

A. EPPLER.

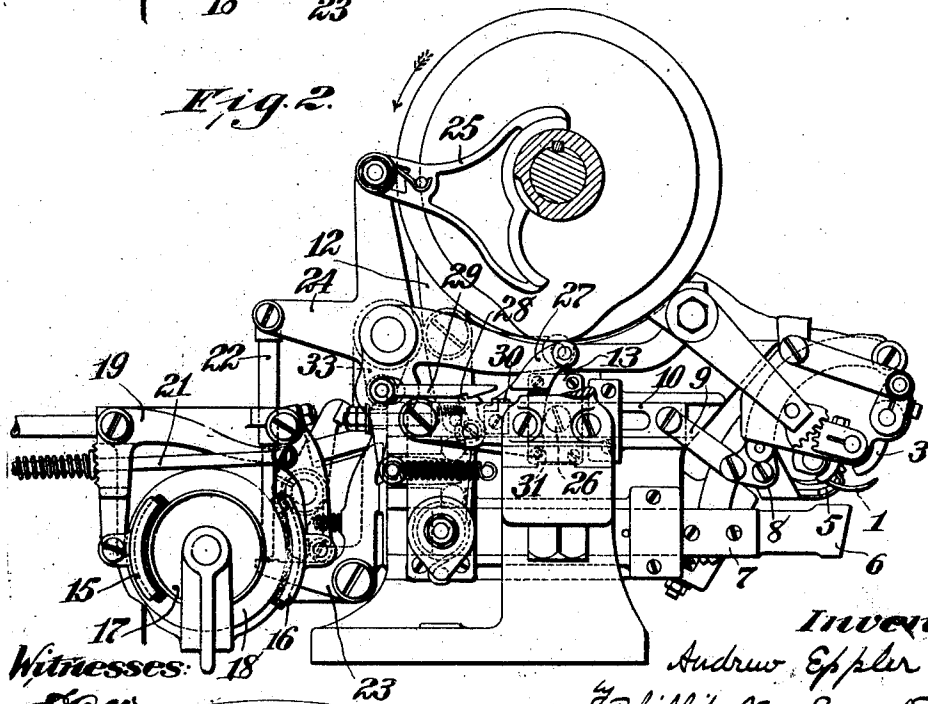
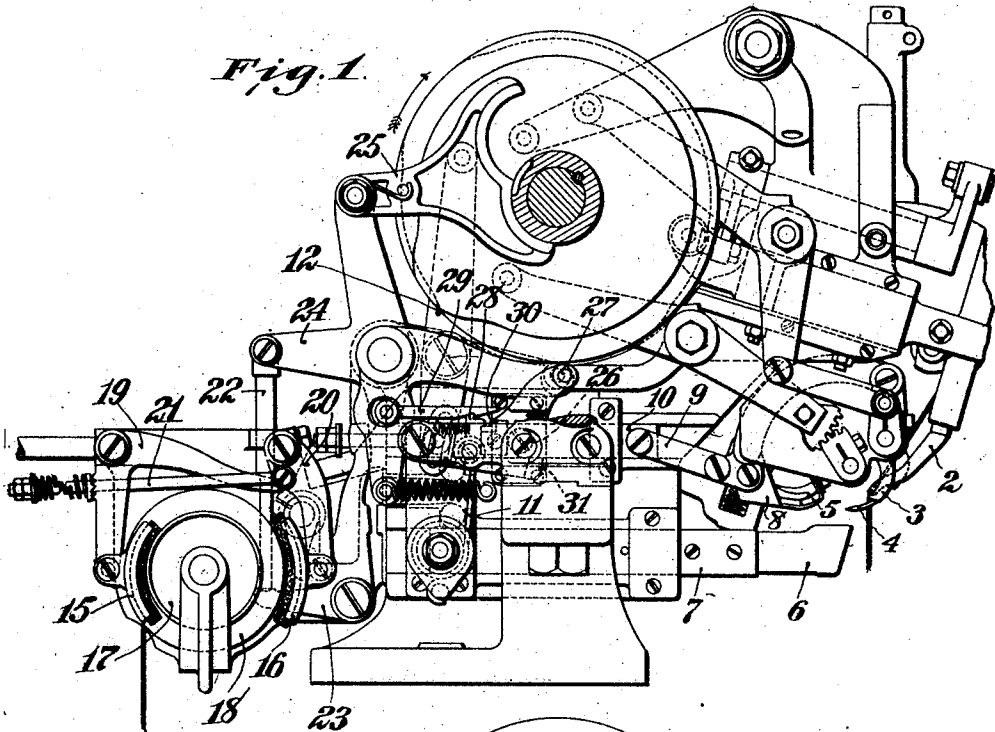
WELT GUIDE MECHANISM FOR WELT SHOE SEWING MACHINES.

APPLICATION FILED DEC. 5, 1910.

1,005,181.

Patented Oct. 10, 1911.

2 SHEETS-SHEET 1.



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2 SHEETS-SHEET 2.

Fig. 3.

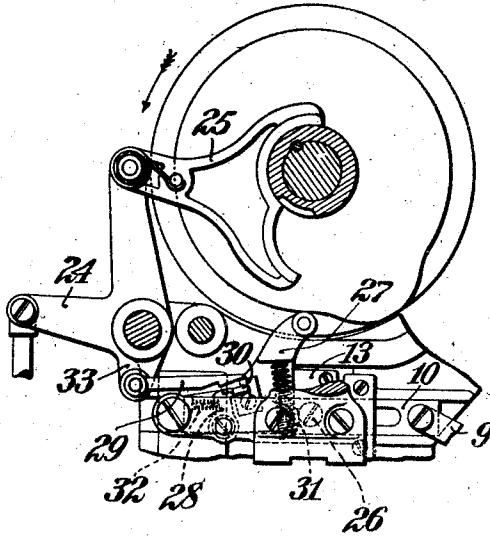


Fig. 4.

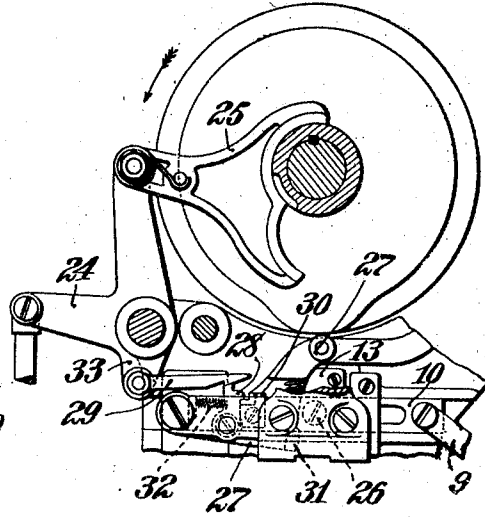
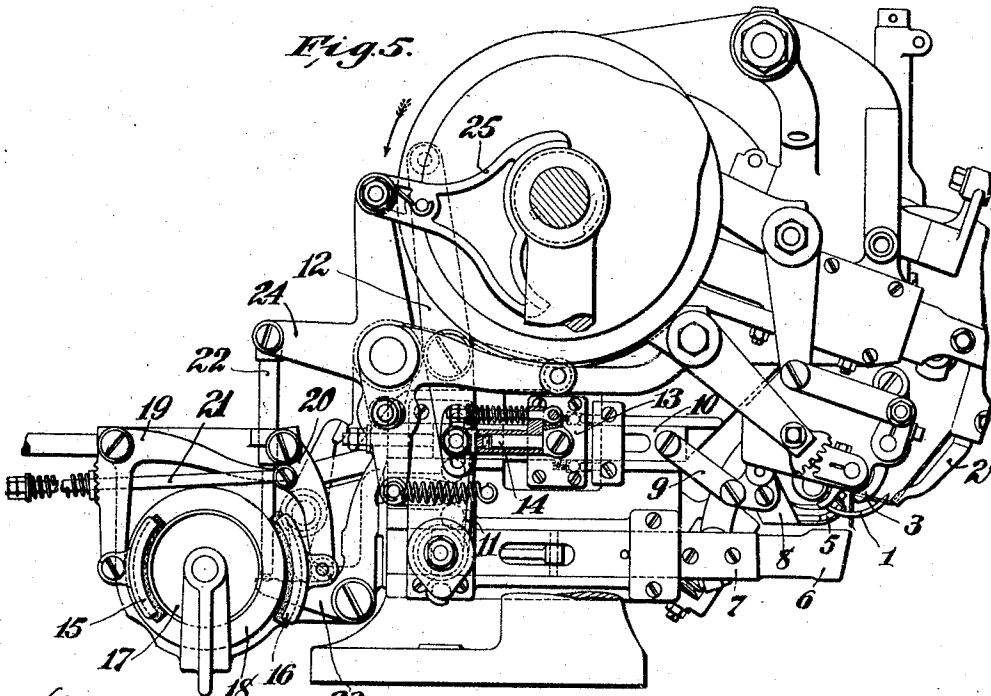


Fig. 5.



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UNITED STATES PATENT OFFICE.

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WELT-GUIDE MECHANISM FOR WELT-SHOE-SEWING MACHINES.

1,005,181.

Specification of Letters Patent.

Patented Oct. 10, 1911.

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To all whom it may concern:

Be it known that I, ANDREW EPPLER, a citizen of the United States, residing at Lynn, in the county of Essex and State of Massachusetts, have invented certain new and useful Improvements in Welt-Guide Mechanism for Welt-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 is intended primarily as an improvement on the welt guide mechanism disclosed in applicant's prior application, Serial No. 529,412, filed November 22, 1909. In said application a welt shoe sewing machine is disclosed provided with a welt guide which is moved toward and from the shoe during each cycle of operations of the machine and with a locking device for locking the welt guide in its forward position during the first cycle of operations, the object of this locking device being to enable the seam to be started close to the end of the welt without the use of a welt holding device in addition to the welt guide. The machine disclosed in said application is also provided with a tension releasing mechanism operated by a backward movement of the cam shaft and with connections between said mechanism and the welt guide for retracting the welt guide to permit the insertion and removal of work. The device for locking the welt guide in its forward position during the first cycle of operations of the machine consists of a locking lever arranged to engage a clutch box forming a part of a welt guide slide actuating mechanism. During the operation of the machine in sewing a seam this locking lever is held latched in inoperative position but as soon as the cam shaft is turned backward the locking lever is unlatched and allowed to move into a position to hold the welt guide in its forward position and prevent its retraction. The welt guide is thus locked against backward movement as soon as the direction of rotation of the cam shaft is reversed and consequently the only retracting movement imparted to the welt guide to permit the insertion of work is that produced by the connections between the welt guide and the tension releasing mechanism. In actual practice on certain classes of work it

has been found that this retracting movement is not sufficient.

One object of the invention is to remedy this defect and permit the welt guide to be retracted the desired amount for the insertion of work.

Another object of the invention is to provide an improved mechanism for holding the welt guide in advanced position during at least one cycle of operations of the machine, comprising a small number of parts arranged in a simple and compact manner.

Other objects of the invention are in general to improve the construction, arrangement and mode of operation of the various parts of the welt guide mechanism of a shoe sewing machine.

With the above objects in view the present invention consists in the constructions, combinations and arrangements of parts herein after 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 invention will be clearly understood from an inspection of the accompanying drawings in which,

Figure 1 is a view in side elevation of the welt shoe sewing machine embodying the same in their preferred form, the parts of the machine being illustrated in the position which they assume after the machine has been stopped and the cam shaft turned backward. Fig. 2 is a view similar to Fig. 1, of so much of the machine as is necessary to illustrate the connection of the present invention therewith, the parts being shown in the position which they assume just after the machine has been started into operation. Fig. 3 is a detail view in side elevation illustrating the position of certain of the parts during the first forward rotation of the cam shaft. Fig. 4 is a view similar to Fig. 3 illustrating the position of the parts during the normal operation of the machine in sewing a seam, and Fig. 5 is a view of the machine in side elevation partly in section showing particularly the mechanism for actuating the welt guide slide.

With the exception of the mechanism for locking the welt guide slide in its advanced position, the various parts of the machine illustrated in the drawings are constructed and arranged in the same manner as the corresponding parts of the machine disclosed

in applicant's prior application above referred to. These parts will, therefore, be only briefly described herein.

In the drawings 1 indicates a curved hook
5 needle, 2, the looper, 3 the thread arm, 4 the awl, 5 the welt guide, and 6 the back rest. The back rest is carried by a reciprocating slide 7 and the welt guide is carried on a swinging arm 8, connected by a link 9 to the
10 welt guide slide 10. The spring, which acts upon the welt guide slide to press the welt guide into contact with the work is indicated at 11, and the cam actuated lever through which the welt guide slide is reciprocated during the normal operation of
15 the machine, is indicated at 12. The clutch box which surrounds the welt guide slide is indicated at 13 and the yielding link connecting the clutch box and the lower end of
20 the lever 12 is indicated at 14. The construction, arrangement and mode of operation of these parts will be obvious from an inspection of the drawings without further description.

25 The two brake shoes of the tension mechanism are indicated at 15 and 16 and the drums which are engaged by these brakes are indicated at 17 and 18. The pivoted levers carrying the brake shoes are indicated
30 at 19 and 20, and the spring-pressed rod connecting the two levers is indicated at 21. The rod by which the lever 19 is actuated to move the brake shoe 15 out of engagement with the drum 17 to release the tension
35 when the cam shaft is rotated backward is indicated at 22, and the bell crank lever, which is actuated by the rod 22 to retract the welt guide slide is indicated at 23. The bell crank to which the rod 22 is
40 pivotally connected is indicated at 24 and the arm which is pivotally mounted on the bell crank 24 and provided with curved surfaces to engage a collar on the cam shaft is indicated at 25. The construction and arrangement
45 of these parts are fully set forth in the application hereinbefore referred to and further description is considered unnecessary.

In the construction disclosed in applicant's prior application above referred to, a mechanism was provided for locking the welt guide in its forward position during the first cycle of operations of the machine, said mechanism comprising a pivoted lever provided with an offset to engage the screw
55 head 26 of the clutch box 13, a latch to lock the locking lever in inoperative position during the normal operation of the machine and a pawl to hold the latch out of engagement
60 with the lever during the first cycle of operations. A connection to the tension releasing mechanism was also provided by means of which the latch was moved out of engagement with the lever and into engagement
65 with the pawl when the machine was

stopped and the direction of rotation of the cam shaft reversed. With the locking lever, latch, pawl, and connection to the tension releasing mechanism arranged in this manner the clutch box 13 is locked against backward movement as soon as the cam shaft is
70 turned backward and the only retracting movement imparted to the welt guide is that produced by the oscillation of the bell crank 23, even if the cam shaft is rotated
75 backward a sufficient distance to actuate the lever 12.

In accordance with the present invention an improved construction and arrangement of parts is provided which enables the welt
80 guide to be retracted an additional amount, so as to enable new work to be more readily inserted in the machine. This improved construction and arrangement of parts not only permits an additional retracting movement of the welt guide when the cam shaft
85 of the machine is turned backward but has the further advantage of comprising a less number of parts and a more simple arrangement than the construction disclosed in applicant's prior application.

The improved construction illustrated in the drawings comprises a locking lever 27, a latch 28, and a pawl 29. The upper end
95 of the latch 28 is provided with a projection which during the normal operation of the machine in sewing a seam engages a plug 30, on the lever 27 and holds the lever in its depressed inoperative position, said position being that indicated in Fig. 4. With
100 the lever 27 in this position the lateral extension 31 of the lever is below the screw head 26 of the clutch box 13 so that the clutch box can be actuated during each cycle of operations of the machine to retract the
105 welt guide. When, however, the lever 27 rises to the position indicated in Fig. 3, the projection 31 of the lever is in line with the screw head 26 and locks the clutch box against backward movement. The latch 28
110 is connected by a coiled spring 32. The pawl 29 is pivotally mounted on an arm 33 projecting from the hub of the bell crank 24 and rests upon the top of the latch 28, as indicated in Fig. 4. When the cam shaft of
115 the machine is turned backward to release the tension and retract the welt guide the pawl 29 moves forward and drops down over the upper end of the latch 28. The parts remain in this position with the locking lever 27 still locked in its depressed position during the continued rotation of the
120 cam shaft so that when the lever 12 is actuated the clutch box 13 is moved backward and a retracting movement is imparted to the welt guide in addition to that which has been imparted to it by the oscillation of the bell crank 24. When the machine is again
125 started into operation, the pawl 29 actuates the latch 28 to release the locking lever 130

which rises and engages the high part of the cam 34. During the first rotation of the cam shaft the locking lever is allowed to rise and hold the welt guide locked in its advanced position. In rising to its highest position, however, it lifts the pawl out of engagement with the latch so that when the locking lever is again depressed during the next rotation of the cam shaft it is engaged by the latch and remains locked in its inoperative position during the continued operation of the machine.

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

1. An inseam shoe sewing machine, having, in combination stitch forming devices, a welt guide, mechanism acting normally to retract the welt guide during each cycle of operations of the machine, a device to prevent the retraction of the welt guide, means acting normally to hold said device in inoperative position, and means acting when the machine is started to render said device operative to prevent the retraction of the welt guide during at least one cycle of operations of the machine.

2. An inseam shoe sewing machine, having, in combination, stitch forming devices, a welt guide, a tension device, mechanism actuated by a reversal in the direction of rotation of the cam shaft of the machine for actuating the tension device to relieve the tension on the thread, connections between said mechanism and the welt guide to retract the welt guide when the tension is released, and mechanism for retracting the welt guide during each cycle of operations of the machine in sewing a seam acting when the shaft is turned backward to impart an additional retracting movement to the welt guide.

3. An inseam shoe sewing machine, having, in combination, stitch forming devices, a welt guide, a tension device, mechanism actuated by a reversal in the direction of rotation of the cam shaft of the machine for actuating the tension device to remove the tension on the thread, connections between said mechanism and the welt guide to retract the welt guide when the tension is released, mechanism actuated by the cam shaft to retract the welt guide during each cycle of operations of the machine in sewing a seam, acting when the shaft is turned backward to impart an additional retracting movement to the welt guide, a device to prevent the retraction of the welt guide, means

for rendering said device operative to prevent the retraction of the welt guide during at least one cycle of operations of the machine, and means for holding said device in inoperative position during the continued operation of the machine and when the shaft of the machine is turned backward.

4. An inseam shoe sewing machine, having, in combination, stitch forming devices, a welt guide, mechanism acting normally to retract the welt guide during each cycle of operations of the machine in sewing a seam, a device normally inoperative to prevent the retraction of the welt guide, and means actuated by the forward rotation of the cam shaft of the machine for rendering the device operative to prevent the retraction of the welt guide during at least one cycle of operations of the machine.

5. An inseam shoe sewing machine, having, in combination, stitch forming devices, a welt guide, a tension device, mechanism actuated by a reversal in the direction of rotation of the cam shaft of the machine for actuating the tension device to relieve the tension on the thread, connections between said mechanism and the welt guide to retract the welt guide when the tension is released, mechanism for retracting the welt guide during each cycle of operations of the machine in sewing a seam acting when the shaft is turned backward to impart an additional retracting movement to the welt guide, and means for holding the welt guide in advanced position during at least one cycle of operations of the machine.

6. An inseam shoe sewing machine, having, in combination, stitch forming devices, a welt guide, a welt guide slide, mechanism including a yielding connection for retracting the welt guide slide during each cycle of operations of the machine in sewing a seam, a cam actuated locking device to prevent movement of the slide by its actuating mechanism, a latch to hold the locking device in inoperative position, a pawl, mechanism actuated by a backward movement of the cam shaft of the machine to move the pawl into engagement with the latch and actuated by a forward rotation of the cam shaft to release the locking device from the latch and means for actuating the pawl to release the latch during the first cycle of operations of the machine.

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