

Feb. 3, 1970

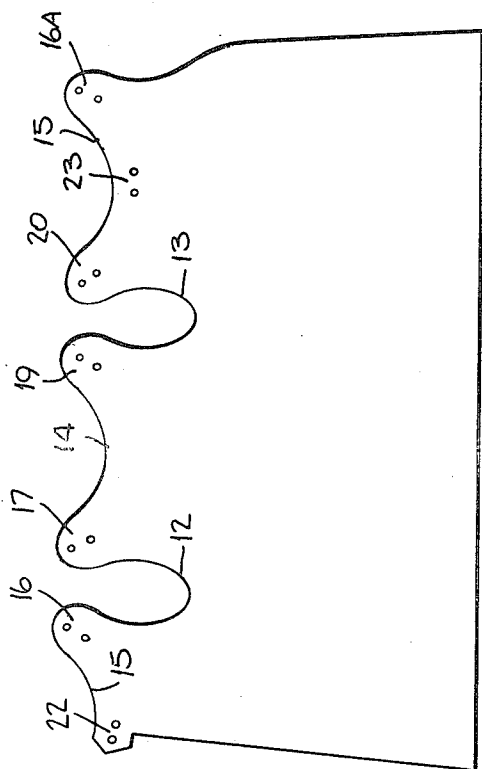
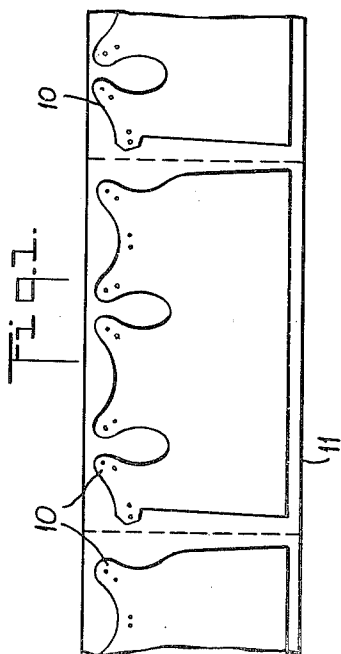
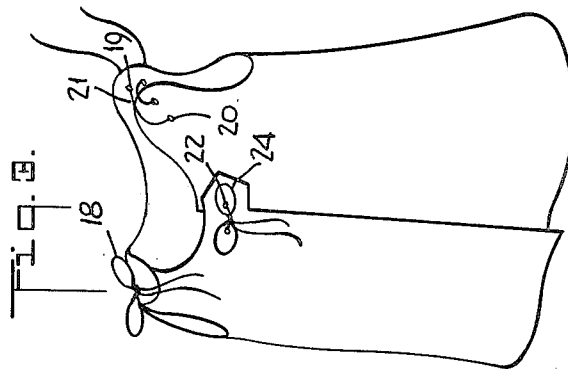
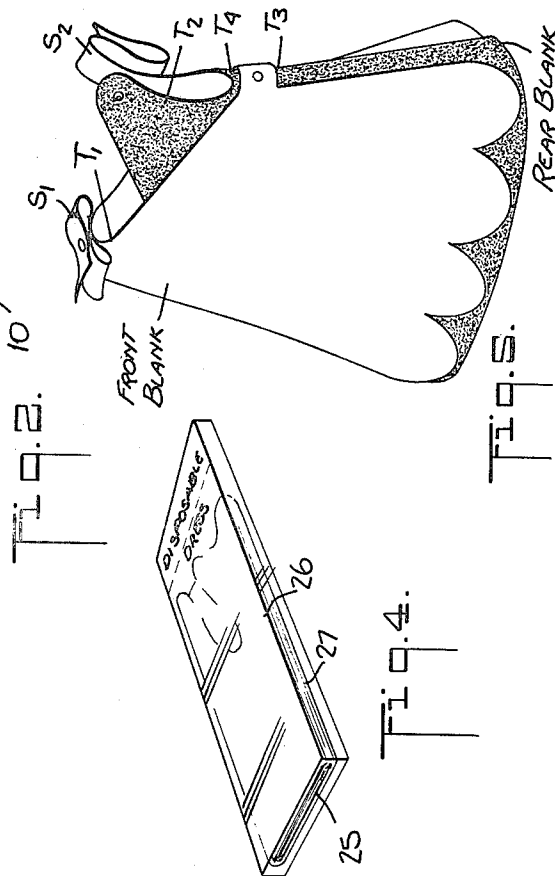
S. ZAMIST

3,492,673

DISPOSABLE NON-WOVEN WEARING APPAREL

Filed June 24, 1968

2 Sheets-Sheet 1



INVENTOR.
SOPHIE ZAMIST
BY *Michael E. Bell*
ATTORNEY

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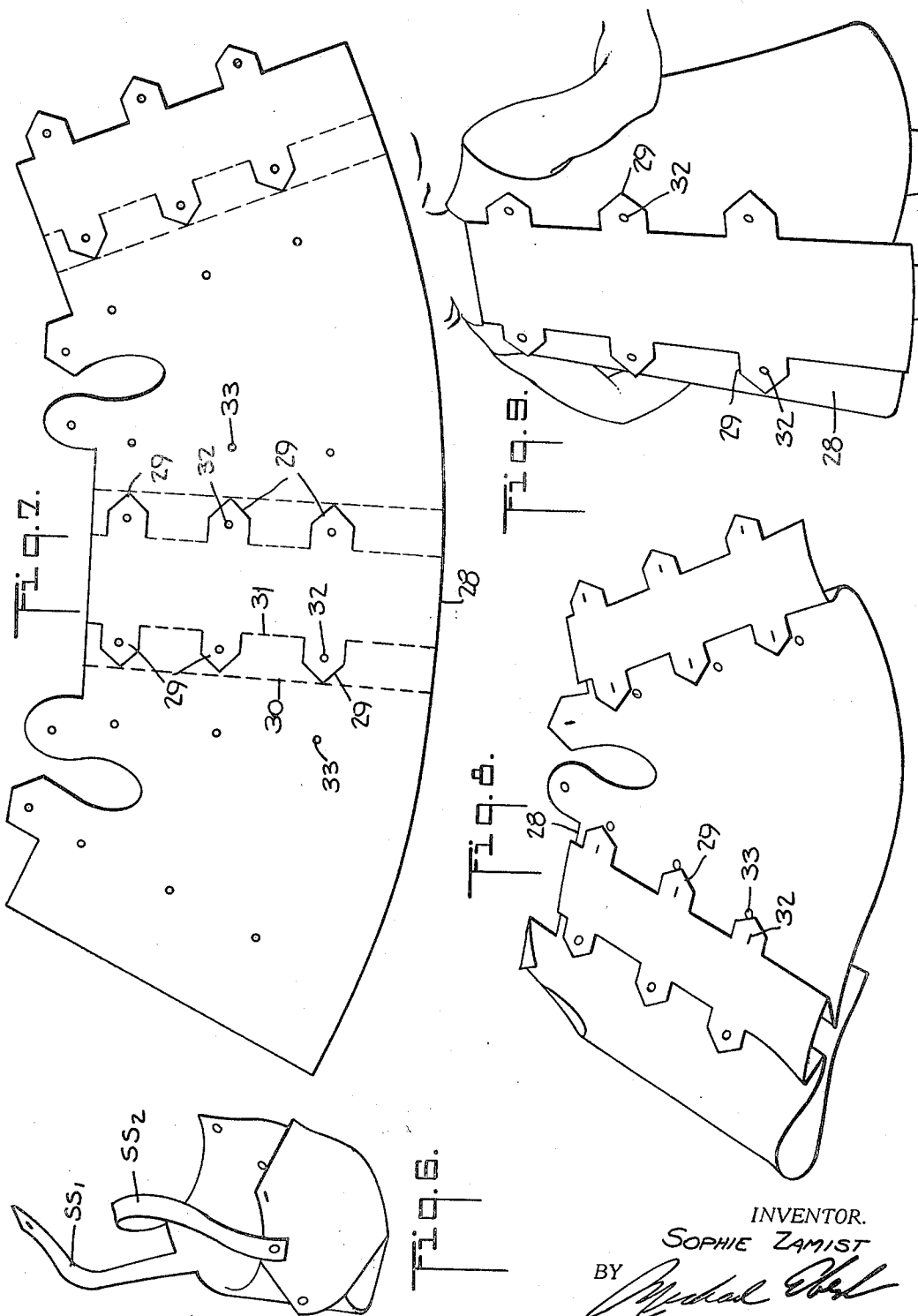
S. ZAMIST

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DISPOSABLE NON-WOVEN WEARING APPAREL

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2 Sheets-Sheet 2



INVENTOR.

SOPHIE ZAMIST

BY

Michael Ebel

ATTORNEY

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3,492,673
DISPOSABLE NON-WOVEN WEARING APPAREL
 Sophie Zamist, New York, N.Y.
 (3010 Grand Concourse, Bronx, N.Y. 10458)
 Filed June 24, 1968, Ser. No. 739,346
 Int. Cl. A41d 1/22

U.S. Cl. 2-74

7 Claims

ABSTRACT OF THE DISCLOSURE

Disposable wearing apparel formed of contoured, two-dimensional blanks of non-woven fabric, the profile of each blank and the dimensions thereof determining the nature of the garment created thereby. Each blank is provided with complementary sets of apertures to receive laces or other fastener means, the apertures being so placed that the blank may readily be converted into a three-dimensional garment by passing laces or fasteners through appropriate apertures.

This invention relates in general to wearing apparel, and in particular to disposable garments created from contoured, two-dimensional blanks of non-woven material which are convertible into three-dimensional garments without glueing, sewing, or heat-sealing.

A non-woven material may generally be described as a coherent sheet of entangled or bonded fibers made without the fibers first being spun into yarns and thereafter interlaced by weaving, knitting, braiding or other means of yarn manipulation. Among the materials used in making non-woven fabrics are papers, needled felts, battings, and other forms of textiles produced by forming synthetic fibers into a web and causing the fibers to adhere to each other.

While non-woven materials in the apparel field have been the subject of an enormous amount of interest, their actual use has been limited largely to interfacing and as felt replacement materials for shoulder pads, belts, and the like. Non-woven fabrics have been considered for outerwear purposes, but little use has been made of them in this field.

Non-woven fabrics are not properly classified as disposable items, except in special cases where woven or knitted structures are also disposable, as in surgical bandages. Non-woven materials are basically permanent textiles. However, within the context of the present invention, where the desideratum is low cost, the choice of materials and the fabrication technique are deliberately such as to afford an attractive garment having good wearability, which garment, because it includes no investment in tailoring, may nevertheless be discarded without sacrifice after one or two uses.

In an increasingly mobile society, there exists a growing need for disposable clothing which lends itself to compact storage and packaging, and which may be put to use when the occasion arises and discarded after serving its purpose. The typical American family is constantly on the go, and whatever the means of transportation, the family is faced with the problem of providing an adequate supply of garments suitable for changing conditions encountered in the course of travel. Where, for example parents on a trip are accompanied by two or more children or teen-agers, the number of items which can conveniently be brought along almost invariably falls short of actual clothing requirements and creates a laundry problem.

In attempts heretofore made to fabricate disposable clothing of paper or low-cost synthetic, non-woven materials, the garment material has been preformed or tailored to shape by sewing, heat-sealing, or even glueing.

Non-woven fabrics made of paper ordinarily cannot be machine-sewed, for the usual feeding operations tends to introduce creases in the paper and to otherwise mar the surface of the fabric. While the paper may be glued, the resultant seam tends to be somewhat stiff and unattractive and may include gaps of adhesion.

In any case, when a disposable garment is tailored to final form, its ultimate price must take into account the cost of the sewing, pressing and other operations carried out in manufacturing the garment. As a consequence, these garments inevitably fall in a price range which does not admit of disposability, except as an extravagance.

In view of the foregoing, it is the main object of this invention to provide low-cost disposable apparel formed of non-woven material, which apparel is made without sewing, heat-sealing, glueing, or any other operations heretofore performed in manufacturing such apparel. Thus the expenses involved in making such apparel are the cost of the material itself, which is usually quite low, to which is added the minor costs of cutting and hole punching the material.

More specifically, it is an object of the invention to provide apparel of the above-described type in the form of contoured, two-dimensional blanks of non-woven material having complementary sets of apertures therein, whereby the contoured blank, which is packagable in flat, folded or cylindrical form, may readily be converted into a three-dimensional garment by passing laces or other fasteners through appropriate apertures.

It is to be understood that disposable articles of apparel in accordance with the invention are not quasigarments such as capes, ponchos, saris, sarongs or other forms of apparel made simply by draping a piece of fabric about the body. On the contrary, these articles are real dresses, rompers, sun-suits, panties, pinafores, and other items which are properly classified as garments, for they are based on contoured patterns which impart arm holes, skirts, collars, pleats and leg holes for pants as well as other shaped forms to the garment.

A significant advantage of the invention is that because it is packagable in compact flat, folded or cylindrical form, it may be distributed through vending machines as well as by conventional over-the-counter sales or through self-service racks in stores. A traveling family may lay in a large and varied supply of such packages or purchase them on route and discard the articles after use, so that in returning from a trip it will do so with lightened baggage rather than a burden of apparel in need of laundering.

Briefly stated, these objects are accomplished by die-cutting a sheet or web of non-woven material into a two-dimensional blank whose profile defines the form of the garment to be created, the blank also having apertures punched therein in complementary sets, which apertures are so placed that the contoured blank may readily be converted into a wearable, three-dimensional garment by passing laces or other fasteners through appropriate apertures in order to hold together complementary portions of the blanks and thereby cause the blank to assume the desired form. For purposes of storage and transportation, the blanks are flat-folded or rolled into small packages, and enclosed with the necessary laces or other fasteners, in sealed envelopes.

For a better understanding of the invention, as well as other objects and further features thereof, reference is made to the following detailed description to be read in conjunction with the accompanying drawing, wherein:

FIG. 1 illustrates a web of non-woven material in the course of cutting to form blanks in accordance with the invention;

FIG. 2 shows a single blank;

FIG. 3 shows the blank converted into an article of apparel;

FIG. 4 shows the flat-folded and packaged blank;

FIG. 5 illustrates another article of apparel in accordance with the invention;

FIG. 6 depicts still another article;

FIG. 7 is another and more elaborate example of a blank in accordance with the invention from which a pleated dress is formable;

FIG. 8 shows the formation of the pleats; and

FIG. 9 shows the dress when worn.

Referring now to the drawing, and more particularly to FIG. 1, the disposable garments in accordance with the invention are mass-produced by cutting or die-cutting contoured blanks 10 from a continuous web 11 of non-woven material, which may be a paper product, or formed of rayon, felt, or any available synthetic, low-cost material. The nature of the non-woven fabric forms no part of the present invention, although the use of resin-reinforced or impregnated paper is presently preferred because of its high strength and good textile characteristics coupled with low cost. While the use of non-woven materials is stressed herein, the invention is also applicable to woven fabrics which have been dimensionally stabilized, as by means of thin plastic reinforcing films laminated thereto.

By way of a simple example, as shown in FIG. 2, the contoured, two-dimensional blank 10 is cut to form a dress which, when assembled in three-dimensional form, has the appearance illustrated in FIG. 3. The pair of bay-shaped notches 12 and 13 in the blank define the armholes of the garment, whereas the larger, bow-shaped notches 14 and 15 define the neckline thereof.

Punched into blank 10 at strategic positions are complementary sets of apertures. Thus the pair of apertures 16 and 16A complements the pair 17, which apertures are intended to receive a lace or ribbon fastener 18 to complete one armhole, as shown in FIG. 3. Similar complementary pairs of apertures 19 and 20 operating in conjunction with a lacing 21, serve to complete the second armhole.

To close the front panels of the dress, a pair of holes 22 is punched in one tab portion, and a complementary pair of holes 23 is punched in another tab portion, a lace 24 being provided to fasten these tabs together.

For the purposes of storage and shipment, blank 10 is neatly folded into a small flat package 25, as shown in FIG. 4, and housed within a sealed, transparent envelope 26 of flexible transparent sheeting, which also encloses the necessary ribbons or laces 27. Thus the purchaser is able to observe the contents. Printed on the package will be size, style and other pertinent data. It will be appreciated that the paper blank may be colored, patterned, textured and otherwise styled to provide an attractive garment of acceptable taste. After the package is opened, the blank may be unfolded, and the laces readily applied by the wearer to convert the two-dimensional blank into a three-dimensional garment.

In packaging, the contoured blanks may, in the alternative, be rolled into a cylinder and enclosed in a tubular container. The advantage of rolling as against flat-folding is the absence of fold lines in the assembled garment.

Referring now to FIG. 5, there is shown another form of dress which is styled differently from that shown in the previous figures, but is made in essentially the same fashion. In this instance, the dress is formed by cutting two complementary blanks. The top blank is cut to form strap S_1 to cooperate with tongue T_1 and side fasteners through T_3 and T_4 , the complementary blank forms S_2 to fasten to T_2 and side fasteners on the opposite side. While laces or ribbons may be used to tie the straps to the tongues, other fastening means may be provided, such as stud-button fasteners, cuff-link types and other available forms. In practice more than one type of fastener may be supplied to make possible minor style variations,

as by the use of colored stud buttons, rather than ribbons.

In FIG. 6, as a further example of the range of garments which may be made by the invention, there are shown rompers formed with shoulder straps SS_1 and SS_2 . It will be recognized that the basic technique disclosed herein is susceptible to a wide variety of garment designs, the character of each garment being basically determined by the profile and dimensions of the blank taken in combination with the placement of the complementary apertures.

In the more elaborate blank 28 illustrated in FIGS. 7 and 8, which is adapted to make a pleated dress as shown in FIG. 9, the blank not only contains complementary sets of apertures to form arm holes and a neck, but it also includes slits to define tabs 29 which are disposed between folds 30 and 31 which are delineated by score-lines or merely indicated by printed lines or a design pattern. By folding the blank along these boundaries in the manner shown in FIG. 8, the tabs are released and extended so that apertures 32 therein lie in registration with complementary apertures 33, thereby maintaining the resultant pleat when the fasteners are applied to the apertures.

While there has been shown preferred embodiments of the invention, it will be appreciated that many other forms of apparel may be fabricated by using essentially the same technique and it is intended, therefore, to cover the full range of apparel which can thus be made.

What I claim is:

1. A disposable wrap-around article of wearing apparel comprising a two-dimensional contoured blank of non-woven fabric of uniform thickness, the profile of each blank and the dimensions thereof essentially determining the nature of the garment created thereby and being contoured along the outer edges thereof to create complementary portions defining armholes, a neck opening and a shaped body conforming to the body of the wearer when the blank is wrapped about a person, each blank being provided with complementary sets of apertures, and fastening means independent of said blank for said sets of apertures, said apertures being so placed on said complementary portions that the blank may be converted into a three-dimensional garment by connecting said fastening means to appropriate apertures.

2. An article as set forth in claim 1, wherein said blank is formed of paper.

3. An article as set forth in claim 1, wherein said fastening means is formed of lacing.

4. An article as set forth in claim 1, wherein said fastening means is formed of stud buttons.

5. The method of producing disposable wrap-around garments, without sewing, glueing or sealing, comprising the steps of:

(a) cutting from a sheet of disposable fabric material of uniform thickness a contoured, two-dimensional blank, the contours and dimensions of which determine the ultimate nature of the garment created thereby, said blank being contoured along the outer edges thereof to create complementary portions defining armholes, a neck opening and a shaped body conforming to the body of the wearer when the blank is wrapped about a person, and

(b) punching complementary sets of apertures in said blanks at positions on said complementary portions at which, when the apertures have fastening means connected thereto, the blank is convertible into a three-dimensional garment.

6. The method as set forth in claim 5, further including the steps of flat-folding the blank and sealing it within a transparent envelope with said fastening means.

7. The method as set forth in claim 5, further including providing sufficient width in said blank to form a pleat therein, folding said blank to form said pleat, and slitting said blank to define tabs for holding said pleat therein.

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H. HAMPTON HUNTER, Primary Examiner

U.S. CI. X.R.

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