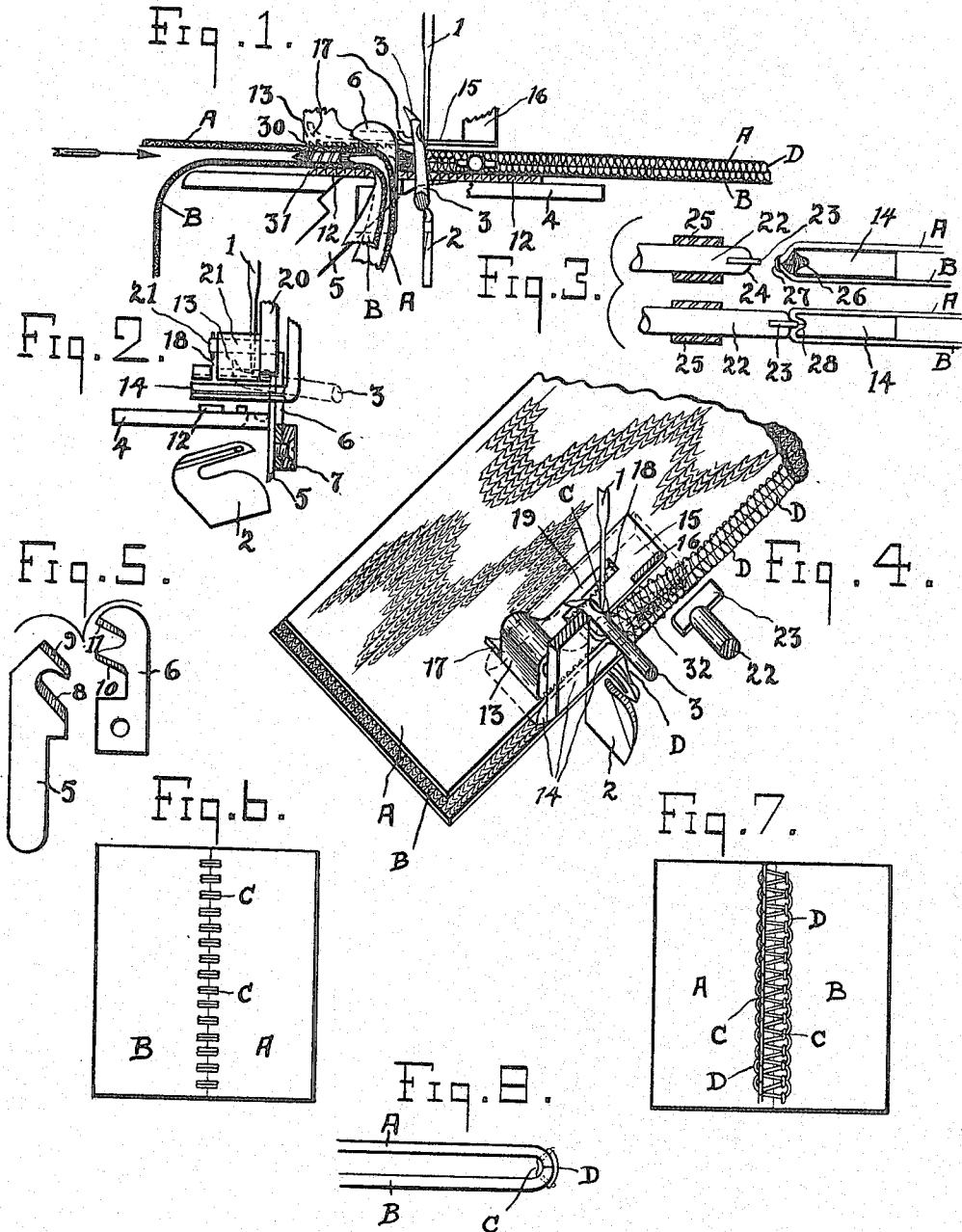


H. J. DAHL.
METHOD OF PRODUCING SEAMS.
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1,129,853.

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METHOD OF PRODUCING SEAMS.

1,129,853.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, HARRY J. DAHL, a citizen of the United States, residing at Nyack, in the county of Rockland and State of New York, have invented certain new and useful Improvements in Methods of Producing Seams, of which the following is a specification.

The present invention has to do with an improved method of forming flat seams on knit and other fabrics adapted for use in the making of garments, it more particularly having to do with a method of producing flat covered seams, the object of the invention being to provide an improved flat seam and an improved method of forming the same whereby such seams can be produced by one simple operation on a sewing machine and whereby the necessity of utilizing different machines and different operations for producing such a flat seam is avoided.

A sewing machine adapted to carry out this method will form the subject-matter of a separate application, and therefore only so much thereof as is necessary to illustrate the several steps of the method is shown in the drawings.

In the drawings accompanying and forming part of this specification, Figure 1 is a side elevation of the elements of the sewing machine used in producing the flat seam; Fig. 2 is a left-hand end view looking in the direction of the arrow in Fig. 1 with the work removed; Fig. 3 are views of the element or device for turning the edges of the work inside out and looking from the rear of Fig. 1; Fig. 4 is a perspective view of the elements shown in Fig. 1 with the trimming knives removed and illustrating the manner in which the several layers of work are carried past the sewing machine; Fig. 5 is a detail view of the trimmer knives; Fig. 6 illustrates a piece of work showing the needle thread forming a covered flat seam; Fig. 7 illustrates the same with the looper thread cooperating with the needle thread; and Fig. 8 is a view of the same illustrating how the edges of the two plies of the material are brought together and secured by the stitches.

Similar characters of reference indicate corresponding parts throughout the several figures of the drawings.

The several elements of a sewing machine provided for carrying out this improved method comprise a thread carrying needle 1, a thread carrying looper 2, a loop carrying spreader 3, a throat plate 4, a trimmer blade 5, and a movable trimmer blade 6 carried by the usual actuating lever, a part thereof being shown in section at 7, Fig. 2. The lower trimmer blade or knife 5 is provided with a cutting edge 8, see Fig. 5, for the bottom ply of work, and an upper cutting edge 9 for the top ply of work, while the other trimmer blade or knife 6 has a cutting edge 10 cooperating with the edge 8 of the knife 5 for the bottom ply of work, and a cutting edge 11 cooperating with the edge 9 of the knife 5 for the top ply of work. The feed dog 12 operates through the throat plate 4 to traverse the bottom ply of work, while the top feed 13 traverses the top ply of work at a uniform speed with the bottom ply. A supplemental throat plate 14 cooperates with the feed dog 12 to feed the bottom ply, while the feed dog 13 cooperates with the top of this supplemental throat plate to feed the top ply of work.

A presser foot 15 having an automatic lift, at which time the work is moved by the feeds, is supported by a shank 16 and is provided with an upturned end or toe 17, and a short tongue over which the stitches may be formed. This presser foot is slotted as at 18, see Figs. 2 and 4, to receive the extended portion of the feed dog 13, which feed dog is carried on a pin 21 of the arm 20, it being so hung as to move on the pin, the arm 20, by suitable mechanism, giving the usual four motions to this feed dog 13. A reciprocating plunger 22 having a rounded end 24 and carrying a blade 23, see Figs. 3 and 4, and mounted in a suitable bearing 25 so as to properly align and have the same vertical movements as the supplemental throat plate 14, is located in position so that the blade 23 will engage the edges of the stitched seam at the proper time and force such edges in-

wardly into the recess 26 of the supplemental throat plate, 14, see Fig. 3, and thus turn the edges inside out; in other words shift or bend such edges from the position 27, see upper portion of Fig. 3, to the position 28, see lower portion of Fig. 3.

In making this improved seam, the top ply of fabric A and the bottom ply of fabric B is started in the machine as at 30-31, Fig. 1. As the machine is started the bottom feed 12 comes into position to grip and feed the lower ply B, while the feed 13 also comes into position upon the supplemental throat plate 14 so as to feed the upper ply A, the two plies thus being fed separate from each other and spaced apart as it were, and at each cycle of the machine the work is advanced to a point where it meets the trimming knives which are placed one above the other to properly trim the plies A and B of the work thereby to prepare the edges thereof to receive the stitches.

Any of the well known covering seams which can be produced by the common over-stitch method is suitable to carry out this method so far as the stitch-forming instrumentalities are concerned, and therefore a detailed description of the stitching mechanism is deemed unnecessary.

As the plies A and B of the work reach their stitching position the needle penetrates these plies A and B, passing its thread through the material, and thus makes the stitches C represented by Fig. 6. The looper or spreader thread is carried over the usual tongue of the throat plate and the supplemental tongue 32 shown in dotted lines, Fig. 4, and which supplemental tongue 32 assists in the stitch formation and prevents the threads from drawing into the work, so that the edges of the work will not project between them. As the stitch is formed the looper thread is carried around the edge of the work to the top edge of one of the plies where it is joined with the spreader thread D. Each time the needle is in the work the plunger 22 is reciprocated in its bearing 25 by suitable means provided for that purpose, so that the blade 23 thereof will strike the seam at 27, see upper part of Fig. 3, and force it into the recess 26 of the supplemental throat plate 14 as shown by the lower part of said Fig. 3. As the needle rises and the feeds come in position to again advance the work, the plunger is shifted away from the seam and the supplemental throat plate thereby to permit the plies A and B of the work to freely pass through the machine. As the feeding takes place the seam opens in such manner that the edges abut as illustrated in Fig. 8, so that as the work is delivered from the machine the two plies A and B of the work readily lie flat,

see Figs. 6 and 7, and with the edges abutting one another.

It is to be understood that the supplemental throat plate 14 acting upon the bottom ply B has a rising and falling motion caused by the action of the feed dog underneath it, while the top feed 13 has the usual four motions upon the supplemental throat plate, and that the automatic presser foot has a lifting motion to and from the work so as to grip the work while the needle penetrates the same and releases the work when the feed is acting upon such work, it being understood, of course, that the presser foot and supplemental throat plate and the upper feed are such that when the usual presser bar is raised all this mechanism, being operatively connected thereto, will also be raised to permit the work to be placed into position or removed.

From the foregoing it will be observed that the several plies of material are fed to the stitching mechanism spaced apart, one above the other, and that they have the edges, while in such position, trimmed, and then such trimmed edges are stitched, and during this stitching operation the stitched edges are turned inside so that the edges will abut against each other and the two plies will open flat, and that the several steps of this method are carried out during the feeding of the work to and from the stitching mechanism and as the stitching takes place.

I claim as my invention:

1. The method of forming a flat seam which consists in stitching several plies of work together and during such stitching operation turning the stitched edges of the work between the plies.

2. The method of forming a flat covered seam which consists in stitching several plies of work together to cover the edges thereof and during such stitching operation turning the stitched edges of the work between the plies and then opening the work up flat so that the edges will abut.

3. The method of forming a flat seam which consists in feeding several plies of work spaced apart one above the other, stitching the edges, and then, during the stitching operation, turning the stitched edges of the work between the plies.

4. The method of forming a flat seam which consists in feeding several plies of work together, one above the other, stitching the edges then during the stitching operation turning the stitched edges of the work between the plies and then opening the work up flat so that the edges will abut.

5. The method of forming a flat seam which consists in stitching several plies of work together, and then exerting pressure on the stitched edges in a direction trans-

verse to the line of stitches thereby to turn the stitched edges of the work between the plies.

6. The method of forming a flat covered
5 seam which consists in feeding several plies of work spaced apart one above the other, trimming the edges thereof, stitching the trimmed edges of the several plies together
10 to form a covered seam, then exerting lateral pressure on such stitched edges in a

direction transverse to the line of stitches thereby to turn such stitched edges between the plies and then opening the work up flat so that the edges will abut.

Signed at Nyack, in the county of Rock- 15
land, this 10th day of April, 1914.

HARRY J. DAHL.

Witnesses:

OLOF. S. PETERSON,
JOHN W. KANE.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents,
Washington, D. C."