.09 grams
Adhesive — 0.56 grams
TOTAL — 36 grams

The embossed channels are impressed into both the facing and backing surfaces of the fluff batt through the layers of creped paper wadding. The embossed channels have a width of between ⅛ inch and ¼ inch, and are separated by the high loft regions **96** which have a width no greater than 0.75 inch. The embossed channels constitute approximately 40 percent of the surface area of the fluff batt and the high loft regions constitute approximately 60 percent of the surface area of the fluff batt. Approximately 80 percent by weight of this absorbent pad was utilized in retaining urine during use of the diaper system **10.** This compares with approximately 65 percent by weight utilization of an absorbent pad having a fluff batt with the same weight of fibers as in the above example, i.e., 20.75 grams, and in which the weight of fibers is uniformly distributed over the entire elongate extent of the fluff batt, and the embossed pattern is omitted.

It has been found that the average urine emission per individual excretion by a child weighing between approximately 18 lbs. and 25 lbs. is approximately 70 to 80 milliliters (ml.), and therefore, if a child is changed after each excretion, the above-described absorbent pad of this invention will retain approximately 2.6 ml. of fluid per gram of pad actually used to absorb urine as calculated by the following formula:

$$V_r = V_e/W_tP$$

wherein V_r = volume in milliliters of urine retained per used gram of pad weight; V_e = average volume in milliliters of urine emitted by a child in each excretion (80 mls. utilized in this calculation); W_t = total weight in grams of the absorbent pad; and P = percentage by weight of absorbent pad utilized to retain urine, divided by 100.

A diaper system of this invention wherein approximately 2.6 ml. of urine per gram of absorbent material is retained within the absorbent pad has proven extremely satisfactory in use, and has resulted in leakage from the diaper system in only about 15 percent of the approximately 3,600 pads tested in use in the diaper system.

What is claimed is:

1. An elongate, disposable absorbent article comprising:

A. a covering envelope having a porous facing layer and a backing layer;

B. an absorbent member comprising an elongate, profiled, absorbent fluff batt of cellulosic fibers said batt having opposed major surfaces and an elongate center region disposed inwardly of side margins of said batt, said fluff batt being disposed within said covering envelope with the facing layer of said covering envelope overlying one major surface of said fluff batt, said fluff batt comprising;

1. a forward elongate section and a rearward elongate section, said forward section having a greater weight of fibers therein than said rearward section, and

2. an embossed pattern disposed in at least one major surface of said fluff batt for defining continuous compressed regions in the form of a plurality of transversely spaced channels extending for substantially the entire elongate extent of said fluff batt in at least the center region thereof and a plurality of elongate high loft regions between said channels, said channels being effective for transmitting body fluids in the direction of elongation of said fluff batt in said center region and said elongate high loft regions between said channels being effective for storing body fluids in said center region.

2. The elongate, disposable absorbent article according to claim **1,** wherein said forward section and said rearward section each extend for approximately one-half of the elongate extent of said fluff batt.

3. The elongate, disposable absorbent article according to claim **1,** wherein said spaced, elongate channels are disposed in both said facing and backing surfaces of said fluff batt.

4. The elongate, disposable absorbent article according to claim **1,** wherein said absorbent member further includes upper and lower layers of creped paper wadding disposed adjacent the opposed major surfaces of said fluff batt, said embossed pattern being disposed in at least one of said upper and lower layers of creped paper wadding and in the underlying surface of said fluff batt.

5. The elongate, disposable absorbent article according to claim 4, wherein said embossed pattern is disposed in both said upper and lower layers of creped paper wadding and in the respective underlying major surfaces of said fluff batt.

6. The elongate, disposable absorbent article according to claim 1 having elongate side regions defined between the elongate center region and the opposed elongate side margins; said elongate side regions being infolded to define side panels overlying said center region.

7. The elongate, disposable absorbent article according to claim 6, further including securing means disposed adjacent a forward end margin of the absorbent article between said side panels and said center region for securing the side panels in their infolded position to the facing layer of said covering envelope.

8. In a diaper system:

A. an elongate, fluid impervious pad-retaining garment terminating at opposed forward and rearward marginal edges, said forward and rearward marginal edges being adapted to be fastened around the front and rear area of a child in a bikini fashion with the forward marginal edge below the abdomen;

B. an elongate, disposable absorbent pad positioned on a surface of said pad-retaining garment; and

C. holding means secured to said pad-retaining garment for removably retaining said absorbent pad within said pad-retaining garment, said absorbent pad comprising:

1. a covering envelope having a porous facing layer adapted to face a child during use, and a backing layer facing said surface of said pad-retaining garment;

2. an absorbent layer including an elongate, absorbent fluff batt of cellulosic fibers, said batt having opposed major surfaces and an elongate center region disposed inwardly of side margins of said batt, said fluff batt being disposed within said covering envelope, said fluff batt comprising;

(*a*) a forward elongate section disposed adjacent the forward marginal edge of said pad-retaining garment, and a rearward elongate section, said forward elongate section having a greater weight of fibers therein than said rearward elongate section, and

(*b*) an embossed pattern disposed in at least one major surface of said fluff batt for defining continuous compressed regions in the form of a plurality of transversely spaced channels extending for substantially the entire elongate extent of said fluff batt in at least the center region thereof and a plurality of elongate high loft regions between said channels, said channels being effective for transmitting body fluids in the direction of elongation of said absorbent fluff batt in said center region and said elongate high loft regions between said channels being effective for storing body fluids in said center region.

9. The diaper system according to claim 8, wherein said forward section and rearward section of said fluff batt each extend for approximately one-half of the elongate extent of said fluff batt, and said spaced, elongate channels are disposed in both said facing and backing surfaces of said fluff batt.

10. The diaper system according to claim 8, wherein said elongate, disposable absorbent pad has elongate side regions defined between the elongate center region and the opposed elongate side margins; said elongate side regions being infolded to define side panels overlying said center region.

11. The diaper system according to claim 10 further including securing means disposed adjacent a forward end margin of the absorbent pad between said side panels and said center region for securing said side panels in their infolded position, said holding device cooperating with said securing means for removably retaining said absorbent pad within said pad-retaining garment.

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