

1,002,818.

Patented Sept. 12, 1911

2 SHEETS—SHEET 1.

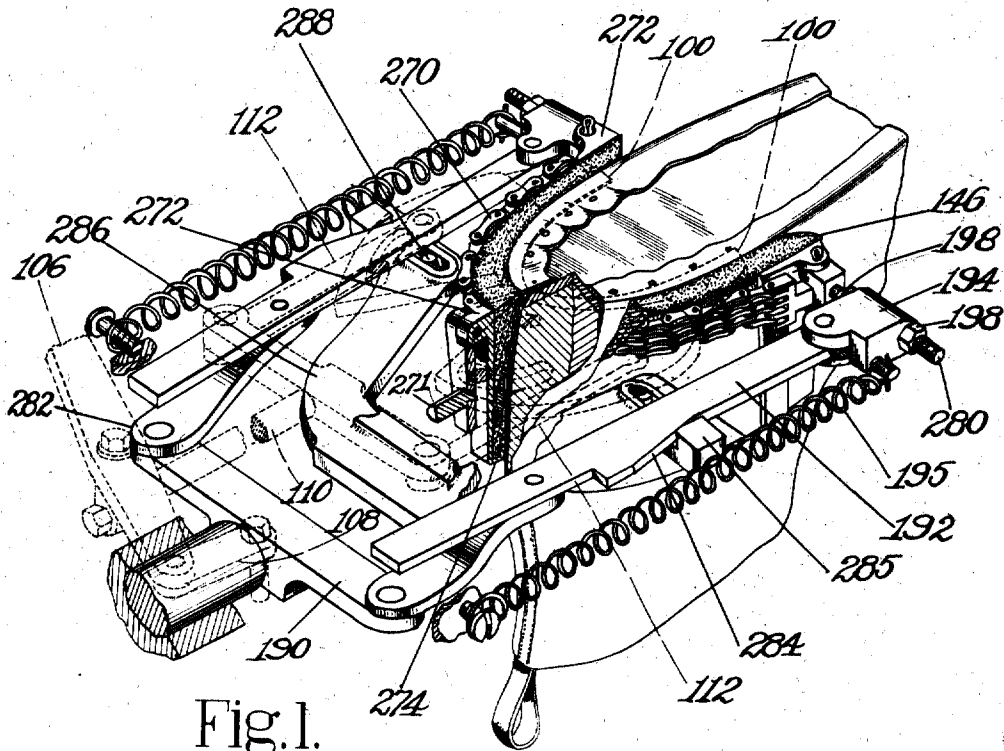


Fig. 1.

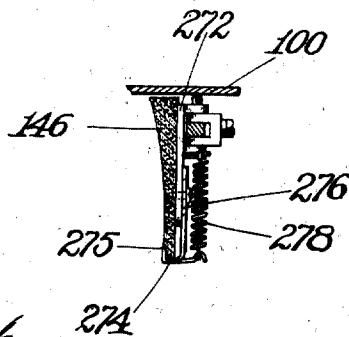


Fig. 2.

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1,002,818.

2 SHEETS—SHEET 2.



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UNITED STATES PATENT OFFICE.

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LASTING MECHANISM.

1,002,818.

Specification of Letters Patent.

Patented Sept. 12, 1911.

Application filed March 19, 1910. Serial No. 550,434.

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 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 machines for use in forming shoes and particularly to heel lasting mechanism, and has for its object to provide improved heel clamping means.

One feature of this invention consists in providing improved means for actuating a heel embracing band to cause it to clamp with equal pressure the opposite sides of the heel portions of shoes upon right and left lasts which are laterally unsymmetrical.

As is well known, many lasts in use at the present time are fuller at the outer side of the heel portion, which corresponds with the outer side of the foot, than they are at the inner side of the heel portion, particularly at that part of the last which merges into the shank of the last. Any adjustment of the heel-band-closing mechanism which is arranged to cause it to close farther on one side than on the other for one last is, of course, wrong for the other one of a pair of lasts. In accordance with the present invention, therefore, means is provided for equalizing the pressure of the band-closing mechanism at the two sides of the last. This means may advantageously be arranged to permit the band-closing mechanism to adjust the two end portions of the band relatively in accordance with the shape of the last before the final pressure for clamping the upper against the sides of the last is applied.

In the embodiment of the invention herein shown, the band is closed by endwise movable slide bars having inclines on their outer faces. These inclines cooperate with abutments which cause the slide bars to move inwardly and force the end portions of the band against the sides of the last as said bars advance.

In accordance with a preferred embodiment of this invention the abutments at the

two sides are connected for movement laterally together to position the slide bars automatically as the band closes against the fuller side of the last. In this positioning movement the portion of the band first contacting with the fuller side of the last pauses in its closing movement while the other end portion of the band is forced up into similar contact with the less full side of the last and thereafter the two end portions of the band are caused to clamp the shoe equally at the two sides of the heel. The two abutments are shown as formed upon the opposite ends of a transverse bar which is guided by pins and slots and has free movement transversely of the last.

A movable connection is employed between the ends of the band and the adjacent ends of the slide bars in order to permit the slide bars to continue their advance movement for closing the end portions of the band against the shoe after the advance movement of the band has been stopped by its engagement with the heel end of the last. A convenient form of movable connection for this purpose includes an angle lever fulcrumed on a slide bar and connected at one end to the band while its other end is connected by a spring to a fixed part of the machine. With this arrangement the end portion of the band is forced inwardly by the turning of the angle lever. The spring returns the parts to normal position when the slide bars are retracted.

A novel feature of this mechanism consists in the provision of an adjustable angle lever formed to permit the lateral position of the end portion of the band with relation to the slide bars to be varied for shoes of different sizes.

It has heretofore been necessary to equip a heel lasting mechanism with three pairs of angle levers of different lengths to adapt the machine for the groups of sizes comprised in men's, women's and children's shoes. By the present invention a single angle lever can be adjusted to support the band in proper position for all the different widths of shoes. The construction employed comprises an angle block, having the usual fulcrum point and the outer spring-engaged arm of the lever, and an arm which is adjustable lengthwise in said block for connection with the band. This adjustable arm

is herein shown as a screw threaded rod which is secured in adjusted position in the angle block by suitable lock nuts.

Further features of this invention are found in the means for supporting and actuating the heel band and particularly in means for sustaining the band adjustably, or yieldingly in relation to the lower face of the heel wipers which bend the upper over the edge of the last and form it down upon the heel seat. By this feature of the invention provision is made for locating the band in close proximity to or in contact with the wipers so that the band and wipers cooperate to form the adjacent surfaces into a desirable angular edge. The band may be so sustained by means including either a yielding element or by relatively adjustable members. Preferably the lower member will include a hook to extend under the lower edge of the band and, it may be, upwardly along the inner side of the band a short distance. In the latter event the band may be recessed to receive the tip of the hook. This mounting permits the ready removal of the band without disconnecting any of the parts, and allows the heel band to follow the shoe in any upward movement of the last, such for example as the usual lifting movement to compress the overwiped upper between the last bottom and the lower face of the wipers.

It may be here noted that while this invention is shown as embodied in heel lasting mechanism including a heel band it may equally well be applied to a toe lasting mechanism in which the corresponding end embracing member is usually called a toe pad.

These and other features of the invention, including certain combinations of parts and more important details will be explained in connection with the following description and then be pointed out in the claims.

Figure 1 is a perspective view of so much of the heel lasting mechanism embodying this invention as is necessary for illustrating this invention; Fig. 2 is a vertical section of Fig. 1; Fig. 3 is a plan view of the portions of the machine shown in Fig. 1.

The heel lasting mechanism includes wipers 100 suitably supported and guided to advance and close over the heel seat of the shoe when pressed forwardly by actuating devices which include the links 112, rod 110 and lever 106 which is fulcrumed at its end on the link 108. These parts are shown in dotted lines in Fig. 1 to permit a fuller view of the underlying heel band and its operating mechanism. The heel band 140 is supported and actuated by a chain 270. Certain links or plates 272, which form links of the chain or are connected with the chain and which are shown as located at the rear center and at the two ends, have depending arms 65 which carry upturned band supporting fin-

gers 274. These fingers may have upturned tips as at 275 if desired to enable them to embrace the lower edge of the band, or these tips may be omitted and reliance placed upon the tendency of the band toward expansion to cause it to remain supported on the fingers 274, see Figs. 1 and 2. These fingers may be adjustably connected with the links 272 as by a screw and slot as at 276 to take up wear caused by the movement of the lasting wipers over the upper edge of the band. If desired the screw may remain loose and a spring 278 be employed which will maintain the band constantly raised snugly against the lower face of the heel seat wipers and insure a cooperation between said band and the wipers to form the shoe stock at the angular edge of the heel seat.

The front end plates 272 of the chain are connected to laterally extending arms or angle levers 194 which are fulcrumed upon endwise movable slide bars 192 supported by the bracket 286. These levers each have an adjustable connection with the chain 270 formed by a screw threaded rod 280 which is pivoted to the plate 272 at its inner end and secured in adjusted position in the lever by lock nuts 198. By this arrangement the ends of the heel band can if desired be separately adjusted for right and left lasts to clamp either last as firmly against the concave innerside of the last as against the relatively full outer side of the last, and also the band may be adjusted to open more or less widely for shoes of different groups of sizes as men's, women's and children's. The provision of this adjustable connection saves the necessity for providing angle levers of different lengths for these groups of sizes.

The closing of the band is effected by power transmitted from a plunger 188 and its rigidly attached crosshead 190 to the longitudinally movable slide bars 192 through the swinging links which are pivoted to the said slide bars and to the cross head. This forward movement of the slide bars advances the band as a whole until the band is stopped by firm contact with the heel end of the shoe. The continued advance of the bars then compels the levers 194 to turn against the pull of springs 195 which maintain a snug forward tension on the two ends of the band. During this forward movement of the slide bars 192 they are actuated inwardly to close the band against the sides of the shoe, by cooperating wedge faces 284 on the bars and non-separable lugs 285 with which the wedges have sliding engagement. In this embodiment of the invention these lugs are formed upon the horizontally arranged U-shaped bracket or plate 286 which is supported for right line movement transversely of the machine and is guided in such movement by pins 288 that rise from a

fixed portion of the machine head over which the plate 286 is movable and these pins stand in slots formed in the arms of the plate near the lugs 285. This arrangement of the lugs on the movable plate 286 permits lateral movement of the lugs together and a transverse shifting of the bars in company and effects an equalization of the inward pressure of the band at its two ends. This insures that the band shall clamp the upper against the hollow inner side of the last with the same force as it is clamped against the relatively full outer side of the last. This equalization of the pressure at the two sides, in the region of the ends of the heel stiffener, is of great importance in securing good lasting, especially on such crooked and irregular lasts as many of those now in use.

As advised, it is new by this invention to provide, for advancing and closing of the ends of the heel or toe band, a mechanism which includes cooperating devices one of which, as the slide bars 192, has cam faces to effect closing of the band ends and one of which, as the plate 286 and its abutments 285, is mounted for self adjustment transversely of the machine to equalize the band closing pressure at the two sides of the shoe. It is to be noted that the equalizer, which is the plate 286, is independent in this embodiment of the invention from the means which produces the advance movement of the band.

In the use of the invention a shoe is properly supported vertically and the last and the heel band are relatively actuated longitudinally and laterally, during which movement the heel is thrust against the middle portion of the band and the ends of the band are closed snugly against the sides of the shoe. This latter actuation is effected by the forward movement of the crosshead 190 which moves longitudinally toward the right in Fig. 1 the bars 192 which support the levers 194, which in turn support the front ends of the band. The cooperating wedge faces of the relatively advancing members 284 and 285, which are formed respectively on the slide bars 192 and the equalizer 286, swing or turn the slide bars 192 toward the center of the machine and move the band supporting levers 194 bodily inwardly toward the shoe to clamp the ends of the band against the sides of the shoe. If the shoe is less full on one side at the end of the band than on the other side the equalizer 286 moves freely from the less full side to the larger side and thus provides equal pressure on both sides. The rear end of the band is supported by the stem 271 in the head of the machine which constitutes the carrier upon which all the described parts are movable. Of course it is immaterial whether the inclined faces 284 are

formed on the bars 192 or on the studs of the part 286 for the effect is the same in either case when these parts are relatively moved longitudinally of the shoe.

If it is desired to adjust the band for shoes of different widths this is effected by manipulating the nuts 198, 198 and screw 280 on the levers 194 in an obvious way. If the band is to be removed the fingers 274 are sprung downwardly against the springs 278 or are moved after loosening the binding screws if the screws have been tightened, and the band can then be readily pulled out of its holders. When restored it is pressed close up against the under face of the wipers.

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. A heel lasting mechanism having, in combination, a heel embracing band, means for tensioning the band forwardly, and means for closing the band, said closing means including a member which is mounted for right line movement transversely of the machine for equalizing the closing pressure at the two ends of the band.

2. A heel lasting mechanism having, in combination, a heel embracing band and actuating mechanism therefor, comprising endwise movable slide bars, having oppositely arranged wedge faces, abutments to be engaged by said faces to move the bars laterally as they are advanced, and a connection between the abutments arranged to permit them to move laterally together to equalize the band closing pressure applied by said bars.

3. In a lasting machine, the combination with a heel band, of slide bars connected with the end portions of the band, inclines on said slide bars, abutments cooperating with the inclines to force the slide bars inwardly as they are advanced, and means permitting the abutments to move laterally together to equalize the lateral pressure of the slide bars and band against shoes of laterally unsymmetrical formation.

4. A heel lasting mechanism having, in combination, a heel band, means for closing the band by a movement of the closing means lengthwise of the shoe, and guiding devices for the closing means at the two sides of the shoe, said guiding devices being connected transversely on the shoe to move in company to equalize the closing pressure at the two sides of the shoe.

5. A heel lasting mechanism, having, in combination, a heel band and supporting means connected with the end portions of the band for closing the band, said means comprising an angle lever having an adjustable arm connected to the band.

6. A heel lasting mechanism, having, in combination, a heel band and supporting means connected with the end portions of the band for closing the band, said means comprising an actuator, an angle block on said actuator having an extensible arm connected to the heel band, and means for locking the said extensible arm in adjusted relation to the angle bar.
7. A heel lasting mechanism, having, in combination, a heel band, the endwise movable slide bar 192, the angle block 194 fulcrumed thereon, the spring 195 connected to said angle block, the endwise adjustable arm 280 mounted in said angle block and connected to the heel band, and locking nuts 198 for securing said arm in adjusted position.
8. A heel lasting mechanism, having, in combination, a heel embracing band, a relatively narrow chain to actuate the band, and band supports depending from the narrow chain along the outer sides of the band and having inturned supporting fingers extending under the band.
9. A heel lasting mechanism, having, in combination, a heel embracing band, a relatively narrow chain to actuate the band, and band supports comprising vertically movable hooks engaging under the lower edge of the band.
10. A heel lasting mechanism, having, in combination, a heel embracing band, a wiper and means for holding the upper edge of the band yieldingly toward the wiper.
11. A heel lasting mechanism, having, in combination, a heel embracing band, a wiper, and band supporting means having provision for adjustment of the band toward the plane of the wiper as and for the purpose described.
12. In a lasting machine, the combination with a lasting band of levers supporting its ends, longitudinally movable supports for the levers and means 282 fulcrumed for lateral movement carrying said supports, and means 285, 285 connected together and movable transversely of the machine for moving said supports relatively to their carrying means.
13. The combination with a heel band, of band actuating bars 192, laterally movable means 286 sustaining said bars, lateral abutments 285 on said sustaining means, and the wedge faces 284 cooperating with said abutments to force the ends of the band inwardly when the parts are relatively actuated lengthwise of the shoe.
14. An end lasting mechanism having, in combination, an end embracing band and operating mechanism therefor comprising levers each of which is connected at one end to a band end and is secured yieldingly at its other end, swinging slide bars upon which the levers are fulcrumed, a plunger and cross-head to advance said slide bars, a transversely movable equalizer to effect swinging of said slide bars and to be moved by them, and cooperating cam surfaces between said slide bars and said equalizer whereby upon movement of said cross-head said equalizer may swing said slide bars and then itself be moved transversely of the machine.
15. An end lasting mechanism having, in combination, an end embracing band and operating mechanism therefor comprising swinging slide bars connected with the ends of the band, a plunger and cross-head to advance said slide bars, a transversely movable equalizer to effect swinging of the slide bars and to be moved by them, and cooperating cam surfaces between said slide bars and said equalizer to effect swinging of the slide bars and then transverse movement of the equalizer when the cross-head and plunger are advanced.
16. An end lasting mechanism having, in combination, an end embracing band and band end advancing and closing mechanism including cooperating devices one of which is provided with cam faces to effect closing of the band ends and one of which is mounted for self adjustment transversely of the machine to equalize band closing pressure at the two sides of an unsymmetrical last.
17. An end lasting mechanism having, in combination, an end embracing band and band advancing and end closing means including an equalizer which is independent of the means which produces advance movement of the band and which is arranged to insure like closing pressure at the opposite sides of an unsymmetrical last.
18. An end lasting mechanism having, in combination, an end embracing band, means to advance the band ends and to move them inwardly as an incident to the advancing movement, and inward movement controlling means for the two band ends which is automatically movable transversely of the machine to equalize the band closing pressure.
19. An end lasting mechanism having, in combination, an end embracing band, end supporting levers, slide bars to which the levers are pivoted, a cross-head connecting the slide bars, a plunger rigidly fastened to the cross-head to advance the slide bars equally and together, and an equalizer movable transversely of the machine to cause the slide bars to turn to one side or the other for permitting the band to conform to the swing of the last.
20. An end lasting mechanism having, in combination, an end embracing band, slide bars for moving the band ends forwardly and inwardly, and guiding means for the slide bars mounted for movement during the band closing operation to effect different

band closing movement by the bar on one side of the shoe from that effected by the bar on the other side of the shoe for the purpose described.

21. An end lasting mechanism having, in combination, an end embracing band, means for advancing and closing the ends of the band including a transversely movable equalizer for the closing pressure and multiple pin and slot guiding connections for maintaining constant angular position of the equalizer in its movements.

22. An end lasting mechanism having, in combination, an end embracing band having pivoted end supports, slide bars carrying said end supports, and means both to advance and to swing said slide bars to cause the band to embrace the shoe, said means including a member which is automatically movable transversely of the shoe to equalize the band closing pressure at the two sides of the shoe.

23. An end lasting mechanism having, in combination, an end embracing band having pivoted end supports, supporting means for said end supports mounted for movement toward and from said band, and means mounted for self adjustment transversely of the machine to move said supporting means for effecting equal pressure at the two sides of an unsymmetrical last.

24. An end lasting mechanism having, in combination, an end embracing band having end supports and actuating devices for said two supports including equalizing means movable transversely of the machine by wedge action to allow the relative extents of movement of the two end supports to be determined by the shape of the shoe.

25. An end lasting mechanism having, in combination, an end embracing band, pivoted end supports, means to advance said supports, and means also to move said supports with their pivots toward the band, said last mentioned means having provision for permitting movement of opposite end supports together in the same direction transversely of the machine for positioning the band to apply equal pressure at opposite sides of an unsymmetrical shoe.

26. An end lasting mechanism having, in combination, an end embracing band and actuating mechanism to tension forwardly and to close the band ends including a plunger, a cross-head held against angular movement relatively to the plunger, slide bars receiving forward movement from the opposite ends of the cross-head and transmitting such movement to the band ends, and means arranged to close said bars toward the last and to equalize closing pressure against opposite sides of unsymmetrically formed lasts.

27. An end lasting mechanism having, in combination, an end embracing band and actuating mechanism to tension forwardly

and to close the band ends, including a plunger, slide bars, connections permitting lateral movement of the rear ends of the slide bars relatively to the plunger, and means for effecting such lateral movement of the slide bars which is constructed and arranged for self adjustment to equalize band closing pressure at the two sides of the shoe.

28. An end lasting mechanism having, in combination, an end embracing band, endwise and inwardly movable slide bars cooperating with opposite ends of the band, operating means arranged to advance both bars the same distance and a transversely movable equalizer for closing the band with equal pressure against opposite sides of an unsymmetrical last.

29. An end lasting mechanism having, in combination, an end embracing band, bars mounted to slide longitudinally of the machine and cooperating with opposite ends of the band, means to advance said bars equally at the two sides of the machine, and means adapted to effect inward closing of the band ends during said advance and having provision for equalizing the band closing pressure at the two sides of an unsymmetrical last.

30. An end lasting mechanism having, in combination, an end embracing band, means for advancing the band ends longitudinally of the shoe, and additional means movable transversely of the shoe and having its position controlled automatically by the work to effect equal band end closing pressure against the two sides of an unsymmetrical shoe.

31. An end lasting mechanism having, in combination, an end embracing band, and operating means having provision for closing the end portions of the band inwardly against the sides of the shoe after the band has been drawn against the end of the shoe, and an equalizer having a bodily movement transversely of the machine to distribute band end closing pressure equally at opposite sides of an unsymmetrical shoe.

32. A lasting mechanism having, in combination, an end embracing band, slide bars for moving the band ends forwardly and inwardly, a cross-head for moving the slide bars, and a plunger upon which the cross-head is secured against pivotal movement, said machine including an element which is automatically movable transversely of the machine to equalize band end closing pressure upon unsymmetrical lasts.

33. An end lasting mechanism, having in combination, an end embracing band and operating means therefor comprising levers each connected at one end to a band end and having its other end yieldingly secured, slide bars upon which the levers are fulcrumed, a plunger and connections to advance the slide bars, inclines formed on the

slide bars to wedge them inwardly as they are advanced and a transversely movable equalizing yoke carrying abutments for the opposed inclines for the purpose described.

5 34. In a lasting machine the combination with a heel embracing band, of supporting and operating slide bars, bell crank levers mounted thereon and carrying the band substantially as described, inclines on said slide
10 bars, and guiding devices against which said inclines engage and which are connected and movable together transversely of the machine for the purpose stated.

15 35. An end lasting mechanism comprising an end embracing band that is adapted to be

clasped about the end portion of a last, wipers that are adapted to be moved over the last bottom and supports for sustaining the band which are arranged relatively thereto to permit the band to follow the shoe in an upward movement for compressing the overwiped upper between the wipers and the last bottom.

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

MATTHIAS BROCK.

Witnesses:

ARTHUR L. RUSSELL,
HERBERT W. KENWAY.

Correction in Letters Patent No. 1,002,818

It is hereby certified that in Letters Patent No. 1,002,818, granted September 12, 1911, upon the application of Matthias Brock, of Boston, Massachusetts, for an improvement in "Lasting Mechanisms," an error appears in the printed specification requiring correction as follows: In the heading, the words "Application filed March 19, 1910," should read *Original application filed October 16, 1909, Serial No. 522,987. Divided and this application filed March 19, 1910;* 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 10th day of October, A. D., 1911.

[SEAL.]

E. B. MOORE,
Commissioner of Patents.