Aug. 1, 1944. E. DONALDSON ET AL 2,354,669

UNDERGARMENT

Filed Aug. 4, 1941 2 Sheets-Sheet 1

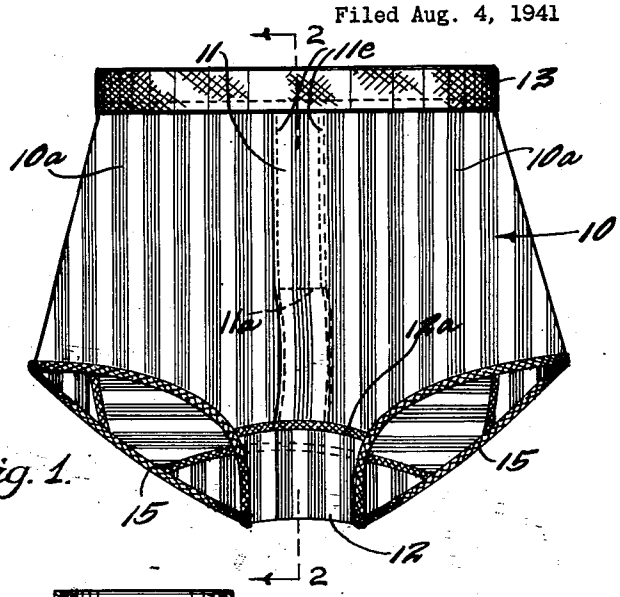


Fig. 1.

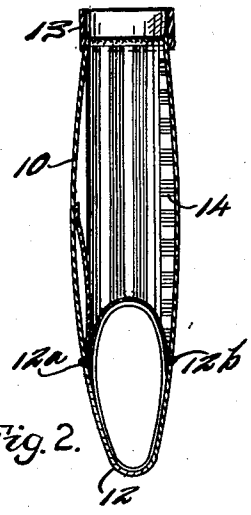


Fig. 2.

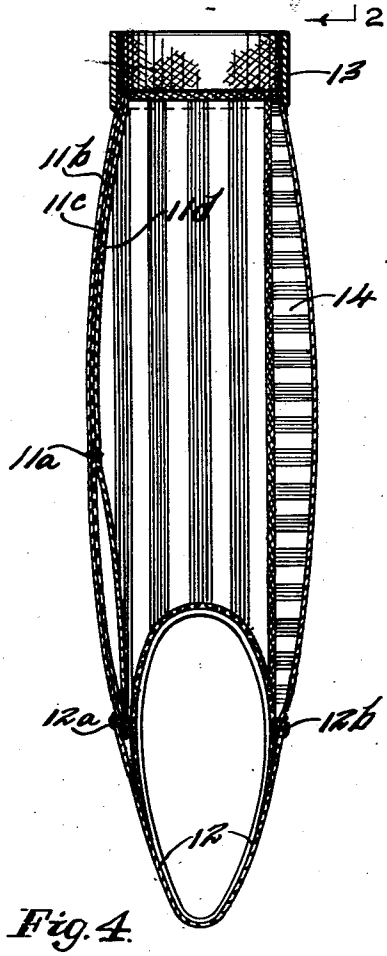


Fig. 4.

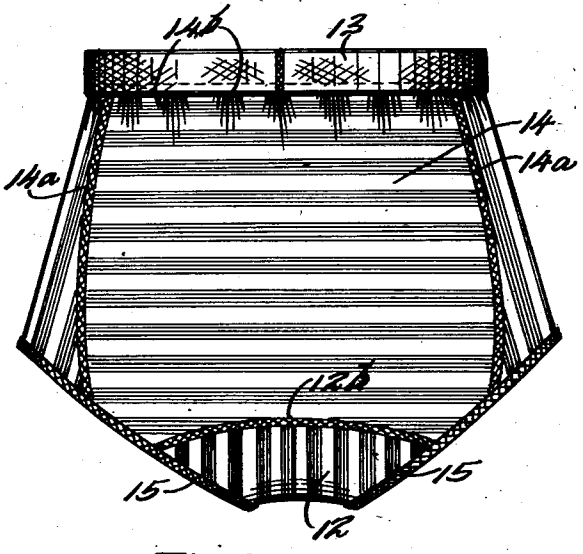


Fig. 3.

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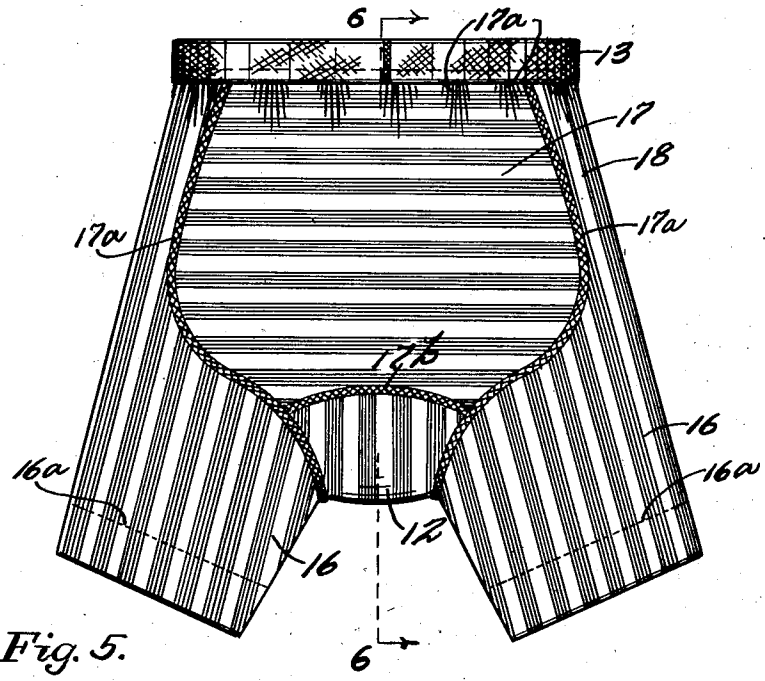


Fig. 5.

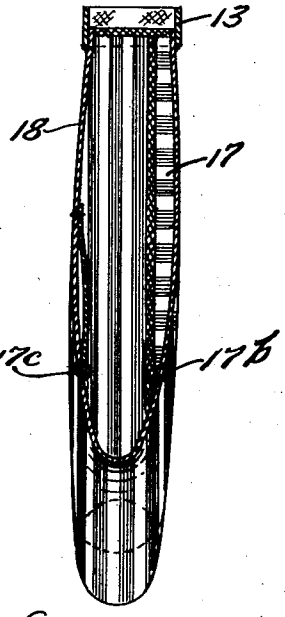


Fig. 6.

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UNITED STATES PATENT OFFICE

2,354,669

UNDERGARMENT

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Application August 4, 1941, Serial No. 405,328

4 Claims. (Cl. 2—224)

This invention relates to a garment and while the construction might have various applications, it particularly is designed for embodiment in an undergarment. Such an undergarment can be made for men, women or children although in the embodiment of the invention illustrated, a garment for men is shown.

It has been previously proposed to make garments of material which has more stretch in one direction than another, but the garments of the prior art along this line have not been practical or constructed so that a useful and practical garment was produced. It is desirable in undergarmnets to have the material stretchable at certain parts and in definite directions but it is necessary for comfort and also to enable the garment to keep in proper position that this stretching effect be properly disposed and limited.

It is an object of this invention to provide a garment made principally of material which is stretchable in one direction but not appreciably stretchable, or much less stretchable, in the other direction, said material being disposed in the various parts of the garment to give the desired effect, which effect is limited by other parts or constructions of the garment.

It is a further object of the invention to provide an undergarment preferably having a narrow band at its top stretchable circumferentially adapted to surround the waist of the wearer, said garment having a front portion with a central zone which is non-stretchable appreciably in either direction but having zones at each side thereof which are stretchable laterally but substantially non-stretchable or having much less stretch vertically or longitudinallly of the garment.

It is further an object of the invention to provide an undergarment having front and rear portions together with a crotch piece of considerable width connecting the front and rear portions and having front and rear ends disposed substantially the same distance from the top of the garment.

It is another object of the invention to provide an undergarment comprising a novel combination of parts such as a rear portion, a front portion and a crotch piece, said parts being arranged for stretching in definite directions and relations.

Another object of the invention is to provide an undergarment having a front portion with a central zone preferably formed of a plurality of layers which is substantially non-stretchable in either direction and which extends more than half way from the top of the garment to the front end of the crotch piece, the garment between said crotch piece and zone comprising overlapped layers having free edges to form a slit, the said front portion at the sides of said zone being stretchable laterally but not vertically and said overlapped layers being of such width that no opening will occur when said garment is stretched laterally.

These and other objects and advantages of the invention will be fully set forth in the following description made in connection with the accompanying drawings in which like reference characters refer to similar parts throughout the several views and in which—

Fig. 1 is a view in front elevation of one form of the garment;

Fig. 2 is a central vertical section taken substantially on line 2—2 of Fig. 1 as indicated by the arrows;

Fig. 3 is a view in rear elevation of said garment;

Fig. 4 is a view similar to Fig. 2 shown on an enlarged scale;

Fig. 5 is a view in rear elevation of a modified form of garment; and

Fig. 6 is a central vertical section taken substantially on line 6—6 of Fig. 5 as indicated by the arrows.

Referring to the drawings, particularly Figs. 1 to 4, an undergarment is shown having a front portion 10. This front portion is divided into two parts or zones by a central zone 11 disposed centrally of the front portion and extending to the line 11*a* which is located approximately half way or somewhat more than half way to the upper end 12*a* of the crotch piece 12. The zone 11 as shown in Fig. 4, is made of a plurality of layers 11*b*, 11*c* and 11*d*. One of these layers, preferably the middle layer or layer 11*c*, is made of material which is substantially non-stretchable in either direction, such as light muslin. The other layers are made of the same material as the front portion 10, which material is easily and freely stretchable in one direction but is substantially non-stretchable or much less stretchable in a direction at right angles thereto. In the front portion 10 the material is disposed so that it has little or no appreciable stretch vertically or longitudinally of the garment. The layers of the zone 11 are connected by a plurality of stitches 11*e* extending along the sides thereof and there may be additional lines of stitching extending longitudinally of said zone. By stitch-

ing the layers 11b, 11c and 11d together as described, the zone 11 is made substantially non-stretchable in either direction. The front portion 10 therefore, has the central zone 11 which is non-stretchable in either direction and it has the zones 10a at either side of the zone 11 which are stretchable laterally. The garment has at its upper portion a band 13 which is of woven elastic material of common form and this band is stretchable longitudinally and thus circumferentially but has no stretch vertically. By having the band 13 and the zone 11, the lateral stretch in the front of the garment is limited to the zones 10a. By providing the zone 11 a garment is produced which will not be distorted or drawn into unduly stretched positions on the body, as when pulled upon, as would a garment which had a whole front portion continuous and uniform of laterally stretchable material. The zone 11 being connected to the band 13, is kept in the center of the body at the front. With the described construction therefore, the advantage of the lateral stretching is secured but the disadvantage of undue stretching at certain points of the front and the resulting dislocation and discomfort are eliminated. Below the line 11a the layers 11b, 11c and 11d are continued and only the two top layers 11b and 11c are connected by seams at their edges. The two layers 11b and 11c are thus connected together in non-stretchable relation and the edges of the inner layer 11d as shown at the right in Fig. 1 and the edges of layers 11b and 11c as shown at the left of Fig. 1 are left free. There is thus an opening or slit at the front of the garment between the inner layer and the two connected outer layers. The width of said portions below the line 11a can be varied but this width should be such that when the garment is taken hold of at the sides of the front portion 10 and stretched laterally no opening will appear at the portion below the line 11a.

The crotch piece 12 is provided and this is of appreciable or considerable width and has a front end 12a and rear end 12b, which ends are disposed substantially the same distance from the top of the garment. The material is arranged in the crotch piece so that said crotch piece is freely stretchable laterally but has little stretch or is substantially non-stretchable longitudinally. As shown in Figs. 1 and 3 the front end 12a is slightly curved with its convex side uppermost and the rear end 12b is also shown as curved with its convex side uppermost. It will also be seen that the crotch piece increases in width appreciably from its central portion of the center of the crotch to its rear top edge 12b. The crotch piece also is slightly wider at its front end 12a than at its central portion.

A rear portion 14 is provided, and this has side edges 14a shown as pronounced or heavy seams, which converge slightly toward their upper ends. It will also be seen that said rear portion 14 extends outwardly and upwardly from the rear upper portions of the crotch piece 12. This is true in both the garment shown in Figs. 1 to 4 and the garment shown in Figs. 5 and 6. The material in the rear portion 14 is arranged to stretch freely vertically or longitudinally of the garment and it thus has little or no appreciable stretch laterally. In order that the band 13 can stretch at the rear portion of the garment to the desired degree, the upper part of the rear portion 14 is gathered slightly where it is connected to band 13 as shown at 14b. In the form of garment shown in Figs. 1 to 3 very small or short leg portions 15 are provided and these are formed by a tape or strip of fabric attached to the front and rear portions 10 and 14 and the crotch piece 12 as shown. This material may be different from the material of which the main portion of the garment is made and the same may be of finer and closer weave. The leg portions 15 however, are slightly stretchable circumferentially. The material from which the front, rear and crotch portions are made is indicated in the drawings as a ribbed woven material.

In Figs. 5 and 6 a modified garment is shown in which the band 13 is used and which garment has a front portion 18 having the zone 11 and the construction from line 11a to the top of the crotch piece 12 identical with the structure shown in Figs. 1 to 4 already described. The garment in Figs. 5 and 6 however, has longer leg portions 16 and the rear portion 17 has its lower side edges 17a formed on a compound curve merging with the curve of the crotch piece. The leg portions 16 extend downwardly continuously with the front portion 18 and the material is arranged the same as it is in the front portion so that leg portions 16 are stretchable circumferentially. Leg portions 16 are each shown as provided with wide hems secured by a seam 16a. The front portion 18 is shown in section at Fig. 6 and this has the three layers 11b, 11c and 11d as already stated, the separate layers not being shown in Fig. 6 due to the smallness of scale. The rear piece 17 has the slight gathering where it is attached to band 13 as shown at 17a. The front and rear ends of the crotch piece are shown as 17c and 17b respectively and they are substantially the same distance from the band 13.

From the above description it will be seen that we have provided a novel and efficient form of garment and one that has advantages over the garments of the prior art and can be worn with great comfort. The crotch piece as stated, has its front and rear ends substantially the same distance from the top of the garment. The crotch piece is thus centrally located and the shape of this crotch piece has been carefully worked out to give the greatest comfort, while at the same time permitting the desired stretch in the desired direction of the parts without distortion of the garment. It will be seen that the rear portion 14 of the garment has a wide lower portion connected to the side rear end of the crotch piece so that the vertical stretch can be obtained without the tendency to draw the crotch piece into a line. The stretch can take place vertically clear across the rear end of the crotch piece. The wide crotch piece together with the leg portions adjacent thereto thus act to keep the garment nicely fitted to the form of the wearer. The crotch piece can stretch laterally to accommodate leg movements but will not stretch longitudinally, thus holding the front and rear portions in proper position. The garment is designed to fit snugly and neatly around the legs of the wearer and upwardly around the wearer's body to the waist portion. The band 13 snugly fits the waist of the wearer and what might be called a "skin-tight" garment is produced. The parts are so formed, arranged and connected however, that the desired stretch is had at the right places and in the right directions without distorting the garment, pulling it to one side or interfering with its snug "skin-tight" fit. The garment has been produced after much study of the problems en-

countered, much experimentation and by work of a highly inventive character. While the portions 10 and 18 have been designated front portions, it will be noted that they do extend somewhat beyond the sides of the wearer to the sides of the rear portion 14. The garment has been amply demonstrated in actual practice and found to be very successful and efficient. The same is being commercially made and is being very warmly received by the trade.

It will, of course, be understood that various changes may be made in the form, details, arrangement and proportions of the above parts, without departing from the scope of applicant's invention, which generally stated, consists in a device capable of carrying out the objects above set forth, in the parts and combinations of parts disclosed and defined in the appended claims.

What is claimed is:

1. An undergarment having in combination, a comparatively narrow band at its top stretchable circumferentially and adapted to surround the waist of the wearer, said garment having short leg portions and a crotch piece of considerable length and width having its front and rear ends substantially the same distance from said band, said crotch piece being stretchable freely laterally but being substantially non-stretchable longitudinally, a front portion extending from said band to said crotch piece having a narrow central zone, said zone being non-stretchable laterally and longitudinally and extending from said band approximately half the distance to said crotch piece, a rear seat portion of less width than the width of said garment extending from said crotch piece to said band and extending outwardly and upwardly from each side of said crotch piece and then extending substantially rectilinearly to said band, said seat portion being freely stretchable vertically but being substantially non-stretchable laterally, said front portion extending from either side of said narrow zone to the sides of the seat portion and being freely stretchable laterally at each side of said zone but substantially non-stretchable vertically, said narrow zone comprising superposed layers, one of which is of material non-stretchable in either direction and terminates at the bottom of said zone, said plurality of layers continuing below said zone to said crotch piece and having free edges to form a slit opening, said slit opening being of such length and width that no opening at the front will appear when said front is fully stretched laterally.

2. An undergarment having in combination, a band at its top adapted to surround the waist of the wearer, said garment having short leg portions and a crotch piece of considerable length, formed of a separate piece of material and having front and rear ends disposed substantially the same distance from said band, said crotch piece at its front portion being stretchable freely laterally but having little if any stretch longitudinally, a front portion extending from said band to said crotch piece and having a narrow central zone made of superposed layers stitched together so that said zone is substantially non-stretchable laterally and longitudinally, said zone extending from said band substantially half-way to said crotch piece, said front portion at each side of said central zone being freely stretchable laterally but having little if any stretch vertically, and a rear seat portion extending from said crotch piece to said band and extending outwardly and upwardly from each side of said crotch piece and having its sides extending substantially rectilinearly to said band, said seat portion being of less width than the width of said garment and being freely stretchable vertically but having little if any stretch laterally and extending laterally to and connected to the sides of said front portion.

3. An undergarment having in combination, a comparatively narrow band at its top stretchable circumferentially and adapted to surround the waist of the wearer, said garment having short leg portions and a crotch piece of considerable length and width having its front and rear ends substantially the same distance from said band, said crotch being stretchable freely laterally but being substantially non-stretchable longitudinally, a front portion having a narrow central zone comprising three layers, one of which is non-stretchable in either direction, said zone thus being non-stretchable laterally and longitudinally, said zone extending substantially half-way from said band to said crotch piece, said front portion from the lower end of said zone to said crotch-piece comprising overlapping layers unconnected to thus form a slit, said front portion being freely stretchable laterally at each side of said zone, a rear seat portion extending from the rear end of said crotch piece to said band and extending outwardly and upwardly from each side of said crotch-piece and then extending substantially rectilinearly to said band, said rear seat portion being of less width than the width of said garment and connected at its sides to the respective sides of said front portion and being freely stretchable vertically but substantially non-stretchable laterally.

4. An undergarment having in combination, a band at its top and adapted to surround the waist of the wearer, said garment having leg portions and a crotch piece formed of a separate piece of material and having its front and rear ends disposed substantially the same distance from said band, said crotch piece being stretchable freely laterally but having substantially no stretch longitudinally, a front portion extending from said band to said crotch piece and having a narrow central zone substantially non-stretchable laterally and longitudinally, said zone extending from said band substantially half way to said crotch piece, said front portion at each side of said central zone being freely stretchable laterally but having substantially no stretch vertically, and a rear seat portion extending from said crotch piece to said band and having its sides connected to the respective sides of said front portion, said seat portion being freely stretchable vertically but having substantially no stretch laterally.

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