Oct. 17, 1939. C. R. COPPEL ET AL 2,176,790

KNITTED UNDERGARMENT

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Fig. 1.

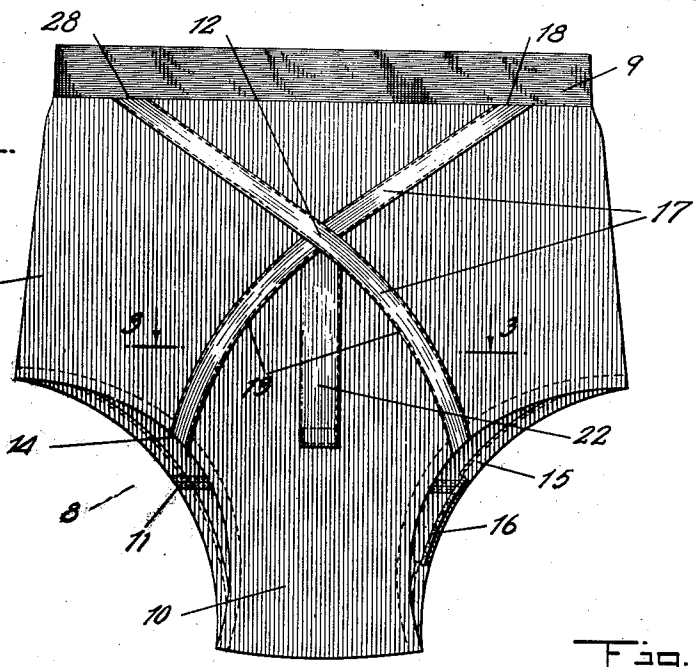


Fig. 3.

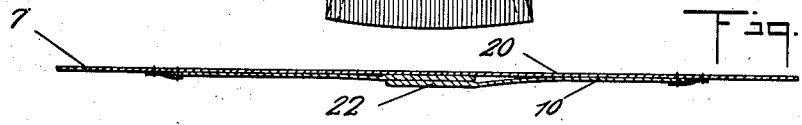
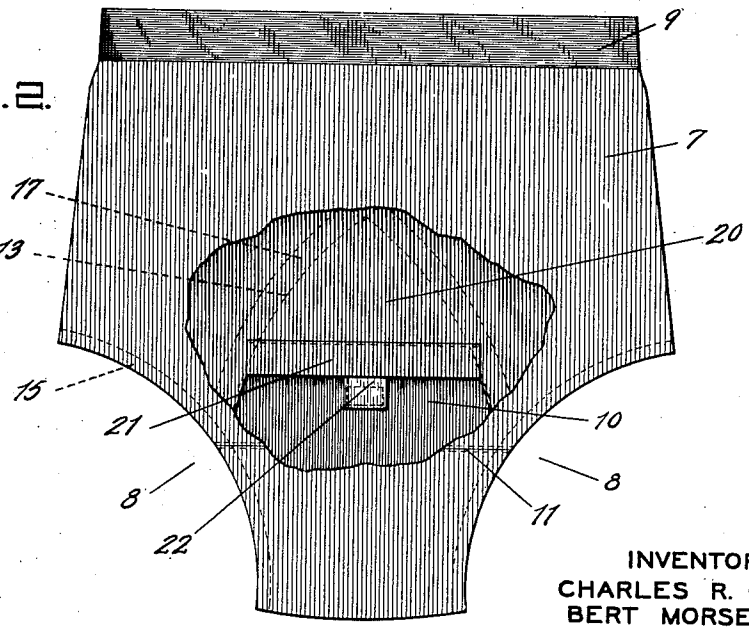


Fig. 2.



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Fig. 4.

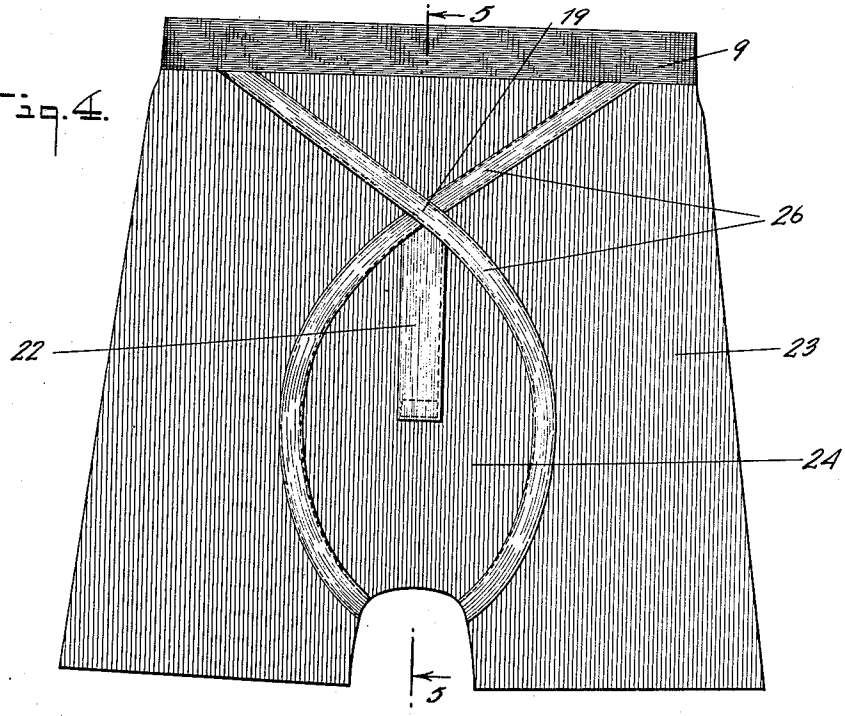
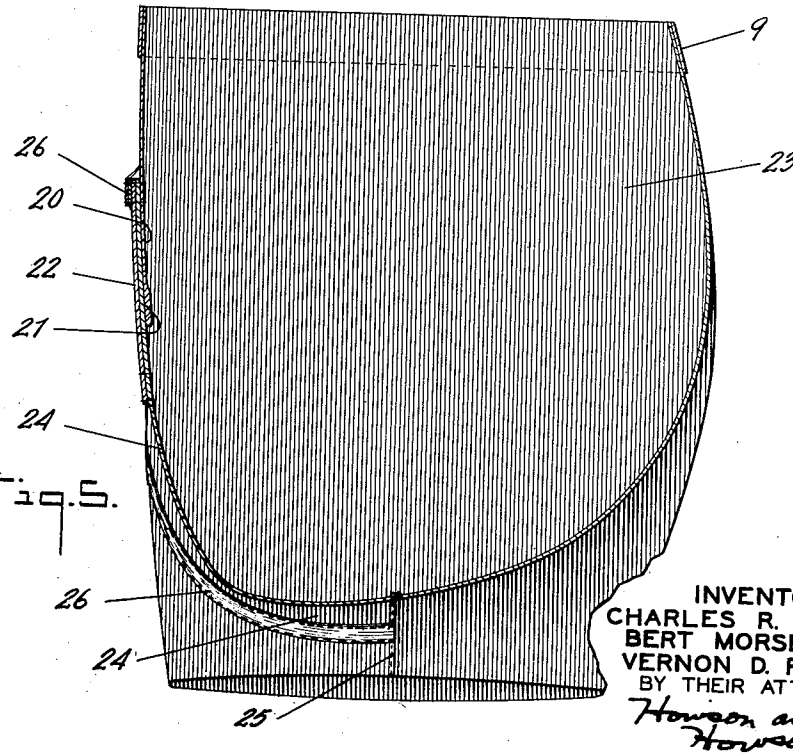


Fig. 5.



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2,176,790

KNITTED UNDERGARMENT

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Application February 17, 1938, Serial No. 191,076

6 Claims. (Cl. 2—234)

This invention relates to knitted undergarments and more particularly to union suits, drawers and shorts. One object of the invention is to produce a knitted undergarment which will give a supporting effect in the crotch without the use of rubber fabric. It is characteristic of this invention that the garment contains crossed strips of comparatively inelastic material to give the supporting effect.

In the drawings,

Fig. 1 is a front view of an athletic shorts garment embodying the new invention;

Fig. 2 is a back view of the garment of Fig. 1, with the seat broken away to show the novel shield structure;

Fig. 3 is a view in horizontal cross section through the fly opening and shield, taken on the line 3—3 of Fig. 1;

Fig. 4 is a front view of a pair of short drawers embodying the invention; while

Fig. 5 is a view in vertical cross section through the middle of the garment of Fig. 4, from front to rear, taken on the line 5—5 of that figure.

In undergarments such as union suits, drawers or athletic shorts, it is frequently desirable that the garment afford a supporting action at the crotch and that that be done without the use of rubber fabric in the crotch. It has been known heretofore to incorporate an inelastic tape in knitted underdrawers from the front center of the belt downwardly to the upper end of the crotch member of the garment. In that construction there is a direct downward pull on the center front of the garment which tends to pull the garment out of position and destroy the supporting action. In such prior garments fly openings have sometimes been made along one of the slanting upper edges of the crotch member, but the downward pull above-mentioned tends to make such fly openings gape. The invention about to be described avoids all these difficulties and provides a much more efficient supporting of the crotch.

The invention will first be described embodied in the athletic type of shorts shown in Figs. 1, 2 and 3. The garment has the usual main body portion 7 extending all the way around the garment at the belt line and forming the upper half of each of the leg openings 8. There is a belt 9 extending around the entire top of the garment, which belt preferably is made of rubber or other similarly elastic material. When the garment is worn, this belt is adapted to encircle the waist of the wearer above the hip bones. The crotch portion 10 of the garment consists of knitted fabric. It is the portion of the garment extending between the legs of the wearer, from the seam 11 at the back of the garment (Fig. 2) through the legs and up the front of the garment to the point marked 12. The crotch piece can be unitary with the body of the garment at the back. It is attached to the body at the front in the following manner. The front end of the crotch member is the shape of an inverted V, with convex sides 13, and the body of the garment is permanently attached to each of these convex sides. This attachment extends downwardly along these convex sides to the points 14 on the leg openings 8. The garment includes two novel cross braces or tapes 17 attached to the belt at points 18, 28, which are spaced laterally from the center part way to the side of the garment. These tapes cross each other at the point 12 and extend downwardly below this crossing point along the convex edges 13 of the crotch member to the leg openings 8. They are preferably stitched to the knitted fabric throughout their length and also, at their upper ends, to the belt.

In this embodiment of the invention the leg openings have a hem 15 extending all the way around. This hem is less elastic than the body of the garment, due to the crossing of the wales of the folded and unfolded portions, but in addition there is preferably provided an elastic 16 extending all the way around the leg opening inside the hem. This elastic can be seen where the hem is broken away on the right side in Fig. 1. It tends to keep the leg openings constricted and to assist in the supporting function.

When the garment is put on, the expansion of the belt tends to pull apart the upper ends of the two tapes. This lifts the intersection point 12 of the tapes in a vertical direction, which tightens the crotch member. The portions of the tapes below the intersection pull upwardly on the leg openings, and with the aid of the elastics 16 pull the edges of the crotch member tight. It might further be noted that any tendency of the elastics 16 in the leg openings to pull the crotch member laterally so as to flatten it unnecessarily is resisted to a desirable extent by the cross brace relation of the tapes. With this construction it will be observed that any downward pull on the garment exerted by the body at the crotch portion will be distributed in a particularly desirable manner. Thus, if the front of the crotch member tends to pull downwardly due to the conformation of the body, the strain is distributed from the crossing 12 of the tapes laterally in each direction to the points 18, 28 of the attach-

ment of the tapes to the belt. The components of stress toward the center of the garment thus created tend to draw the belt tighter over the wearer's hips but do not disarrange the garment by any direct downward pull, nor is there any particular stress downwardly on the center of the belt, which is the point most apt to slip.

Preferably the garment also includes a shield 20 (Fig. 2), which is shown as part of the body 7 of the garment—however, it can be a different piece. As shown in the drawings, the shield is manufactured by extending the fabric down to the points 14 where the tapes 17 intersect the leg openings 8, stitching the body fabric to the tapes and the sides 13 of the front of the crotch member, thereby providing a shield held at both sides which cannot be displaced. If desired, it is possible to slit up the lower edge 21 of the shield a little at the seam lines and fold the lower edge up to create a hem. This leaves the lower edge of the shield a short distance above the line joining the points where the tapes meet the leg openings. The garment can have a fly opening 22, as shown in Figs. 1 and 2, extending from the intersection 12 of the tapes downwardly to a point opposite the intersection of the tapes and the leg openings. It can be formed in the usual manner with overlapping hem or thickened portions, as usual (Fig. 3). With this arrangement the lower end of the fly opening extends a short distance below the hem 21 of the shield, but the rest of it is in front of the shield. The distance from the fly opening laterally to the points where the hem 21 of the shield is attached to the tapes and the sides 13 of the crotch member is sufficient to provide the necessary access without exposure of the body. It has been found that by fastening the convex edges of the front of the crotch member directly to the body portion of the garment throughout the length of the sides, by locating the cross bracing tapes on these sides and by having the continuous fabric of the shield extending across the upper end of the crotch member and stitched to the tapes and other material on both sides of the crotch member, a structure is formed which resists undue lateral expansion or other interference with the supporter effect. Thus the stitching in of the shield strengthens the tapes and helps them resist the lateral components of movement below the intersection point 12, while the plain fabric above that intersection permits the point to rise when the garment is put on the body.

In Figs. 4 and 5 we have shown our invention embodied in the athletic type of drawers with square cut legs. The garment has the same belt 9 and the same fly opening 22, but the other portions of the garment are different. It contains the same basic method of functioning to provide support and keep it in place on the body. The body 23 of the garment may be made of one or more pieces sufficient to form an entire garment except for the crotch portion 24. In this case it will be noted (Fig. 5) that the crotch opening extends from the front of the garment only to the vertical median line 25 inside the legs, and is attached at this median line to the body of the garment. In the drawings this line is a sewed seam. As in the previous example, there are two comparatively inelastic tapes 26 arranged in the same cross brace fashion, with the point of intersection 19 at the upper end of the crotch member. The supporting effect is needed only from the seam 25 forward. It will be observed that the edges of the crotch portion have comparatively inelastic strips along them throughout the parts where the supporting effect is desired and connecting directly with the belt 9. Any pull which the lower ends of the tapes may exert on the garment at the seam 25 is distributed throughout the garment and will not create wrinkles in the seat of the garment. It will be noted that with this construction there is a tightness of the crotch member at the edges thereof, and a bag-like formation occurs which is particularly suitable for the supporting action.

It has been found that the cross brace structure above described distributes the strain of the pull more evenly and can afford more supporting effect than previous garments. Furthermore the belt is a firm anchorage owing to the manner in which the tapes are incorporated in the garment, and there is no tendency for the garment to be displaced. It should also be noted that the mere act of putting the garment on creates a supporting effect. This automatic creation of the supporting tension is found not only in the preferred form of Figs. 4 and 5, but also in Figs. 1 and 2. The cooperative relation of the parts is such that there is no tendency for the fly opening to gape, and in any case the shield which cooperates in keeping the crotch member and fly opening in undistorted relation provides an extra thickness of cloth to cover the crotch of the wearer and yet not interfere with the use of the fly opening. It will be obvious, of course, that a garment containing the supporting effect and shield can be made without the fly opening.

Many modifications which do not depart from the scope of our invention will occur to those skilled in the art.

What we claim is:

1. An undergarment of knitted fabric, comprising a body member, a crotch member attached thereto and extending part way up the front of the garment, and a belt around the body member, in combination with two inelastic tapes attached to the belt at the front at points spaced oppositely from the center, said tapes extending downwardly and crossing below the belt and being attached along the edges of the crotch member, and fabric forming a shield lying inside the front part of the crotch member and attached to the tapes at both sides of the center line below the tape crossing.

2. Knitted drawers comprising a body member, a crotch member and a belt, the crotch member extending upwardly in front toward but not reaching the belt, the upper portion of said crotch member being split vertically to form a fly opening, the body of the garment extending downwardly inside the upper end of the crotch member and overlapping the major portion of the fly opening and attached to the crotch member on both sides of the fly opening.

3. Knitted drawers comprising a body member, an elastic belt extending around the top of the garment, a crotch member attached to the body member and extending part way up the front of the garment, said crotch member having a vertical fly opening, in combination with fabric inside the crotch member extending downwardly from the upper end thereof and ending not lower than the bottom of the fly opening, said fabric being attached to the edges of the crotch member opposite the fly opening, whereby a shield is formed, and two inelastic tapes acting as cross bracing and having their crossing attached to the upper end of the crotch member below the belt, the upper ends of the tapes being attached to the

belt on opposite sides of the front center of the belt and the lower portions of the tapes extending along the edges of the crotch member to a median vertical line on the inside of the legs whereby a supporting effect, anchored from the belt, is given the edges of the crotch member at the front of the garment.

4. Knitted drawers comprising a knitted body member, a knitted crotch member attached thereto and extending part way up the front of the garment, an elastic belt around the top of the garment and a shield underlying the upper front end of the crotch member, said crotch member having a vertical fly opening, in combination with two inelastic tapes crossing the front of the garment at a point below the belt, the upper ends of the tapes being attached to the belt at points on opposite sides of the center front of the garment and the lower portions thereof extending downwardly along the edges of the crotch member and attached to the crotch member, the body member and the shield below the crossing, whereby a structure resisting undue lateral expansion opposite the crotch and giving a supporting effect to the edges of the crotch at the front of the garment is formed.

5. An undergarment of knitted fabric, comprising a body member, a crotch member attached thereto and extending part way up the front of the garment, and a belt around the body member, in combination with two comparatively inelastic tapes attached to the belt at the front at points spaced oppositely from the center and extending downwardly and joining at the top of the crotch member, the upper portion of said crotch member being split vertically to form a fly opening, and fabric forming a shield lying inside the front part of the crotch member, there also being comparatively inelastic means attached along each edge of the crotch member and the shield, whereby a supporting effect is given to the fly.

6. An undergarment of knitted fabric, comprising a body member, a crotch member attached thereto and extending part way up the front of the garment, and a belt around the body member, in combination with two comparatively inelastic tapes attached to the belt at the front at points spaced oppositely from the center and extending downwardly and joining at the top of the crotch member, the upper portion of said crotch member being split vertically to form a fly opening, and fabric forming a shield for said fly opening extending downwardly inside the crotch member and overlapping the major portion of the fly opening, there also being comparatively inelastic means attached along each edge of the crotch member and the shield.

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