

C. E. GRUSH.
 END LASTING MECHANISM.
 APPLICATION FILED JULY 26, 1910.

1,032,824.

Patented July 16, 1912.

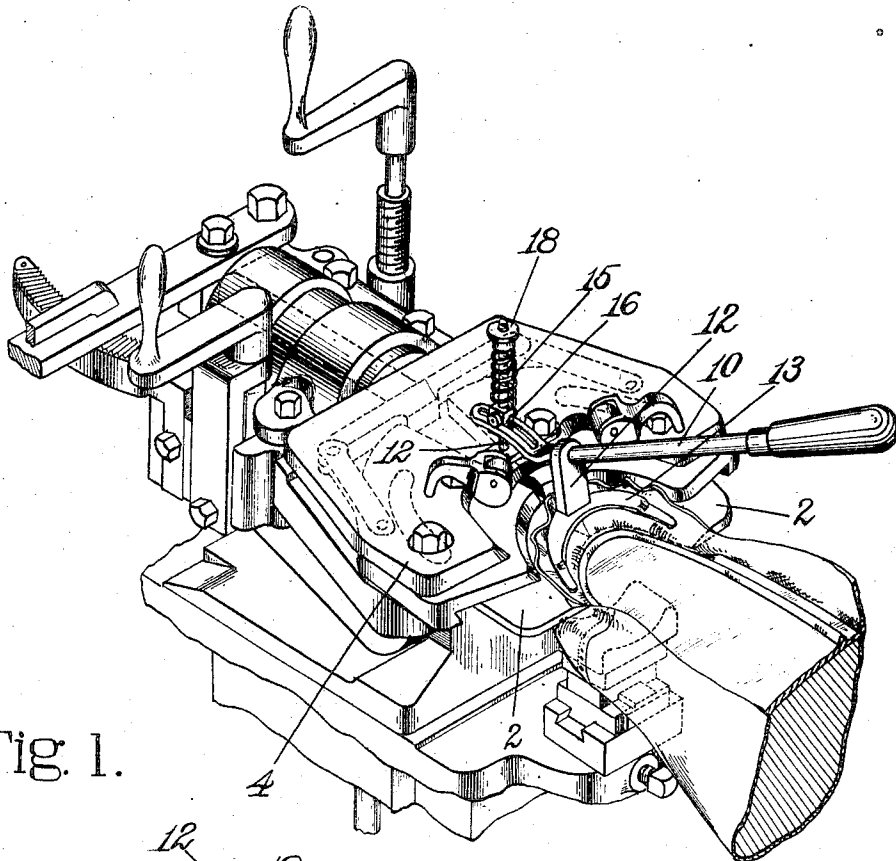


Fig. 1.

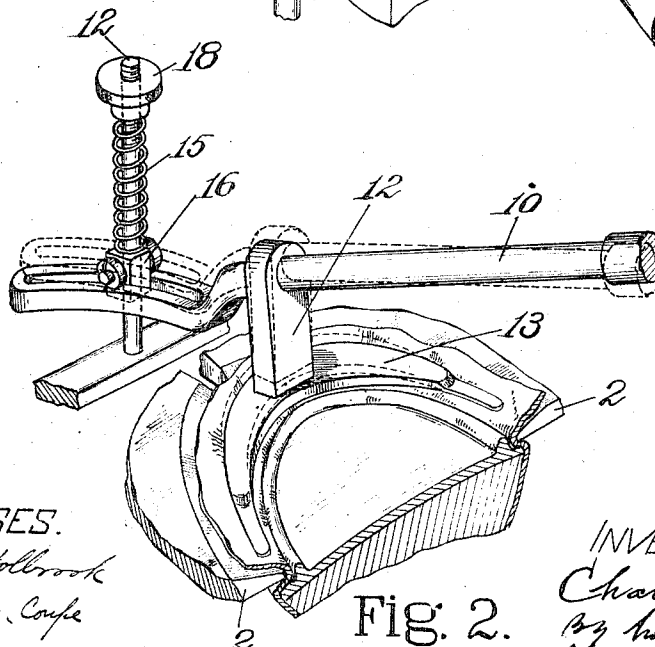


Fig. 2.

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UNITED STATES PATENT OFFICE

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END-LASTING MECHANISM.

1,032,824.

Specification of Letters Patent.

Patented July 16, 1912.

Application filed July 25, 1910. Serial No. 573,637.

To all whom it may concern:

Be it known that I, CHARLES E. GRUSH, a citizen of the United States, residing at Beverly, in the county of Essex and State of Massachusetts, have invented certain Improvements in End-Lasting Mechanisms; 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 end lasting mechanisms and particularly to apparatus adapted to be used with end embracing wipers to assist in stretching the upper over the toe portion of a last. Devices of this class are commonly called "retarders" and the device in which the present invention is embodied will be so designated, such devices serving to retard the slipping of the wipers over the upper as the wipers are actuated.

In the manufacture of good shoes care is taken during the pulling-over operation to position the toe tip seam in desired longitudinal and angular relation to the last and in this operation the upper is properly stretched lengthwise along the median line of the shoe and laid over the end of the toe and tacked. Between the end of the toe and the ball, or at the sides of the toe the upper remains to be stretched and formed to the last in the lasting operation. In this latter operation the toe end tack is usually removed after the shoe is in position in the machine and the upper spread out over the wipers. With retarders as heretofore constructed and applied an adequate stretching of the upper at the sides of the toe has very generally been accompanied by an excessive gripping and stretching of the upper at the end of the toe which frequently bowed or curved the tip seam unless the precaution had been taken of tacking the upper to the top face of the last at the tip seam as was sometimes done.

It is an object of this invention to provide a retarder which is mounted for manipulation to secure adequate stretching at the sides of the toe and avoid excessive stretching at the end of the toe and render superfluous the tacking of the tip seam on

the top of the last to prevent its being drawn out of position.

With this object in view a feature of this invention comprises a retarder which is mounted to permit the holding pressure at the end and sides of the toe to be varied relatively during the pulling or lasting operation.

A further feature of the invention consists in a retarder which is mounted for manipulation to clamp the upper against the wipers and for further manipulation to increase the clamping pressure upon the upper at the sides of the toe and relieve it at the end of the toe. This allows the wiper to slip over the upper at different times and at different portions of the toe with more or less ease according to the manipulation of the retarder, which is shown as operated by one hand of the workman while he advances the wipers with the other hand.

An important feature of the invention is also disclosed in the illustrated embodiment thereof which comprises a lever connected yieldingly to a support and extending backwardly over the shoe with a handle on its rear end and a crescent-shaped clamping foot between the ends of the lever and adapted to serve as the fulcrum about which the lever is pressed down while the yielding connection springs. This permits the fulcrum point or place of maximum pressure applied by the foot to move longitudinally as, for example, toward the rear ends of the foot which bear upon the upper that extends up over the sides of the toe. By merely pressing harder down upon the handled end of the lever the operator can relieve the clamping pressure at the end of the toe and increase it to any desired extent at the sides of the toe, the relative pressures at the end and sides of the toe being entirely under the control of the operator.

These and other features of this invention, including certain details of construction and combinations of parts will be more fully understood in connection with the following description of an apparatus embodying the invention and will then be pointed out in the claims.

Figure 1 is a perspective view of a toe lasting mechanism equipped with the inven-

tion; Fig. 2 is a similar view on a larger scale indicating by dotted lines the manipulation of the retarder for obtaining a hard gripping of the upper at the sides of the toe and a lighter gripping at the end to draw the upper tight across the toe without bowing the toe tip.

The toe lasting means includes the wiper plates 2 which are supported for movement with their carrier 4 perpendicularly to the plane of the shoe bottom and are jointed and mounted for movement by the lever forwardly and inwardly over the shoe bottom.

The retarder comprises a carrier lever 10 having a slotted connection with a post 12 rising from the wiper carrier 4. The lever 10 is formed with a handle at its free end and has a depending stem 12 upon which is secured the upper clamping foot 13 of the retarder. This foot is shown as of substantially crescent shape and to overlies the wiper plates throughout substantially their length. The post 12 carries above the lever 10 a spring 15 which acts through a slide block 16 downwardly upon the end of the lever, the tension of the spring being regulated by a nut 18 on the screw threaded extension of the post.

In the use of this invention the shoe is presented to the machine and the wipers are actuated to wipe the upper upwardly about the side faces of the last and inwardly over the feather of the innersole in the manner contemplated in the typical patent to Grandy No. 521,954 and by mechanism substantially like that there described. Either immediately when the shoe is put into place in the machine or after the upper has been partially formed to the last by the wipers the fringe or marginal portion of the upper is laid over upon the wipers and the retarder is swung laterally from an out of the way position into the position shown in full lines in Figs. 1 and 2. Preferably the nut 18 will be adjusted so that the foot of the retarder may clamp the upper substantially flatly upon the wipers and then, after an initial stretching of the end as well as the sides of the toe to draw the upper snugly up at the toe, the handle end of the lever is further depressed against the resistance of the spring 15 as shown in dotted lines in Fig. 2, the wipers being of course meanwhile raised. By the change in position effected by depressing the handled end of the lever the clamping foot is rocked or caused to fulcrum on its rear or heel ends. This increases the clamping force with which the upper at the sides of the toe is held and causes it to be stretched or pulled up as much as the operator may desire or the particular shoe may require, while the upper at the end of the toe is allowed to slip more freely under the advancing wipers and no distortion of the tip seam will be pro-

duced. By rolling the lever slightly on its own axis, as the operator may do by the grasp of his hand, the clamping force at either side of the toe may be increased relatively to that at the other side, as well as relatively to that at the toe, for pulling the upper as the condition of the particular shoe may show to be desirable. The rear ends of the foot plate of the retarder may advantageously be made slightly resilient, as by a gradual reduction in thickness of suitable metal, so that an extended area of concentrated pressure at the sides of the toe is secured. The nut 18 may obviously be adjusted upwardly to cause only the resilient portions of the foot at the sides of the toe to grip the upper if side gripping only is desired.

Having explained the nature of this invention and described a preferred construction embodying the same I claim as new and desire to secure by Letters Patent of the United States:—

1. An apparatus of the class described having, in combination, end wiper plates, and a retarder for engaging an upper at the end and opposite sides of the toe of a shoe, said cooperating upper clamping members being arranged to permit, during the toe lasting operation effected thereby, a relative movement to relieve the grip on the toe portion of the upper relatively to the grip with which the upper is held at the sides of the toe and means by which said relative movement can be effected.

2. An apparatus of the class described having, in combination, end wiper plates, means for actuating them to wipe an upper over the end and sides of the toe portion of a last, and a retarder to grip the upper against the wiper plates at the end and sides, said retarder being mounted for rocking movement about a horizontal axis by the operator as the lasting proceeds to regulate the relative forces with which the upper is held at the end and sides of the toe.

3. An apparatus of the class described having, in combination, end wiper plates, means for actuating them to wipe an upper over the end and sides of the toe portion of a last, and a retarder which is formed to engage the upper on the wipers and is yieldingly fulcrumed in front of the shoe and has a handle projecting rearwardly over the shoe by which it may be tilted during the operation of the wipers to vary the relative forces with which the upper is held under it at the end and the sides of the toe.

4. An apparatus of the class described having, in combination, end wiper plates, means for actuating them to wipe an upper over the end and sides of the toe portion of a last and a retarder which is yieldingly mounted in front of the shoe to permit it to tip longitudinally of the shoe and has a

handle by which maximum upper holding pressure can be transferred during such tipping movement to the rear portions of the retarder during the overwiping operation of the wiper plates.

5. An apparatus of the class described having, in combination, end wiper plates, means for actuating them to wipe an upper over the end and sides of the toe portion of a last, and a retarder provided with operating means by which, in response to increased operating pressure, the front portion of the retarder can be raised relatively to the rear portion to cause the upper to be held with greater force at the sides than at the end of the toe.

6. An apparatus of the class described having, in combination, end wiper plates, means for actuating them to wipe an upper over the end and sides of the toe portion of a last, a retarder foot, a hand lever by which the retarder foot is carried and which has a yielding support at one end and has its other end extended backwardly beyond the foot over the shoe in position to cause pressure thereon to increase the holding power of the rear portion of the retarder foot relatively to that of the front portion.

7. An end lasting mechanism having, in combination, end embracing wipers, means for actuating the wipers and a retarder to clamp the upper against the wipers to cause the upper to be pulled, said retarder being arranged to produce automatically, in response to progressively increasing pressure, an initial holding grip at the end and sides of the toe and then a relatively increased grip at the sides of the toe.

8. An end lasting mechanism having, in combination, end embracing wipers, a support relatively to which the wipers are movable, a lever yieldingly connected with said support and having a handle, a retarder mounted on the lever and arranged normally to press throughout its length the upper upon the wipers and to have the grip on the upper at the end of the toe relieved and that at the sides of the toe increased by pressure upon the handle.

9. An end lasting mechanism having, in combination, end embracing wipers, a support for the wipers, and a hand lever yieldingly connected to said support, and a retarder mounted on the lever and adapted to fulcrum about its rear ends as pressure upon the handle is increased.

10. A retarder for bed lasting machines comprising a bar extending lengthwise of a shoe which occupies position to be lasted in the machine and pivotally supported in front of the shoe and having a handle on its rear end, said bar having a depending foot adapted to be held in clamping engagement with the marginal portion of the upper

upon the lasting plates by pressure applied to the handle transversely of the length of the handle, and being secured at its front end in advance of the shoe to allow said end to yield upwardly in response to pressure upon the handle.

11. An apparatus of the class described having, in combination, a retarder, and a yieldingly mounted lever extending horizontally over the shoe and upon which the retarder is carried and which is arranged for manipulation to change the area of a maximum pressure applied by the retarder from one point to another.

12. An apparatus of the class described, having, in combination, a retarder, and a yieldingly supported lever extending horizontally over the shoe and upon which the retarder is arranged to rest upon the upper at the end and sides of the toe and which is adapted for operation to increase the holding pressure on the upper at the sides of the toe and to decrease the pressure at the end of the toe.

13. An apparatus of the class described having, in combination, end embracing wipers, a retarder and operating mechanism constructed and arranged for manipulation to draw the upper more tightly across the toe and simultaneously reduce the pull lengthwise of the shoe.

14. An apparatus of the class described having, in combination, end embracing wipers, a retarder and operating mechanism constructed and arranged to tip the retarder upwardly upon its rear ends, the rear end portions of said retarder being resilient as and for the purpose described.

15. An apparatus of the class described having, in combination, end embracing wipers and a retarder comprising a plate formed to clamp the upper on the wipers at the end and opposite sides of the toe and having resilient rear end portions.

16. A retarder adapted for use with end embracing wipers and having a substantially non-resilient body portion to bear upon the upper at the end of the toe and resilient end portions to bear upon the upper at the sides of the toe.

17. A retarder adapted for use with end embracing wipers and having a substantially non-resilient body portion to bear upon the upper at the end of the toe and resilient end portions to bear upon the upper at the sides of the toe, and operating means to press the resilient end portions firmly upon the work while pressing the body portion down more tightly.

18. An end lasting machine having, in combination, toe embracing wipers and means for operating them, and a retarder comprising a manually operable lever to which is attached a crescent-shaped foot having its horns extending toward the rear

of the shoe and away from the pivot of the lever whereby pressure applied to the lever acts to retard slipping of the upper more at the sides than at the end of the toe, 5 said lever having a yielding connection with its fulcrum whereby the lever may at a certain pressure fulcrum about the pivot and may at an increased pressure fulcrum about the horns of the foot.

10 19. An end lasting machine having, in combination, toe embracing wipers and means for operating them, and a retarder comprising a manually operable lever to which is attached a crescent-shaped foot

having its horns extending toward the rear 15 of the shoe and away from the fulcrum of the lever whereby pressure applied to the lever acts to retard slipping of the upper more at the sides than at the end of the toe, the horns of said foot being resilient for 20 the purpose described.

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

CHARLES E. GRUSH.

Witnesses:

NORMAN C. HUSSEY,
ELMER B. GRUSH.