

E. P. ARNOLD.
SEWING MACHINE.
APPLICATION FILED DEC. 8, 1905.

946,591.

Patented Jan. 18, 1910.

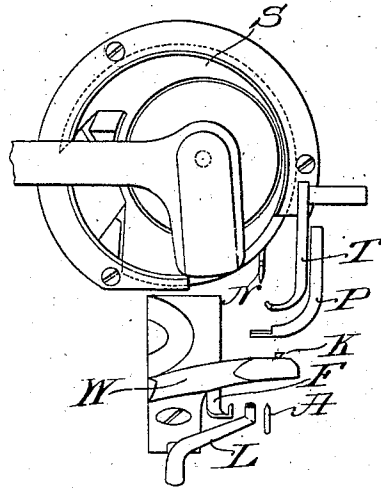


Fig. 1

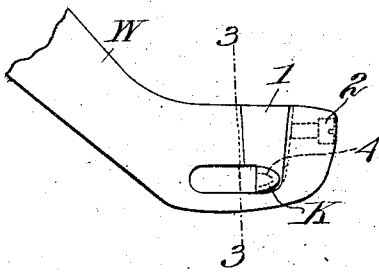


Fig. 2

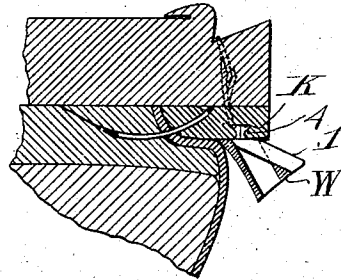


Fig. 3

Witnesses:

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UNITED STATES PATENT OFFICE.

EZRA PRESCOTT ARNOLD, OF ROCKLAND, MASSACHUSETTS, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

SEWING-MACHINE.

946,591.

Specification of Letters Patent. Patented Jan. 18, 1910.

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To all whom it may concern:

Be it known that I, EZRA PRESCOTT ARNOLD, a citizen of the United States, residing at Rockland, in the county of Plymouth and State of Massachusetts, have invented certain new and useful Improvements in Sewing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to an improvement in sewing machines and more particularly sewing machines of the curved-hook, lock-stitch, outsole type employed for uniting the outsole to the welt of a lasted shoe.

Ordinarily the outseam of a welt shoe is united to the welt by a lock stitch seam in which the stitches appear upon the surface of the welt upon the one side and are buried in a channel in the outsole upon the other. It is sometimes desired to bury or cover the stitches upon the welt side in a channel cut in the welt, making a seam known as a "fudge stitch" seam. Heretofore this has required the separate operation of cutting the channel in the welt before the outseam was sewn. This involves a separate handling of the shoe and it has been found more or less difficult to properly position the channel with relation to the operating instrumentalities of the sewing machine.

According to the present invention the sewing machine is provided with a welt channeling knife which cuts a channel in the welt during the operation of the sewing instrumentalities so that the separate operation upon the shoe is avoided and the cutting of the channel and the sewing of a shoe are accomplished by a single operation. This results in an improved quality of work.

In the accompanying drawings illustrating the preferred form of the invention, Figure 1 is a front view of so much of an outsole stitcher as is necessary in order to illustrate the present invention; Fig. 2 a plan view of the work support, and Fig. 3 is a section, taken on the line 3-3 of Fig. 2, of the work support showing the adjacent parts of a shoe in operative relation therewith.

The present invention is illustrated in connection with the well-known Goodyear rapid stitcher which is illustrated with substantial

accuracy in Letters Patent of the United States granted to French and Meyer April 26, 1892, No. 473,870, to which reference may be had for description of the parts not herein fully illustrated.

The shuttle S, the thread lifter T, the presser foot P, the curved hook needle N, the awl A, the looper L, and the thread finger F are all arranged, constructed and operate in the manner described in said patent. The work support W is constructed and arranged substantially as in said patent except that it is provided with a welt channeling knife K which projects upward from its upper surface in advance of the needle, that is to say, on the side of the needle from which the work approaches the needle. The welt channeling knife K has a shank 1 which is received in a dove-tailed groove in the face of the work support in which it is secured by the set screw 2. The knife K is flattened at its upper end as indicated in Figs. 2 and 3 and is provided with plow-like concave surfaces 4 on its sides back of the cutting edge of the knife so that a channel is formed provided with two channel flaps, the bottom of the channel being flat and of the width of the upper end of the knife. The plow-like surfaces 4 act to crowd and turn back the channel flaps as is clearly indicated in Fig. 3. The awl as it feeds the work in its normal operation drags the work across the edge of the welt channeling knife K and cuts the channel therein and turns up the flaps. The above-described arrangement is such that as the work approaches the stitch forming instrumentalities, the said knife cuts a channel in the welt at precisely the place therein where the seam of stitches is about to be formed and turns up the flaps in readiness for the formation of the seam by the stitch forming mechanism.

It is to be observed that the present invention while it has been illustrated in connection with the well-known Goodyear outsole stitcher is adapted for use in connection with other forms of outseam sewing machines irrespective of whether they operate to form a chain stitch or a lock stitch, and that the present invention viewed in its broader aspects is not limited to the form or construction of the sewing instrumentalities or the welt channeling knife illustrated and described herein.

It is believed that the present applicant is the first to employ a welt channeling knife in connection with an outseam sewing machine for forming a channel in the welt to receive the stitches of the outseam. In this connection it is to be noted that the applicant is aware that it has been proposed to provide a sewing machine with mechanism for cutting a groove in the bottom of the sole in a chain-stitch fair-stitching machine to receive the seam of stitches, but such machine is clearly distinguished from the applicant's construction in a number of important respects apparent to those skilled in the art, prominent among which is this that in the present construction the channeling knife both cuts a channel and turns up a flap in proper position with relation to the stitch forming mechanism to permit the needle to enter the channel.

Having thus described the invention, what is claimed is:—

1. An outseam sewing machine, having, in combination, stitch forming mechanism including a curved hook needle, a work support engaging the shoe externally to support the welt and outsole in proximity to the needle and a welt channeling knife located in close proximity to the path of the needle for cutting a channel in the welt in advance of the stitch forming mechanism and in proper position with relation to the stitch forming mechanism so that the seam of stitches shall be sewn in the bottom of the channel thus cut, substantially as described.

2. An outseam sewing machine, having, in combination, stitch forming mechanism including a curved hook needle, a work support engaging the shoe externally to support the welt and outsole in proximity to the needle and means acting on the welt in close proximity to the needle for cutting a channel in the welt and turning up the flap

in advance of the stitch forming mechanism, to permit the needle to enter the channel, substantially as described.

3. An outseam sewing machine, having, in combination, stitch forming mechanism including a curved hook needle, a work support to engage the welt of a shoe in proximity to the needle and a welt channeling and lip turning knife mounted upon the work support in close proximity to the path of the needle in position to cut a channel and turn up a lip in the welt in advance of the stitch forming mechanism and in proper relation thereto, substantially as described.

4. An outseam sewing machine, having, in combination, stitch forming mechanism including a curved hook needle, a work support to engage the welt of a shoe in proximity to the needle, and a welt channeling knife projecting above the welt supporting surface of the work support in close proximity to the path of the needle and in position to cut a channel in the welt in advance of the needle, substantially as described.

5. An outseam sewing machine, having, in combination, stitch forming mechanism including a curved hook needle, a work support engaging the shoe externally to support the welt and outsole in proximity to the needle and a welt channeling knife acting in advance of the needle and in close proximity thereto to cut a channel in the welt provided with two channel flaps and having surfaces to turn back the channel flaps to permit the needle to enter the channel, substantially as described.

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

EZRA PRESCOTT ARNOLD.

Witnesses:

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BERNARD BARROWS.