

G. L. SUMMERS.
SEAM AND PROCESS OF FORMING THE SAME.
APPLICATION FILED APR. 21, 1917.

1,361,292.

Patented Dec. 7, 1920.

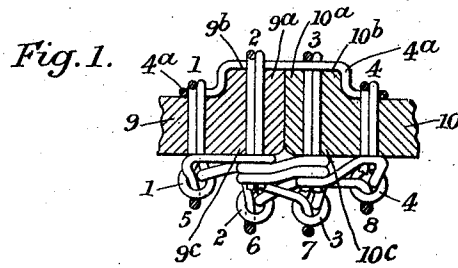


Fig. 5.

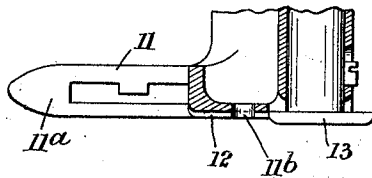


Fig. 3.

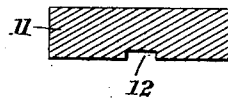


Fig. 2.

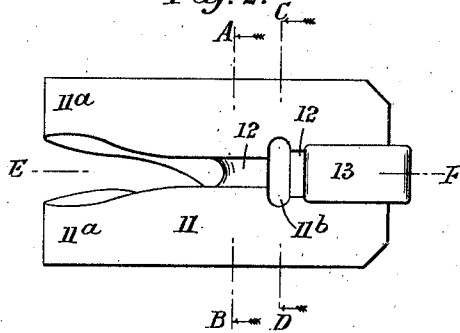


Fig. 4.

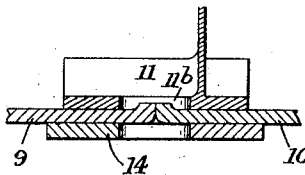
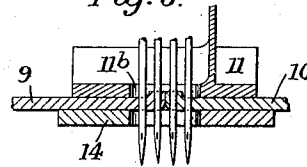


Fig. 6.



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UNITED STATES PATENT OFFICE.

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SEAM AND PROCESS OF FORMING THE SAME.

1,361,292.

Specification of Letters Patent.

Patented Dec. 7, 1920.

Application filed April 21, 1917. Serial No. 163,628.

To all whom it may concern:

Be it known that I, GILBERT LAWRENCE SUMMERS, a subject of the King of Great Britain, residing at 69 Wiverton road, Nottingham, in the county of Nottingham, England, have invented new and useful Improvements in Seams and Processes of Forming the Same, of which the following is a specification.

The object of this invention is to improve seaming and seams such as are employed for joining together the cut edges of fabrics, and is especially useful for seaming loosely knitted coarse gage fabrics the edges of which are brought together and joined by needle threads (usually four) and suitable looper threads. The invention is also useful for medium and light-weight fabrics.

In the usual seaming operation the two edges of fabric to be seamed together are brought into abutment and four needles are used, the line of meeting of the edges being midway, or approximately midway, between the two inner rows of needle thread loops, the needles (presuming the needles to be operated from above the work) entering the upper side of the pieces of fabric near to the line of junction thereof and passing loops of needle thread through to the underside thereof where they cooperate with the respective looper threads, the said needle thread loops being connected by the cross-thread loops on the other, or face side of the fabrics. It has been found that, with certain fabrics, and particularly with coarse gage loosely knitted fabrics, such seams will not always withstand severe lateral strains, particularly when the seam is made diagonally across the wales.

Seaming of such fabrics has also been effected by lapping a portion next the one edge over a portion next the other edge, both layers of fabric so overlapped being entered by one, or more, of the needles, this method causing the outer rows of needle-thread loops to be passed through the fabric farther from the cut edge in each case and thus to take a wider grip, and increase the holding power of the seam. But this method is objectionable, principally because it is necessary, in order to give the desired shape to the garment, to first trim, by hand, either, or both, of the edges to be joined. This operation is also slow and, if the fabric be of

a nature liable to curl, it is a very difficult operation to perform.

A division of this application, filed January 6, 1919, Sr. No. 269,846, relates to a presser-foot designed particularly for use in performing the improved process and producing the improved seam wherein the holding power is greatly increased without the edges being overlapped as aforesaid, the seaming being effected with as much ease and rapidity as when making an ordinary abutted-edge seam.

In describing this invention further I will refer to the accompanying drawing wherein Figure 1 is an enlarged section of portions near the edges of fabric which have been seamed in accordance with this invention. Fig. 2 is a plan of underside of the presser foot adapted for use in a machine for effecting such seaming. Figs. 3 and 4 are cross sections taken respectively on the lines A, B, and C, D, Fig. 2. Fig. 5 is a longitudinal section on the line E, F, Fig. 2, and Fig. 6 is a section also on the line C, D, Fig. 2, but showing the needles penetrating the fabric as they do in carrying the needle thread loops through in seaming. In Fig. 4 I have shown the fabric with the angled, or flanged, portions next the edges, before they are penetrated by the needles.

According to this invention the seaming is formed by presenting the portions next the edges of the fabric to be joined, to the action of the needles with sufficient of such portions standing at an angle to the general surface of the fabric, the said portions so angled being in juxtaposition and forming what may be regarded as flanges bearing against each other, the said angled, or flanged, portions of the fabric being guided to the needles in such manner that the two inner rows of needle-thread loops (presuming that four needles are used) enter the edges and pass through the respective portions of fabric which are angled, or constitute flanges, as aforesaid, and out at the parts where the bends, or shoulders, which form the angles, or flanges, occur, while the other two rows of needle thread loops pass through the fabric at a little distance from the said respective angled, or flanged, portions.

The stitching may be of any suitable kind; for example, it may be of the kind described

and illustrated in the specification of U. S. Letters Patent No. 883,614 to S. Borton, dated May 31, 1908, and it is so illustrated in Fig. 1 of the accompanying drawing where the four needle threads are marked 1, 2, 3 and 4, the cross-thread connecting the needle thread loops on the face, or upper side, of the fabric is marked 4^a and the looper threads at the underside of the fabric are marked 5, 6, 7 and 8. The two portions of fabric seamed are marked 9 and 10. The portions which are angled, or flanged, as aforesaid are marked 9^a and 10^a respectively.

The mechanism employed for effecting such stitching may also be of any suitable kind for example it may be mechanism such as the mechanism described and illustrated in the specifications of prior Letters Patent Nos. 1,041,574 to S. Borton and 1,041,652 to A. A. Merritt, dated Oct. 15, 1912, but it, (or other analogous mechanism which may be used), should be modified as hereinafter explained to adapt it for seaming in accordance with the present invention.

The presser-foot described in the specifications of the said prior Letters Patent, is bifurcated at its forward end, forming two toes between which the portions of fabric next the edges, on their way to the needles, advance to the trimmer blades, one of which blades is secured in a groove on the underside of one toe, while the other, or reciprocating blade, works in a horizontal opening in the other toe.

The presser-foot shown in the drawing and made the subject of the aforesaid divisional application has in its underside, a groove, or channel, commencing at the fork of the toes and extending up to, and preferably extending also beyond, the opening for the needles in the presser-foot and in a line with, or approximately in a line with, the direction of the feed of the work. In Figs. 2 to 6 of the accompanying drawing the presser foot is marked 11, and its bifurcations, or toes, are marked 11^a. The aforesaid groove, or channel, made, according to this invention, in the underside of the foot, is marked 12. The part at 13, known as the chaining foot, is that which exerts spring pressure upon the seam after it leaves the needles. The needle hole in the presser-foot is marked 11^b. The cloth-plate which is shown in Figs. 4 and 6 is marked 14. The operation with the arrangement as illustrated can be effected as follows: The portions of fabric next the edges, after being trimmed, are not laid flat and brought into abutment with each other, nor are they overlapped, but they are directed into the said groove, or channel, 12, while constituting the aforesaid angled, or flanged, portions (as shown at 9^a and 10^a) midway between the edges of the groove, or channel, 12, and

in this position they are delivered under the needles ready for the passage of the needle-thread loops in the manner hereinbefore explained and as shown in Fig. 6.

When the needles operate (presuming that there are four needles above the work and that the edges, angled, or flanged, as aforesaid, are turned upward) the two outer rows of needle-thread loops (1 and 4), pass through the fabric in the usual way, but the two inner rows of needle-thread loops (2 and 3) instead of passing through the fabric from the one side to the other each enter at the upper edge (9^b and 10^b) of one of the angled, or flanged, portions (9^a and 10^a) and pass through to, and out at, the bends, or shoulders, (9^c and 10^c) of the fabric, there to coöperate with their respective looper threads (5, 6, 7 and 8). Although for the sake of clearness of illustration the angled, or flanged, portions 9^a and 10^a are shown in Fig. 1 as still upstanding to a considerable extent, it will be understood that the said portions are compressed and confined by the needle threads and the cross-thread (marked 4^a) and this obviates any objectionable appearance which might otherwise result from the angling, or flanging, of the said portions 9^a and 10^a.

It will be understood that the outer rows of needle thread loops (1 and 4) pass through the fabric at a considerably greater distance from the edges 9^b and 10^b than would be the case if the said edges were abutted.

As the security of such seams depends mainly upon the width of the margins of fabric inclosed within the bond of the lines of stitching, the seam of this invention gives greatly increased strength and security of seaming, whatever may be the particular stitch formation employed.

What is claimed is—

1. A seam comprising two edges of fabric upturned from the main body of the fabric and brought together in that position, and seaming stitches extending through said upturned edges from the end portions of said edges to the bends or shoulders thereof.

2. A process of seaming fabrics consisting in presenting the edges of fabric to be joined to the action of needles so that portions of fabric next the edges stand at an angle to the general surface of fabric, and passing a row of needle-thread loops through each of the said portions next the edges which are so angled and securing the said loops together on both sides of the fabric; substantially as hereinbefore explained.

3. A process of seaming fabrics consisting in presenting the edges of fabric to be joined, to the action of needles so that portions of fabric next the edges stand at an angle to the general surface of fabric, and passing a row of needle-thread loops through each of

the said portions next the edges which are so angled, and passing another row of needle-thread loops through the fabric at a little distance from each of the said angled portions, and securing the said loops together on both sides of the fabric, substantially as hereinbefore explained.

4. A fabric seam comprising two edges of fabric to be joined, the fabric along both of said edges standing at an angle to the general surface of fabric, and a row of needle-thread loops passing through each of the said angled portions, the said loops being secured together on both sides of the fabric; substantially as hereinbefore explained.

5. A fabric seam comprising two edges of fabric to be joined, the fabric along both of

said edges standing at an angle to the general surface of fabric, a row of needle-thread loops passing through each of the said angled portions, another row of needle-thread loops passing through the fabric at a little distance from each of the said angled portions, and loops of thread on both sides of the fabric securing said needle-thread loops, all substantially as hereinbefore explained.

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

GILBERT LAWRENCE SUMMERS.

Witnesses:

JOHN ALBERT RICHMOND,
THOS. H. COOK.