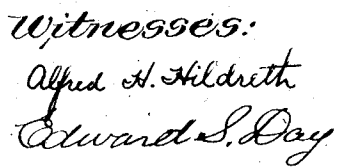


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UNITED STATES PATENT OFFICE.

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SHOE-SEWING MACHINE.

1,027,791.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOHN V. ALLEN, a citizen of the United States, residing at South Weymouth, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Shoe-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 shoe sewing machines, and particularly to a welt channeling attachment for sole sewing machines which are adapted to unite the welt and outsole of a shoe.

Welt channeling attachments for sole sewing machines have heretofore been devised comprising a channeling knife arranged to cut a stitch receiving channel in the surface of the welt, and adapted to be thrown into and out of operation in order that a channel may be cut in the welt around the forepart of the shoe only, the welt at the shank portion of the shoe being left unchanneled and the stitches of the seam being disposed upon the surface of the welt.

The object of the present invention is to provide a welt channeling attachment of this general character, having its various parts constructed and arranged in a simplified and improved manner and operating with greater certainty and in a more satisfactory manner to channel the welt at the portions of the shoe desired.

With this object in view a feature of the present invention contemplates the provision of a support for the channeling knife mounted independently of the work support of the sole sewing machine and movable with relation thereto to project the knife into operative position and to retract it to inoperative position. In welt channeling attachments which have heretofore been devised, the support for the channeling knife has been mounted on the work support of the sewing machine. By mounting the support for the knife independently of the work support a simpler, stronger and more durable construction is produced and also little if any change is required in the work support ordinarily used in the machine.

Broadly considered, the invention contem-

plates constructing and arranging the support for the channeling knife in any desired manner so as to be independent of the work support of the sewing machine and be movable with relation thereto to project and retract the knife during the continued operation of the machine in automatically sewing a seam. In the preferred embodiment of the invention, however, the knife is carried upon the free end of an arm which engages the work support and the arm is pivotally mounted upon a support so arranged with relation to the work support that its movements cause the arm to be rocked about its pivot and the knife to be projected or retracted. This construction constitutes the simplest and most efficient embodiment of the invention which has as yet been devised.

In the illustrated embodiment of the invention hereinafter specifically described, the invention is applied to a sole sewing machine provided with a movable gage for determining the position of the seam on the welt. This guide is moved outwardly while the forepart of the shoe is being sewn and is moved rearwardly while the shank portion is being sewn, means being provided by which the operator can move the gage at any desired time during the operation of the machine. The gage is moved rearwardly at the time that it is desirable to throw the welt channeling knife out of operation and is moved outwardly at the time when it is desirable to throw the welt channeling knife into operation, and accordingly in the illustrated embodiment of the invention the arm which supports the channeling knife is pivotally mounted upon the slide carrying the gage whereby the channeling knife is actuated simultaneously with the gage and additional mechanism for actuating the channeling knife is rendered unnecessary.

Another feature of the present invention consists in the provision of means whereby the welt channeling knife can be adjusted to vary the depth of the channel.

Other features of the invention consist in certain combinations and arrangements of parts hereinafter described and claimed, the advantages of which will be obvious to those skilled in the art from the following description.

The several features of the present inven-

tion will be clearly understood from an inspection of the accompanying drawings in which—

Figure 1 is a view in front elevation of a portion of a sole sewing machine with the preferred form of the present invention applied thereto; only so much of the sewing machine being illustrated as is necessary to show the connection of the invention therewith. Fig. 2 is a detail perspective view of the welt channeling cutter and of the upper end of the cutter carrying arm. Fig. 3 is a view in side elevation of a portion of the mechanisms illustrated in Fig. 1 with the work support of the machine shown in section. Fig. 4 is a detail plan view of a portion of the work support of the machine. Fig. 5 is a detail sectional view on the line 5—5 of Fig. 4. Fig. 6 is a detail view of the adjustable pivot upon which the knife carrying arm is mounted. Fig. 7 is a detail sectional view illustrating the lower end of the knife carrying arm and its adjustable pivot, and Figs. 8, 9 and 10 are detail views in front and side elevation and in plan of the welt slitting knife and of the upper end of the knife carrying arm.

The machine to which the present invention has been applied as illustrated in the drawings is a sole sewing machine of the curved, hooked needle type, and is disclosed with substantial accuracy in the patent to French and Meyer No. 473,870, the parts of the machine illustrated in the drawings of this application being the needle 1, the work support 2, the feed slide 3 and the feed changing lever 4. The machine disclosed in the patent referred to is usually provided with a gage for determining the position of the seam on the welt which gage is actuated through suitable connections from the lever 4, and this gage and its actuating mechanism are illustrated in the drawing accompanying this application. The gage is indicated at 5 and is secured upon a standard projecting upwardly from a slide 6 mounted to slide upon a guide 7 to move the gage 5 outwardly and rearwardly. The slide 6 is actuated from the lever 4 of the feed changing mechanism by means of a link connecting the lever 4 to an arm 8 secured to the lower end of a short rock shaft 9 journaled in a block 10, the upper end of which rock shaft is provided with a slotted crank arm 11 engaging a stud projecting downwardly from the slide 6.

The illustrated embodiment of the present invention as applied to the machine above described consists of a welt channeling knife 12 formed upon the free upper end of an arm 13 which is pivoted at its lower end upon the standard rising from the slide 6, the axis of the pivot extending at right angles to the direction of movement of the

slide. The upper end of the arm 13 is curved, as indicated in Figs. 2 and 3, and extends upwardly through a slot cut in the work support 2, the shape of the slot being indicated in Fig. 5. At the work engaging surface of the work support this slot, forms a continuation of the awl and needle slot, as indicated in Fig. 4. The slide 6 moves in a direction substantially parallel with the surface of the work support and it will be evident from an inspection of Fig. 3 that when the slide 6 is moved rearwardly to throw the guide 5 out of operation the arm 13 is swung about its pivot and the upper end of the arm is lowered until the knife 12 is retracted below the surface of the work support, and when the slide 6 is moved outwardly to cause the guide 5 to engage the shoe, the upper end of the arm 13 is raised and the knife 12 projected above the surface of the work support. The guide 5 is moved outwardly when the forepart of the shoe is reached during the sewing operation and is moved rearwardly when the shank portion of the shoe is reached so that the welt channeling knife 12 is actuated to cause a channel to be cut in the surface of the welt around the forepart of the shoe and to leave the welt at the shank portion of the shoe unchanneled.

The shape which it is preferred to give the channeling knife will be apparent from an inspection of Figs. 2, 8, 9 and 10 from which it will be seen that the knife is in the form of a wedge shaped block and that the upper surface of the knife, back of the cutting edge, is beveled off at each side of the center to decrease the resistance offered to the feeding of the work by the knife. The knife operates upon the welt just in advance of the needle and holds the channel open until entered by the needle.

To enable the welt channeling knife to cut a channel in the welt of any desired depth means are provided for causing the knife to project more or less beyond the surface of the work support 2. To this end the pivot 14 of the arm 13 is eccentrically mounted upon a clamping bolt 15 which passes through the pivot and screws into the standard of the slide 6, an adjustment of the channeling knife to vary the depth of the channel cut in the welt being produced by rotating the pivot 14 through a portion of a revolution, and clamping it in adjusted position by means of the bolt 15.

It is to be understood that the term "channeling knife" as used in the preceding description and in the following claims is intended to include any knife which is adapted to form an incision in the welt to receive the stitches of the seam whether the incision be in the form of a groove or in the form of a slit which is arranged either

perpendicularly or obliquely to the surface of the welt.

The nature and scope of the present invention having been indicated and a preferred form of the invention having been specifically described, what is claimed is:—

1. A sole sewing machine, having, in combination, with the stitch forming devices, a work support, a channeling knife arranged to cut a stitch receiving channel in the surface of the welt, a pivotally mounted knife supporting arm having its free end engaging the work support, and a support for the arm movable with relation to the work support to project the knife.

2. A sole sewing machine, having, in combination, with the stitch forming devices, a work support, a channeling knife arranged to cut a stitch receiving channel in the surface of the welt, means for throwing the knife into and out of operation during the continued operation of the machine in automatically sewing a seam, and means for adjusting the knife to vary the depth of cut.

3. A sole sewing machine, having, in combination, with the stitch forming devices, a work support, a channeling knife arranged to cut a stitch receiving channel in the surface of the welt, a pivotally mounted knife supporting arm having its free end engaging the work support, and a slide supporting the arm movable parallel with the work

engaging surface of the work support to project the knife.

4. A sole sewing machine, having, in combination, with the stitch forming devices, a work support arranged to engage the welt of a shoe, a channeling knife arranged to cut a stitch receiving channel in the surface of the welt, and a support for the knife mounted independently of the work support and movable with relation thereto during the continued operation of the machine in sewing a seam to project the knife from an inoperative to an operative position.

5. A sole sewing machine, having, in combination, a work support, a channeling knife arranged to cut a stitch receiving channel in the surface of the welt, a pivotally mounted knife supporting arm having its free end engaging the work support, a gage to determine the position of the seam on the welt, and a slide supporting the arm and gage movable parallel with the work engaging surface of the work support to vary the position of the seam on the welt and to project the knife.

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

JOHN V. ALLEN.

Witnesses:

FRED O. FISH,

FARNUM F. DORSEY.

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