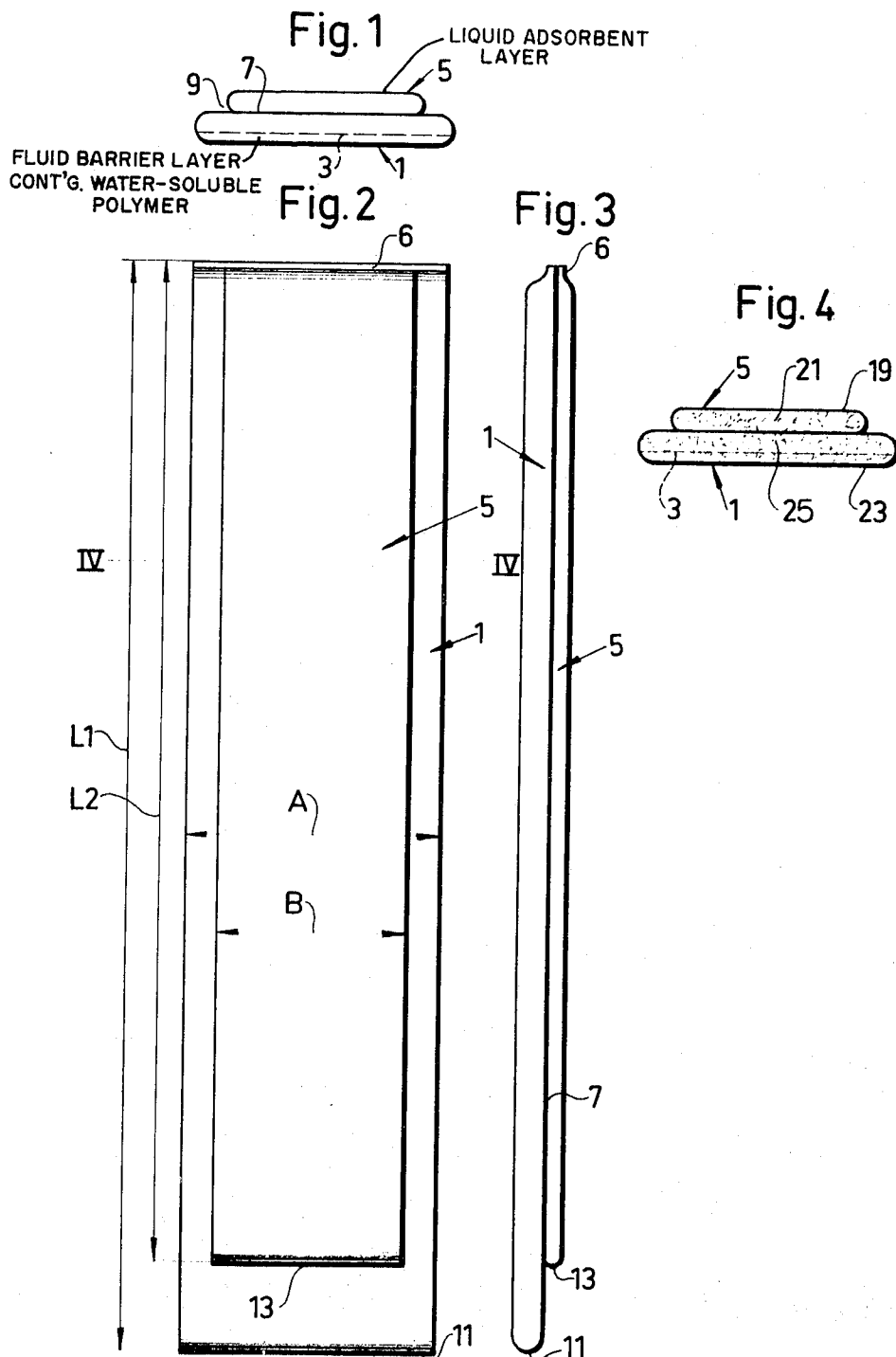




[54] BODY-FLUID ABSORPTION ARTICLE

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[58] Field of Search.....128/284-290, 296

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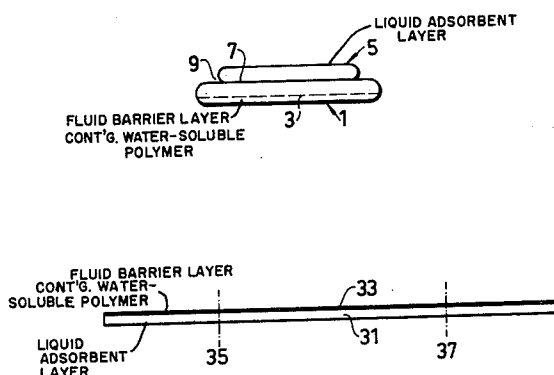
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[57] ABSTRACT

The invention resides in a body-fluid absorption article which comprises at least two elongated and substantially flat members which, in use of the article, are relatively superimposed with opposed flat surfaces, said members being physically separated throughout, or over a substantial portion of, their interface. The article is further characterized in that its inner member, i.e., the member adapted to be worn next to the skin, mainly consists of a liquid-absorbent material, whereas its outer member comprises one or a plurality of fluid-barrier layers of a water-soluble polymer, such as carboxy-methyl cellulose, capable of preventing any passage of body fluids, at least for the time of use of the article.

8 Claims, 17 Drawing Figures



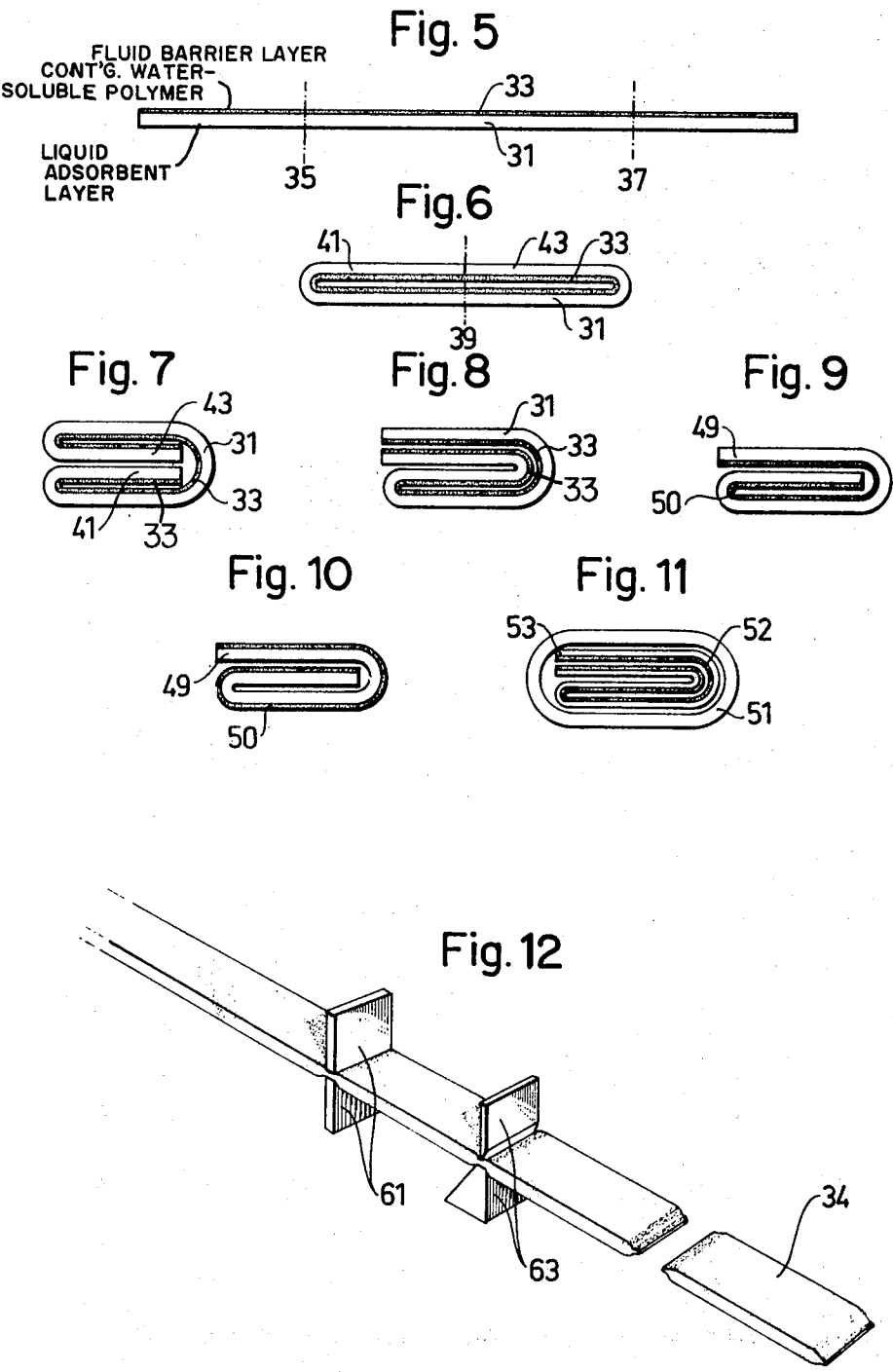


Fig. 13

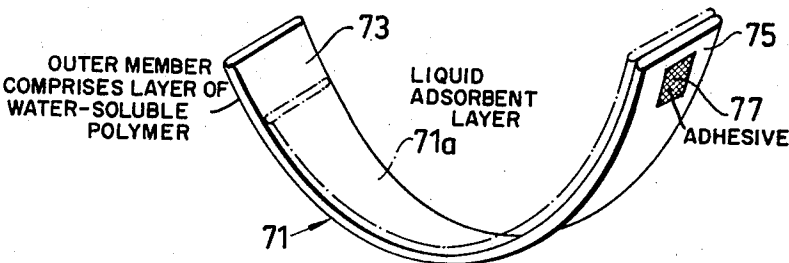


Fig. 14

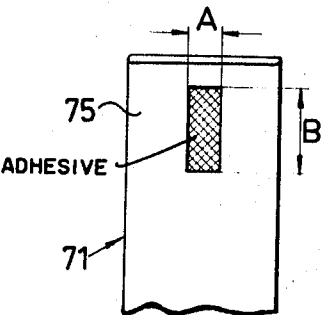


Fig. 15

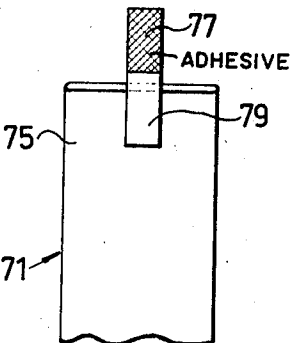


Fig. 16

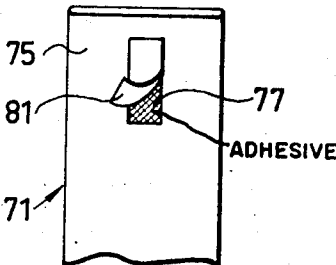
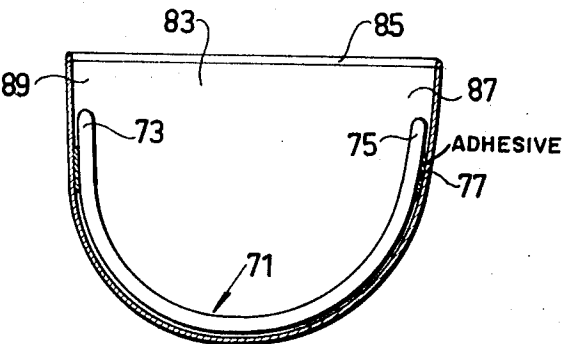


Fig. 17



BODY-FLUID ABSORPTION ARTICLE

The present invention relates to articles adapted for use in absorbing body fluids. Although the invention is applicable primarily to sanitary napkins or towels and will be described hereinafter in connection with such an application, it is applicable, to advantage, to other similar articles, as well, such as diapers and the like.

Conventional sanitary napkins or towels of various constructions suffer from one or more drawbacks, as follows: Thus there are sanitary napkins which are not safe against blood-soaking, particularly in cases where the blood quantity is great and under special circumstances the napkin will have to be used for an abnormally long period of time. Further, conventional sanitary napkins, as a rule, cannot be flushed down through ordinary sewage disposal systems but will have to be collected and disposed of in other ways. Among conventional sanitary napkins, certain types are so designed that, due to their thickness, they are readily discernible through the clothes, as well as being clumsy. Finally, it may be mentioned that conventional sanitary napkins of the type comprising a fluid-barrier layer often have this layer formed of a material which is also impervious to water vapor, which is an inconvenience since discomforts may arise if the normal gas interchange with the ambient atmosphere be prevented during extended periods of time.

One object of the present invention resides in overcoming, completely or partially, all or most of the drawbacks just referred to.

Another object of the invention is to make provision for a simple and commercially and industrially advantageous design of a sanitary napkin or towel having the characteristics aimed at according to the invention.

A further object of the invention resides in the provision of simple means for applying the sanitary napkin in use.

According to the invention, a body-fluid absorption article comprises at least two elongated and substantially flat members which, in use of the article, are relatively superimposed with opposed flat surfaces, said members being physically separated throughout or over a substantial portion of their interface, the article being further characterized in that its inner member, being adapted to be worn next to the skin, mainly consists of a liquid absorbent material, whereas its outer member comprises one or a plurality of fluid-barrier layers capable of preventing any passage of body fluids, at least for the time of use of the article.

According to a further feature of the invention, the article is suitably so designed that its two members are separate or readily separable from each other. This will result in the advantage, inter alia, that the members can be used separately in cases where the amount of body fluid secreted is small.

According to an embodiment of the invention which is particularly applicable to sanitary napkins or towels, the member thereof to be worn next to the skin when in use is made narrower, and preferably also shorter than the outer member thereof. This will further reduce the possibility of body fluid passing over the edges of the article to its outside, and, in addition, the article can be accommodated still better to the body and will be less discernible through the clothes of the wearer.

A sanitary napkin or the like according to the invention is suitably provided with a layer which is capable of preventing any fluid passage to the outside of the napkin during the entire time of use of the same. Such layer need not, and preferably should not, act as a permanent fluid barrier but may suitably be formed from a material of a nature which will enable the layer to be dissolved or disintegrated a short time after fluid has been applied to both sides of the fluid-barrier layer. In this case, the material making up the layer is a water-soluble polymer, for instance a cellulose derivative, such as sodium carboxy-methyl cellulose (CMC). The layer may consist of a continuous foil of said material, although it may also be composed of a more or less thick layer of polymer particles deposited on, or embedded in a liquid absorbent layer of cellulosic material which can be easily disintegrated in water. Such an article after use may be flushed down into a sewerage without any risk of clogging the latter.

The invention will now be described in detail in conjunction with the accompanying drawings, in which:

FIG. 1 shows one embodiment of an article according to the invention in the form of a sanitary napkin or towel, as seen in end view;

FIG. 2 is a bottom plan view of the napkin;

FIG. 3 is a side or edge view of the napkin;

FIG. 4 shows the napkin or towel of FIGS. 1 to 3 in cross section and with the absorbent materials contained in its two members marked out;

FIGS. 5-12 inclusive serially disclose successive stages of a method of manufacturing the outer member of the article according to the invention, in which series:

FIG. 5 illustrates in end view a sheet material having deposited on it a fluid-sealing substance and serving for the production of the outer member of a sanitary napkin or a portion thereof in accordance with the invention;

FIG. 6 shows the material of FIG. 5 after a first folding step;

FIG. 7 shows the material of FIG. 5 after a second and final folding step;

FIGS. 8 to 11 illustrate alternative embodiments of a sanitary napkin or a portion thereof;

FIG. 12 diagrammatically illustrates a method of embossing or pinching and severing sanitary napkins in the course of a production process;

FIG. 13 is a perspective view of a sanitary napkin or towel as bent approximately into the curvature thereof in use and having applied to it adhesive means serving for fixing the napkin;

FIG. 14 shows an end portion of the napkin of FIG. 13;

FIG. 15 shows an end portion of a napkin having projecting therefrom an adhesive-coated strip or tape;

FIG. 16 shows an end portion of a napkin provided with an adhesive and a protective foil covering the latter; and

FIG. 17 diagrammatically illustrates in vertical cross section a sanitary napkin or towel and surrounding drawers, as well as layers of an adhesive as applied to the end portions of the napkin and serving for fixing the napkin in accordance with the present invention.

The napkin shown in FIGS. 1 to 4 comprises two members 1 and 5 which are elongated and substantially flat in shape and which, in use of the napkin, are disposed with opposed flat surfaces against each other. The members are physically separated from each other throughout their common interface 7, except within a narrow zone 6 adjacent one end of the members at which zone the members are interconnected, such as by an adhesive or by an embossment, or pinch. The member 1 is intended in use of the napkin to be disposed remote from the skin, while the member 5 is intended to be worn next to the body in contact therewith.

The member 1 has an inner core 25 of a fluid-absorbent material which can readily disintegrate in water, for instance shred cellulose or the like, this core being surrounded by one or more layers 23 which can also readily disintegrate in water and consist of a soft fibrous material which is pleasant to the skin, for instance a thin creped paper, so-called crinkled tissue. Numeral 3 designates an inner layer within member 1, this layer being constituted by, or containing, a material which will cause the layer, at least temporarily, to act as a fluid barrier. Preferably, however, the layer 3 is designed to act as a fluid barrier throughout the normal period of use of the sanitary napkin, but to readily dissolve or disintegrate when the napkin is soaked in water. As a result, the napkin can be flushed down directly into ordinary sewage or waste water systems.

Member 5 comprises an inner core 21 of a fluid absorbent material of the same kind as the material 25 comprised in member 1 and is surrounded by one or more layers of crinkled tissue or the like. Member 5, as shown, contains no fluid barrier layer, it being possible, however, to provide therein a fluid barrier similar to the fluid barrier 3 of member 1, in which case it may be suitable to arrange the fluid barrier of member 5 to be active only for a relatively short period, being shorter than the normal period of use of the sanitary napkin or towel. Such fluid barrier may result in that the absorbent material of member 5 will be utilized to its maximum extent before the absorbent material contained in member 1 is taken into use.

Member 1 suitably has a width A of 50 to 100 mm. Member 5 has a width B which is less than the width A and may be of the order of 30 to 80 mm. Owing to the member 5 being narrower than member 1, the napkin will be narrower next to the skin and thus more easily accommodated as well as less discernible through the clothes, owing to the fact, inter alia, that the wider outer member will create an outer contour of the composite napkin which will conform more closely to the skin.

A further advantage of having the napkin composed of two easily separable members of different widths resides in the possibility of using one only of the two members of the napkin during periods when smaller amounts of body fluids are secreted, which will result, inter alia, in an increased feeling of comfort.

The length L1 of member 1 may be, for example, 200 to 500 mm., whereas the length L2 of member 5 is less. As shown in FIGS. 2 and 3, the difference between the lengths L1 and L2, in the flat position of the napkin, is so chosen that, even in the position of use of the napkin, the outer member 1 will also project beyond member 5 at its end edge whereby the outer contour of the composite napkin will maintain a softly rounded shape.

In the embodiments thus described, the sanitary napkin or towel is composed of two elements or members which are physically separated from each other over a substantial portion, at least, of their common interface. However, the napkin may consist of more than two members, in which case the outermost member may be largest in width, and the innermost member may be the narrowest one. Further, the constituent members of the article need not be rectangular in shape, as seen in plan view, although this is the case in the embodiments shown, but can be given any other shape, in particular where such articles as diapers and the like are concerned. The rectangular shape, however, is advantageous from the point of view of production and will most often give an entirely satisfactory result, not least where sanitary napkins or towels are concerned.

Normally, the element or member to be worn next to the skin should have a substantial thickness and comprise a core presenting a satisfactory fluid absorptiveness. On the other hand, the member to be worn remote from the skin need not, of necessity, contain any fluid-absorptive material, or in any case need only contain small amounts of such material in cases where the member to be worn next to the skin of the user has been given a sufficient thickness to be capable substantially alone to be responsible for the total fluid-absorption capacity of the composite napkin or towel.

A body-fluid absorption article, in particular a sanitary napkin or towel, or an element or member forming part thereof, according to the present invention may also consist of one single material comprising one or more layers or sheets of a highly fluid absorbent paper, such as, for example, crinkled tissue, and having deposited thereon a temporarily active fluid-barrier layer of a water-soluble polymer, for example. When applying said fluid-barrier layer in a coating machine, it has been found that the backing of tissue or the like, because of its low mechanical strength, cannot be coated with a polymer layer of any thickness. The coating operation will be effected with a maximum of reliability if only a relatively thin layer of the polymer material is applied, however such thin layer often will prove to be too thin to be capable of fulfilling its aimed function of effecting a temporary water-imperviousness of the coated material. This problem, according to the present invention, is solved by the features of forming the sanitary napkin or towel from a strip or web material consisting of one or more, preferably two or three, layers of a fluid-absorbent fibrous material, such as crepe paper of the crinkled-tissue type, said strip material being provided adjacent one side thereof with a temporarily active fluid-barrier layer of a polymer material or any suitable other substance, and folding over or severing and superimposing the portions of such assembly to form a napkin or towel, or a member or element thereof, in such a way as to cause polymer layers in contact with each other to appear within one zone or at one level, at least, of the napkin or towel.

The two polymer layers thus contacting each other will cooperate to form a fluid-barrier which is substantially more effective than that provided by one single layer of the polymer material. According to the invention, such double layers of the polymer material are arranged at two zones or levels, at least, within the napkin or towel.

Further, according to the invention, it is possible to effect said folding over or superposition of the severed portions in a manner to cause the external surfaces of the finished sanitary napkin to be constituted by non-coated surfaces of said strip material.

Owing to the use of an easily disintegrating paper of the tissue-type, and a coating material in the form of a water soluble polymer, the entire napkin or towel of the invention will readily disintegrate as a whole in water and thus can be flushed out through ordinary sewers.

Since the tissue material is relatively fragile, and because of this fact the coating material of the napkin or towel will sometimes tend to tear off (crumble), this is preferably prevented according to the invention by effecting a slight wet strengthening of the tissue material, however, only to a limited extent so that the material will still be easily disintegrated in water so that it can be flushed down through sewers.

FIG. 5 illustrates in end view a strip material having a width four times the width of the sanitary napkin to be produced therefrom and having a length corresponding to that of said napkin. The strip material consists of a two-layer crinkled tissue 31 being combined on one side thereof with a layer 33 of a water soluble polymer, for instance the sodium salt of carboxy-methyl cellulose (CMC), or any other substance adapted to render the combined material temporarily impervious to water. The material is folded over in its longitudinal direction at the points designated by 35 and 37, thereby assuming the shape as illustrated in FIG. 6, with the polymer layers of the folded-over portions 41 and 43 in contact with the polymer layer of the intervening portion of the strip material 31. Then a second folding step is carried out at the point designated by 39 whereby the article will be formed into its final shape as shown in FIG. 7. In this form, the article may be used as a sanitary napkin or towel, or may form part thereof. As shown in FIG. 7, the napkin or towel comprises two double-layers of a substance acting as a temporary fluid barrier, these double-layers being relatively separated by four layers of tissue. Such build-up of the napkin will enable simplicity and economy of production, and at the same time the napkin will show satisfactory characteristics as regards its capability of preventing any penetration of body-fluid therethrough for the time period of use of the napkin.

To produce such articles, a continuous web of crinkled tissue may be coated on one side face with a water-soluble polymer or the like in a manner known per se, after which the web is severed in widths each corresponding to four times the width of design of the napkin, and each such severed portion is then folded over twice as illustrated in FIGS. 6 and 7. Thereafter, the portions of the napkin thus superimposed may be interconnected along zones extending across the same by a simple embossment or pinching operation by means of jaws 61, as shown in FIG. 12, the distance between adjacent embossment or pinching zones being equal to the length of the napkin to be produced. The material is then severed at the center line of each embossment or pinching zone by means of a cutting device 63, thereby forming individual napkins 34.

FIG. 8 illustrates a method of folding the napkin, this method being analog to that of FIGS. 5 to 7 as regards its final result. The napkin of FIG. 8, however, suffers from the slight inconvenience that the edges of the tissue material will remain exposed along one longitudinal edge of the napkin.

FIG. 9 shows a form of sanitary napkin or towel which has been obtained by a double folding-over of a polymer coated, double-layer tissue 49, only three layers of double-layer tissue being comprised in the napkin. Two of the layers are so disposed that their polymer layers 50 are facing each other.

A sanitary napkin or towel consisting of three double-layer tissue is also illustrated in FIG. 10, according to which all the

polymer layers are separated from each other by intervening tissue material.

FIG. 11 illustrates a sanitary napkin or towel produced by multiple-folding of a material 51 consisting of one single crinkled paper tissue layer, unilaterally coated with a water-soluble polymer 52 or the like. The napkin is provided with an envelope 53 of double-layer, uncoated tissue.

The forms of sanitary napkin or tissue illustrated in FIGS. 7 to 11 have been tested as to their capability of preventing the passage of body-fluids therethrough. The tissue used was of a grade having a surface weight of 17.5 g./m.² The substance serving to prevent any fluid passage through the napkins was the sodium salt of carboxy-methyl cellulose (CMC) of a refined, highly viscous quality, milled and sieved through a screen having a mesh width of 0.05 mm. The uncoated tissue layer was coated by conventional techniques with CMC by passing the same through the nip between two horizontally disposed rubber coated rolls of a so-called size-press while supplying a coating paste to the nip between the rolls. The coated material was dried and then reeled up.

The coating paste was prepared as follows: 2 parts by weight of hydroxy-propyl cellulose of quality "Klucel G" from the Hercules Powder Company, U.S.A., were dissolved in 83 parts of ethanol by weight. Then, while stirring vigorously, 15 parts of CMC by weight were admixed. Because this will increase the viscosity of the liquid phase, i.e. the alcohol, the tendency of sedimentation of the CMC particles will be reduced. In addition, the liquid penetration into the paper during the coating operation will be reduced. Finally, the hydroxy-propyl cellulose will act as a binder for the CMC particles in the dried product, whereby they are prevented from detaching too easily.

The coating machine employed comprised as its coating unit a so-called glue press having horizontally lying pressure rolls. The paste was pumped into the glue-press nip between the pressure rolls. A certain recirculation or reflux of paste through outlets at the ends of the nip was provided for. Such recirculation proved necessary in order to prevent the paste from thickening by solvent vaporization, which would result in a too irregular coating.

The drying was carried out in hot air at a temperature of 160° C.

The coating contained about 10 g. net weight of solids per square meter.

Sanitary napkins or towels produced from the material thus obtained according to embodiments illustrated in FIGS. 9 to 13 were tested, for comparative break-through prevention periods in the following manner:

Napkins sampled in random order were placed on a glass plate whereby any break-through of testing fluid could be observed conveniently and quickly by means of a mirror. The testing fluid was 50 percent blood and 50 percent water. Two milliliters thereof were poured over each napkin to be tested, and the time elapsing until the first break-through spot appeared was measured. The arithmetic mean from 10 tests of the same form of napkin was noted. The testing showed that said time interval until the first break-through spot occurred was 5 min. for the napkins according to FIGS. 7 and 8; 16 sec. for the napkin according to FIG. 9; 8 sec. for the napkin according to FIG. 10, and 33 sec. for the napkin according to FIG. 11.

The times measured in the testing operation just described obviously are substantially shorter than the break-through times during normal use of the sanitary napkins or towels, not least because for such use the napkin, as a rule, will have been combined with further absorbent material adapted to disperse fluid over a larger area, thereby counter-acting the occurrence of break-through spots. It may be concluded from the test results that a napkin comprising exclusively single, thin polymer layers which do not contact each other but are separated by absorbent material, such as that according to the embodiment of FIG. 10, is relatively easily pervious to fluids. If the napkin incorporates polymer layers in contact with each

other, as is the case in the embodiments shown in FIGS. 7, 8, 9 and 11, the total fluid-barrier capacity of the two polymer layers will be substantially increased. The embodiments of FIGS. 7 and 8, being the most favorable ones from a breaking-through point of view, comprise two double-layers of polymer material separated from each other by a plurality of layers of absorbent material, such separating layers involving the advantage of effecting a dispersion and distribution of the fluid penetrating through the first double-layer of polymer material, thereby counter-acting the breaking-through of the underlying layer of polymer material. The occurrence of this effect is indicated by the less favorable test result in respect of the napkin of FIG. 11, this napkin incorporating, as well, two double-layers of polymer material, which double-layers, however, are not separated by thick layers of absorbent material. Instead, additional absorbent material is included as an envelope around the fluid-barrier layers.

An article produced according to the invention, for instance of the embodiments thereof shown in FIGS. 7, 8, or 9, has external surfaces which all consist of uncoated crinkled tissue, this being an advantage which will be attained automatically in response to the particular folding or superimposing method practiced according to the invention. The product according to such embodiments may be used either as a finished sanitary napkin or as a member or element forming part of a napkin, for instance as the outermost member of a napkin composed of two or more superimposed flat members, although, in different dimensions, it may be used for other purposes, as well, for instance as a diaper or the like.

A further aspect of the present invention resides in the provision of means adapted in a simple way to enable a sanitary napkin or towel, a diaper or the like to be retained in a proper position of use without the necessity of wearing a girdle or special sanitary undergarment. The invention according to this aspect is particularly applicable to sanitary napkins or towels and therefore will be described hereinafter in connection with such application.

According to this aspect of the invention, the napkin is provided with an element having applied to it a so-called pressure sensitive adhesive which is capable of adhering to the textile material of the clothing. The napkin or towel proper may be of any type and may be provided, according to the invention, with an adhesive-carrying strip, i.e. a length of adhesive tape, having a portion thereof projecting outwardly from the napkin and serving to fix the napkin to the clothing. Alternatively, a portion of the napkin itself may have applied to it a pressure sensitive adhesive, in which case this adhesive is preferably applied adjacent the ends of the napkin, for instance adjacent the end of the napkin to be disposed at the front of the wearer's body, and on the surface of the napkin remote from the skin.

As the pressure sensitive adhesive, any of the polymeric adhesives well-known to those skilled in the art concerned may be employed. Examples which may be mentioned are styrene-butadiene rubber, adhesives marketed under the trade name of "Buna-N," polyvinyl ethers, polyesters of acrylic acid, and polyisobutylene.

The adhesion to the undergarment accomplished by the pressure sensitive adhesive, quite surprisingly, has been found to be entirely sufficient for fixing the napkin in proper position when in use, even if the area of the adhesive coated surface is as small as about 2 to 5 cm.², and particularly if this surface is disposed very near the front end of the napkin. The surface to be coated with adhesive should have an extent of at least 20 mm., preferably at least 30 mm., for instance 40 mm., in the longitudinal direction of the napkin, in which case the width of the surface in the transverse direction of the napkin need not be larger than about 5 to 20 mm., for instance 10 mm.

During storage of the napkin before use, its adhesive coating, in a well-known manner, may be protected by a strippable foil or gauze element. Since the napkins are very light of weight and, during storage, are very loosely packed, a protective gauze applied to the adhesive layer may have sufficiently

wide meshes to enable adhesion to the textile material of the drawers to be accomplished simply by applying a forceful hand-pressure through said gauze, i.e. without any necessity of removing the latter.

This arrangement according to the invention will now be described in detail in conjunction with FIGS. 13 to 17 of the accompanying drawings illustrating the same in a couple of embodiments by way of example.

The sanitary napkin or towel of FIG. 13 may be of any type comprising one single layer 71 of absorbent material, or of a type comprising an outer member 71 and an inner member 71a, the latter being either entirely separate from the outer member 71, or connected thereto, for instance at one end portion, 73 or 75, of the outer member, as described hereinbefore. Of these end portions, that designated by 73 is the rear end portion and that designated by 75 is the front end portion. According to the present invention, there is applied to a limited surface area of the front end portion 75 a pressure sensitive adhesive layer 77 capable of adhering to the material of the enveloping drawers 83, as shown in FIG. 17. As illustrated in FIG. 17 — in which the elastic waistband of the drawers is designated by 85, their front portion by 87 and their back portion by 89 — the adhesive is applied both to the front end 75 and to the rear end 73 of the napkin 71. As a rule, it will be sufficient, however, to apply adhesive to the front-end portion 75 of the napkin. Adhesion to the drawers is readily accomplished by a manual pressure exerted externally on the adhesive-carrying portion.

According to FIGS. 13, 14, 16 and 17, the adhesive is applied to the napkin proper. According to FIG. 15 the adhesive is applied to an outwardly projection portion of a separate strip element 79 fastened to the end portion of the napkin in any conventional way.

The surface accommodating the adhesive may suitably be dimensioned so as to have a larger dimension in the longitudinal direction than in the transverse direction of the napkin, as illustrated in FIGS. 14, 15 and 16, in which case its extent A in the transverse direction of the napkin may be from 5 to 20 mm., suitably about 10 mm., while its extent B in the longitudinal direction of the napkin may be at least 20 mm., preferably at least 30 mm., for instance about 40 mm.

As shown in FIG. 16, the adhesive layer 77 may be covered by a protective foil 81 intended to be stripped off immediately before use of the napkin. Such foil will prevent sticking together of adjacent napkins in a package and may be in the form of an imperforate foil, a piece of gauze or the like. When using pieces of gauze, the mesh width of the latter could be chosen to be of a size sufficient to enable adhesion to the textile material of the drawers to be accomplished by manually exerting a forceful pressure through the gauze when fixing the napkin to the drawers, i.e. without any need of removing the gauze before the napkin is taken into use. Pressures of such

order of magnitude, and inter-adhesion caused thereby, will not occur between adjacent napkins in a package.

It will be understood that the invention is not restricted to the embodiments described hereinbefore and as illustrated in the accompanying drawings, since many modifications and variations are possible without departing from the scope of the invention.

We claim:

1. A body-fluid absorbing article comprising at least two elongated and substantially flat members which, in use of the article, are placed with opposed flat surfaces in contact with each other, said members being physically separated over the predominant portion of their interface and joined together only at a limited area of said interface, one of said members, the inner member which is to be worn next to the skin, mainly consisting of a liquid-absorbent material which is easily disintegratable in water, whereas another of said members, the outer member, consisting essentially of (1) a liquid-absorbent material which is easily disintegratable in water and (2) at least one liquid-barrier layer of a water-soluble polymer, said liquid-barrier layer of polymer material being disposed at two zones or levels, at least, between which a fluid absorbent material layer for substantial fluid dispersion therein is disposed, said zones or levels acting to prevent any passage through said liquid barrier of fluid passing from said inner member and reaching said liquid-barrier, and further being adapted to permit said outer member to be readily disintegrated after soaking in water.

2. An article according to claim 1, in the form of a sanitary napkin, wherein said inner member is smaller than said outer member.

3. An article according to claim 2, wherein said members are interconnected only at the short end of said inner member.

4. An article according to claim 1, in which said liquid-barrier is made of a polymer material adapted to render the article highly pervious to water vapor.

5. An article according to claim 1, wherein said water-soluble polymer is the sodium salt of carboxy-methyl cellulose.

6. An article according to claim 1, wherein said liquid-barrier consists of two layers of polymer material contacting each other.

7. An article according to claim 1, in the form of an elongated sanitary napkin wherein a portion of the external surface of the napkin facing the clothing of the wearer is provided with a layer of a pressure-sensitive adhesive capable of adhering to the material of the clothing, said pressure-sensitive adhesive being applied at one short end only of the napkin.

8. An article according to claim 7, wherein said pressure-sensitive adhesive is applied to a surface of said napkin, having a substantially larger extent in the longitudinal than in the transverse direction of said napkin.

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UNITED STATES PATENT OFFICE
CERTIFICATE OF CORRECTION

Patent No. 3,654,929 Dated April 11, 1972

Inventor(s) Marit Gunnel Matilda Nilsson et al.

It is certified that error appears in the above-identified patent and that said Letters Patent are hereby corrected as shown below:

In the Original Letters Patent under "Foreign
Application Priority Data" the third application acknowledged
therein, to wit: Sweden 14792/67 was filed October 30,
1967 instead of the erroneously given date of October 10, 1967.

Signed and sealed this 1st day of August 1972.

(SEAL)
Attest:

EDWARD M. FLETCHER, JR.
Attesting Officer

ROBERT GOTTSCHALK
Commissioner of Patents