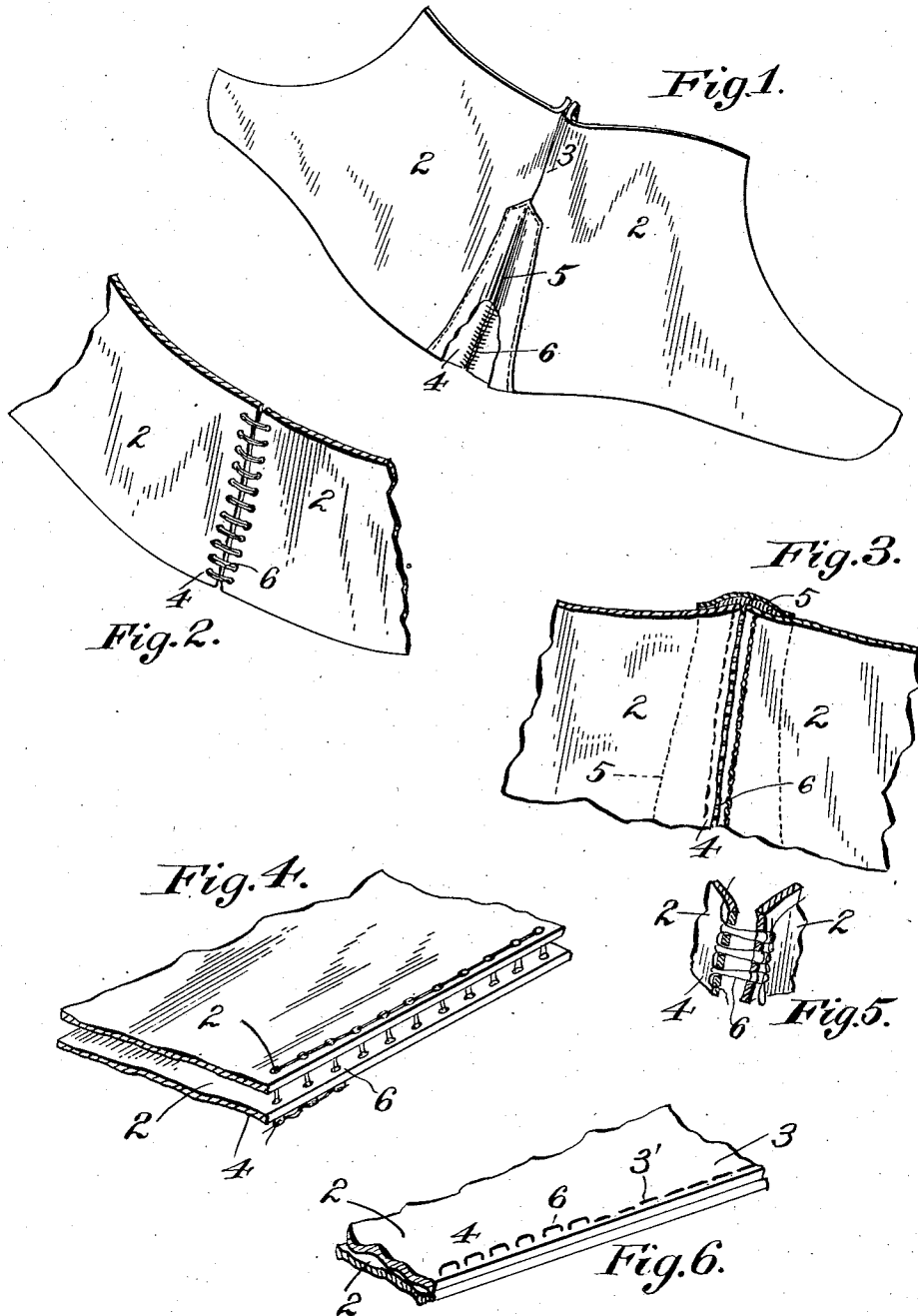


J. P. WEIS.
 HEEL SEAM FOR SHOES.
 APPLICATION FILED JUNE 5, 1911.

1,011,539.

Patented Dec. 12, 1911.



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HEEL-SEAM FOR SHOES.

1,011,539.

Specification of Letters Patent.

Patented Dec. 12, 1911.

Application filed June 5, 1911. Serial No. 631,204.

To all whom it may concern:

Be it known that I, JOHN P. WEIS, 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 Heel-Seams for Shoes, of which the following is a specification.

This invention relates to an improvement in seam structures, particularly to that class thereof for closing the heel seams of shoe uppers, the object of the invention being to provide an improved seam structure of the class described which may be more rapidly produced and which will be stronger than the seams heretofore used with shoe uppers.

Heretofore, the seams of shoe uppers have been made by a tight straight-away series of stitches near the top portion of the shoe upper terminating in a series of zigzag stitches near the bottom of the upper, the zigzag stitches being used to enable the seam to be opened up, and, as far as possible, to lie flat. The disadvantages of this seam are many, some of which it is only necessary to refer to; for instance it will be obvious that with the straight-away and zigzag stitches the straight-away stitches contain approximately twice the strength of the remaining portion of the seam produced by the zigzag stitching, for the reason that each alternate stitch of the zigzag series of stitches is necessarily over the edge of the work, and therefore those zigzag stitches which pass through the material have a greater space between them than the straight-away stitches, thus producing a weaker seam. Further when the stitches are made sufficiently short to cause the zigzag stitches to hold firmly the straight-away stitches are so close as to cause the needle to practically sever the seam from the body of the material; that is to say, the needle punctures are so close to one another as to materially weaken the seam at the part where the straight-away stitching is located. Moreover, the zigzag stitching produces a rigid heel seam, so that it becomes necessary in the lasting operation to beat the seam down flat into the material or leather, and this frequently injures the stitching to such an extent as to cause the seam to open up in places where the stitch has become cracked. All of these disadvantages, however, are avoided by forming the seam with straight-away stitches throughout such seam, but

with certain portions of the stitches loose, so that such seam may be opened up and lie flat with its edges abutting. In the present improvement the stitches are shown spaced apart the same distance throughout the entire seam, with the result that a very strong seam is produced throughout the entire piece of work. Furthermore, as the stitches in the present improvement are spaced uniformly throughout the length of the seam, and as all such stitches pass through the material instead of over the edge, each stitch gives strength to the seam, and as the stitching is thus spaced uniformly, with the looper thread locking the needle thread on one side of the seam uniformly in a straight line, it lies smooth and embeds itself in the material, thereby doing away with any rough projection or ridge and assisting materially in the lasting of the shoe upper, so that the seam is not liable to injury or become weakened while the remaining operations on the shoe are being performed. Furthermore, by the present improvement the seam may be produced by a very simple machine, inexpensive to manufacture and more rapid in its operation, and less liable to get out of order than heretofore, and which may be made on an ordinary two-thread chain stitch sewing machine provided with a needle carrying one thread and a looper carrying the other in combination with means for regulating the amount of needle thread to the stitches; that is to say, by the provision of means for causing the stitch to draw into the seam tightly so that it will not "grin" or spread apart at one portion of the seam, while permitting it to spread apart or open up at another portion thereof, which result may be obtained by regulating the amount of needle thread given to each stitch by the provision of a mechanism for vibrating a finger or suitable implement underneath the point of the needle alternately with each revolution of the machine or reciprocation of the needle, so that the needle thread will be drawn over the same on the descent of the needle thereby measuring off or pulling through the tension the desired quantity of thread for each stitch, in connection with means for throwing this device out of engagement with the needle thread when a tight seam is desired.

In the drawings accompanying and forming part of this specification, Figure 1 illus-

trates a shoe upper having this improved seam structure, part of the stay being broken away to illustrate the stitches under the same; Fig. 2 is an enlarged portion of the upper usually covered by the stay showing the outer side of such upper; Fig. 3 is an interior view of such upper shown in Fig. 2; Fig. 4 illustrates the two portions of the upper in superposed position after the loose stitches have been drawn into engagement with the work; Fig. 5 illustrates a portion of the upper shown in Fig. 4, showing the manner in which the two parts of the upper may be folded out, and Fig. 6 shows the two portions of the upper in that superposed position in which they are stitched together.

Similar characters of reference indicate corresponding parts in the several figures of the drawing.

In forming this seam structure, the two pieces of fabric or leather 2—2 are superposed in the usual way, as shown in Fig. 6, that portion 3 thereof forming the upper part of the upper being united by a tight seam formed by a line of straight-away tight stitches 3', while the lower portion 4 of the upper beneath the stay 5, which is secured to the fabrics by lines of stitches upon opposite sides of the seam, has the adjacent edges of such portions united by an open seam formed also of a series of straight-away loose stitches 6 sufficiently loose so that the opposite edges of the stitched fabric may abut and lie flat in the manner shown in Figs. 2 and 3.

Thus it will be observed that the present improved seam is formed by straight-away stitches throughout the entire seam, a portion thereof being loose so that the seam

may be opened up and lie flat with the edges of the stitched fabric abutting, thus producing a much stronger seam and one in which the disadvantages hereinbefore pointed out as present in connection with the zigzag stitch are entirely avoided, and in which the necessity of beating the seam down flat into the material or leather and thereby injuring the stitches is obviated, while also doing away with a ridge at the back of the shoe as heretofore.

I claim as my invention:

1. As a new article of manufacture, a seam structure for closing the uppers of boots or shoes comprising two fabrics having a portion of their edges superposed and a portion thereof abutting and lying flat and united by a continuous line of straight-away stitches.

2. As a new article of manufacture, a seam structure for closing the uppers of boots or shoes comprising two fabrics having a portion of their edges superposed and a portion thereof abutting and lying flat and united by a continuous line of straight-away stitches, one series thereof forming a tight seam and the other series thereof forming a loose seam, all of such stitches being substantially uniformly-spaced apart and a stay strip secured upon the fabrics by lines of stitches upon opposite sides of the loose seam.

Signed at Nyack, New York, this 27th day of May, 1911.

JOHN P. WEIS.

Witnesses:

EDWARD L. RUSSELL,
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