

(No Model.)

S. ARNOLD.

ART OF UNITING FABRICS BY SEWING.

No. 378,644.

Patented Feb. 28, 1888.

Fig. 1.

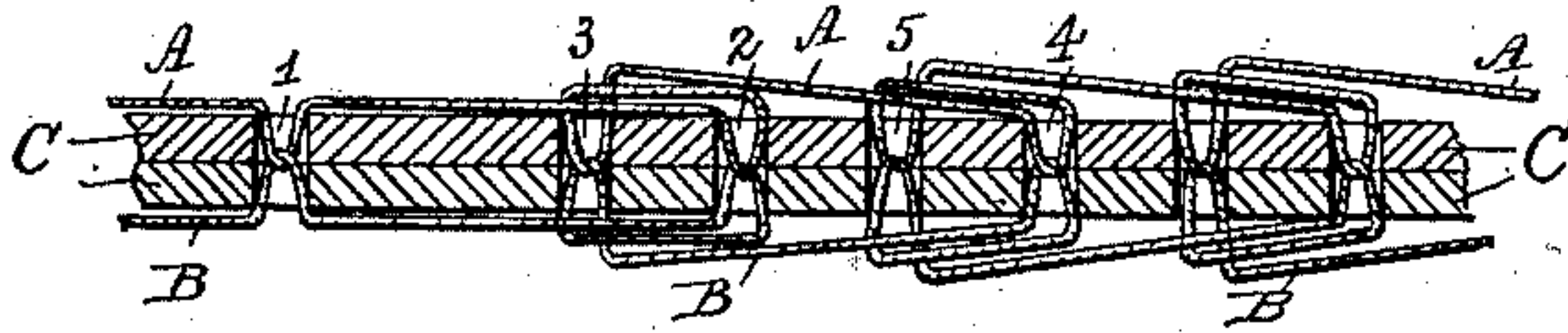


Fig. 2.

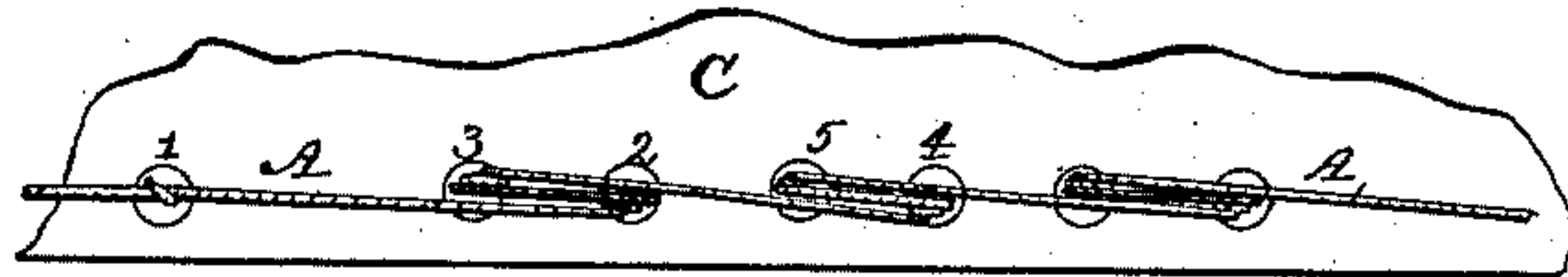


Fig. 3.

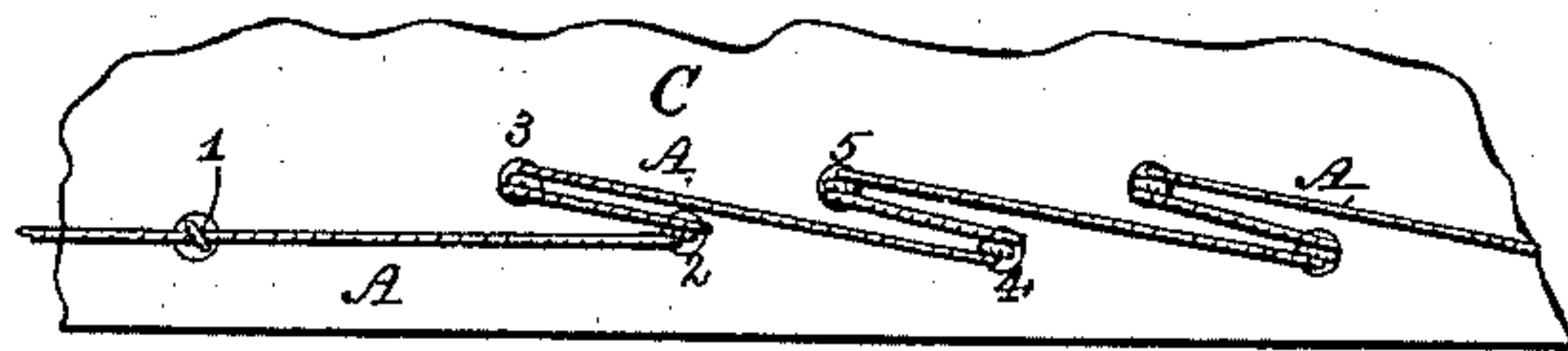
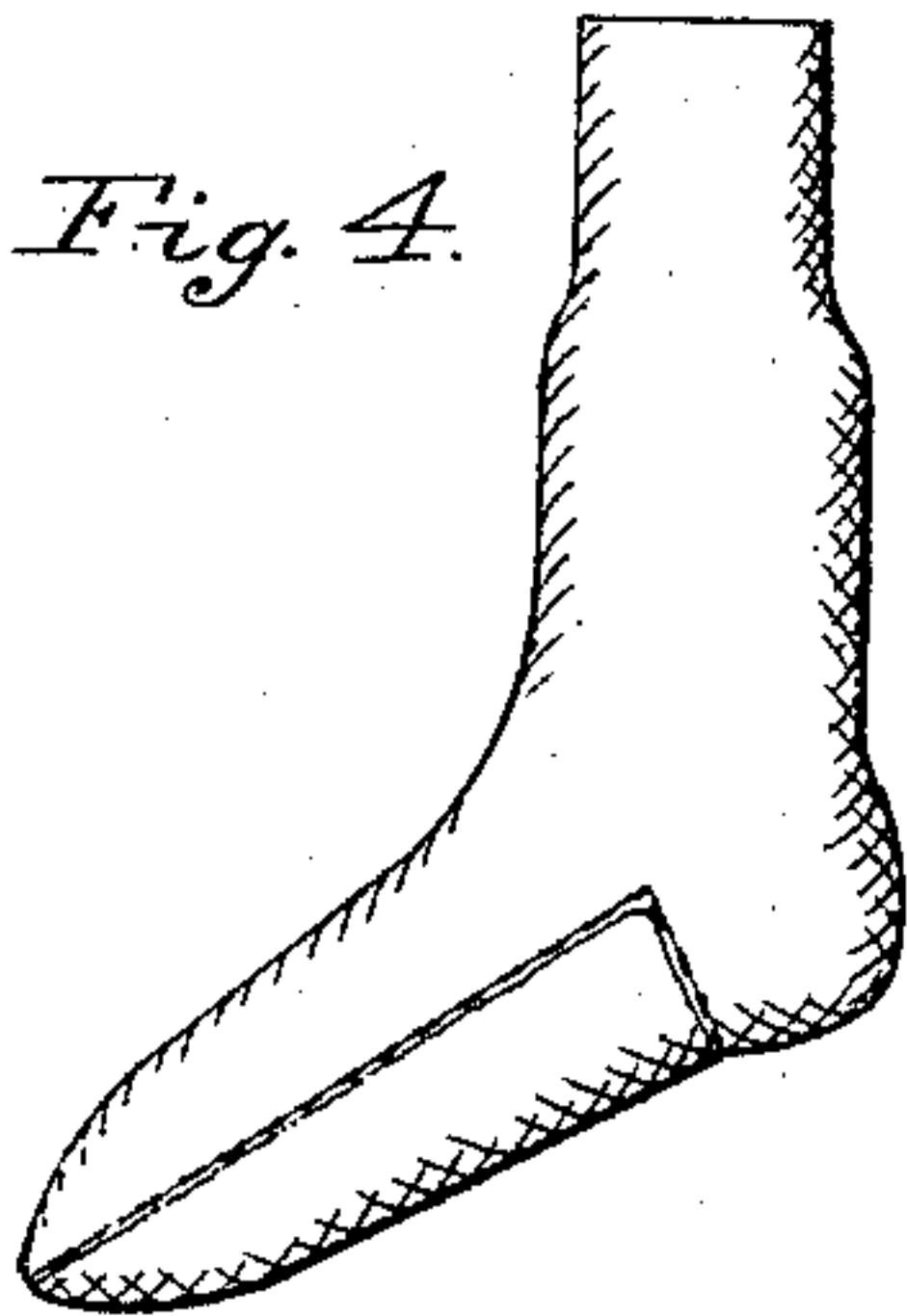


Fig. 4.



Witnesses:

E. D. Smith.
C. L. Taylor.

Inventor:

Satterlee Arnold,
by Henry Calver, Atty.

UNITED STATES PATENT OFFICE.

SATTERLEE ARNOLD, OF NEW YORK, N. Y., ASSIGNOR TO ANNA M. ARNOLD,
OF SAME PLACE.

ART OF UNITING FABRICS BY SEWING.

SPECIFICATION forming part of Letters Patent No. 378,644, dated February 28, 1888.

Application filed May 4, 1886. Serial No. 201,084. (No model.)

To all whom it may concern:

Be it known that I, SATTERLEE ARNOLD, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in the Art of Uniting Fabrics by Sewing, of which the following is a specification, reference being had therein to the accompanying drawings.

My invention relates to the art of uniting fabrics in the formation of garments by machine-sewing, its object being the production of elastic seams composed of lock-stitches, the needle-punctures of which are all in a straight line, or approximately so, while the threads of the seams are so disposed that there will be sufficient elasticity to admit of the stretching, when in use, of elastic fabrics united in accordance with my invention without danger of breaking the sewing-threads. Moreover, by my new method of sewing it is possible to gather or shorten the seam simply by increasing the tension of the threads, so as to draw the stitches tight. Thus some kinds of work, as in tailoring, which have heretofore been done by hand can now be performed by machinery, and the tendency to lengthen the seam by the sewing-threads when the stitches are made very close together may be compensated for.

For sewing elastic fabrics the loop or chain stitch has more generally been employed, owing to the great elasticity of the seams formed thereby; but this stitch is more or less objectionable by reason of the tendency of the seams to ravel should the thread break. The "Grover & Baker" or double chain stitch, which is very strong and elastic, has also been considerably used for uniting elastic fabrics; but it has now mostly fallen into disuse by reason of the great amount of thread which it requires.

The lock-stitch, owing to its great reliability, has come into very general use, and attempts have been made to adapt it to elastic fabrics by forming irregular or "zigzag" seams with this form of stitch, and also by leaving the sewing-threads very slack. The former of these plans has been in a measure successful; but the latter is objectionable, as it does not bind the fabrics tight enough to hold them securely, and the seam is loose and open. Thus, when the sewing is near the edge of the fabrics, the threads

of the latter are liable to fray or pull out, so that the hold of the sewing-threads thereon is lost and the seam broken. These objections are obviated by my invention, in which the uniting lock-stitches are formed alternately back of each other, so that there will be three lengths of the sewing-thread between alternate pairs of stitches.

To distinguish my invention from the ordinary "back-stitch," formed by hand, I term the same the "retrograde" stitch. This stitch is made by the machine embraced by my application No. 203,028, filed May 22, 1886, by reciprocating the needle horizontally in the line of the feed or of the movement of the work; but it is obvious that the same result may be accomplished by a feeding mechanism constructed to move the material being sewed a long step forward and then a short step backward.

In the drawings, Figure 1 is a sectional diagram illustrating my invention. Fig. 2 is a diagram in plan view. Fig. 3 is a plan view of a slightly-modified form of stitch, and Fig. 4 represents a garment (inside out) the seams of which are sewed according to my invention.

In the said drawings, A denotes the needle-thread, B the shuttle or interlocking thread, and C C sections of fabric.

The needle first punctures the fabrics at 1, and its loop is interlocked by the shuttle or lower thread in any well-known manner. The needle next punctures the fabrics at 2, and after its loop is interlocked, as before, it retreats, (or the work is moved backward,) so that the next stitch is a back or retrograde stitch at 3, the succeeding stitch a long forward one at 4, the next a back-stitch at 5, and so on indefinitely, each alternate stitch being back of the previous one. Thus there will be three lengths of sewing-thread on both sides of the superposed fabrics or of the work between alternate needle-punctures in the line of the seam and single lengths of sewing-thread on both sides of the work between the other needle-punctures, as shown in the drawings. These added lengths of sewing-thread give elasticity to the seam, and this elasticity may be varied, according to the elasticity of the fabrics being sewed, by varying the lengths of the back or retrograde stitches relative to the forward stitches.

While my invention is more particularly designed for use in connection with knit fabrics, I do not wish to be understood as limiting it to such use, as it is obvious that it can
5 be advantageously employed in connection with other fabrics, as where it is desirable for any purpose to pucker or gather the work at the seams. It will also be understood that instead of making all of the stitches of the seam
10 in one straight line, as in Fig. 2, the back and forward stitches may be slightly "staggered," as in Fig. 3, without departing from the spirit of my invention.

Having thus described my invention, I claim
15 and desire to secure by Letters Patent—

1. The herein-described method of uniting fabrics by sewing, said method consisting in passing a needle, with its thread, through the fabrics, interlocking the needle-thread with a
20 second thread, then again passing the needle

and its thread through the fabrics at a point behind the first point and interlocking the threads, as before, and repeating these operations to form a seam of lock-stitches with the
25 alternate stitches rearward of the advance or forward stitches, substantially as set forth.

2. The combination, with two or more sections or thicknesses of fabric, of a series of lock-stitches of which alternate needle-punctures are back of the others, with three lengths
30 of sewing-thread on both sides of the work between alternate punctures, substantially as set forth.

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

SATTERLEE ARNOLD.

Witnesses:

F. PORTER THAYER,
PERCIVAL J. PARRIS.