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TOE WIRING DEVICE.

APPLICATION FILED OCT. 30, 1911.

1,068,843. Patented July 29, 1913.

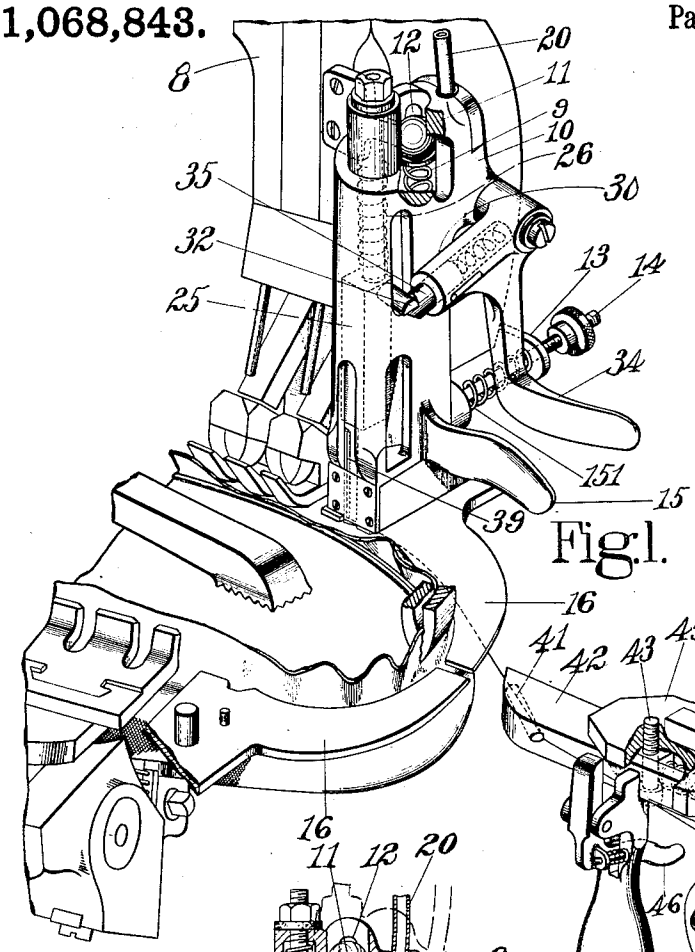


Fig. 1.

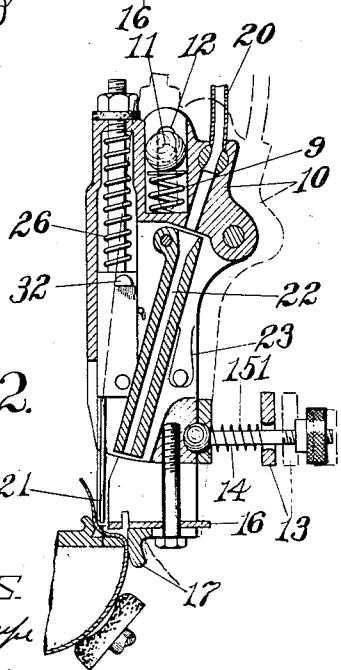


Fig. 2.

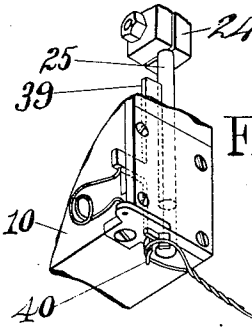


Fig. 3.

WITNESSES:

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Amelia A. Bayard Executrix
of the Will of Emily Bayard
Deceased
By her Attorney Alexander Howard

UNITED STATES PATENT OFFICE.

EMERY BAYARD, DECEASED, LATE OF ROCHESTER, NEW YORK, BY AMELIA A. BAYARD, EXECUTRIX, OF ROCHESTER, NEW YORK, ASSIGNOR TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

TOE-WIRING DEVICE.

1,068,843. Specification of Letters Patent. Patented July 29, 1913.

Original application filed June 17, 1910, Serial No. 567,529. Divided and this application filed October 30, 1911. Serial No. 657,538.

To all whom it may concern:

Be it known that EMERY BAYARD, deceased, late of Rochester, in the county of Monroe and State of New York, invented certain Improvements in Toe-Wiring Devices, of which the following description, in connection with the accompanying drawings, is a specification, like reference characters on the drawings indicating like parts in the several figures.

This invention relates to shoemaking machines and particularly to apparatus for temporarily securing upper material in lasted position, this application being a division of application Serial No. 567,529 filed June 17, 1910, for machines for use in the manufacture of boots and shoes. By the machine illustrated in that application the upper is pulled over a last and the toe portion of the upper is worked into lasted position over the bottom of the shoe and secured with the aid of the toe binding device herein shown. In that application are to be found the claims for the various combinations of the overworking means and the toe binding device, the claims for said binding device *per se* being made in this application.

A feature of this invention is to be found in means for carrying a wire around the toe of the shoe to bind the upper in lasted position. In the illustrated embodiment of this invention the wire carrier is mounted for manual operation. It is also arranged so that it can be used to bind one corner of the toe after the upper has been overworked, as by one wiper, and can thereafter be further actuated to bind in the other corner when that is ready to be secured. This binding device is also equipped with a tension device by which the wire can be held taut in position to secure one corner of the upper while the other corner is being lasted. The tension device includes means arranged to be engaged by one finger of that hand of the operator by which the carrier is being moved whereby the tension can be increased or diminished as the binding or the placing of the wire proceeds about the toe. As advised it is new by this invention to provide for varying the tension as the wire carrier moves to place a binder about the toe of a shoe. In accordance with the illustrated embodiment of this invention, a reel for holding a supply of wire is mounted on and movable with the wire placing device so that excess of wire is not drawn off, as it would be from a stationary reel, when the device reaches backwardly to carry the binder into position to be anchored; also a spring is arranged to return the wiring device to an out of the way position while it is not in use. These and other features of this invention including certain details of construction and more important combinations of parts will be explained in the following description of a preferred embodiment of the invention and will then be pointed out in the claims.

Figure 1 is a perspective view of the wire carrying means and the associated parts; Fig. 2 is a sectional view illustrating some of the associated parts which prepare the shoe for the application of the wire and may anchor the wire; Fig. 3 is a perspective view from a different angle of the means for anchoring the end portion of the wire held by the wire carrier.

The invention is herein shown for the purpose of explanation as applied to a machine like the well-known commercial pulling-over machine shown and fully described in United States Letters Patent No. 1,029,387 granted June 11, 1912, and in British Patent No. 12,304 of 1903 corresponding thereto. It is not necessary herein to show, or to describe, that machine and its operation except in those particulars in which it coöperates with the lasting devices of the present invention, which are arranged to operate after the shoe upper has been pulled and adjusted upon the last and while the shoe is held in the machine with the upper under tension over the last, the power driven mechanism of the machine being temporarily at rest. It is contemplated that the machine shall be organized to come to rest with the side clamps closed against the sides of the shoe and the automatically actuated inswinging tack carrying arms 8 at the sides of the machine in their tack inserting positions over the shoe.

In the embodiment of the invention first to be described an attachment, shown in Fig. 2 is loosely applied to each side tack arm 8. The body portion of the attachment is indicated at 10, Fig. 2, and the con-

nection with the arm is made by a ball headed pin 11 which projects from the tack arm through a slot 12 into a spring chamber in the upper portion of body 10. The slot, ball and spring 9 allow sufficient play to permit the attachment to be moved, as will be suggested, automatically and by the handle 15. The lower portion of the body 10 is connected yieldingly to the automatically moved arm 8 by a rod 14 and an ear 13 which acts through a spring 151 to hold the lower end of the attachment tilted inwardly relatively to the tack arm. In this relative position the attachment approaches the shoe with the arm 8 and rides over the shoe bottom until it is stopped by an abutment and then the upper portion of the attachment 10 is carried forwardly, its lower face fulcrums on the edge of the shoe bottom, the spring 151 yielding if necessary to allow this movement, and the inner edge of the attachment, or of the wiper 16 carried thereon, tips downwardly to compress the upper down upon the feather of the shoe innersole and into the angle between the feather and the lip or shoulder of the innersole where it should be secured.

The body 10 supports the curved lasting plate 16 which has an inner acting edge shaped to fit the corner of the shoe approximately and to extend forwardly toward the middle of the toe. The lasting plate is carried automatically by its carrying arm 8 transversely of the shoe into approximate lasting position over the shoe bottom. By means of the handle 15 the operator further moves the plate 16 as may be required for forcing the upper into lasted position over one corner of the last, the loose connection 12 with the tack arm permitting sufficient freedom of manual movement transversely of the shoe and also rotatively for this purpose and also permitting enough vertical movement to enable the desired downward pressure upon the upper to be effected for molding it into lasted position upon the innersole. The two independent plates 16 of the two attachments permit separate lasting of the two corners of the toe. This arrangement also allows conformation to the differences found in the toe portions of right and left crooked lasts.

The tack driver of the prior machine is omitted from the front tack arm and, in place of the usual tack conductor tube leading thereto, two tubes 20 are diverted from the automatically operated multiple tack supplying apparatus of the machine and led to the attachments 10 at either side of the machine. Each attachment is provided with a tack pocket 21, Fig. 3, with which coöperates a swinging tube 22 connecting with the conductor 20, and is further provided with a manually operated tack driver 24 on a driver bar 25. This bar is impelled downwardly by a spring 26 and stands normally down in the position shown in Fig. 3, and while in this position, a tack is fed through the conductor and comes to rest in the lower end of the swinging tube 22. The driver is lifted, when the operator desires to insert a tack, by force transmitted through the bell crank 30 to the stud 32 projecting from the side of the driver bar. The bell crank has the handle 34 located adjacent to the handle 15 to be conveniently operated in connection with the latter and it has the bevel ended spring plunger 35 which is automatically withdrawn from stud 32 when the driver has been lifted. As the driver bar is raised it allows the tube 22 to be swung by its spring 23 into position to deliver a tack to the pocket under the driver where it is inserted by the downcoming of the driver under influence of its spring 26. The driver bar returns the tube 22 to the position shown in Fig. 3. When the bell crank is reversely moved the plunger 35 snaps under the stud 32 for use again.

The attachment at one side of the machine will preferably have a provision as at 40 for retaining an eye or loop which has been previously formed in the end of a binding wire and through which the tack from the pocket 21 is driven to anchor the wire at one end. The tack pocket has a slot through which is movable a yieldingly upheld blade 39, see Fig. 3, which is depressed by the driver bar and extends slightly below the tack driving face of the bar. The blade 39 serves to force the wire down off the projection 40 and to a level to be tightened around the stem of the tack below its head.

While the foregoing is an example of mechanism with which my toe binding device may advantageously be used, said device is adapted for use separately from any such mechanism and for the purpose of binding toes as a more or less independent operation without regard to when or by what means the toes have been prepared for the binding operation. The toe binding-wire is led through a guideway 41 in a wire placing arm 42 which has a pin 43 and a slot 44 connection with a plate 45 on the lower end of its support which is shown as the front tack arm of the machine and which may have an automatic movement from its inoperative position, as in said British patent, into an appropriate position adjacent to the shoe for the toe wiring operation to be effected. The wire passes from the guide under a tension lever 46 to a reel 48 which is carried by the wire placing arm. The wire placing arm has a rigidly attached handle 50 by which the arm is turned and slid under the plate 45 for drawing the wire around the toe of the shoe under the wiper plates 16 where it is held under tension in binding relation to the overwiped upper

while the machine is restarted to release the shoe, after which the wire will be twisted around the tack which has been driven at the second side of the shoe in the same manner that a hand operator is accustomed to twisting the wire around the anchor tack in binding by hand. The possibility which this apparatus affords for lasting one corner of the toe at a time and binding it in by the wire before the second corner is necessarily lasted and bound gives opportunity for the workman to last the toe in the pulling-over machine progressively and to exercise great skill and care in obtaining a smooth, well formed toe and binding it tightly. It is contemplated that the pulled over shoe turned out by the machine equipped with this invention will be in condition for presentation to the welt sewing-on machine without further treatment of its forepart.

Having fully explained the nature of this invention and described how it may be embodied in suitable mechanism, I claim as new and desire to secure by Letters Patent of the United States:—

1. A machine of the class described having, in combination, a support, a wire carrying device connected to said support and movable relatively thereto about the toe of a lasted shoe, and a separate tension device carried thereon through which the wire is drawn as it is bound about the shoe and having means under the operator's control for enabling him to apply through such device a substantially constant resistance to the pull of the wire in different positions of the carrying device.

2. A machine of the class described having, in combination, a wire placing arm, a support therefor movable to carry the arm into wire placing position, and upon which the arm is movable to place the wire around the toe portion of a shoe.

3. A machine of the class described having, in combination, a wire placing arm, a support to which the arm is connected to permit it to slide endwise and to turn to place the wire around the toe portion of a shoe.

4. A machine of the class described having, in combination, a wire placing arm, a support therefor movable to carry the arm into wire placing position, and upon which the arm is movable to place the wire around the toe portion of a shoe, and return means for restoring the arm to a position from which it has been moved.

5. A machine of the class described having, in combination, a wire placing arm, a support therefor on which the arm can move to present its wire guiding front end adjacent to the side of the shoe for the wire end to be anchored, and a spring against the action of which said movement is made and which reacts to hold the wire under tension between the anchoring point and the arm.

6. A machine of the class described having, in combination, a wire placing arm, a support therefor on which the arm can slide and turn to present its wire guiding front end adjacent to the side of the shoe for the wire end to be anchored, and a spring which allows free turning of the arm but resists said sliding movement outwardly and draws the arm backward to apply tension to the anchored portion of the wire.

7. A machine of the class described having, in combination, a wire placing arm, a support therefor on which the arm can move to present its wire guiding front end adjacent to the side of the shoe for the wire end to be anchored, a normally operative tension device acting on the wire carried by said arm and manual means for setting said tension device hard against the wire while drawing the arm backward to tighten the wire and a spring arranged to exert a constant backward pull on the arm to hold the wire taut.

8. A machine of the class described having, in combination, a support, a wire placing arm pivotally and slidingly mounted on said support, a reel carried on one side of the arm, a wire guideway extending obliquely through the arm from said side to the other one, and a tension device located between the reel and the guideway, substantially as and for the purpose described.

9. A machine of the class described having, in combination, a wire placing arm, a support on which said arm is pivotally and slidingly mounted, a handle by which movements of said arm can be effected, and a tension device having a finger operated lever arranged adjacent to said handle to be manipulated by that hand of the workman which grasps the handle.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

AMELIA A. BAYARD,
Executrix of the will of Emery Bayard.

Witnesses:
TERESSA H. BAYARD,
G. WILLARD RICH.