April 7, 1942. LE FOREST L. SHAW 2,278,675

SHOE SEWING MACHINE

Filed July 20, 1939

Fig. 1

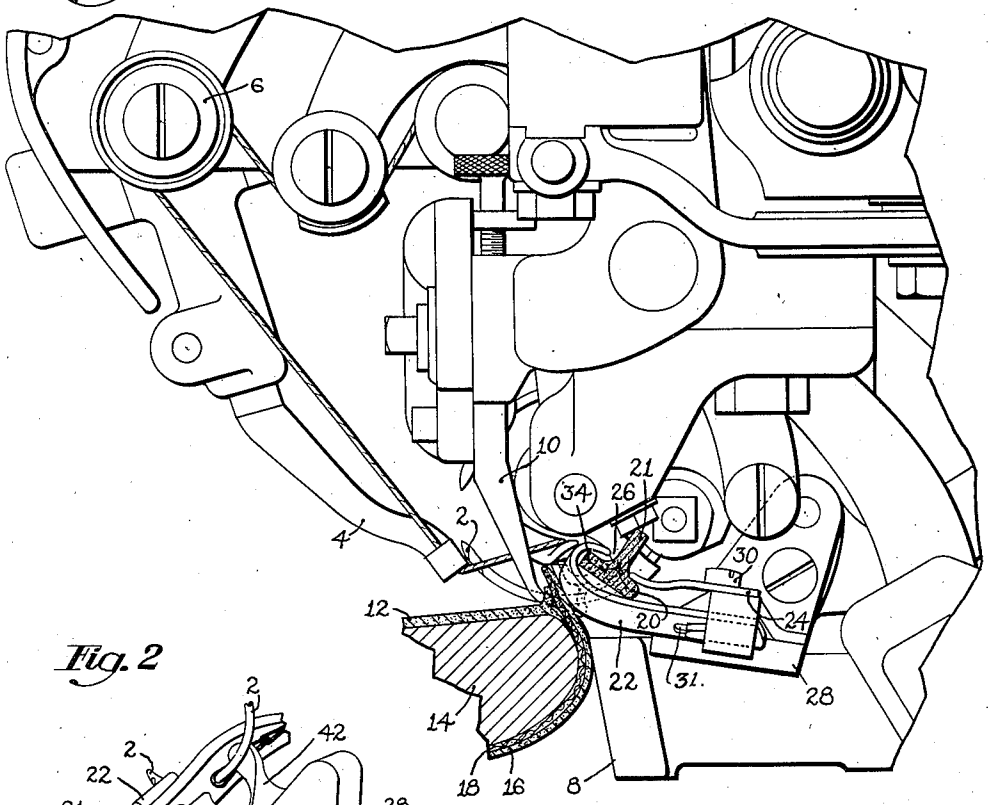


Fig. 2

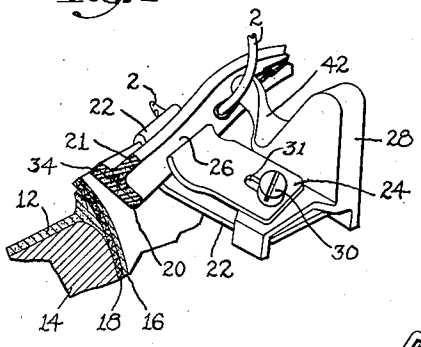
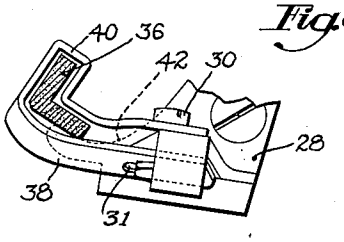


Fig. 3



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SHOE SEWING MACHINE

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7 Claims. (Cl. 112—52)

The present invention relates to shoe sewing machines, and more particularly to the welt guiding devices of inseam sewing machines for attaching a welt strip to the marginal portions of a lasted shoe upper and insole.

In sewing a welt strip to a shoe upper in an inseam sewing machine, the usual practice is to guide the welt in such relation to the machine that the seam will pass through one edge of the strip while the other edge is left free for attaching the outsole of the shoe. Ordinarily the welt is so sewn that the free edge projects from the inseam in the general direction of the main last supported body portion of the upper, the inseam being concealed in a completed shoe by the outsole. In some instances, however, the welt is attached in a reverse manner with the free edge of the welt projecting towards and beyond the edge of the shoe upper, the free welt edge being at the opposite side of the seam from the main body of the shoe upper and the last. Before attaching the outsole, the reversed welt is bent acutely to the edge through which the stitches pass and, after the outsole is attached, the stitches of the inseam remain exposed in the crevice formed by the bent welt. During and after attachment in the reverse manner, it is difficult to manipulate the welt and to prepare the shoe for further operations in present existing commercial type shoe making machines so that the output of such machines is substantially reduced from normal running capacity.

The objects of the present invention are to simplify and improve the construction of welt guides for shoe inseam sewing machines in order to render it possible to sew a welt strip in the reverse manner to the insole and overlasted marginal portions of the shoe upper without requiring unusual skill or ability on the part of the operator, either during the sewing operation or while preparing the sewed shoe for further shoe making operations. With these and other objects in view, the present invention relates to the provision in a shoe inseam sewing machine having a work piercing needle and a channel guide of a welt guide arranged to lead one edge of the welt strip against the shoe upper into line with the inseam, and formed with an opening at the side of the guide away from the upper to direct the free edge of the welt strip in angular relation to the edge which is led into the inseam and away from the shoe upper at the opposite side of the needle from the main body portion of the upper. By directing the welt strip in bent angular shape while being sewed, the shape of the strip is maintained more accurately after attachment to the shoe, so that no special manipulations are required and no particular difficulty is encountered in further shoe making operations. In case the welt is not already preformed by bending it into the exact angular shape required, it may be preferable to employ a guide having a right angular loop portion entirely surrounding the welt for holding the welt more accurately in shape and for providing a stronger guide construction. As hereinafter illustrated, the machine is of the curved hook needle type, and to prevent the needle from accidentally engaging the projecting free edge of the bent welt as it leaves the guide, a welt lifting finger is provided extending within the arc of needle curvature and beyond the needle in the direction of feed, the finger engaging the free welt edge and holding it clear of the needle. Where the welt is prepared by preforming it with the exact shape in which it is sewed to the shoe it is unnecessary to restrict the free edge of the welt by an enclosing loop portion on the guide. In certain instances where the welt strip is preformed before attachment, a third flange or edge may be provided on the welt strip which edge is also directed against the marginal portion of the upper. When a welt strip with a third flange is employed, the welt guide may be suitably modified by providing a reversely bent portion enclosing the third edge of the strip, the end of the reversely bent guide portion bordering the opening through which the projecting free edge of the welt strip extends.

Other features of the invention consist in the combinations and arrangements of parts hereinafter described and claimed, the advantages of which will be readily understood from the following description taken in connection with the accompanying drawing in which Figure 1 is a view in side elevation of a portion of a machine embodying the welt guide of the present invention, a portion of a shoe being indicated in operative relation to the machine; Figure 2 is a perspective view of the welt guide showing its manner of use; and Figure 3 is a detail view of a modified form of welt guide embodying certain features of the invention.

In the drawing, the invention is shown as embodied in an inseam shoe sewing machine which is in construction and mode of operation the same in many respects to that described in U. S. Letters Patent of Eppler No. 1,108,560 dated August 25, 1914, in which a welt guide is provided and arranged to direct a welt strip into

line with the seam connecting the insole and the overlasted marginal portion of a shoe upper, one edge of the welt strip being free and extending from the seam line along the main body portion of the upper. The machine is provided with a curved hook needle 2, a looper 4 to lay the thread in the needle, a take-up 6, a back rest 8, a channel guide 10, and a welt guide, all of which are similar, except as hereinafter described, to the corresponding parts in the machine of the patent. However, in the present machine the welt guide is so located that instead of directing the welt strip into line with the seam and with the free edge extending along the last supported main body portion of the shoe upper, the welt is directed in the reverse manner with the free edge projecting beyond the marginal unsupported portion of the upper at the opposite side of the seam line from the last and from the main body of the shoe upper.

Referring more particularly to Figure 1, the insole of the shoe is indicated at 12 supported on a last 14 with the overlasted upper 16 and lining 18 temporarily secured to the lip of the insole. In operating the present machine, one edge 20 of the welt strip is led into the seam line, and the other edge 21 remains free with the needle passing between the free edge and the last supported main body portion of the shoe upper rather than at one side of both the free welt edge and the last supported portion of the upper as in the patent referred to. When the welt strip is so directed it frequently interferes with the operation of the stitch-forming devices and requires constant manual adjustment as the strip is directed into the seam, thus necessitating slower sewing speeds. Furthermore, after the seam is completed, the welt strip must be bent towards the shoe upper to permit the outer edges of the upper and the rib of the insole to be trimmed and flattened for the reception of the outsole. The trimming and flattening often results in injury to the seam or to the welt strip because it is difficult to hold the free edge of the strip at a position in which it will not be injured in the operations subsequent to the sewing.

To avoid these difficulties with the present machine the welt guide is so arranged that it causes the welt strip to be directed in bent condition against the shoe upper as the seam is being sewed or the welt strip is already preformed by bending into right angle sectional shape. In forming the seam with the welt bent at an angle, the stitches will be inserted in a manner to assist in retaining a permanently and uniformly bent condition in the welt after attachment. The welt guide as illustrated in Figure 1 is in the form of a pair of parallel straps 22 and 24. The strap 22 is bent at its forward end towards the end of the strap 24, an opening 26 being provided between the ends of the straps at the side of the guide away from the shoe upper. The straps are secured to a bracket 28 on the machine frame by a bolt 30 passing through slots 31 in the straps so that the width of the opening between their ends may be adjusted for different sizes of preformed welt strips, the positions of the ends of the guide straps locating the position of the welt strip.

The illustrated welt strip has, in addition to its right angle edge 21 which extends through the opening 26, a base terminating in an edge 34 and the edge 20. The base is formed by splitting a portion of the welt and after folding the halves in opposite directions, reversing one-half against itself and beneath the other half which is cut off with its edge registering with the edge of the first half. The parts are then cemented to hold them in place, a T-shaped welt strip thus being produced. To accommodate the T-shaped welt strip, the guide strap 22 is reversely bent to receive the third edge 34, and to direct said edge along the margin of the shoe upper. In trimming the margin of the shoe upper and insole lip having sewed thereto a T-shaped welt strip, the third edge 34 of the strip is trimmed together with the upper and lip so as to eliminate the formation of voids between the welt and the upper.

Where a simple preformed welt strip 36 or a strip which is formed into angular shape as it is being sewed is provided, as illustrated in Figure 3, the welt guide straps 22, 24 are replaced by a single bent strap 38 having a loop portion 40 surrounding the opening through which the right angle edge of the welt strip projects.

To avoid accidental contact with the projecting edge of an angle shaped welt strip by the needle, the bracket 28 which supports the welt guide has a welt lifting finger 42 arranged to extend inside the arc of needle curvature and beyond the needle in the direction of feed. The finger 42 causes the welt to be raised for the passage of the needle and to bridge the space occupied by the needle between the welt guide and the finger.

The nature and scope of the invention having been indicated, and a particular embodiment of the invention having been specifically described, what is claimed is:

1. A shoe inseam sewing machine having, in combination, a work piercing needle arranged to penetrate and emerge from the insole and overlasted marginal portions of a shoe upper, a channel guide and a welt guide arranged to lead one edge of a welt strip against the marginal portion of the upper into line with the inseam, and formed with an opening at the side of the guide away from the upper to direct the free edge of the welt strip in angular relation to another edge which is led against the shoe upper, said free edge extending away from the shoe upper at the opposite side of the needle from the overlasted main body portions of the upper.

2. A shoe inseam sewing machine having, in combination, a work piercing needle arranged to penetrate and emerge from the insole and overlasted marginal portions of a shoe upper, a channel guide and a welt guide at opposite sides of the overlasted marginal portions, the welt guide being arranged to lead one edge of a welt strip against the marginal portion of the upper into line with the inseam and formed with a right angle enclosing loop at the side of the guide opposite the shoe upper, the needle passing between that portion of welt strip guided by the right angle enclosing loop and the overlasted main body portions of the shoe upper.

3. A shoe inseam sewing machine having, in combination, a curved hook needle arranged to penetrate the marginal portions of a shoe upper lasted over an insole, a channel guide and a welt guide arranged to lead one edge of a welt strip against the overlasted marginal portion of the upper into line with the seam and formed with an opening at the other side of the guide to direct the free edge of the welt strip in angular relation to the edge which is led against the upper and away from the upper inside the arc of needle curvature.

4. A shoe inseam sewing machine having, in combination, a work piercing needle arranged to penetrate and emerge from the insole and overlasted marginal portions of a shoe upper, a channel guide and a welt guide arranged to lead one edge of a T-shaped welt strip against the overlasted marginal portion of the shoe upper into line with the inseam, and formed with an opening at the side of the guide away from the upper to direct a second edge of the welt strip in angular relation to the first edge and away from the upper at the opposite side of the seam line from the main body of the upper, said guide being provided with a reversely bent portion for directing the third edge of the strip along the margin of the upper.

5. A shoe inseam sewing machine having, in combination, a work piercing needle arranged to penetrate and emerge from the insole and overlasted marginal portions of a shoe upper, a channel guide and a pair of parallel straps, one of which is bent at its end towards the end of the other arranged to lead one edge of a welt strip against the overlasted marginal portion of the shoe upper into line with the inseam and formed with an opening between the ends of the straps to direct another edge of the welt strip in angular relation to the first mentioned edge and away from the shoe upper at the opposite side of the seam line from the main body of the upper.

6. A shoe inseam sewing machine having, in combination, a work piercing needle arranged to penetrate and emerge from the insole and overlasted marginal portions of a shoe upper, a channel guide, a pair of parallel straps, one of which is bent at its end towards the end of the other arranged to lead one edge of a welt strip against the overlasted marginal portion of the shoe upper into line with the inseam and formed with an opening between the ends of the straps to direct another edge of the welt strip in angular relation to the first mentioned edge and away from the shoe upper at the opposite side of the seam line from the main body of the upper, and means for adjusting the width of the opening between the ends of the straps.

7. A shoe inseam sewing machine having, in combination, a curved hook needle arranged to penetrate the marginal portions of a shoe upper lasted over an insole, a channel guide, a welt guide arranged to lead one edge of a welt strip against the overlasted marginal portion of the upper into line with the seam and formed with an opening at the other side of the guide to direct the free edge of the welt strip in angular relation to the edge which is led against the upper and away from the upper inside the arc of needle curvature, and a flange lifting finger acting inside the arc of needle curvature beyond the needle in the direction of feed to raise the second mentioned edge of the welt clear of the needle.

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