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SANITARY NAPKIN

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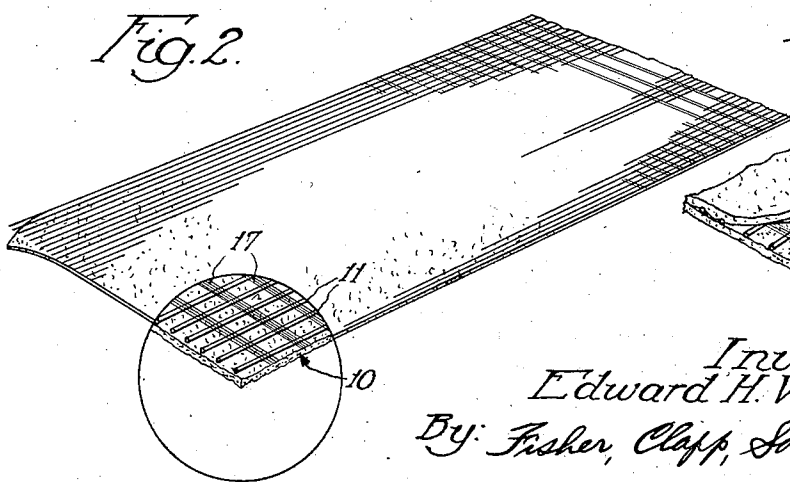
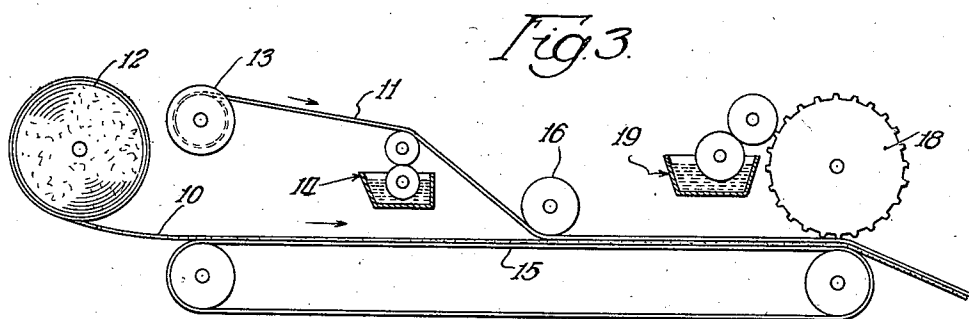
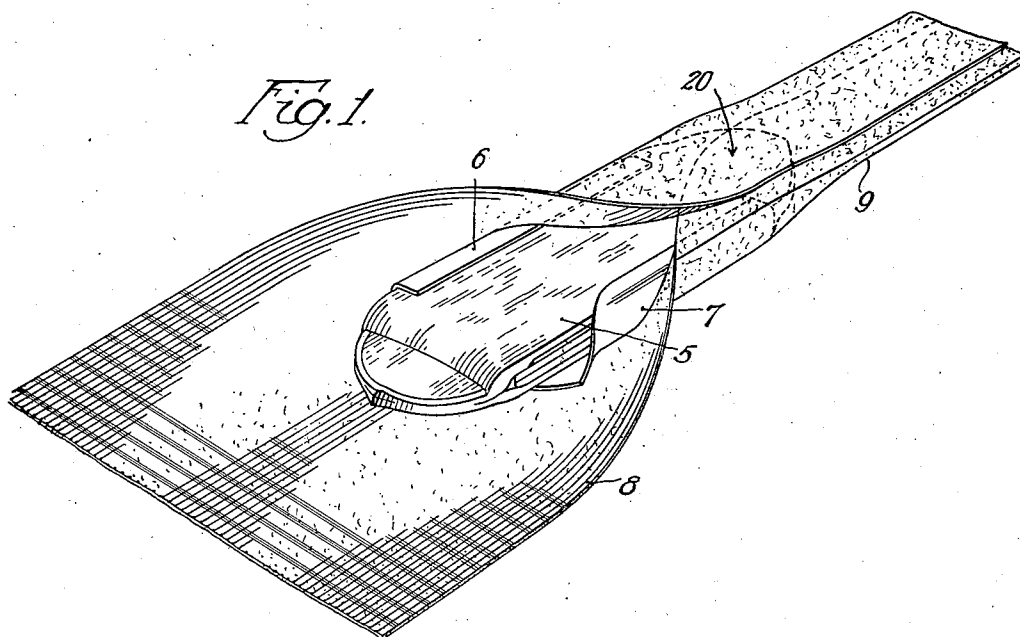
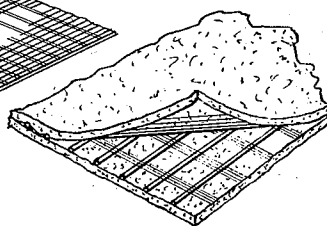


Fig. 4



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SANITARY NAPKIN

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6 Claims. (Cl. 128—284)

This invention relates to improvements in sanitary napkins of the type embodying an absorbent pad body and a wrapper which is extended endwise beyond the pad body to provide attachment tabs.

The main objects of the invention are to provide a sanitary napkin having unusually effective anti-chafing properties and comfort characteristics but which may nevertheless be produced on a commercial scale so as to be practicably competitive with more or less conventional, less desirable constructions heretofore available.

In general, it is the object of the invention to provide an improved sanitary napkin and other objects and advantages of the invention will be understood by reference to the following specification and accompanying drawing, wherein there is illustrated a sanitary napkin embodying a preferred form of the invention.

In the drawing:

Figure 1 is a perspective of the improved sanitary napkin partly opened up to reveal its construction;

Figure 2 is a fragmentary perspective of the improved covering material employed in constructing the napkin;

Figure 3 is a diagrammatic illustration of a method and apparatus for producing the improved cover material; and

Figure 4 is a fragmentary perspective of a modified form of the cover material.

Referring now to the drawing, the sanitary napkin herein disclosed embodies an absorbent pad element 5 which may be of any desired construction. For example, it may consist of a plurality of plies of absorbent creped tissue paper superposed one on the other and having their ends compacted so as to reduce the thickness of the pad end portions. The side edges of the pad body may be enclosed in moisture-proof strips 6 and 7, which may consist of strips of paper suitably treated to make them moisture-proof, such strips serving to maintain the outside edges of the pad dry. The absorbent pad body 5, whatever its construction may be, is enclosed in a wrapper 8, which is of such length that it extends endwise beyond the pad ends to provide tabs such as indicated at 9 which may be employed for attachment purposes. It is to be understood, of course, that a tab such as 9 is formed at both ends of the pad incident to the longitudinal folding of the wrapper around the pad body in the manner indicated in Figure 1 and the disposition of the pad body intermediate the ends of the wrapper as shown.

The function of the wrapper 8 is to support the absorbent pad body in proper position on the wearer, and for that purpose the attachment tabs such as 9 are connected to a supporting sanitary belt by means of clips or buckles, or by being pinned to the latter. Such supporting and attaching functions of the wrapper necessarily require that the wrapper have sufficient tensile strength, especially lengthwise of the pad, to prevent tearing of the wrapper such as might permit the absorbent pad body to become displaced or lost. Also, inasmuch as the wrapper constitutes the outside of the sanitary napkin which comes into direct contact with the wearer, it is desirable that it be of such a character that it will not tend to irritate or chafe, or otherwise become harmful to the wearer.

A soft web of cotton or like fibrous material is admirably suited to the purposes of a sanitary napkin wrapper so far as its anti-chafing and comfort characteristics are concerned. However, it is wholly unsuited to such purposes in respect of its inherent tensile strength which is much less than that required for the normal supporting and attaching functions as above indicated.

In order to obtain the comfort-giving advantages of a web of cotton there is provided, according to the present invention, a wrapper comprising a web 10 of garnetted or carded cotton fibres, the same being of a thickness selected as being suited to the indicated purposes. So far as the selection of the cotton web itself is concerned, no consideration need be given its tensile strength in either direction. However, it may be observed that in a garnetted web of cotton fibres, the tensile strength of the web is considerably greater lengthwise of the web, i. e. in the direction of the fibres, than in the transverse direction. In order to impart adequate tensile strength to such a web of fibrous material, a plurality of relatively spaced threads 11 are disposed over the inside surface of the fibrous material web and such threads are preferably adhesively attached to the former.

One method and apparatus for producing the thread-reinforced cotton web represented in Figure 2 is diagrammatically shown in Figure 3, wherein a supply roll of garnetted cotton is indicated at 12, and a series of spools of suitable thread is indicated at 13. The threads 11 are drawn from the spools 13 over apparatus indicated at 14 for applying to the threads a coating of latex, starch or other suitable adhesive material. The cotton web 10 is drawn from the supply roll 12 and delivered to a conveyor 15 and the threads 11 and cotton web 10 are passed under a pressure

roll 16 which serves to press the threads 11 into intimate contact with the cotton web so as to cause the adhesive coating of the threads to penetrate the cotton web to the desired extent to insure effective attachment of the threads to the cotton web.

The threads 11 thus adhesively attached to the cotton web impart adequate tensile strength to the cotton web lengthwise of the latter, which is also lengthwise of the pad body when the thread-reinforced cotton web is converted into a wrapper for the pad. In order to increase the tensile strength of the web of cotton transversely of the direction of its fibres so as to improve the handling qualities of the composite web as well as its wrapping qualities, transversely extending stripes 17 of suitable adhesive material may be applied to the web, preferably on the thread side thereof. As indicated in Figure 3, such stripes of adhesive material may be applied by means of a suitable printing roller 18, having transversely extending printing ridges which are coated with adhesive material such as latex by coating apparatus of well known construction indicated at 19.

The spacing of the reinforcing threads 11 and the reinforcing adhesive stripes 17 is subject to considerable variation and it may vary with different grades of cotton webbing. The spacing of the adhesive stripes 17 may depend somewhat on the length of the cotton fibres present in the web 10 and the spacing of the threads 11 may depend somewhat upon the number of threads found necessary to adequately reinforce the web 10 for the supporting and attaching functions above explained.

If desired, a second layer of cotton or other webbing may be applied over the threads and adhesive stripes so as to provide a two-ply structure such as represented in Figure 4 with the reinforcing threads and stripes interposed between the two fibrous material plies. However, for the sanitary napkin purposes herein contemplated, the reinforced webbing illustrated in Figure 2 is suitable.

The cotton webbing is disposed on the outside of the napkin and thus provides a soft outer cushion which contacts the body of the wearer but without any chafing tendency. The cotton webbing in the attachment tabs 9 provides a substantial body for attachment purposes as compared with the conventional flimsy gauze tabs heretofore used. The tabs having a substantial body as herein explained not only add security to the attachment of the napkin to the supporting belt or garment, but also tend to resist gathering or "stringing" of the tabs and thereby assist in maintaining the pad end portions in inconspicuous, flat, body-hugging condition.

The wrapper construction herein described is also economical in that it eliminates relatively expensive woven gauze material. Also, because cotton or like fibres have a definite and strong tendency to attach themselves to each other, a relatively narrow overlap, as indicated at 20, of the marginal portions of the wrapper provides a secure enough connection between said overlapped portions to adequately retain the pad 5 within the wrapper. Due to the permissibly narrow overlap, the over-all width of the wrapper may be somewhat less than that required when ordinary gauze is employed. Hence, economy is also attained by a reduction in quantity of material required. In view of these economies, the improved construction may be made probably at no greater cost than conventional gauze-wrapped

napkins, notwithstanding the important advantages present in the improved construction.

Changes in the described structure may be made without departing from the spirit of the invention, the scope of which should be determined by reference to the following claims, the same being construed as broadly as possible, consistent with the state of the art.

I claim:

1. A sanitary napkin comprising an elongated absorbent pad, and a wrapper enclosing the pad and having extensions beyond the ends thereof constituting attachment tabs, said wrapper being adapted to support the pad by attachment of said tabs to a belt or other supporting element, and said wrapper comprising a layer of soft, fibrous material characterized by its anti-chafing quality and inadequate tensile strength for said enclosing and supporting functions of the wrapper, a plurality of threads disposed in spaced relation over a surface of said layer of fibrous material, and a plurality of relatively spaced stripes of cementitious material applied to said fibrous material layer and disposed transversely of said threads, said threads and stripes serving to supply adequate tensile strength to said layer of fibrous material for the purpose set forth.

2. A sanitary napkin comprising an elongated absorbent pad, and a wrapper enclosing the pad and having extensions beyond the ends thereof constituting attachment tabs, said wrapper being adapted to support the pad by attachment of said tabs to a belt or other supporting element, and said wrapper comprising a layer of soft, fibrous material characterized by its anti-chafing quality and inadequate tensile strength for said enclosing and supporting functions of the wrapper, a plurality of threads disposed in spaced relation over, and adhesively secured to, a surface of said layer of fibrous material, and a plurality of relatively spaced stripes of cementitious material crossing said threads and said fibrous material layer, said threads and stripes serving to supply adequate tensile strength to said layer of fibrous material for the purpose set forth.

3. A sanitary napkin comprising an elongated absorbent pad, and a wrapper enclosing the pad and having extensions beyond the ends thereof constituting attachment tabs, said wrapper being adapted to support the pad by attachment of said tabs to a belt or other supporting element, and said wrapper comprising a web of soft, garnetted fibrous material characterized by its anti-chafing quality and different tensile strengths lengthwise and crosswise of the web and the inadequacy of said tensile strengths for the enclosing and supporting functions of the wrapper, a plurality of threads disposed in spaced relation over a surface of said web and extending in the direction of the fibres therein, and a plurality of relatively spaced stripes of cementitious material crossing said thread and the fibres of said web, said threads and stripes serving to supply adequate tensile strength to said web of fibrous material for the purpose set forth.

4. A sanitary napkin comprising an elongated absorbent pad, and a wrapper enclosing the pad and having extensions beyond the ends thereof constituting attachment tabs, said wrapper being adapted to support the pad by attachment of said tabs to a belt or other supporting element, and said wrapper comprising a layer of soft, fibrous material characterized by its anti-chafing quality and inadequate tensile strength for the enclosing and supporting functions of the wrap-

per, a plurality of adhesive-coated threads disposed in spaced relation over a surface of said layer of fibrous material, said threads being adhesively attached to said layer through the agency of said adhesive coating on the threads, and a plurality of relatively spaced stripes of cementitious material crossing said threads and said fibrous material layer, said threads and stripes serving to supply adequate tensile strength to said layer of fibrous material for the purpose set forth.

5. A sanitary napkin comprising an elongated absorbent pad, and a wrapper enclosing the pad and having extensions beyond the ends thereof constituting attachment tabs, said wrapper being adapted to support the pad by attachment of said tabs to a belt or other supporting element, and said wrapper comprising a web of soft, garnetted fibrous material characterized by its anti-chafing quality and different tensile strengths lengthwise and crosswise of the web and the inadequacy of said tensile strengths for the enclosing and supporting functions of the wrapper, a plurality of adhesive-coated threads disposed in spaced relation over a surface of said web and extending in the direction of the fibres therein, said threads being adhesively attached to said web through the agency of said adhesive coating

on the threads, and a plurality of relatively spaced stripes of cementitious material crossing said threads and the fibres of said web, said threads and stripes serving to supply adequate tensile strength to said web for the purpose set forth.

6. A sanitary napkin comprising an elongated absorbent pad, and a wrapper enclosing the pad and having extensions beyond the ends thereof constituting attachment tabs, said wrapper being adapted to support the pad by attachment of said tabs to a belt or other supporting element, and said wrapper comprising a layer of soft, fibrous material characterized by its anti-chafing quality and inadequate tensile strength for said enclosing and supporting functions of the wrapper, a plurality of adhesive-coated threads disposed in spaced relation on the inside surface of said layer of fibrous material, said threads being adhesively attached to said surface through the agency of said adhesive coating on the threads, and a plurality of relatively spaced stripes of cementitious material applied to the inside of said fibrous material layer and crossing said threads, said threads and stripes serving to supply adequate tensile strength to said layer of fibrous material for the purpose set forth.

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