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A. A. BAYARD, EXECUTRIX.

PULLING-OVER MACHINE.

APPLICATION FILED OCT. 30, 1911.

1,068,840.

Patented July 29, 1913.

2 SHEETS—SHEET 1.

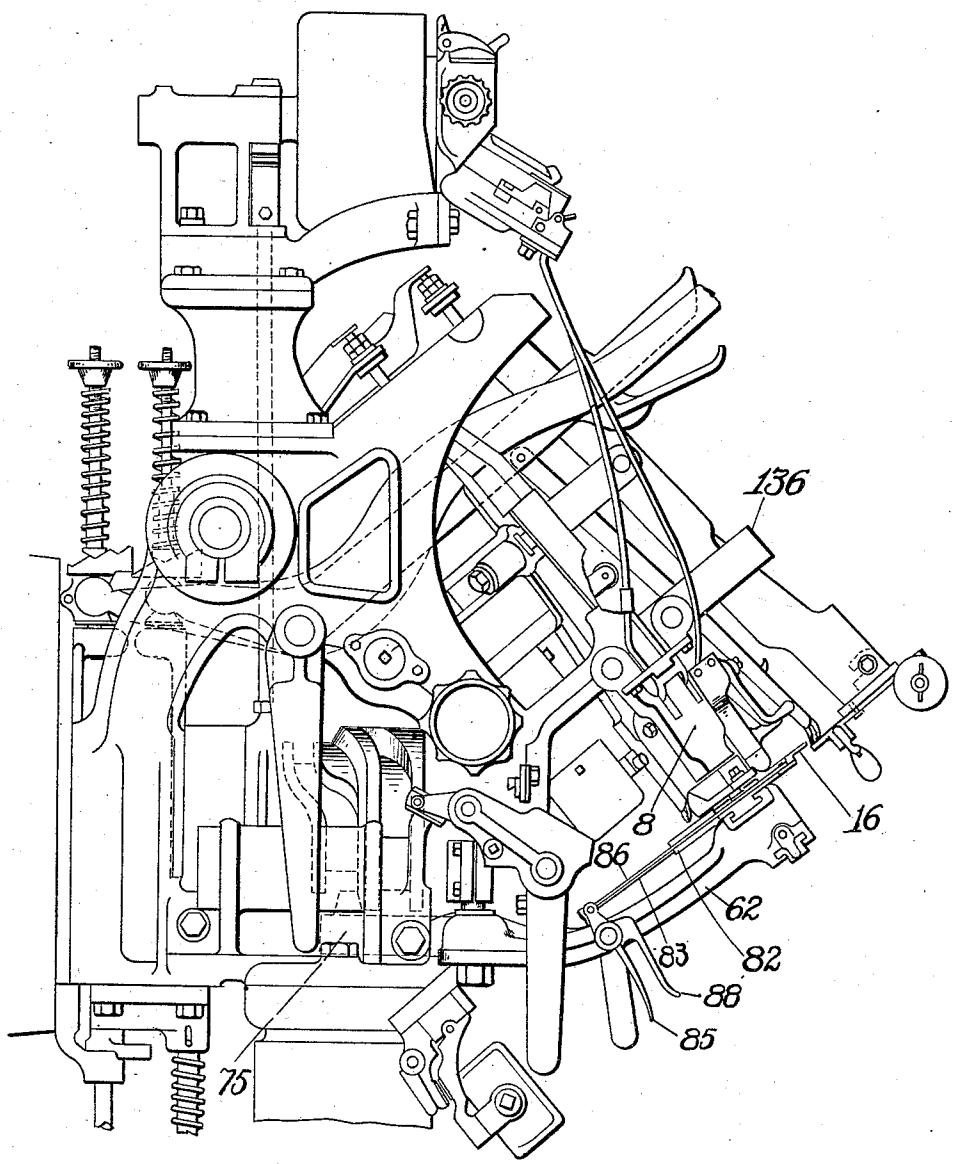


Fig. 1.

WITNESSES.
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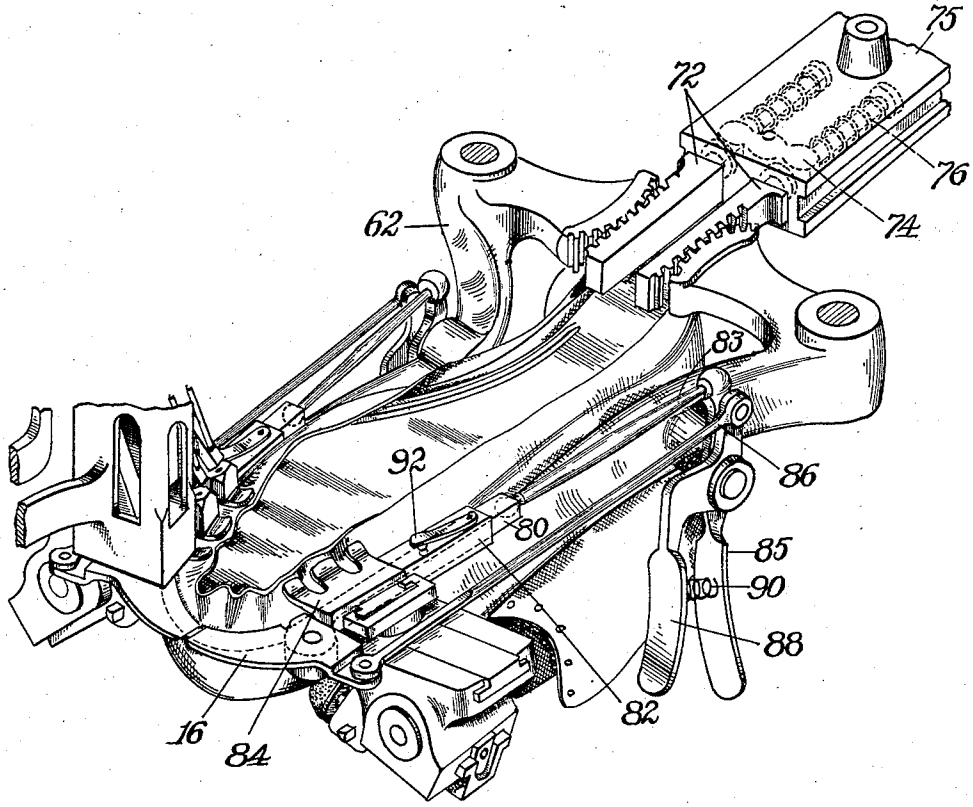


Fig. 2.

WITNESSES.
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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.

PULLING-OVER MACHINE.

1,068,840. 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. 657,535.

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 Pulling-Over Machines, 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 pulling-over machines and, it may be, has for its object to provide an improved machine for pulling-over a shoe and also lasting the toe portion of the shoe, said pulling-over and lasting means preferably operating while the shoe remains in a single working position. The pulling-over mechanism may be of a known type or of any construction suitable for the purpose, and this invention consists in novel combinations with pulling-over mechanism of improved lasting means and also in the lasting means and associated mechanisms *per se.*

The present application is a division of application Serial No. 567,529, filed June 17, 1910 for improvements in machines for use in the manufacture of boots and shoes.

In the operation of pulling-over a shoe the upper is gripped and pulled at the opposite sides of the ball and at the tip of the toe and is drawn over the last and tacked at each of these places. At either side of the toe tack, that is, at the corners of the toe, the upper stands out in a projecting pucker which is called a "dog-ear" in the shoe shop.

An important feature of the present invention is embodied in novel means for turning inwardly the fullness at the corners of the toe instead of allowing it to stand out and form these dog-ears. By forcing the upper inwardly at the corners of the toe at this stage of the manufacture of the shoe, this fullness is distributed and prevented from localizing so that later operations are made easier. The devices which turn in the upper at the corners of the shoe are formed as lasting plates or corner wipers. These end lasting plates for wiping over the two corners of the toe are separate from one another as distinguished from the connected wiper plates of the bed lasting machines in common use. In one embodiment of this invention each lasting plate or corner bender is arranged to extend from the side of the shoe around the corner toward the middle of the toe and is mounted for inward movement transversely over the shoe bottom and also rotatively, the latter movement being about a center located at the rear of the toe and preferably near the rear end of the plate. The lasting plates may be carried into working position by power operated means, shown in the present embodiment of the invention as the inwardly moving side clamp carrying arms of the pulling-over machine. The plates may be so connected to said arms that they may be manually manipulated, if necessary, for further pressing the upper into the position required for the particular shoe being treated. It is a feature of the illustrated embodiment of the invention that the end lasting plates are arranged to approach their working position by movements transversely of the last from opposite directions; also that they can be turned, each about its own center located at the rear of the toe of the shoe, to sweep the upper inwardly and backwardly over the end and corners of the toe.

Another object of this invention is to provide improved means for actuating end lasting plates which may be in the form of the corner wipers or benders before mentioned or of any other form to which such operating means is applicable. An important feature of this phase of the invention is found in mechanisms for actuating a wiper in substantially a right line over the shoe and for turning the wiper, which mechanisms permit of separate right line and turning movements being effected. Another feature is found in the provision of mechanisms by which either one of a pair of end wipers may be moved lengthwise of the last independently of the other one of the pair, and a still further new feature provides for turning either end wiper plate independently of the other plate. In a further embodiment

of this invention the wipers are actuated by said arms in a manner which is entirely automatic. In the use of wipers so actuated the binding wire will be depended upon to draw the upper into finally lasted position against the lip or shoulder of the innersole as well as to bind it in such position. These corner wipers are mounted to adapt themselves to the contour of the work by automatic adjustments about axes which are respectively perpendicular to the plane of the shoe bottom and parallel with said plane as well as to yield laterally of the shoe in the carrying arms. This mounting for end lasting devices whether actuated automatically or otherwise is entirely new as I am advised and is of obvious advantage, particularly in a machine in which the lasting devices are automatically operated. The arms on which the corner wipers are mounted are pivoted to swing about separate centers which are so located at opposite sides of the shoe at the rear of the toe that the wipers have a backward as well as an inward sweep to draw the upper rearwardly from the toe end of the last.

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 side elevation of a machine equipped with this invention; Fig. 2 is a perspective showing the new mechanism.

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. 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.

The corner wiper plates 16 are supported upon the usual side clamp carrying arms 62 of the pulling-over machine shown in said patent above referred to. The arms 62 extended rearwardly and are pivotally supported to swing inwardly toward the shoe about axes that are substantially perpendicular to the plane of the shoe bottom and are located back of the shoe toe, as shown in Fig. 2, and have segment racks connected with rack bars 72 which in turn are yieldingly connected together and to their actuating slide 75 by an equalizer 74 and springs 76, this mounting for the side arms being the same as that shown in said prior patent. It will be readily understood that the movement of the arms 62 about their respective centers carries the corner wiper 16 laterally toward the shoe from opposite directions and that these wipers which project inwardly toward each other from the front ends of the arms are moved in the arc of a circle which carries them backwardly as well as inwardly as they approach and move over the corners of the shoe. This mounting gives to the wipers an automatic movement having a component of backward movement. In Fig. 2 each wiper plate is connected to its arm 62 by a slide or wiper plate support 80 which is movable endwise through a rectangular guide 82 which is attached to the side clamp 84 of the pulling-over machine. This side clamp is mounted to have angular and sliding movements for adapting itself to the last and therefore the wiper in Fig. 2 receives from the side clamp its movement to adapt its position to the inclination, contour and size of the last. The slide 80 is connected by a link 83, having ball heads, with a lever 85 which is fulcrumed on the arm 62 in a position where it is within convenient reach of the operator whereby the lasting plate may be given manually a movement lengthwise of the last to draw the upper rearwardly over the toe of the last. The wiper is also pivoted to the head of the slide 80 and has an outwardly projecting arm by which it is connected through a link 86 with a lever 88 which is fulcrumed on the same pivot as lever 85 and is bent to cross lever 85 so that with the same hand an operator may press the two levers together and effect a backward and a turning movement of the wiper. The levers are separated by a spring 90 and the operator can tell by the sense of feeling when the wiper has been pressed backwardly or turned inwardly or moved in both directions as far as is required to wipe the upper against the lip or shoulder of the sole or inner-sole. A friction screw 92 causes the wiper slide or support 80 to maintain the position to which it is moved so as to hold the upper until it is fastened or bound in by the wiring device of Fig. 1.

It will be noted that the wipers are pivoted in the rear of the toe for their inward turning movement and that as they also approach working position they have their initial working movement transversely of the shoe. It should also be appreciated that

while the devices 16 are herein termed wipers and are shown as having a construction and arrangement which enables them to have the well recognized functions of lasting machine end wipers in the production of a pulled over shoe having its toe fully lasted, it is within the broad scope of this invention to equip a pulling-over machine with devices which merely gather in or turn inwardly the upper material at the corners of the toe. The purpose of such devices would be to facilitate the subsequent lasting which may constitute an entirely independent operation. It will of course also be understood that wipers having the novel characteristics herein described may be employed in lasting apparatus which does not also include any pulling-over mechanism.

In the use of the machine a shoe will be presented thereto and the upper pulled and adjusted as described and shown in said prior patent. The machine will then be restarted and caused to come to rest with the side clamps holding the shoe and side tack carrying arms closed over the shoe bottom. In this movement the corner benders or wipers 16 will have turned in the upper at the corners of the last between the side grippers and the toe gripper to prevent the formation of the out turned dog-ears. These devices may then be further manipulated, if the constructions shown in Figs. 1 and 2 is used, to wipe and press the upper into lasted position about the end of the last; then a strand of binding wire may be anchored and the binding device shown in Fig. 1 and described in divisional application Serial No. 657,538, filed Oct. 30, 1911, will then be manipulated to draw the wire tightly around the toe portion of the shoe to bind the upper against the lip or shoulder of the innersole. The toe gripper preferably retains its grip and assists the wipers and benders in holding the upper in position for the action of the binder thereon. When the binder has been tightened and the supplemental tack driven at the other side of the shoe the machine is again treadled and caused to release the shoe. The operator receives the shoe in one hand while holding and manipulating the binding device with the other to twist and anchor the wire around its tack for securing it in holding position.

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, side clamps for holding an upper against opposite sides of the ball of a last, arms on which said side clamps are carried laterally of the shoe into operative relation thereto about centers located near the rear of the shoe and at opposite sides of the machine, and corner lasting devices carried on said arms in front of the side clamps and arranged to receive from said arms a movement inwardly and backwardly about the said centers to wipe the upper inwardly and backwardly over the corners of the toe for the purposes described.

2. A machine of the class described having, in combination, corner wipers for the toe end of a shoe mounted for movement in the plane of the shoe bottom and relatively yielding means for simultaneously actuating said wipers inwardly and backwardly over the shoe.

3. A machine of the class described having, in combination, wiper plates, mechanism for supporting and actuating said plates to wipe an upper inwardly and backwardly over the end of a last from opposite corners, and connections between said mechanism and plates arranged to permit said plates to adjust themselves angularly and independently of one another about axes extending transversely of the last to adapt themselves to the inclination of the portions of the last bottom engaged by them.

4. A machine of the class described having, in combination, an end lasting plate, a support upon which the plate is mounted for movement lengthwise of the last, a carrier upon which the plate is mounted for movement transversely of the last, and means for effecting pivotal movement of the plate about a center at its end which is the more remote from the adjacent end of the last.

5. A machine of the class described having, in combination, a lasting plate 16, a support 80 therefor movable lengthwise of the last, the carrier 62 for said support movable transversely of the last, and connections between the support and carrier so arranged that the lasting plate is free during the operation of the machine to adjust itself angularly about an axis extending substantially perpendicular to the plane of the last bottom.

6. A machine of the class described having, in combination, the separate lasting plates 16, one for each corner of the shoe end, the supports 80 therefor self-adjustable to adapt the plates to the plane of the last bottom, and the levers 85 and connections for actuating said plates separately lengthwise rearwardly over the corner of the shoe.

7. A machine of the class described having, in combination, the corner lasting plate 16, the support 80 on which it is pivotally mounted, and the lever 88 and connections for actuating said plate to sweep the upper inwardly and backwardly over the corner of the last.

8. A machine of the class described hav-

ing, in combination, the corner lasting plate 16, the support 80 on which it is pivotally mounted, and the levers 85 and 88 and connections by which the plate may be turned or may be given right line movements, substantially as described.

9. In a pulling-over machine, the combination with the side clamp, of a device mounted for movement relatively to the side clamp to sweep the upper inwardly and backwardly over the corner of the toe and which is mounted for movement with the side clamp into operative relation to the shoe.

10. In a pulling-over machine, the combination with the side clamp and automatically operating mechanism therefor, of a device mounted for lateral movement relatively to the side clamp to sweep the upper inwardly over the corner of the last and which is mounted for movement with the side clamp into operative relation to the shoe, and means for giving to said device additional movements for the purpose described.

11. In a pulling-over machine, the combination with the side clamp, of a device to sweep the upper inwardly over the corner of the last and which is mounted for movement with the side clamp into operative relation to the shoe, and means operative during the action of said device to secure against outward movement the upper acted upon by the said device.

12. A machine of the class described having, in combination, pulling-over means, side clamps, side clamp carrying arms, and corner wipers on said arms.

13. A machine of the class described having, in combination, pulling-over means, side clamps, side clamp carrying arms, corner wipers on said arms, and means for actuating the corner wipers on said arms to do their work.

14. A machine of the class described having, in combination, pulling-over means, side clamps, side clamp carrying arms, and corner wipers which are carried on said arms in front of the side clamps and movable relatively thereto and are curved to extend from the side of the shoe along the corner of the toe.

15. A machine of the class described having, in combination, pulling-over means, side clamps, side clamp carrying arms, and devices mounted on each of said arms to cooperate with the side clamps in bending the upper over the last bottom at the corners as well as at the sides of the shoe forepart.

16. A machine of the class described having, in combination, pulling-over means, arms which swing inwardly toward the shoe about axes that are substantially perpendicular to the plane of the shoe bottom and are located back of the shoe toe and corner bending devices on said arms to lay the upper inwardly and backwardly over the corners of the toe.

17. A machine of the class described having, in combination, pulling-over means, arms which swing inwardly toward the shoe about axes that are substantially perpendicular to the plane of the shoe bottom and are located back of the shoe toe, corner bending devices on said arms, and means by which said benders can be actuated to do their work.

18. A machine of the class described, having, in combination, pulling-over means, arms which swing inwardly toward the shoe about axes that are substantially perpendicular to the plane of the shoe bottom and are located back of the shoe toe, corner bending devices on said arms, and manual operating devices by which the bending devices can be actuated rearwardly and also pivotally on said arms to sweep the upper inwardly and backwardly over the corners of the last.

19. A machine of the class described, having, in combination, pulling-over means, arms which swing inwardly toward the shoe about axes that are substantially perpendicular to the plane of the shoe bottom and are located back of the shoe toe, corner bending devices on said arms, and means by which said devices can be given separate right line movements lengthwise of the shoe and turning movements transversely of the shoe about stationary axes.

20. A machine of the class described having, in combination, pulling-over means, supports, corner bending devices on said supports, means by which said devices are guided for right line movement lengthwise of the shoe in the supports, and means by which said devices can be turned to sweep the upper inwardly and backwardly over the corners of the toe.

21. A machine of the class described having, in combination, pulling-over means, supports, corner bending devices on said supports, means by which said devices are guided lengthwise of the shoe and can be turned independently of one another to sweep the upper inwardly and backwardly over the corners of the toe.

22. A machine of the class described having, in combination, pulling-over means, supports, corner bending devices on said supports, means by which said devices can be moved lengthwise of the shoe in said supports, means for retaining said devices in the position to which they have been moved.

23. A machine of the class described having, in combination, pulling-over means, supports, corner bending devices on said supports, means by which said devices can

be moved lengthwise of the shoe in said supports, means for retaining said devices in the position to which they have been moved, and means for turning said devices about centers the locations of which are changed by said movements.

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.

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

Corrections in Letters Patent No. 1,068,840.

It is hereby certified that in Letters Patent No. 1,068,840, granted July 29, 1913, upon the application of Emery Bayard, deceased, by Amelia A. Bayard, executrix, of Rochester, New York, for an improvement in "Pulling-Over Machines," an error appears in the printed specification requiring correction as follows: Page 1, line 12, after the word "and" strike out the commas and words ", it may be," and same page, line 14, after the word "and" insert the commas and words , *it may be*, ; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 18th day of November, A. D., 1913.

[SEAL.]

R. T. FRAZIER,

Acting Commissioner of Patents.