

M. BROCK.
END LASTING MECHANISM.
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1,030,562.

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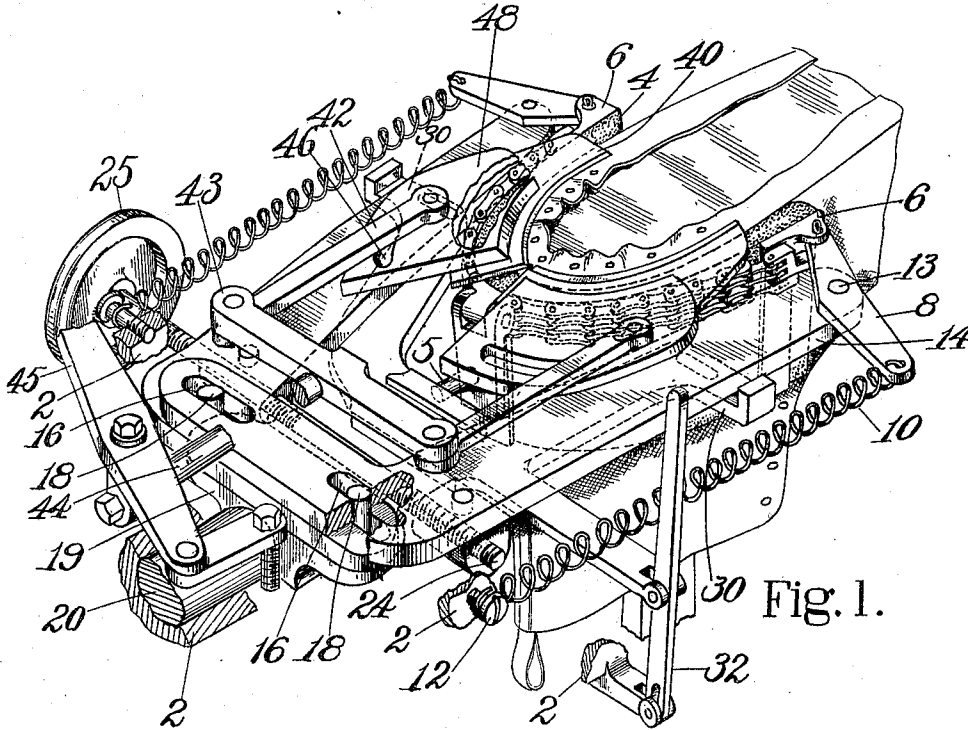


Fig. 1.

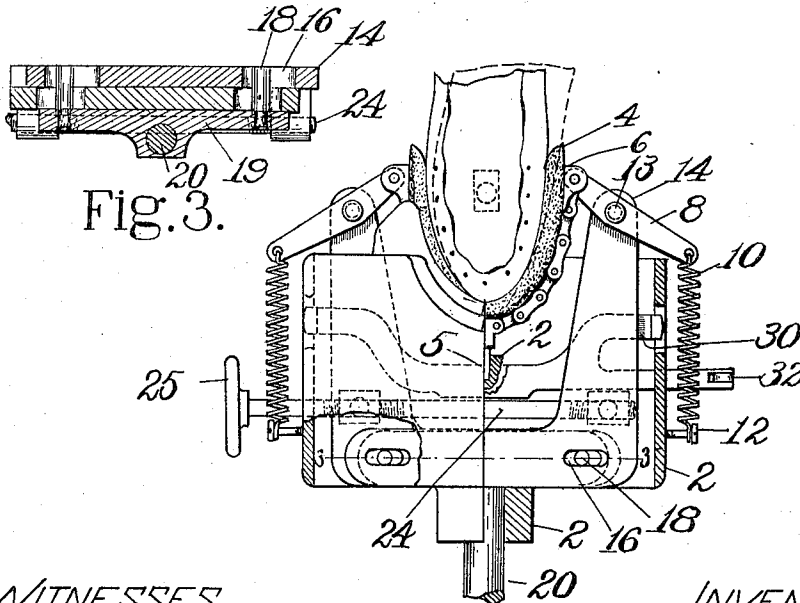


Fig. 2.

WITNESSES.

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UNITED STATES PATENT OFFICE.

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END-LASTING MECHANISM.

1,030,562.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, MATTHIAS BROCK, a citizen of the United States, residing at Boston, in the county of Suffolk 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 end band supporting and actuating mechanism and it has for its object to provide improved means for supporting and closing an end embracing band and particularly for so closing the end portions of the band as to obtain suitable pressure thereof against the inner and less full side of the end portion of the shoe.

The invention is shown as embodied in a heel lasting mechanism but may be applied without further development to a toe lasting mechanism.

An important feature of this invention is found in supporting mechanism for the two ends of the band which is freely movable bodily in a direction transverse of the shoe. By this movement the end portions of the band are adjusted automatically to the positions of the adjacent sides of the shoe, this adjustment being laterally toward one side of the machine for a right shoe and toward the other side for a left shoe. This bodily adjustment is preferably, and as herein shown, made in a right line. This feature of the invention is herein embodied in a mechanism which includes levers the inner ends of which are directed forwardly and inwardly and are connected to the band ends while the backwardly and outwardly directed ends of the levers are connected by springs to a relatively fixed support. These levers are fulcrumed upon the front ends of forwardly actuated supports which serve first, through the levers, to tighten the band about the end of the shoe and then, by carrying the fulcrums of the obliquely arranged levers forward after the forward movement of the inner ends of the levers have been arrested, to effect inward pressure upon the band ends. In accordance with this invention in which the supports

referred to are adjusted to the shape of the last the relation of each lever to its support is the same as that of the other lever to the support on which it is carried and therefore uniform pressure is obtained at the two sides of the shoe. By so doing the upper materials and particularly the end portions of the heel stiffeners are firmly clamped to the sides of the last on the inner, less full, side as well as at the outer side of the shoe. When this is done the lasting plates or wipers can draw the upper materials snugly over the last edge and bottom and the finished shoe comes off the last shaped to the clean-cut contour of the last as is demanded in fine shoemaking. As I am advised it is new with me to provide a band operating mechanism having straight forwardly moving band end supports and having provision for adjustment to unsymmetrically positioned lasts, and it is also new with me to provide a band operating mechanism having forwardly moving band supports which are automatically adjustable in right lines transversely of the machine for the purpose described. Novel mechanism embodying this part of the invention will be later described.

A further feature of this invention which may be employed with or without the other features herein disclosed consists in means for adjusting the supports for the two band ends together for widths of shoes. This may be employed also in accordance with this invention as supplemental band end closing means.

Still a further feature of this invention consists in means by which the operator may apply band closing or upper tightening pressure to either end of the band as he may observe to be desirable at any time after the automatic or other normal closing of the band has occurred. In the preferred embodiment of the invention a lever has connections through which one or the other, or one and then the other, end of the band may be set up to clamp the work securely at the ends of the heel or the rear of the shank.

These and other features of the invention including important details of construction will appear in connection with the following description of one embodiment of the invention and will then be pointed out in the claims.

Figure 1 is a perspective view of a heel lasting mechanism embodying this invention. Fig. 2 is a plan. Fig. 3 is a section on line 3—3, Fig. 2.

5 The heel lasting mechanism herein shown as embodying the invention comprises a carriage or head portions of which are indicated at 2 to which is connected the rear or closed portion of the heel band 4 by the stem 5, said band comprising as herein shown a flexible chain having a non-metallic lining and the stem 5 being extended rearwardly from a plate which is hinged at its upper end to the chain so that some freedom of movement is allowed to the band. The band has pivoted end plates 6 which are hinged to the inner ends of levers 8 the outer ends of which are connected by springs 10 to studs 12 on the head. The levers 8 are fulcrumed at 13 on the fronts of endwise sliding bars 14. These bars are herein shown as L shaped members the lateral or transversely extending arms of which are overlapped by one another and provided with slots 16 through which extend pins 18 rising from a cross head 19 on a plunger 20 which it is contemplated shall be connected for operation to a cam shaft substantially as is the corresponding plunger in United States Patent No. 521,954. The two L shaped members arranged as described form a U shaped frame for supporting the front ends of the heel band and the slots 16 permit free bodily movement of the band end supports transversely of the machine, thus allowing adaptation of the band ends to unsymmetrical position or formation of the end portion of the shoe which is to be embraced. The forwardly directed arms of the L shaped members are connected by a right and left threaded screw 24 on which is a hand wheel 25 by which adjustment of said members, and therefore of the ends of the band, together may be made toward and from the median line of the machine or from the shoe in the machine for adaptation to widths of shoes as also for compression or additional clamping of the upper materials against the sides of the last by the band ends. In this adjustment the transverse arms of said members slide upon one another and relatively to the pins 18 as permitted by the slots 16. This arrangement renders the U-shaped frame inflexible or free from any looseness or liability of movement of its parts relatively in the normal operation of the machine. A yoke having arms 30 underlies the slide bars and these arms have upturned ends or shoulders located near the front end of the slide bars and spaced apart a distance to permit unobstructed self-adjustment of the band end supports and band to different shoes as well as adjustment by the hand wheel 25. This yoke is connected to a vertical hand lever

32, fulcrumed on the head 2, by which it can be moved in one direction to cause the upturned end to engage the slide bar on the right side of the shoe or may be moved in the opposite direction to effect engagement with the other slide bar. By this manual means the automatic or self adjustment of the band to the position and shape of the last can be perfected if required and also supplemental band closing pressure can be applied to either band end alternatively. The usual lasting plates or wipers 40 are employed to close in over the top face of the band and over the shoe bottom to wipe over the innersole the marginal portion of the upper materials which have been clamped about the end of the last by the band. The wipers are actuated by link 42, cross head 43 and plunger 44 connection with a hand lever 45 and their path of closing movement is directed by cam slots 46 in the wiper carriers 48 to which the wiper plates are detachably connected in well known manner.

In the use of the machine a shoe is positioned with the heel end within the heel band and its toe end usually in operative relation to a toe lasting mechanism. The band is then closed by force transmitted forwardly through the plunger 20, cross head 19, pins 18 and slide bars 14 to the fulcrums of the levers 8. This carries the front ends of the levers 8 (which are inclined inwardly and forwardly) forwardly until the band is tightened about the end of the last and then continued forward movement of the slide bars and of the fulcrum points 13 swings the levers in the direction to force their inner ends and the ends of the band against the last inasmuch as the slide bars 14 are relatively rigid transversely. The style of the last or its configuration for a right or a left foot may result in an unsymmetrical presentation of the shoe to the band in which case there occurs automatically during this operation a self adjustment of the band end supporting means toward that side of the latch which is nearest the median line of the machine or which is least full at the part engaged by the band end which is the region adjacent to the end of the heel stiffener. This self adjustment or automatic lateral movement of the band end supports is permitted and is guided and directed by the slots 16 which embrace the pins 18 on the cross head 19, and it is a right line movement of both slide bars together in the same direction transversely of the machine. This adjustment for rights and lefts or unsymmetrical lasts occurs automatically and as it is a free and unrestrained movement will be effected in whole or in large part during the initial tightening and closing of the band and as a result of the described arrangement each slide bar 14 and its con-

nected lever 8 will occupy substantially the same angular relation to one another and to the side of the shoe as is found at the opposite side of the machine when the final end closing pressure comes on the band. This insures a uniformity of pressure against the two sides of the shoe which has heretofore been secured in a less degree. For example if the slide bars were given a swinging or angular adjustment for rights and lefts instead of a right line movement the angle formed by one bar and its lever 8 would be increased while that on the opposite side would be diminished and the stronger final end closing pressure would then occur at the side where the smaller angle is formed which in practice is the fuller side of the shoe while the less full side is the one which, if either, should receive the strongest pressure.

After the automatic closing of the band above described as coming from the plunger 20 the hand wheel 25 which may previously have been used for adjustment for the width of the shoe, can be used to draw the slide bars 14 tighter to effect further band end closing pressure at the two sides of the shoe or the hand lever may be moved in one direction or the other to set the band end up more snugly to the shoe at either side or at one side and then the other, or repeatedly at a side requiring special treatment. When the band has been properly closed to clamp the upper materials firmly to the contour of the last throughout the length of the band and at the hollow inner side of the last as well as at the more full outer side then the wipers are actuated to wipe the marginal portion of the upper above the band over upon the heel seat as shown in Fig. 1.

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

1. In an end lasting mechanism an end embracing band which is supported at its rear end and supports for the free front ends of the band constructed and arranged for right line adjustment together transversely of the shoe relatively to the rear end of the band.

2. In an end lasting mechanism an end embracing band which is supported at its rear end, and forwardly actuated supports for the free front ends of the band which are mounted for right line adjusting movements transversely of the shoe relatively to the rear end of the band.

3. In an end lasting mechanism an end embracing band which is supported at its rear end, slide bars mounted for right line forward operating movements to tighten the band against a heel end and for right line

lateral self adjusting movements relatively to the rear end of the band to equalize the action at the two sides of the heel.

4. In an end lasting mechanism an end embracing band which is supported at its rear end, and supporting mechanism for the free front ends of the band which is freely movable bodily in a direction transverse of the shoe and relatively to the rear end of the band.

5. In an end lasting mechanism an end embracing band, and supporting mechanism for the band comprising a plunger and slide bars secured to the plunger against pivotal movement while permitting right line lateral movement, and connections from the slide bars to the band ends.

6. In an end lasting mechanism an end embracing band, and supporting mechanism for the band comprising a plunger and shaped slide bars having their transversely extending arms overlapped and joined by pin and slot connections to each other and to the plunger to permit lateral adjustment, and their longitudinally extending arms connected to the band ends.

7. In an end lasting mechanism an end embracing band, and supporting mechanism for the band comprising a plunger and an inflexible U shaped frame joined to the band ends at its free ends and slidably connected to the plunger at its closed end.

8. In an end lasting mechanism an end embracing band, and supporting mechanism for the band comprising a plunger and an inflexible U shaped frame joined to the band ends at its free ends and having a transverse sliding connection with the plunger at its closed end.

9. In an end lasting mechanism an end embracing band, and supporting mechanism for the band comprising a plunger and a U-shaped frame the parts of which are unyieldingly restrained from relative turning movement and which is joined to the band ends at its free ends and has at its closed end a connection with the plunger which permits transverse movement of the band supporting ends without their direction being changed.

10. In an end lasting mechanism an end embracing band and supporting mechanism for the band comprising L shaped members having overlapping transverse arms connected for relative adjustment and longitudinally extending arms connected to the band ends and effecting variation in spread of the band ends as a result of said adjustment.

11. In an end lasting mechanism an end embracing band and supporting mechanism for the band comprising a plunger and slide bars connected with the plunger and with the band ends and means for effecting right line relative adjustment of the slide

bars transversely of the machine for widths of shoes.

12. In an end lasting mechanism an end embracing band and supporting mechanism for the band comprising a plunger and slide bars connected with the plunger and with the band ends and means for effecting relative adjustment of said slide bars transversely of the machine for varying the spread of the band ends for different widths of shoes.

13. In an end lasting mechanism an end embracing band and supporting mechanism for the band comprising a plunger and slide bars connected with the plunger and with the band ends and means for effecting relative adjustment of said slide bars transversely of the machine, said bars being freely movable together transversely of the machine for adaptation to unsymmetrically positioned or shaped lasts.

14. In an end lasting mechanism an end embracing band which is supported at its rear end and supporting mechanism for the front ends of the band comprising supports which are movable transversely of the machine together in the same direction and manual means for effecting such movement.

15. In an end lasting mechanism an end embracing band which is supported at its rear end, supporting mechanism for the free front ends of the band, and manual means including one operating device having connection with both band end supports for applying lateral pressure through the band end supports to either side of the last separately.

16. In an end lasting mechanism an end embracing band, supporting and actuating means therefor and additional manually controlled means including one operating device having connection with both ends of the band for further actuating the band ends separately.

17. In an end lasting mechanism an end embracing band, means for supporting the band and for advancing the band and closing its ends together against the sides of the last, and a hand lever connected with the supporting means to apply inward pressure against either end of the band.

18. In an end lasting mechanism an end embracing band, means for supporting the band and for advancing the band and closing its ends together against the sides of the last, and a hand lever and connections by which additional closing pressure may be applied to the two ends of the band alternately and repeatedly.

19. In an end lasting mechanism an end embracing band supporting and actuating

means therefor having provision for automatic adjustment for unsymmetrical work and an additional means operatively connected with both ends of the band for manually perfecting the adjustment.

20. In an end lasting mechanism an end embracing band supported at its rear end against movement transversely of a shoe, supporting and actuating means for the free front ends of the band arranged for transverse adjustment to equalize band closing pressure on the two sides of the last, and an additional means operatively connected with both ends of the band for increasing band end closing pressure on either side of the last.

21. In an end lasting mechanism an end embracing band supported at its rear end against movement transversely of a shoe, supporting and actuating means for the free front ends of the band arranged for transverse adjustment relatively to the rear end of the band to equalize band closing pressure on the two sides of the last, and an additional means operatively connected with both ends of the band for increasing band end closing pressure on both sides of the last alike.

22. In an end lasting mechanism an end embracing band, means for closing the band and a supplemental means operatively connected with both ends of the band arranged for convenient manual manipulation for tightening the band at either end separately.

23. In an end lasting mechanism an end embracing band, means for closing the band and a supplemental means operatively connected with both ends of the band arranged for convenient manual manipulation for tightening the band at opposite ends alternately.

24. In an end lasting mechanism an end embracing band, supports for the band ends including endwise and laterally moving slide bars, and a hand wheel having screw threaded connection with said bars arranged to draw them together laterally.

25. In an end lasting mechanism an end embracing band, supports for the band ends including endwise moving bars, a yoke embracing said bars and a lever to move the yoke transversely to apply lateral pressure through the bars against the band ends.

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

MATTHIAS BROCK.

Witnesses:

FREDERICK L. EDMANDS,
ELIZABETH C. COUPE.