

Feb. 15, 1949.

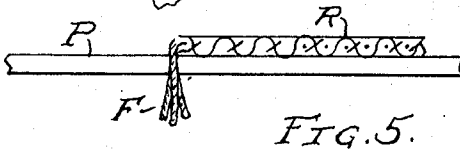
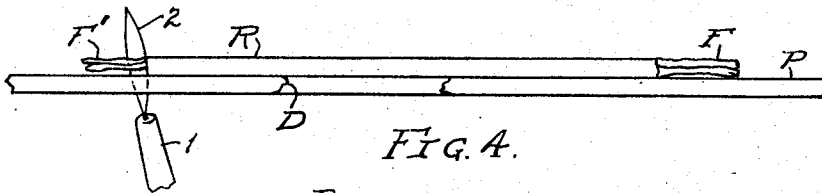
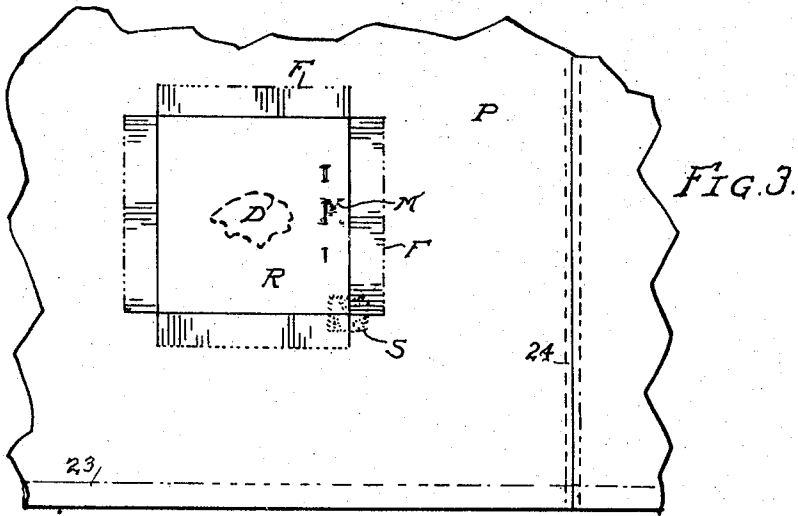
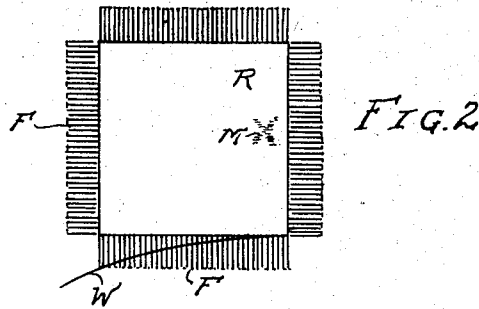
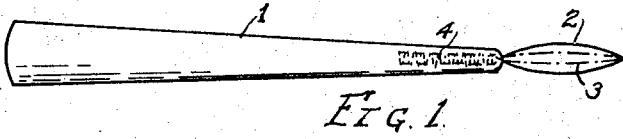
B. GOTTLIEB

2,461,542

INVISIBLE SEAM

Filed Oct. 22, 1946

2 Sheets-Sheet 1



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FIG. 6.

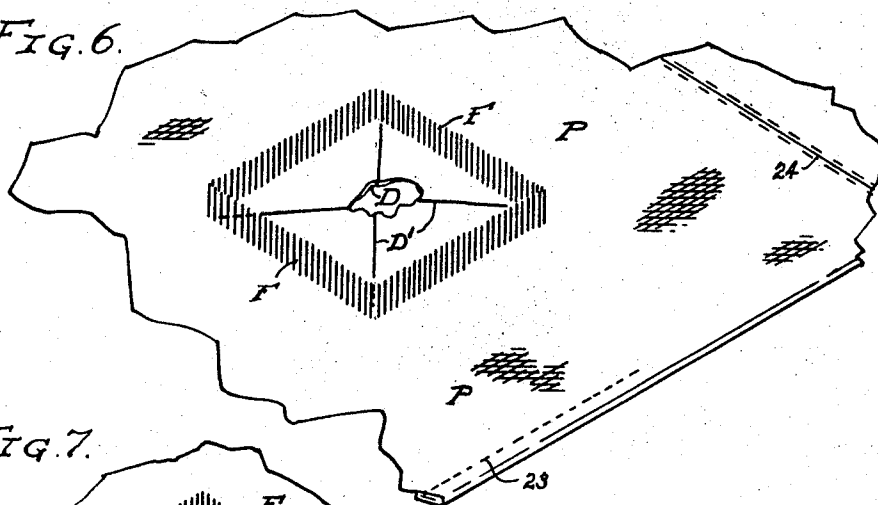


FIG. 7.

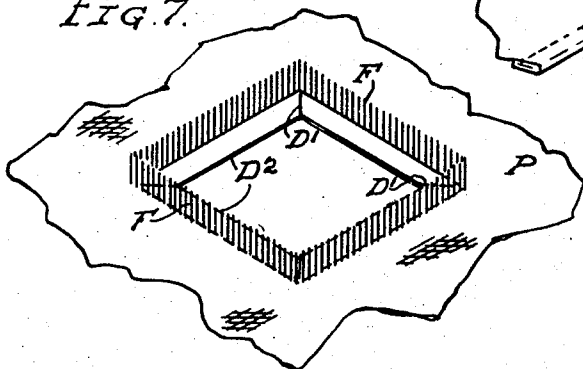


FIG. 8.

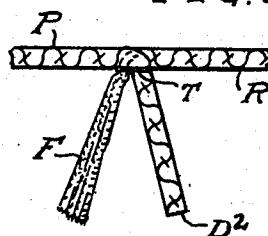


FIG. 9.

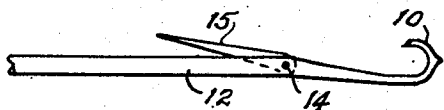
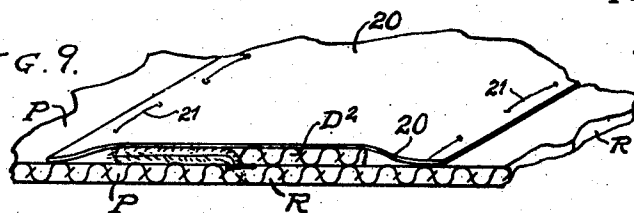


FIG. 10.

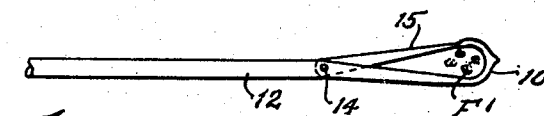


FIG. 11.

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INVISIBLE SEAM

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Application October 22, 1946, Serial No. 704,811

3 Claims. (Cl. 2-243)

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This invention relates to invisible sewing. It is particularly adapted to making of repairs which cannot be detected. Also, it has a wide field of usefulness and value in the construction of garments with invisible seams. In the latter instance the outer surface of the garment would present a uniformly smooth surface with all parts of pattern or figure so matched as to present the appearance of one piece of cloth, irrespective of contour such as for shoulders, waist, sleeve, etc.

Essential objects of the invention include the following: Simplicity of the steps for forming such invisible seams; the rapidity with which the operation may be performed; the security and strength of the seam; the wide adaptability to large variety of cloth or fabric, from thin closely knit material to heavy pattern or check woollens, and the like; and the convenience of matching figure or design from small check to large pattern figures.

Other objects and advantages are that no special material other than that of the same kind of fabric is needed for either repair or the sewing, by which I mean the making of these seams.

The necessary operations and steps may be performed with the simplest kind of a tool or tools, and the skill and experience required may be readily and quickly attained to accomplish the forming of such seams and the making of repairs, which in a large proportion of cases can not be detected with the naked eye and in fact are difficult to discern even with a magnifying glass.

The invention comprises both a method and an article having such seams and is so herein described in connection with the accompanying drawings illustrating a preferred method of practicing and carrying out my invention.

In the drawings, Fig. 1 illustrates in side elevation one form of tool used in uniting or "sewing" of the parts by my method;

Fig. 2 is a diagrammatic plan view of a piece of fabric prepared for use;

Fig. 3 shows a damaged piece with the patch or repair piece in place;

Figs. 4 and 5 are sectional diagrams showing the beginning of the formation of the patch or repair seam;

Fig. 6 is a diagram in perspective showing the reverse side with the repair piece in position prior to trimming and subsequent stitching;

Fig. 7 is a similar view showing the fabric of the parent piece cut away preparatory to the securing stitching;

Fig. 8 is an enlarged detail section showing the fringed ends extending through the body of the parent piece at the point where the seam is

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formed and showing the sewed-together parts prior to pressing and covering;

Fig. 9 shows a hand finishing strip or ribbon over the finished seam; and

Figs. 10 and 11 are views of a special needle which may be used.

A simple illustration of the method of carrying out my invention by securing the raw fringed edge of one piece of cloth to be applied to another of the same pattern either to make a seam or for repair, is as follows:

First, the raw edge is picked to remove strands of the warp or woof W leaving a projecting fringe F of one-eighth of an inch to one-half of an inch in length more or less depending on the thickness of the fabric and nature of the tools being used. For example, a part or piece such as shown at R is cut from the parent cloth to make a repair, a mark M being made before removal of the piece to indicate the direction of warp and woof.

The piece removed is then placed over the damaged spot D of the parent material P, with the weave in the same direction, and is moved until a stripe or figure, such as indicated by the lines or square S, Fig. 3, is matched on the outer surface.

The tool shown in Fig. 1 is satisfactory for many kinds of fabric to perform the next steps. It comprises a handle 1 and an extremely fine wire loop 2 firmly anchored as indicated at 4 in the handle. The loop has a point capable of penetrating fine fabric, and it is flexible to permit springing to the position shown in dotted lines as at 3, while passing through a fabric, and then of assuming the open position shown in solid lines. It is thrust through the parent cloth or fabric from the side opposite the repair part R, at a series of carefully selected points along a line corresponding to the edge of the frayed portion which is being held in the pattern-matching position as shown in Fig. 4.

The ends of the yarn forming the fringe at F of the piece R are, one by one, thrust through the open loop 2, as shown in Fig. 4, and are drawn through the parent cloth P, spreading the cloth as they pass through and projecting beneath the same, as indicated in Fig. 5.

Care is taken to draw threads of the same color through areas of the like color in the parent material. This operation is repeated on all sides of the attached piece until the parts are in the condition shown in Figs. 5 and 6. Then, as shown in Fig. 7 cuts D1 are extended outwardly, preferably diagonally from the damaged area or opening D, and these flaps of the parent cloth are trimmed as indicated at D2. The trimmed edges D2 are

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turned down beside the fringe projections F extending through the parent cloth and these are then stitched together by hand or by machine with stitches, as indicated at T in Fig. 8, securely holding the projecting yarn ends F and the portions D2 side-by-side.

Thereafter the fringe ends, which are now tightly held both by the gripping action of the parent material through which they pass and by the threads T, are flattened as shown in Fig. 9, and may be covered by a tape 20 lightly stitched, as indicated at 21, under or inside of the finished material, as illustrated in Fig. 9.

An invisible seam either crosswise or lengthwise of a garment may be made in the same fashion as above described and illustrated.

Assuming two pieces are to be joined by my invisible seam, the edge of one piece of the material is frayed, as shown, leaving fringe ends F. The pieces are then matched to bring uniform registration of line, figure or other fabric pattern, and the frayed or fringe ends F are then pulled through as before, one, two or more at a time.

If the cut of the piece to have the fringe ends is on a bias, the ends which are to become frayed ends should be kept uniform in length by cutting the running or cross threads, i. e., the warp or woof as the case may be, at short intervals inwardly parallel with the ends to be frayed and for a distance of the length of the ends. Thereafter, the severed running threads, warp or woof, are removed just as described in connection with fraying one end of the patch R.

Instead of the loop tool shown in Fig. 1 other forms of loop tool may be used. In Figs. 10 and 11 is shown another form of special hook loop having a slotted shank 12 with a hook member 10 shaped to penetrate the cloth, and having a tongue member 15 pivoted in the slot of the shank and arranged to fall backward into the slot as indicated in Fig. 10, and to move to a position enclosing or embracing the fringe ends as shown in Fig. 11 for drawing the ends through the body of the cloth.

The joining of two pieces of fabric whether for a patch or a seam is so effected that not only is the outer surface in one plane and presents the appearance of a continuous piece, but it is very thin and flexible, and in fact quite invisible.

Making of seams to give the impression of a finished garment as though woven from one piece is possible.

The rapidity with which seams may be made with this invention depends somewhat upon the nature of the fabric. On checked wool goods, for example, the uniting by drawing the projecting yarn ends of the fringe through along the seam to be formed may be done at a speed only slightly slower than fine hand stitching.

To facilitate drawing the thread or yarn ends through in the proper order and color in addition to the tools shown for effecting the loop engagement, instead of simply using the finger, a pin, needle or other suitable instrument may be used to selectively insert the fringe ends into the tool loop or hook.

The essential principle of the present invention is to so prepare the projecting fringe of one part that they may be drawn through the fabric of the other part to which it is to be joined, and in so doing they are gripped in the cross threads and yarn of the fabric and projected through on the other side.

For further security they are preferably then

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sewed to a seam flap which may be trimmed, flattened and faced as described.

As stated in the foregoing, the selection of the fringe ends for drawing them through the unfrayed piece allows so arranging projecting threads or yarn ends as to match the coloring, shape and appearance of the pattern sufficiently accurately as to defy detection from the face side.

Various modifications or improvements and changes may be made in my method without departing from the scope of my invention, the essential characteristics of which are summarized in the appended claims.

Having thus described my invention, what I claim is:

1. A method of forming an invisible seam in a fabric body, consisting in fraying a first piece of fabric at an edge thereof to present a fringe of projecting warp or woof ends, placing the frayed piece of fabric over a second piece of fabric in position to match the pattern and without any initial alteration of said second piece of fabric, drawing the frayed fringe edge of said first piece of fabric through said second piece of fabric, and securing the frayed fringe edge of said first piece of fabric to said second piece of fabric while preserving the original condition of the warp and woof of said second piece of fabric.

2. A method of repairing a damaged spot in a parent piece of fabric, comprising preparing a repair piece of the same fabric by fraying it at all edges thereof to present a fringe of projecting warp and woof ends, placing the repair piece of fabric over the damaged spot in the parent piece of fabric in position to match the pattern and without any initial alteration of the damaged parent piece of fabric, drawing all of the frayed fringe ends of the repair piece of fabric through the parent piece of fabric, and securing the frayed fringe ends to the parent piece of fabric while preserving the original condition of the warp and woof of the parent piece of fabric.

3. A method of repairing a damaged spot in a parent piece of fabric, comprising preparing a repair piece of the same fabric by fraying it at all edges thereof to present a fringe of projecting warp and woof ends, placing the repair piece of fabric over the damaged spot in the parent piece of fabric in position to match the pattern and without any initial alteration of the damaged parent piece of fabric, drawing all of the frayed fringe ends of the repair piece of fabric through the parent piece of fabric, slitting the edge portion of the parent piece of fabric about the damaged spot into flaps in order to facilitate access thereto for sewing, and sewing together the fringes of the repair piece of fabric and the flap portions of the parent piece of fabric at the under-side thereof and closely adjacent to the plane of the main body of the parent piece of fabric while preserving the original condition of the warp and woof of the parent piece of fabric.

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