

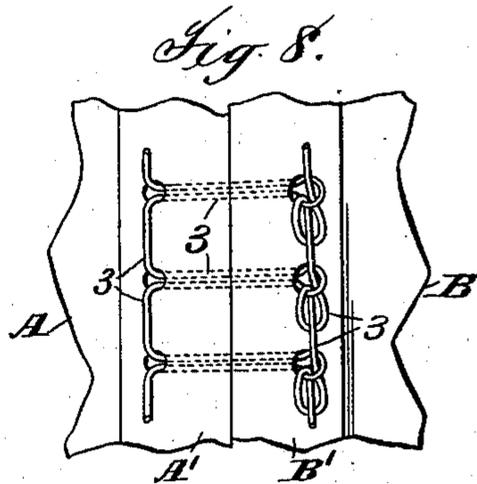
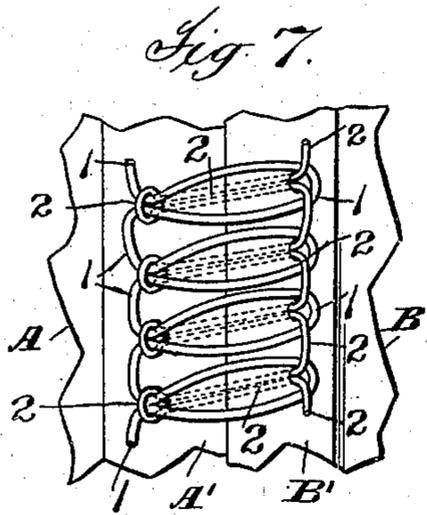
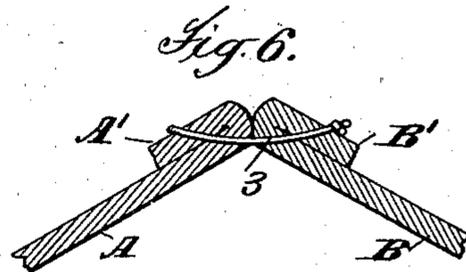
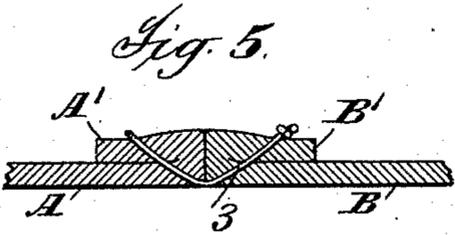
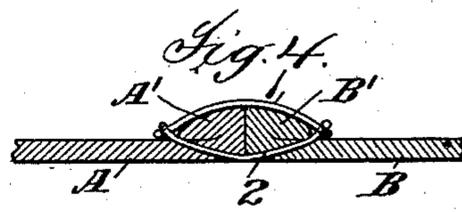
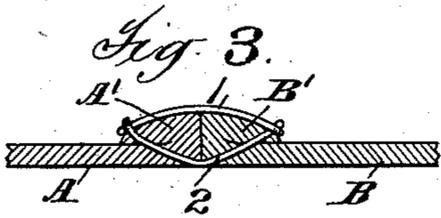
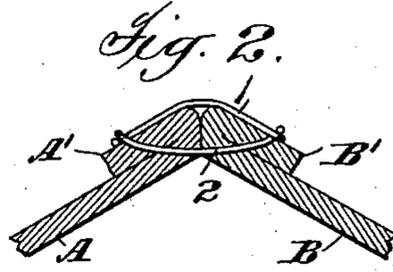
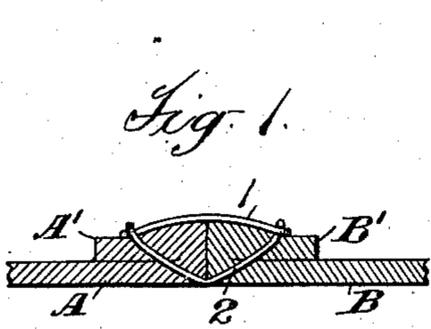
No. 702,390.

Patented June 17, 1902.

S. ARNOLD.  
SEAM FOR UNITING FABRICS.

(Application filed Mar. 17, 1899.)

(No Model.)



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# UNITED STATES PATENT OFFICE.

SATTERLEE ARNOLD, OF VERONA, NEW JERSEY, ASSIGNOR TO ANNA M. ARNOLD, OF VERONA, NEW JERSEY.

## SEAM FOR UNITING FABRICS.

SPECIFICATION forming part of Letters Patent No. 702,390, dated June 17, 1902.

Application filed March 17, 1899. Serial No. 709,427. (No model.)

*To all whom it may concern:*

Be it known that I, SATTERLEE ARNOLD, a citizen of the United States, residing at Verona, county of Essex, and State of New Jersey, have invented certain new and useful Improvements in Seams, fully described and represented in the following specification and the accompanying drawings, forming a part of the same.

The object of the present invention is to provide an improved seam for uniting the edges of fabrics, so as to form a strong smooth flat seam with little or no welt or ridge on the back or covering-stitch side of the fabric and with the uniting-stitches showing but very little, if any, on the face of the fabric, while at the same time the seam may be formed at a single operation.

While my improved seam and method are applicable generally to materials which are to be united, the invention is of especial value as applied to the cut edges of knit fabrics and will be described as thus applied.

It is important in uniting the cut edges of knit fabrics, especially in hose and underwear, that the seam should be as flat and smooth as possible; but it has been found impossible to provide a seam of the required strength in such fabrics capable of being formed at a single operation without a large welt or ridge on the inner side resulting from the distance that the uniting-stitches must be set from the edge of the fabric to secure the desired strength or without the uniting-stitches showing on the face side of the fabric, so as to produce an unsightly appearance.

In accordance with the present invention I provide an improved flat seam which may be formed at a single operation by folding the edges over upon the back side of the fabrics and then uniting them by uniting-stitches which pass through the body of the fabrics obliquely to the plane of the fabric and preferably through the folded portions of the fabrics as well as the body. I preferably employ also covering-stitches which bind down and cover the folded edges, and when such covering-stitches are used I may use uniting-stitches that do not pass through the folded portions of the fabrics but only through the body. I thus secure a very strong seam es-

pecially desirable for very light-weight goods or for rough-edged heavier goods. The folding over of the edges strengthens the edges, and by the oblique uniting-stitches I am enabled to secure the deep engagement on the back side of the fabric required for strength and the proper hold upon the fabrics with very little or no engagement on the face side for concealing the thread on the face side and keeping the edges in line for flatness. By the oblique uniting-stitches also the adjacent knit loops of knit fabrics are pierced and tied together through two or more courses or wales and bound up one to the other in the general plane of the fabric, so as to control the edges and preserve the flatness of the fabric, preventing the tendency to the rolling or bunching of the loops or threads which results from the pull on uniting-stitches passing through the fabric at right angles thereto. This is of especial importance in knit fabrics. While an overseam combining covering-stitches with the oblique uniting-stitches is not essential to the invention, considered broadly, such a seam is preferably used, the folded edges thus being bound down and covered on the back side of the fabrics. The obliquity of the uniting-stitches to the plane of the fabrics will depend somewhat upon the thickness of the fabrics and may be varied according to the character of the fabrics; but in ordinary knit fabrics I preferably use an engagement on the back side of the fabric from one-sixteenth to one-eighth of an inch and very little or no engagement on the face side.

Seams embodying my invention may be formed in any suitable manner by machine or hand, but preferably the edges to be united are abutted at an angle to each other with the face sides of the fabrics on the inner side of the angle and the back sides of the fabrics on the outside and then the edges secured together by uniting-stitches passing through the inclined fabrics transversely to the edges and obliquely to the planes of the fabrics. The preferred method also includes the use of covering-stitches passing around the point of the angle formed by the fabrics, and the fabrics are preferably inclined to each other at such an angle and the stitches so formed

that the covering and uniting stitches are of equal length, thus equalizing the pull upon the fabrics when the seam is opened out. This inclined abutting of the fabrics secures the formation of the uniting-stitches obliquely to the plane of the fabrics in a most simple, convenient, and efficient manner, and the whole seam may readily be formed at a single operation. The angle at which the fabrics are abutted will be selected in accordance with the path of the needle, a curved needle requiring less angle than a straight needle and the angle decreasing with the curvature of the needle.

My invention is not dependent upon any particular form of the uniting-stitches or of the covering-stitches when the latter are used, and any suitable form of stitch may be employed with either one or more threads, and my improved seam may be formed by hand or by a machine of any suitable form.

I have illustrated my improved seam in some of its forms and the preferred method of making it in the accompanying drawings, forming a part of this specification, which drawings are necessarily largely diagrammatic and enlarged for purpose of clear illustration.

In the drawings, Figure 1 shows in cross-section a complete flat seam embodying my invention with overseam-stitches in that form in which the uniting-stitches pass through the folded-over portions of the edges. Fig. 2 shows the preferred method of making the seam of Fig. 1. Figs. 3 and 4 are views similar to Fig. 1, showing other forms of seams. Figs. 5 and 6 are views similar to Figs. 1 and 2, showing a seam formed by uniting-stitches only, the common chain-stitch being shown. Figs. 7 and 8 are plan views, respectively, of the seams shown in Figs. 1 and 5.

In the drawings, A B are two pieces of fabric to be united, which may be the two edges of cut-edge knit fabric or within the invention, broadly considered, any two pieces of fabric or other similar materials to be united. These fabrics A B have portions A' B' folded back upon the back side of the fabric.

In Figs. 1 to 4 and 7 an overseam-stitch is shown, in which 1 represents the covering-stitches, and 2 the uniting-stitches, the stitches being set a little distance within the fold edges in Figs. 1 and 2, just within the fold edges, so as to bind them down in Fig. 3 and outside the fold edges in Fig. 4.

I have shown a double-thread overseam machine-stitch of the common form; but it will be understood that any other suitable form of overseam-stitch may be used and formed of either a single thread or more than two threads, if preferred. It will be seen from Fig. 2 that the stitches 1 2 are of substantially equal length, which is preferred, although not essential to the invention. With the fabric edges inclined to each other this result may readily be secured by a curved stitch, as shown, the curvature of the needle

for this stitch being obviously small and such as is entirely practical in machine-work.

In Figs. 5, 6, and 8 a double-chain uniting-stitch 3 of common form is shown, the overseam feature being omitted and the uniting-stitches passing through the folded portions of the fabric as well as the body of the fabric, as in Figs. 1 to 3. In this embodiment of invention it will be understood that, as in the case of the overseam, any suitable form of uniting-stitches may be used instead of the chain-stitch shown and formed of either one or more threads, as preferred.

It will be understood that my invention is not to be limited to the exact arrangement of the stitch-threads and fabric or the position of the former relatively to the latter, but that the constructions illustrated may be varied without departing from the invention. It will be understood also that while my invention is especially applicable to knit fabrics and a special result is secured by the oblique uniting-stitches in connection with the fold edges of such fabrics the invention, considered broadly, is not limited thereto, but includes also seams formed by uniting other fabrics, as claimed, and that my invention may be employed also in uniting the edges of other material similar to fabrics, such as thin leather in gloves and other articles.

What I claim is—

1. The combination with abutting folded edges of fabrics or similar materials, of uniting-stitches passing through the fabrics obliquely to the plane of the fabrics, substantially as described.

2. The combination with abutting folded edges of fabrics or similar materials, of uniting-stitches passing through the folded portions and body of the fabrics obliquely to the plane of the fabrics, substantially as described.

3. The combination with abutting folded edges of fabrics or similar materials, of overseam-stitches securing the edges together and consisting of covering-stitches binding down the folded portions of the edges and uniting-stitches passing through the fabrics obliquely to the plane of the fabrics, substantially as described.

4. The combination with abutting folded edges of fabrics, or similar materials, of overseam-stitches securing the edges together and consisting of covering-stitches binding down the folded portions of the edges and uniting-stitches passing through the folded portions and body of the fabrics obliquely to the plane of the fabrics, substantially as described.

5. The combination with abutting edges of fabrics or similar materials folded over on the back of the fabrics, of uniting-stitches passing through the fabrics obliquely to the plane of the fabrics and lying substantially within the face of the fabrics, substantially as described.

6. The combination with abutting edges of fabrics or similar materials folded over on the

back of the fabrics, of uniting-stitches passing through the folded portions and body of the fabrics obliquely to the plane of the fabrics and lying substantially within the face of the fabrics, substantially as described.

5 7. The combination with abutting folded edges of fabrics or similar materials, of overseam-stitches securing the edges together and consisting of covering-stitches binding down  
10 the folded portions of the edges and uniting-stitches passing through the fabrics obliquely to the plane of the fabrics and lying substantially within the face of the fabrics, substantially as described.

15 8. The combination with abutting folded edges of fabrics or similar materials, of overseam-stitches securing the edges together and consisting of covering-stitches binding down  
20 the folded portions of the edges and uniting-stitches passing through the folded portions and body of the fabrics obliquely to the plane of the fabrics and lying substantially within the face of the fabrics, substantially as described.

25 9. The combination with abutting folded edges of fabrics or similar materials, of overseam-stitches securing the edges together and consisting of covering-stitches and uniting-stitches of equal length with the covering-  
30 stitches on the back of the fabrics and bind-

ing down the folded edges and the uniting-stitches oblique to the plane of the fabrics and lying substantially within the face of the fabrics, substantially as described.

10. The combination with abutting folded  
35 edges of cut-edge knit fabrics, of overseam-stitches securing the folded edges together and consisting of covering-stitches binding down the folded portions of the edges and uniting-  
40 stitches passing through the knit fabrics obliquely to the plane of the fabrics, substantially as described.

11. The combination with abutting folded  
45 edges of cut-edge knit fabrics, of overseam-stitches securing the folded edges together and consisting of covering-stitches binding down the folded portions of the edges and uniting-  
50 stitches passing through the folded portions and body of the fabric obliquely to the plane of the fabrics and lying substantially within the face of the fabrics, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

SATTERLEE ARNOLD.

Witnesses:

C. J. SAWYER,  
A. A. V. BOURKE.