(No Model.)

J. HOLROYD.

UNDERSHIRT AND METHOD OF MAKING THE SAME.

No. 479,276. Patented July 19, 1892.

Fig. 1

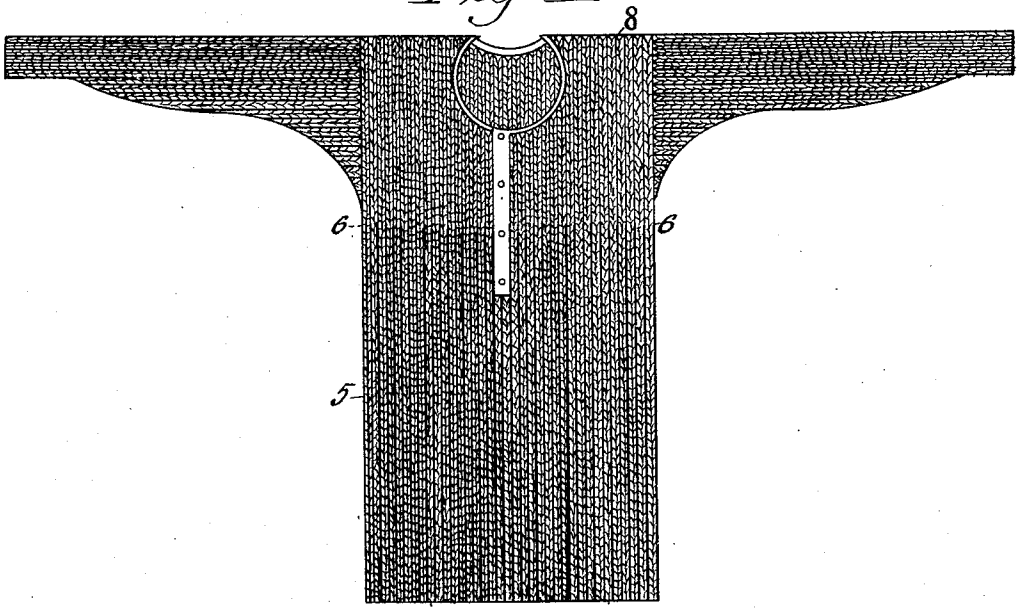


Fig. 2.

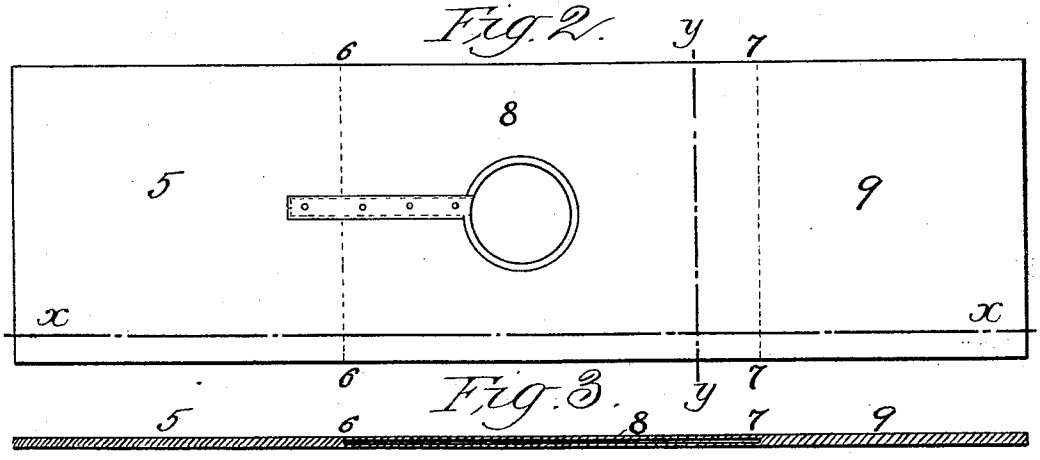
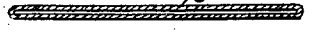


Fig. 3.

Fig. 4.



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UNDERSHIRT AND METHOD OF MAKING THE SAME.

SPECIFICATION forming part of Letters Patent No. 479,276, dated July 19, 1892.

Application filed March 23, 1892. Serial No. 426,139. (No model.)

To all whom it may concern:

Be it known that I, JAMES HOLROYD, a citizen of the United States, residing at Albany, in the county of Albany and State of New York, have invented certain new and useful Improvements in Undershirts and Method of Making the Same; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain new and useful improvements in elastic ribbed undershirts made from knitted fabric having ribs on both sides and known commercially as "one-and-one-ribbed," "two-and-two-ribbed" fabric, and the like. Undershirts of this fabric have found great acceptance on the market because of the great flexibility inherent in the fabric and its comparatively light weight, and because of the fact that while conforming to the body (thereby insuring the comfort incident to an accurate fit) its elasticity is such as to permit the greatest freedom of motion without restraint.

The purpose of my invention is to preserve the characteristic features that have rendered these undershirts acceptable and yet to adapt them to more extended service and usefulness by embodying in them a capacity for more effectually protecting the chest, or shoulders, or back, as the case may be, than when constructed in the ordinary manner.

It is the usual practice in the manufacture of ribbed undershirts of the kind referred to to knit the main body portion thereof in a single rectangular strip upon a straight Lamb machine or similar machine, certain of the needles being either thrown out of action in passing the part intended for the neck-aperture or the neck-aperture being cut out from the finished strip. The strip of fabric thus made is then folded upon itself and the side edges united to form the shirt-body, the arms being afterward added and the trimmings attached to complete the garment. In the practice of my invention I vary this procedure upon arriving at the part of the garment where additional protection is desired by changing from the single straight fabric to a tubular web, forming a continuation of the single straight fabric and integral with it. I continue to knit this tubular web continuation of the main fabric until the portion to receive the additional protection is passed, whereupon I again revert to the knitting of the single straight fabric. I am enabled to perform the entire knitting operation without removing the fabric from the machine, and at the termination of the knitting operation I have produced a strip or blank of knitted fabric of the usual dimensions, but made up in part of a single fabric of one-and-one-ribbed stuff or the like, and integral therewith a double-walled section or sections of plain fabric of somewhat closer texture, but having a general external appearance not notably different from the straight single fabric and likewise possessing characteristic elastic properties. The compound strip of partly single and partly double-walled fabric thus produced is to be folded upon itself and united along the side edges to form the shirt-body, the double-walled fabric forming the chest portion, shoulder portion, or back portion, or all or any two of these, as may have been provided for. I find that although the combined thickness of these double-walled sections does not exceed the thickness of the single wall of the main fabric, they add greatly to the warmth of the elastic garment and are an efficient protection against cold-air currents, whose effects are otherwise felt principally upon the parts of the body thus protected.

It is characteristic of my invention that the additional protection is secured without destroying the symmetry of the ribbed garment and without materially altering its external appearance or increasing its bulk and without depriving it of elastic properties.

In the accompanying drawings I have illustrated the application of my invention to the production of a one-and-one-ribbed undershirt having the chest, shoulder, and back portions protected.

Figure 1 represents a front view of the said undershirt. Fig. 2 represents in plan the knitted blank for the main body portion of the undershirt. Fig. 3 represents a longitudinal section on the line $x\ x$ of Fig. 2, and Fig. 4 represents a cross-section on the line y y of Fig. 2.

Similar numerals of reference indicate similar parts throughout the several views.

In manufacturing the blank, as represented in Fig. 2, I begin with the part 5, corresponding to the lower front portion of the undershirt, and knit a straight one-and-one-ribbed fabric upon the Lamb or similar machine, both of the opposite sets of needles being in operation, so as to produce the ribs on both the upper and under surfaces of the fabric. When I reach the part to be protected, which I will suppose to begin with the chest portion, I throw out first one set of needles and then the other set alternately, as will be understood by those skilled in the art, so as to change at the line 6 6 from a straight one-and-one-ribbed fabric to a tubular plain web 8, having upon its outer surfaces the apparent continuation of the ribs of the main fabric, but being flat and devoid of ribs upon its interior surface. The consequence is that the exterior appearance of the tubular web does not differ materially from the main fabric, and at the same time its smooth interior surface enables the flattened tubular web, in spite of its double walls, to be only of a thickness approximately that of the single wall of the main fabric.

I proceed with the knitting of the tubular web until the part to be protected is passed. In the present instance I have supposed the tubular web to be continued so as to cover not only the chest, but the shoulders and back as well, say, to a point indicated by the line 7 7 of Fig. 2. From the line 7 7 I again revert to the production of the single one-and-one-ribbed fabric by thowing in both sets of needles to operate simultaneously, thereby completing the part 9, corresponding to the lower back portion of the undershirt. The blank thus produced will manifestly consist of a strip 5 of single one-and-one-ribbed fabric, a tubular web 8 of a combined wall thickness substantially equal to that of the single fabric, and a strip 9 of one-and-one-ribbed fabric, all of these component parts being integral with each other and being knit consecutively upon the same machine. The blank as thus constituted is folded transversely and united along the edges in the usual manner, the arms being thereupon inserted and the trimmings for the neck, &c., added to make up the complete garment shown in Fig. 1.

Although I prefer to make the single fabric of one-and-one-ribbed knitting, I may in some instances knit it as two-and-two ribbed, two-and-one ribbed, or other like combination presenting ribs on both sides and suitable for the purpose, as will be understood.

Having thus described my invention, what I claim is—

1. The method of knitting undershirts, which consists in producing an initial strip of flat ribbed fabric, then producing a tubular web of plain knitting integral with said strip, and finally producing a further strip of flat ribbed fabric, and then folding the resulting fabric and uniting the edges where necessary.

2. In an undershirt, the body portion thereof consisting in part of ribbed fabric of single thickness and in part of tubular plain fabric, substantially as described.

3. In an undershirt, the body portion thereof consisting in part of one-and-one-ribbed fabric of single thickness and in part of tubular plain fabric, substantially as described.

4. In an undershirt, the body portion thereof consisting in part of fabric of single thickness and in part of a tubular web, substantially as described.

5. In an undershirt, the body portion thereof consisting in part of fabric of single thickness and in part of double fabric, the combined thickness of the walls of the double fabric being substantially equal to the thickness of the single fabric, substantially as described.

In testimony whereof I affix my signature in presence of two witnesses.

JAMES HOLROYD.

Witnesses:

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