

1,043,035.

Patented Oct. 29, 1912.

3 SHEETS—SHEET 1.

Fig. 1.

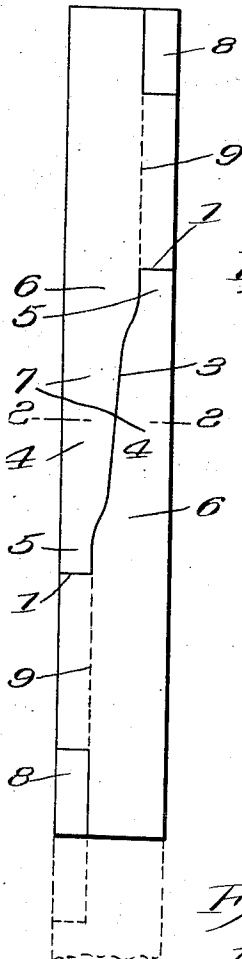


Fig. 5.

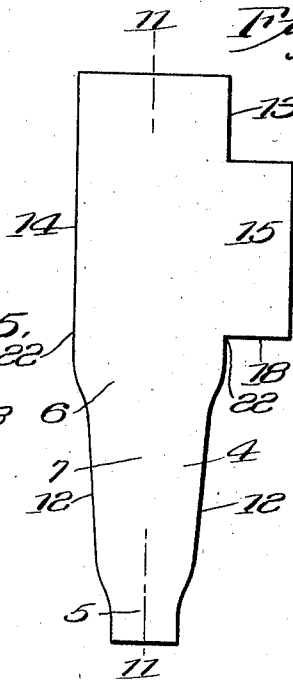


Fig. 2.

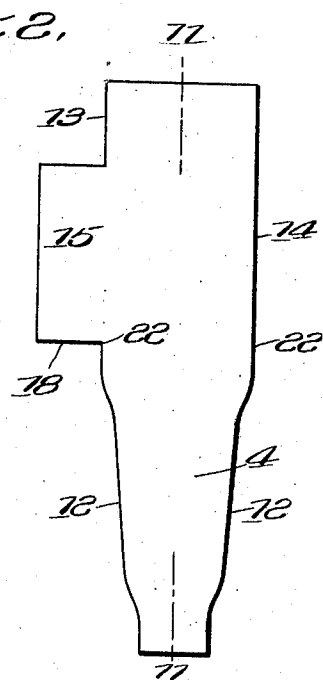


Fig. 3.

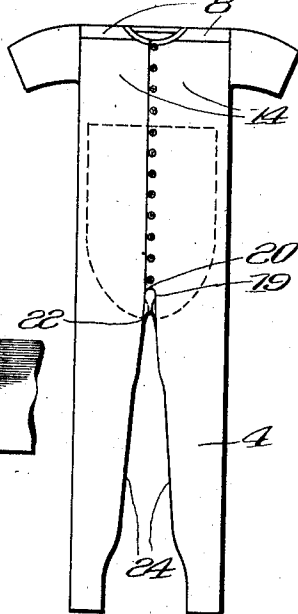


Fig. 4.

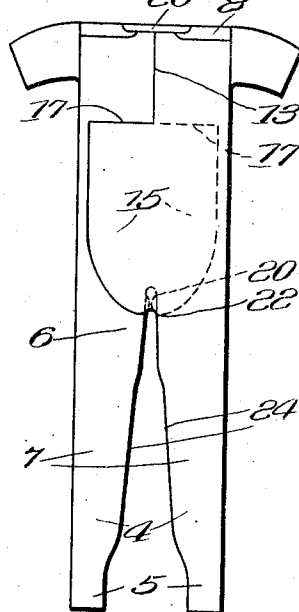
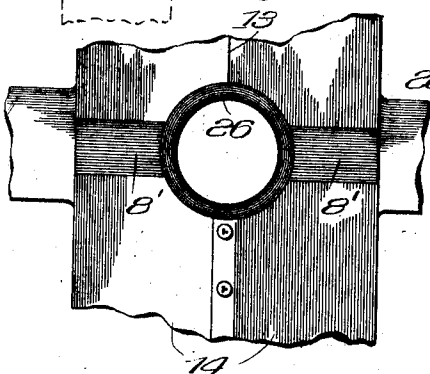


Fig. 6.



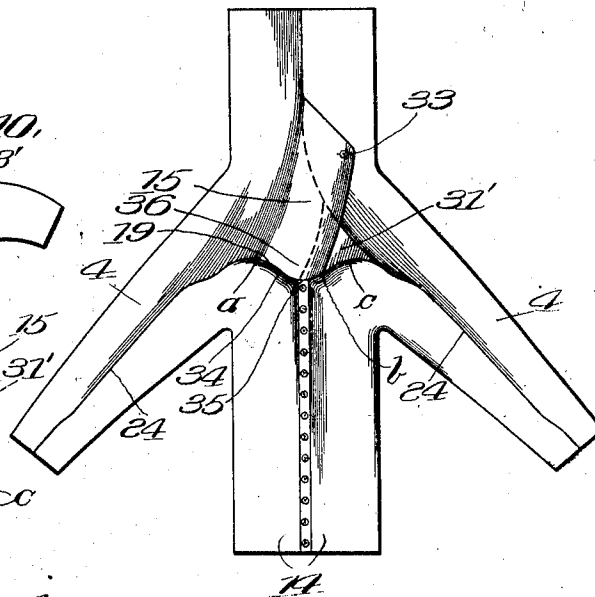
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1,043,035.

3 SHEETS—SHEET 2.

Fig. 9.



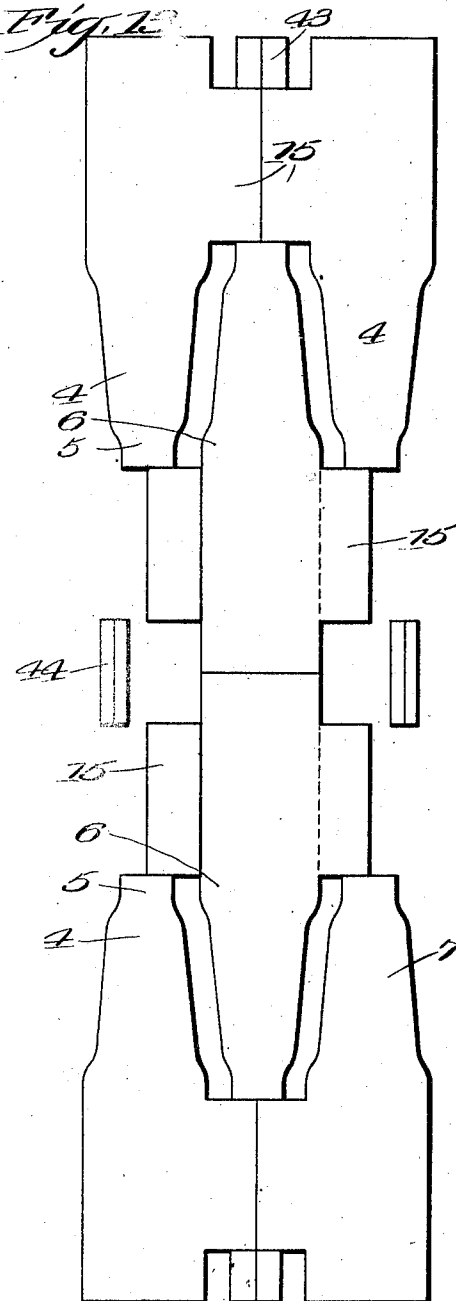
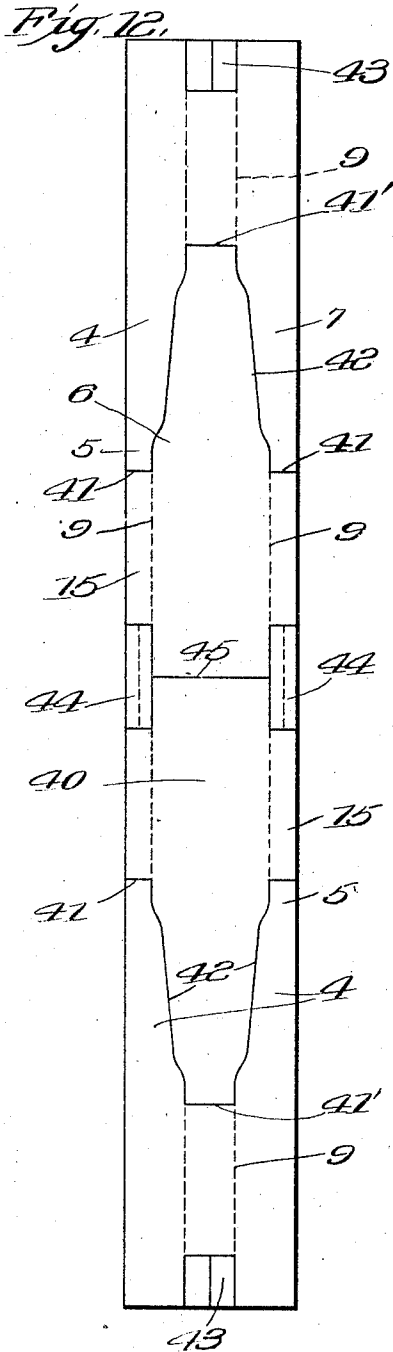
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UNION UNDERGARMENT.
APPLICATION FILED MAY 28, 1912.

1,043,035.

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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

EDWARD J. SCHREMP, OF NEW YORK, N. Y.

UNION UNDERGARMENT.

1,043,035.

Specification of Letters Patent.

Patented Oct. 29, 1912.

Application filed May 28, 1912. Serial No. 700,196.

To all whom it may concern:

Be it known that I, EDWARD J. SCHREMP, a citizen of the United States, residing at New York city, in the county of New York and State of New York, have invented new and useful Improvements in Union Undergarments, of which the following is a specification.

My invention relates to union undergarments, made from tubular knit fabric and consists in a new method of cutting the two halves of the garment from the tubular blank whereby all waste is avoided. These garments, sometimes called "combination" suits, are made in one piece to cover the entire body from the ankles to the neck, and consist of the legs, the arms, and the body portion extending from the crotch up over the shoulders and provided with a front vertical opening provided with buttons and button holes for closing when the garment is on. Shoulder pieces are desirable on the shoulders and the neck is commonly provided with a collarette for firmness and finish. There is also an opening from the crotch extending part way up the back and one or two flaps must be provided to close this rear opening and cover the posterior portion of the body. This rear opening may or may not be continuous with the front opening. This flap (or flaps) is secured to the main back portion of the garment so that the flap hangs therefrom and thus is supported from the shoulders, of course indirectly through the back portion. Such is a general description of the "union suit" which has been popular for years, particularly with women, and it will be seen that they are very different in structure and manner of use from the usual undergarments, that is from shirts and drawers, and have always presented different and peculiar problems to the manufacturer for the reasons, first, that they are of greater length, second, that they are not provided with a wide open lower or upper end through which the garment can be entered and therefore they must be provided with a special opening, which however must be arranged so that the garment can be put on with reasonable convenience, third, because the drawers are not separable and cannot be slipped down over the legs, so there must be a rear opening and this opening must have a closing flap or flaps, fourth, a reason particularly in union garments for women and for stout men—the

tube from which these garments is made is of course of uniform diameter, from end to end, but for such figures the hip portion must be larger and the shoulder portion smaller, which greatly complicates the problem. It is well understood that stout men cannot get "union suits" to fit properly.

Heretofore union garments have been made from tubular fabric of sufficient diameter to receive the body, often by knitting the bust and hips tuck and the waist plain rib, or by throwing in a lighter thread at the waist, or by cutting out gores at the waist, and the legs were formed by cutting away a triangular piece or pieces at the lower end of the blank, leaving the outer, or inner, portions of the lower end to form the legs, the inner edges of course being stitched up with seams along the inside of the legs. But this involved a great waste in the fabric, ten per cent. more or less, and the garment produced was not a good fit, particularly as to the thigh portion. Furthermore the arms were cut from other pieces of fabric, the shoulder-pieces and collarettes from still others, so that there was danger of slight variations in color or shade among the various pieces, and the entire garment was not uniform in appearance.

By my method of cutting the tubular blank, I utilize the entire fabric and avoid all waste, and what is perhaps more important in women's garments, I produce a garment sufficiently large for the hips and sufficiently small for the chest. I practically avoid all the above stated disadvantages and in so doing I cut the garment from the smallest possible tube, thus employing a smaller size of machine as hereafter explained:

My invention is fully explained in the following description and shown in the drawing in which the reference letters of the description indicate the corresponding parts in all figures.

Figure 1 shows a tubular strip of fabric with lines thereon indicating the cuts to produce the garment shown in Figs. 3 and 4. Fig. 2 shows in plan the halves spread flat. Figs. 3 and 4 are respectively front and rear elevations of the completed garment. Fig. 5 shows the rectangular shoulder piece cut from Fig. 1. Fig. 6 is an enlarged plan of the top of a garment split up the sides and spread so as to show the construction and arrangement of the shoulder pieces and the

collarettes. Fig. 7 is a plan view of a tube showing a modification in the method of cutting one half for single flap garments. Figs. 8 and 9 show in plan the two halves for producing such a garment. Fig. 10 is the rear elevation of a single flap garment and Fig. 11 is such a garment split up the sides with the front and rear spread out flat and presents practically a plan of the garment as it would be seen from below. Fig. 12 is the plan of a large tubular blank to indicate how eight complete half garments may be cut therefrom at once to advantage. Fig. 13 is a similar view with the parts completed and the halves folded out flat.

In Fig. 1 is shown a tubular blank which is cut up without waste into the two similar halves afterward sewed together to form the complete garment. First the two halves are separated by the short transverse cuts 1, equidistant from the transverse axis 2 of the blank, and by the irregular or wavy cut 3 connecting the inner ends of these cuts. These short cuts are at the lower ends of the legs, to which cuffs may be added for finish if desired, and this so called "wavy" cut has the important function of shaping the opposite leg portions 4-4 for the ankles, calves and the thighs. As will be seen the smaller ankle portion 5 of one leg portion is adjacent to the larger thigh portion 6 of the other, and between is formed the intermediate calf and knee portion 7, substantially tapering (reversely on the two parts as they appear in Fig. 1) from the thigh portion down to the ankle portion. The blank has now been severed into two halves and the leg portions prepared for stitching, but, to make the shoulder and chest portion of proper size and proper proportions to the legs and hips, I cut away at the end of each half the rectangular piece 8, which, incidentally, is not wasted but is used for shoulder pieces and collarettes, and has the advantage of being identical in shade with the rest of the garment. I then slit the two halves through one fold along the dotted lines 9, and the two halves spread out flat are shown in Fig. 2. The order in which the aforesaid cuts are made is not important.

To understand how the two halves are secured together, they are supposed to be folded along their vertical axes 11. The two edges 12 12 of each leg portion are sewed together to form the legs, the upper edges 13 13 of the two halves are sewed together to unite the halves by a seam from the center of the back to the neck, corresponding buttons and button holes are formed along the vertical front edges 14, 14, the flaps 15 15 are sewed to the body of the garment at the back along the line 17 and their lower edges 18 are each sewed to the crotch seam 19 so as to extend half on each side of the

center 20. The middle point of the lower edge of each flap is at said center 20 at the bottom of the front opening so it will be understood that these lower ends combined are, so to speak, drawn forward through the crotch and sewed to the bottom of the body fronts to form a closed crotch portion entirely above the legs, thus acting as a suspensory. It will be seen that there is no opening extending down into either leg but that the leg portions are closed to their upper ends 22 22. These crotch seams 19 are of course continuous with the leg seams 24 24.

Referring particularly to Fig. 6, there is shown how the small pieces 8 may be used for shoulder pieces and collarettes and why they come from the blank in the most desirable form for such use, that is with the ribs extending longitudinally, and when in the garment as the shoulder pieces 8' 8', this gives the desirable longitudinal rigidity to prevent stretching and the pulling down of the shoulders out of place over the arms, and also gives the very desirable lateral elasticity.

When used as a collarette 26, the ribs extend longitudinally, which affords exactly the necessary stiffness to prevent the neck stretching and sagging. These small pieces as shown in Fig. 1 are too short for a collarette but when a wide tube is cut to form four garments as shown in Figs. 12 and 13, the intermediate pieces are long enough. So when a double length tube similar to Fig. 1 is used the collarette can be cut from the section 8 which will be double the present length, as shown by dotted lines at the lower end of Fig. 1.

Said garment, as aforesaid, is cut entirely without waste, is well fitting, no button on seat, and in some respects is the most satisfactory and best fitting union suit yet produced from tubular fabric and is a desirable winter garment but for summer the double flap is too hot. Therefore I have modified the halves of the garment so that a single flap garment may be made, see particularly Figs. 8 and 9. I cut the flap from one half by severing along the line 50 and from the other half I cut a triangular piece 31, which is sewed to the other half in the position shown in Figs. 10 and 11 to form the gusset 31' necessary to afford the sufficient fullness in the bottom of the garment. The cut away flap need not be wasted for, though it cannot be used in this garment, it may be used elsewhere in the mill.

The complete garment is shown in Figs. 10 and 11. In the latter the garment is split and laid out flat so as to be shown as though it were seen from below, whereby is made plain the peculiar and desirable arrangement of the single integral flap, to give sufficient elasticity to the back and to

produce a new and peculiar closed crotch garment. The construction is similar to that shown in Figs. 3 and 4 but as the single flap garment will probably have a larger use I will describe that construction in greater detail. The lower edge 34 of the flap extending from the point *a* to the point *b* is there secured to what I call the crotch seam 19, for it lies entirely in the crotch and does not extend down the legs in the least, though it is continuous with the leg seams 24 24. As intermediate point 35 of this lower edge, being about two thirds of the distance from *a* to *b* is drawn through to the front and secured to the body front at about the lower end of the front opening as shown, the remaining one third to *b* being secured to the opposite crotch seam. The lower end of this single flap thus is arranged in the garment to form the crotch portion 36 extending through from rear to front, whereby is produced a closed crotch garment without any opening or slit whatsoever down the leg or legs, for the legs terminate at the points *a* and *c*. These points *a* and *c* are separated on opposite sides as shown in Fig. 11 but it will be understood that when the garment is on the person they will come substantially into contact as appears from Fig. 10. The gusset 31' is necessary to give sufficient fullness on the right hand side. Another advantage of this peculiar arrangement is shown by Fig. 11, where the direction of the ribs in the single flap is indicated. From the peculiar formation and arrangement of the flap, whereby the lower edge is drawn toward one side and the upper point 33 drawn across the lower part of the back and there secured, it occurs that the ribs or walls do not extend vertically, in which direction they are practically rigid, but are inclined so as to introduce a desirable bias elasticity into this portion of the garment, where it is particularly necessary in stretching over the seat, and a bias stretch has more spring and more durable elasticity than the lateral stretch.

Gusset 31' is just large enough but not too large and is arranged in correct position to expose full seat, but fully to cover same when flap is closed. The arrangement with the wales extending in the direction shown is important for it will not stretch in the direction shown, therefore will not sag, but sets firm and in place. It holds the leg firmly in place and from its position cannot get caught. With this gusset, the flap is easy to manipulate.

Where I make a single flap garment the half-shown in Fig. 9 may be made in other ways, for instance as shown in Fig. 7. Here is indicated a tube larger than that of Fig. 1, to be cut into four half garments. The tube is first cut along the lines 50 to the points 51 and then around the wavy line 52

and finally the two sets of halves are severed on lines 53. This leaves two large waste pieces 54, front and back, which may be used as gussets in particular garments, but it will be understood that the half garments so cut are exactly the same as that shown in Fig. 9 and therefore there is no variation in the complete garment. Whether the other halves are cut according to Fig. 7 or Fig. 9 is entirely a commercial question to be settled according to the conditions at the particular mill, but whichever of those two halves is used in combination with the half of Fig. 8, the waste will be not more than one-half of what it was in the garment cut according to the old method above described, and my garment fits better in calf, thigh, seat and chest.

In Fig. 12 is shown how four complete garments, that is eight complete half garments may be cut from a single blank of tubular fabric according to my method and to produce my peculiar garment. Here a tube 40 of large diameter is used which is first cut practically as in Fig. 1, that is the short transverse cuts 41 are first made to be connected by the wavy cut 42, then cut 41' to connect 42, the small rectangular pieces 43 are severed and the cloth is slit through one fold along the line 9 to leave the flaps 15, but the difference in cutting arises at the middle of the blank where a double rectangular piece 44 is cut away half extending into each adjacent blank which piece is therefore of sufficient length to form collarettes and they may be so used each to produce two collarettes, or shoulder pieces. The blank is then cut along the line 45 through both folds to divide the blanks of the two halves.

As shown in Fig. 13 the legs and flaps have been opened out and the parts separated and it will be seen that the half garments so produced are identical with those shown in Figs. 1 and 2 and may be used as heretofore described to produce either a single or a double flap garment.

There is one incidental advantage attendant on my invention which however is of great importance commercially, namely that by my method garments are produced from the smaller and the larger tubes, for instance made on 9, 10, 11, 12 and 13 inch and 22, 23, 24, 25, 26 and 28 inch machines. The advantage is that these are the machines which are less in use in the mill. They are of course necessary to the manufacturer to produce special sizes but it is the intermediate machines 14 to 21 inch which are in most constant use and anything that will promote the use of either the very large, or the very small machines, is important and profitable to the mill owner. For instance the tube indicated in Fig. 1 is made on a 13 inch latch needle machine

which is used only to produce No. 30 or 32 drawers which are necessary to fill out a line, but for which there is a limited demand. On the other hand the tube shown in Fig. 12 is for a 22 inch latch needle knitting frame which of course is used for only the large size 46 and which I use for a size 40 or 44.

Having described my invention, I claim,

1. The herein described method of cutting the halves for union suits which consists in dividing a tube of fabric into two halves by an elongated cut, consisting of two short cuts extending into the tube from opposite sides less than half the width of the tube and being at the ends of the leg portions, said cuts being spaced from each other substantially the length of the legs and from the end of the tube substantially the distance from the crotch to the shoulder, and of an inclined, irregular cut connecting the ends of the short cuts and being slightly curved at each of its ends adjacent to the short cut to form on one side the ankle portion of one half and on the other side the thigh portion of the other half, and between said curves being substantially straight and inclined for the calf and knee portions of the respective halves and then slitting the tube from the irregular cut to the end through one thickness.

2. The herein described method of cutting the halves for union suits which consists in dividing a tube of fabric into a plurality of half garment sections by elongated cuts, consisting of transverse cuts spaced from each other substantially the length of the legs and from the end of the tube substantially the distance from the crotch to the shoulder, and connected by inclined cuts simultaneously to form enlarged and diminished portions of adjoining legs, longitudinal cuts through both folds for the shoulder portion and cutting at least through one thickness from the shoulder cuts to the transverse cuts for the posterior opening.

3. The herein described method of making a single integral flap, closed crotch, union suit which consists in cutting from a tube of fabric half suits, by two straight short cuts being the ends of the legs and spaced the length of the leg apart, uniting the inner ends of said short cuts by an elongated irregular cut to form the ankle, calf and thigh portions of the legs of the two halves, slitting from the end of the irregular cut through one thickness to form a flap, cutting away the end of the flap for the shoulder,

providing for use with one of said halves a similar half but without the flap, seaming together the two sides of each leg portion, sewing together the upper portions of the back edges of two halves to form a short back seam above the flap, providing corresponding securing means on the long edges opposite the flap edge to close the front opening when the garment is worn, sewing the shoulders; sewing the lower edge of the flap to the crotch seams with an intermediate point on said edge secured to the body at the lower end of the front opening, providing a small triangular gusset and securing it between the upper leg portion and the body portion of the side opposite the flap with the gusset ribs extending substantially across and at an angle to the ribs of the body portion and of the leg portion.

4. The herein described method of cutting union suits from tubular knit fabric without waste which consists in severing the tube by an elongated cut consisting of short straight cuts substantially at a right angle to the tube axis, and of an irregular cut joining the inner ends of said cuts and forming the ankle, calf and thigh portion of the two halves, slitting through one fold from the elongated cut to form the flap, cutting a small piece from the upper end of the flaps to reduce the shoulder portion, uniting the two halves and inserting the small pieces between the upper ends to form shoulder pieces.

5. The herein described method of forming union suits from tubular knit fabric without waste, which consists in severing the tube by an elongated cut consisting of transverse cuts and an irregular cut joining the inner ends of said cuts and forming the ankle, calf and thigh portion of the two halves, slitting through one fold from the elongated cut to form a rear flap, cutting a piece from the upper ends of the flaps to reduce the shoulder portion, uniting the two halves, inserting parts of said piece between the upper garment ends with the wales arranged transversely and securing a strip of said piece around the neck with the wale arranged longitudinally of said strip.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

EDWARD J. SCHREMP.

Witnesses:

J. R. MILLWARD,
ALLAN W. FOOSE.