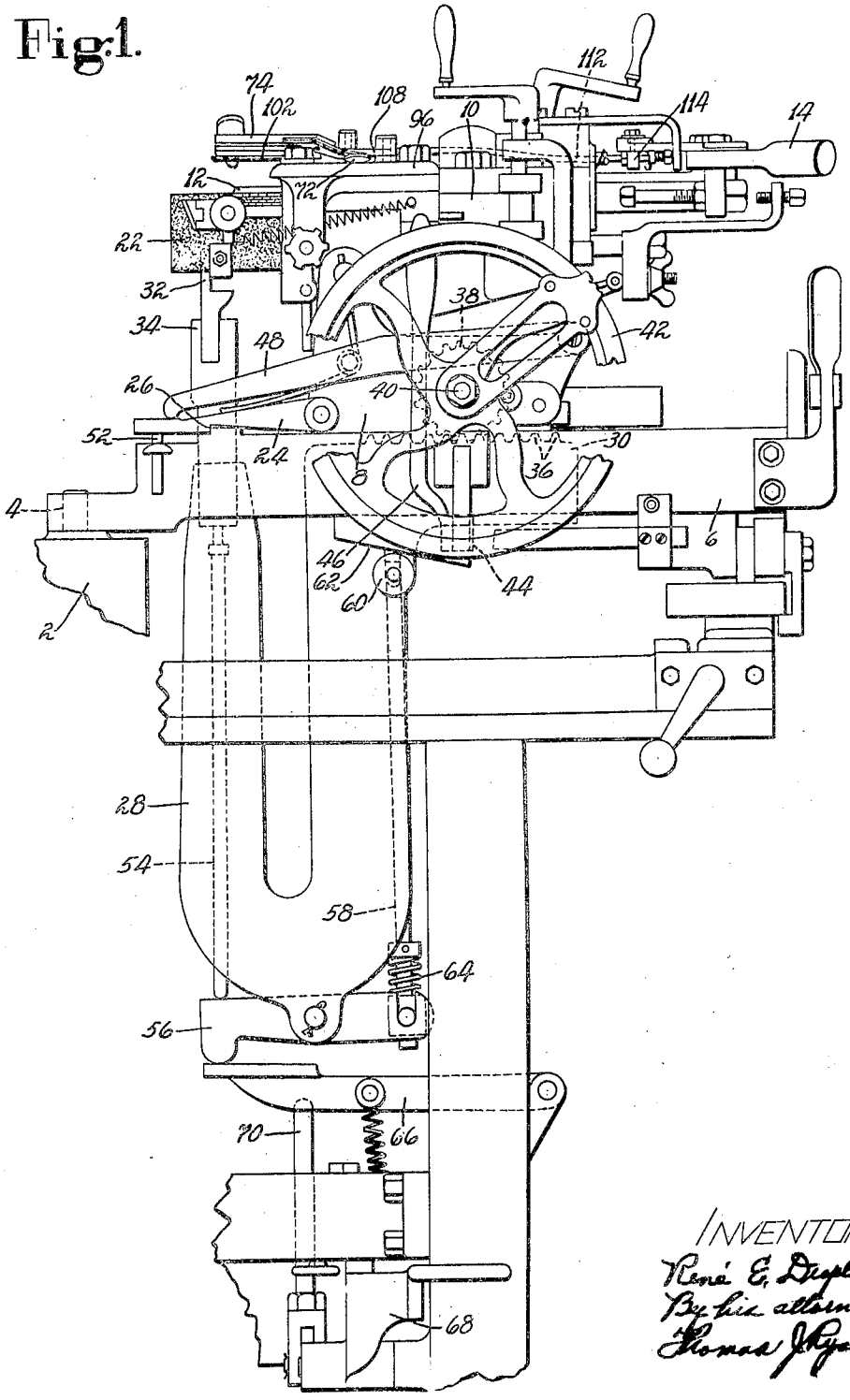
July 27, 1943. R. E. DUPLESSIS 2,325,047

LASTING MACHINE

Filed July 24, 1942 3 Sheets-Sheet 1

Fig. 1.



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LASTING MACHINE

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Fig. 2.

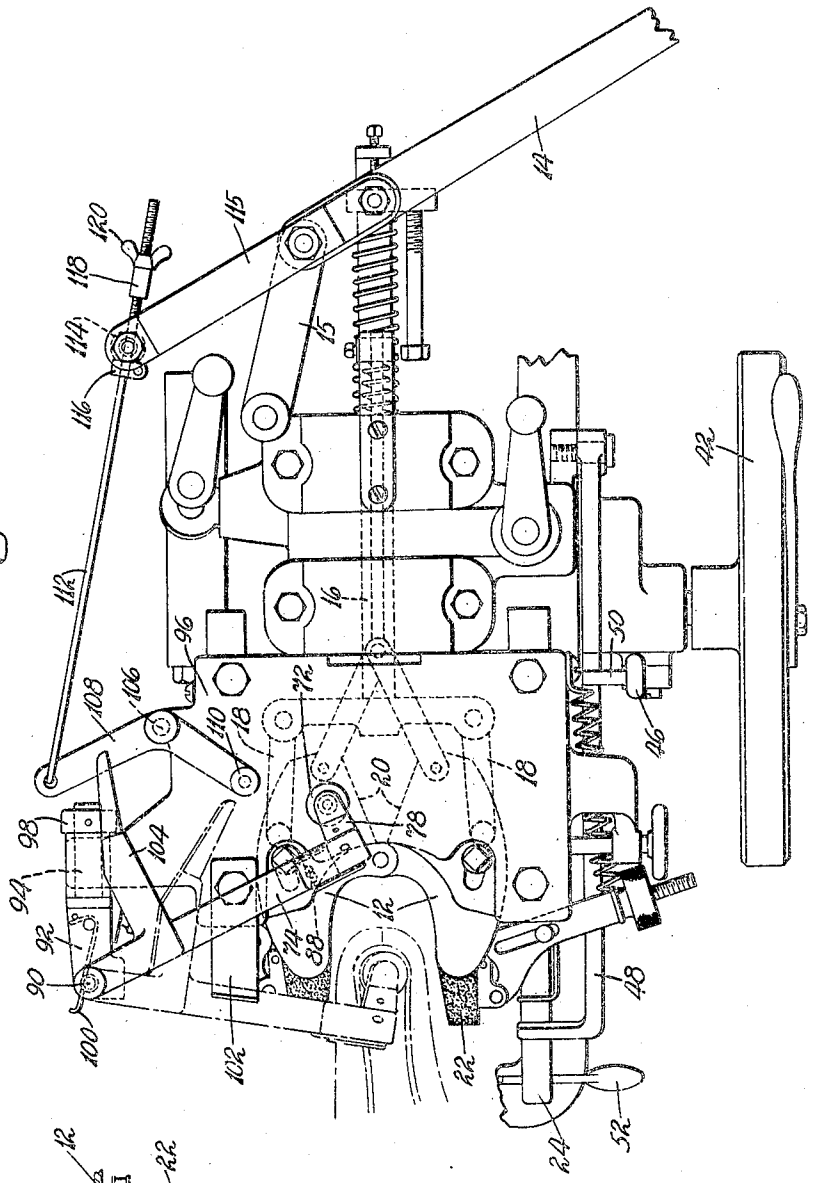
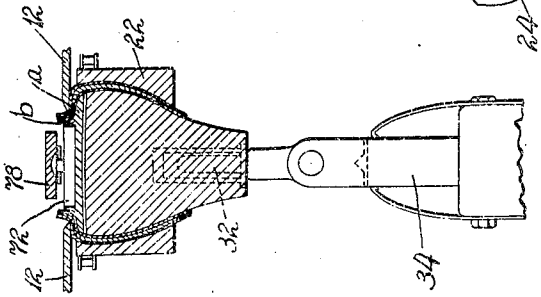


Fig. 3.



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LASTING MACHINE

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Fig. 4.

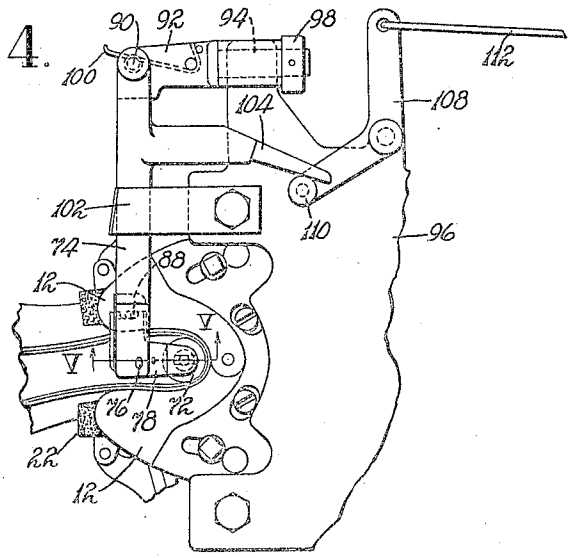
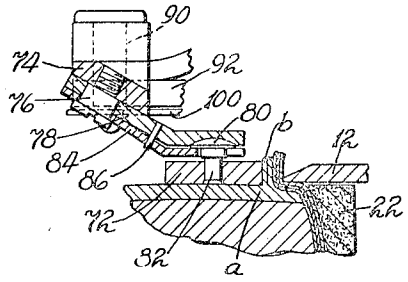


Fig. 5.



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2,325,047

UNITED STATES PATENT OFFICE

2,325,047

LASTING MACHINE

René E. Duplessis, Beverly, Mass., assignor to United Shoe Machinery Corporation, Flemington, N. J., a corporation of New Jersey

Application July 24, 1942, Serial No. 452,126

22 Claims. (Cl. 12—14.2)

This invention relates to lasting machines, and more particularly to machines of the bed type, the invention being herein illustrated, by way of example, as applied to a machine constructed generally as disclosed in United States Letters Patent No. 1,018,477, granted on February 27, 1912, on an application of Matthias Brock's. Such machines are sometimes used for lasting the heel ends of welt shoes of that type in which the insole has a lip or rib (hereinafter referred to as a lip) extending around its heel end as well as along other portions thereof and against which the marginal portion of the upper is lasted by heel wipers; and an object of the invention is to provide improved means for controlling the heel end of such an insole in the lasting operation. In various novel and useful aspects, however, the invention is not limited to the lasting of shoes of that particular type or to the control of the heel ends of insoles as distinguished, for example, from the toe ends.

A more particular object of the invention is to provide insole-controlling means so constructed and arranged as to adapt it to be readily applied to a shoe by the operator in the use of the machine, and also such as not to interfere objectionably with the operator's view of the shoe or with operations which he is required to perform, especially in lasting comparatively small shoes. With this and other objects in view, the construction herein shown comprises a heel-end holddown supported on an arm which is mounted for swinging movements lengthwise and heightwise of the shoe respectively about different axes located at the rear of the shoe with reference to the operator's working position at the front of the machine, the shoe being mounted bottom upward on the usual shoe support or jack. Initially, as herein shown, the arm and holddown are arranged to be supported on top of a wiper head with which a machine of the illustrated type is provided beyond the heel end of the shoe for supporting the heel wipers, and from that position the operator may readily swing the arm lengthwise and heightwise of the shoe to apply the holddown to the heel end of the insole. The holddown is preferably so applied prior to the customary movement of the shoe support by the operator to carry the shoe lengthwise into position to be clamped about its heel end by a heel band associated with the heel wipers, and as the shoe is thus moved by the shoe support the holddown moves with it, as permitted by reverse swinging movement of its supporting arm, the operator holding it by one hand in position on the heel end of the insole.

To cause the holddown to apply effective downward pressure to the insole in the lasting operation, the invention further provides means into operative relation to which the holddown support is movable in a direction lengthwise of the shoe for controlling it thereafter with respect to movement heightwise of the shoe. More particularly, as herein illustrated, there is mounted on the heel wiper head a controlling member under which the holddown-supporting arm is introduced by reverse swinging movement thereof lengthwise of the shoe after its movement to carry the holddown from idle position to a position over the insole. This member accordingly maintains the holddown in insole-engaging position. In the construction shown, however, it is resiliently flexible to permit it to yield somewhat in response to upward pressure of the shoe against the holddown, so that the holddown will not prevent any shoe from being moved upward to such a position as to obtain the best results from the action of the heel wipers on the upper.

In a further aspect the invention has more particularly in view the proper control of the lip of a welt shoe insole in the lasting operation. In the construction herein shown the above-mentioned holddown is arranged to serve as a support for the lip at its inner side against the inwardly directed pressure of the heel wipers, so as to render the wipers more effective to shape the upper as required in the angle between the lip and the feather of the insole without distorting the lip; and to insure that the holddown will be properly positioned against the lip and will cooperate most effectively with the wipers for the purpose in view, the invention provides novel means for imparting to the holddown an outward movement toward the lip and toward the edges of the wipers. In the construction herein shown a hand lever provided as usual for operating the heel wipers serves also to impart such an outward movement to the holddown through mechanism which provides for lost motion so that the hand lever is ineffective thus to operate the holddown until the wipers have nearly completed their inward wiping movements.

The above and other features of the invention, including various novel details of construction and combinations of parts, will now be more particularly described with reference to the accompanying drawings and thereafter pointed out in the claims.

In the drawings,

Fig. 1 is a view in front elevation of the right-

hand portion of a machine in which the invention is embodied;

Fig. 2 is a plan view of that portion of the machine;

Fig. 3 is mainly a vertical sectional view widthwise of the shoe, showing parts located adjacent to the heel end of the shoe as they are positioned at the end of the inward wiping movements of the heel wipers;

Fig. 4 is a plan view of a portion of the structure shown in Fig. 2, with the parts positioned as they are in Fig. 3; and

Fig. 5 is a vertical sectional view, on an enlarged scale, on the line V—V of Fig. 4.

In view of the disclosure in the above-mentioned and other United States Letters Patent of the general organization of machines of the well-known type illustrated, only such parts of the machine as it is necessary to refer to for an understanding of the invention will be herein described in detail. Supported on the frame 2 for rearward and forward swinging movements about a pin 4 to different positions for lasting right and left shoes, respectively, is a yoke 6, and mounted on this yoke for movements in directions lengthwise of the shoe is a heel head carriage 8. Adjustably supported on this carriage is a heel wiper head 10 provided with heel-embracing wipers 12 which are advanced and closed by a hand lever 14 fulcrumed on a link 15 on the head to wipe the marginal portion of the heel end of shoe upper materials inwardly over the margin of an insole *a* and, in operating on a shoe of the type having a lip extending around the heel end of the insole, to press the materials inwardly against the lip *b*. The hand lever operates the wipers in this manner through a rod 16 connected by links 18 to wiper holders 20 on which the wipers are mounted. Also supported on the head 10 is a heel band 22 which is closed about the heel end of the shoe by means not shown in detail. The heel head carriage 8 occupies initially a position farther to the right than shown in Fig. 1, and it is moved by hand from that position to the position in which it is shown in that figure before a shoe is presented to the machine. The carriage is then held against reverse movement by a latch 24 pivoted thereon and engaging a shoulder 26 on the yoke 6. Mounted on the carriage 8 for movements in directions lengthwise of the shoe is a U-shaped shoe support or jack 28 the right-hand arm of which has a horizontal portion 30 guided on the carriage. The left-hand arm of the jack carries a last pin 32 arranged to enter the usual spindle hole in the heel end of the last and supported by a holder 34 vertically movable in the arm. The horizontal portion 30 of the jack is provided with rack teeth 36 engaged by a pinion 38 fast on a shaft 40 mounted in bearings in the carriage 8 and having a hand wheel 42 thereon for turning it. By this hand wheel the operator moves the jack toward the right to force the heel end of the shoe against the heel band 22 after the carriage 8 has been moved toward the left as above described and after the shoe and last have been mounted on the last pin 32. The jack is held against reverse movement by a pivoted spring-controlled latch 44 arranged to engage ratchet teeth (not shown) on the hand wheel 42. The latch is connected to the lower arm of an upwardly extending lever 46 fulcrumed on the carriage 8, and the upper arm of this lever is arranged to be controlled by a substantially horizontal lever 48 pivotally mounted at its right-hand end on the carriage 8. When the lever 48 is swung upwardly it acts on a cam lug 50 (Fig. 2) formed on the lever 46 to cause the latch 44 to release the hand wheel 42 and thus to permit return movement of the jack 28 toward the left by a spring (not shown). Such upward movement of the lever 48 is effected by upward movement of the latch 24, on which the left-hand end of the lever rests, when the latch 24 is lifted to release the carriage 8 by a member 52 after the lasting operation.

In the above-described movement of the jack 28 by the hand wheel 42 the last pin 32 and its holder 34 may be forced upward yieldingly by mechanism provided for that purpose, to insure that the shoe will be firmly engaged by the upper portions of the heel band which curve inwardly toward the edge of the heel seat. This mechanism includes a rod 54 vertically movable in the left-hand arm of the jack 28 and supporting at its upper end the last pin holder 34, a lever 56 pivotally mounted between its ends on the lower portion of the jack and on one arm of which the rod 54 rests, and a second rod 58 extending upwardly from the other arm of the lever 56. The rod 58 is guided by the right-hand arm of the jack and is provided at its upper end with a roll 60 arranged to be engaged by an inclined cam face 62 on the yoke 6 to move the rod 58 downwardly and thus to impart upward movement to the rod 54 and the last pin 32 as the jack is moved to carry the shoe toward the heel band. In this operation the rod 58 acts yieldingly on the lever 56 through a spring 64. Associated also with the lever 56 is mechanism whereby the operator may raise the last pin and the shoe more or less prior to or in the course of the movement of the jack by the hand wheel 42, and may also thereafter force the shoe farther upward to increase the pressure of the heel wipers thereon. This mechanism comprises an arm 66 pivotally mounted at its right-hand end and arranged to underlie and engage the left-hand end of the lever 56, and a treadle lever 68 arranged to act through a rod 70 to impart upward swinging movement to the arm 66 and thereby to raise the shoe as described. Pawl-and-ratchet mechanism (not shown) is provided for locking the treadle lever 68 against reverse movement.

As thus far described, the construction of the machine herein shown is substantially like that of prior machines of the illustrated type, as disclosed generally in the previously mentioned Letters Patent and more particularly in certain respects in Letters Patent No. 1,404,188, granted on January 24, 1922 on an application of Matthias Brock's.

For purposes of this invention the machine is provided with a member 72, hereinafter commonly referred to as a holddown, arranged to engage the heel end of the insole and to hold it properly in place on the last as the upper is wiped inwardly over it by the wipers. In the construction shown the holddown is of circular shape and is of such diameter that its periphery conforms substantially to the contour of the lip of the insole around the extreme heel end of the shoe, a further function of the holddown being to support the lip against the inwardly directed pressure of the wipers as they press the margin of the upper against the lip. The holddown 72 is supported by an arm 74 arranged to extend rearwardly from the shoe widthwise thereof and supported at its rear end

as hereinafter described. The front end portion of the arm 74 is inclined laterally, as illustrated in Fig. 5, and has threaded therein a screw 76 which serves as a pivotal support for a substantially L-shaped member 78. One arm of this member has a substantially horizontal end portion, as shown in Fig. 5, provided with a concave recess to receive the convex head 80 of a stud 82 secured to and extending upwardly from the holddown 72. Also mounted on the screw 76 below the member 78 is a resiliently flexible plate 84 having a forked end which partially embraces the stud 82 below the head 80 and thereby serves to support the holddown on the member 78. A pin 86 fast in this member extends into an opening in the plate 84 to prevent the plate from turning about the screw 76 relatively to the member 78. The holddown 72 may be readily detached from the member 78 by springing the plate 84 downwardly far enough to release the head of the stud 82 in order to permit a holddown of a different size to be substituted. It will be evident that the member 78 and the plate 84 may swing as a unit about the screw 76, which assists in properly positioning the holddown widthwise of the shoe, such swinging movement, however, being limited, when the holddown is idle, by a pin 88 (Fig. 4) which is mounted in the arm 74 and extends into a slot formed in one end of the L-shaped member 78.

The arm 74 is pivotally mounted at its rear end to swing in directions lengthwise of the shoe about a pin 90 supported in a horizontal bar 92 a portion of which is formed as a stud 94 rotatable in a bearing formed on the rear of a cover plate 96 which serves as a part of the heel wiper head 10. Fast on this stud at one end of the bearing is a collar 98. A small torsion spring 100 on the bar 92 lies in a recess in the pin 90 to hold the pin in place. It will thus be seen that the arm 74 supporting the holddown 72 is mounted for swinging movements lengthwise and heightwise of the shoe, respectively, about different axes located at the rear of the shoe. Initially the holddown may rest, for example, on the cover plate 96, as illustrated in Fig. 2, the holddown and its supporting arm 74 being well out of the way of the operator in presenting a shoe to the machine. After mounting a shoe on the last pin 32 the operator swings the arm 74 lengthwise of the shoe and downwardly to carry the holddown to a position over and in engagement with the heel end of the insole, as illustrated by broken lines in Fig. 2. Thereafter he maintains the holddown with one hand in engagement with the heel end of the insole as he moves the jack by the hand wheel 42 to carry the shoe lengthwise into engagement with the heel band 22, the arm 74 swinging about the pin 90 to permit the holddown thus to accompany the shoe.

To cause the holddown to apply effective downward pressure to the insole there is fast on the cover plate 96 a plate 102 arranged to overlie and to engage the arm 74. This plate is at such a height as to act effectively on the arm when the shoe is at the proper height for the heel-lasting operation. It is, moreover, resiliently flexible in directions heightwise of the shoe to allow for variations in the positions of different shoes and to permit each shoe to be forced upwardly far enough to render the heel wipers satisfactorily effective thereon. The arm 74 is introduced under the plate 102 by reverse swinging movement thereof in a direction lengthwise of the shoe after it has been swung to carry the holddown from its idle position to a position over the bottom of the shoe. The arm may thus be partially introduced under the plate as the operator positions the holddown in proper relation to the heel end of the insole, as illustrated in Fig. 2, and it is swung farther inwardly under the plate as the holddown moves with the shoe when the hand wheel 42 is operated to move the shoe into engagement with the heel band.

When the operator positions the holddown 72 on the heel end of the insole, as above described, he preferably engages it with the inner side of that portion of the lip of the insole which extends around the extreme end thereof. In order to insure that the holddown will firmly engage and support that portion of the lip in the lasting operation, so that the wipers will be effective to shape the upper properly in the angle between the feather of the insole and the lip without distorting the lip, the machine is further provided with means for forcing the holddown lengthwise of the shoe toward the lip and the edges of the wipers near the end of the inward wiping movements of the wipers. For this purpose an arm 104 extends rigidly from the arm 74 substantially at right angles to the latter, and pivotally mounted at 106 on the cover plate 96 is a bell-crank lever 108 having on one arm thereof a roll 110 arranged to engage the arm 104 and thereby to impart swinging movement toward the right to the arm 74. Pivotally connected to the other arm of the bell-crank lever 108 is a rod 112 which extends loosely through a block 114 pivotally mounted on the rear end of an extension 115 of the wiper-operating lever 14. A collar 116 fast on the rod 112 is engaged by the block 114 to position the bell-crank lever 108 as shown in Fig. 2 when the heel wipers 12 are in their idle retracted positions. On the other side of the block 114 is a spacing collar 118 freely movable on the rod 112 and controlled by a wing nut 120 threaded on the rod. The wing nut is spaced far enough from the block 114 to provide for lost motion between the rod 112 and the hand lever 14 in the operation of the wipers, and there is further provision for lost motion between the bell-crank lever 108 and the arm 104 before this arm is engaged by the roll 110. Accordingly, the hand lever 14 does not become effective to force the holddown 72 toward the lip of the insole until near the end of the inward wiping movements of the wipers when the wipers are in positions to press the upstanding margin of the upper inwardly against the lip.

The manner of operation of the machine, with special reference to the parts provided by the present invention, will now be briefly summarized. Preparatory to the lasting operation the operator mounts a shoe on the last pin 32 and moves the carriage 8 toward the left to the position in which it is held by the latch 24. He then swings the holddown-supporting arm 74 toward the left far enough to clear the plate 102, swings it downwardly toward the shoe to carry the holddown 72 into engagement with the insole, and then swings it reversely lengthwise of the shoe to engage the holddown with the lip at the end of the insole, as illustrated by broken lines in Fig. 2. By such reverse swinging movement the arm 74 is partially introduced under the plate 102. By turning the hand wheel 42 the operator thereafter moves the jack 28 towards the right to carry the shoe lengthwise into engagement with the heel

band 22. During this movement of the shoe the operator, by one hand, maintains the holddown in engagement with the heel end of the insole, so that the holddown accompanies the shoe in its movement, the arm 74 swinging farther inwardly under the plate 102. Prior to or in the course of the movement of the jack by the hand wheel 42 the operator raises the shoe more or less by depression of the treadle 68, and near the end of the movement of the jack the shoe may be forced farther upward yieldingly by the action of the cam face 62 on the roll 60, as hereinbefore described. When the shoe has thus been raised to the proper height for the heel-lasting operation the plate 102 is effective on the arm 74 to cause the holddown to apply adequate downward pressure to the heel end of the insole, the resilient plate being usually sprung somewhat in an upward direction at this time by the pressure of the arm 74 thereon. By the operation of the usual power means the shoe is thereafter forced more firmly against the heel band and the band is closed about the heel end of the shoe. Machines of the illustrated type are provided with toe-lasting means, and the operator may, if desired, last the toe end of the shoe before lasting the heel end. It is often the practice, however, in operating on shoes of the kind herein shown to last the heel end first and to leave the heel wipers in pressure-applying relation to the upper while lasting the toe end. In lasting the heel end the operator advances and closes the wipers 12 by the hand lever 14 to wipe the marginal portion of the upper materials inwardly over the feather of the inside and to press them against the lip of the insole. Near the end of the advancing and closing movements of the wipers the hand lever 14 becomes effective through the rod 112 and the bell-crank lever 108 to force the arm 74 and the holddown 72 still farther toward the right, thus insuring that the holddown will properly support the lip of the insole against the pressure of the wipers and that the wipers will shape the upper properly in the angle between the feather and the lip without distorting the lip. The heel end of the upper may be most conveniently secured in lasted relation to the lip of the insole by applying a binder wire to that end of the shoe after removal of the shoe from the lasting machine, and this practice may be followed with very satisfactory results when the upper is shaped between the wipers and the holddown in the manner above described. After the shoe has been lasted the operator withdraws the heel wipers and by actuation of the usual power means causes the lifting of the latch 24 and the lever 48 to release the carriage 8 and the jack 28 which then return to their starting positions. The operator thereafter swings the arm 74 from under the plate 102 and returns the arm and the holddown to their initial positions with the holddown resting on the top of the cover plate 96.

Having described the invention, what I claim as new and desire to secure by Letters Patent of the United States is:

1. In a lasting machine, the combination with means for supporting a shoe bottom upward with one side thereof toward the operator and the other side facing rearwardly, and means for lasting the marginal portion of an end of the upper inwardly over an insole, of a holddown for engaging the insole at that end of the shoe, said holddown being supported for swinging movements lengthwise and heightwise of the shoe respectively about different axes located at the rear of the shoe.

2. In a lasting machine, the combination with means for supporting a shoe bottom upward with one side thereof toward the operator and the other side facing rearwardly, and means for lasting the marginal portion of an end of the upper inwardly over an insole, of a holddown for engaging the insole at that end of the shoe, an arm supporting said holddown and mounted for swinging movement lengthwise of the shoe about an axis located at the rear of the shoe to carry the holddown from an idle position to a position over the bottom of the shoe, and means supporting said arm for swinging movement heightwise of the shoe about another axis also located at the rear of the shoe.

3. In a lasting machine, the combination with means for supporting a shoe bottom upward with one side thereof toward the operator and the other side facing rearwardly, wipers for wiping the marginal portion of an end of the upper inwardly over an insole, and a wiper head located beyond the end of the shoe for supporting said wipers, of a holddown for engaging the insole at that end of the shoe, said holddown being supported for swinging movement about an axis extending heightwise of the shoe at the rear thereof from an idle position over said wiper head to a position over the bottom of the shoe.

4. In a lasting machine, the combination with means for supporting a shoe bottom upward, wipers for wiping the marginal portion of an end of the upper inwardly over an insole, and a wiper head located beyond the end of the shoe for supporting said wipers, of a holddown for engaging the insole at that end of the shoe, and an arm supporting said holddown, said arm being mounted for swinging movements lengthwise and heightwise of the shoe respectively about different axes from a position over said wiper head to a position for engaging the holddown with the insole.

5. In a lasting machine, the combination with means for supporting a shoe bottom upward, wipers for wiping the marginal portion of an end of the upper inwardly over an insole, and a wiper head located beyond the end of the shoe for supporting said wipers, of a holddown for engaging the insole at that end of the shoe, and an arm arranged to extend widthwise of the shoe for supporting said holddown, the holddown being arranged to rest initially on said wiper head and the arm being mounted for swinging movements lengthwise and heightwise of the shoe respectively about different axes to carry the holddown to a position over the bottom of the shoe and into engagement therewith.

6. In a lasting machine, the combination with means for supporting a shoe, and means for lasting the marginal portion of an end of the upper inwardly over an insole, of a holddown for engaging the insole at that end of the shoe, a support for said holddown mounted for swinging movement lengthwise of the shoe about an axis extending heightwise of the shoe, said support being also movable in directions heightwise of the shoe, and a member into operative relation to which said support is thus movable lengthwise of the shoe for controlling it with respect to movement heightwise of the shoe and for thereby maintaining the holddown in position to press on the insole.

7. In a lasting machine, the combination with means for supporting a shoe, and means for

lasting the marginal portion of an end of the upper inwardly over an insole, of a holddown for engaging the insole at that end of the shoe, a support for said holddown movable in directions lengthwise of the shoe and also in directions heightwise of the shoe, and a member into operative relation to which said support is thus movable lengthwise of the shoe for controlling it with respect to movement heightwise of the shoe, said member being arranged to maintain the holddown in insole-engaging position but being yieldable heightwise of the shoe in response to pressure of the shoe on the holddown.

8. In a lasting machine, the combination with means for supporting a shoe bottom upward, and means for lasting the marginal portion of an end of the upper inwardly over an insole, of a holddown for engaging the insole at that end of the shoe, an arm supporting said holddown and mounted for swinging movement lengthwise of the shoe about an axis extending heightwise of the shoe, said arm being movable also in directions heightwise of the shoe, and a member under which said arm is introduced by swinging movement thereof lengthwise of the shoe for thereafter controlling it with respect to movement heightwise of the shoe and for thereby maintaining the holddown in pressure-applying relation to the insole.

9. In a lasting machine, the combination with means for supporting a shoe bottom upward, wipers for wiping the marginal portion of an end of the upper inwardly over an insole, and a wiper head located beyond the end of the shoe for supporting said wipers, of a holddown for engaging the insole at that end of the shoe, an arm supporting said holddown and mounted for swinging movement lengthwise of the shoe about an axis extending heightwise of the shoe, said arm being movable also in directions heightwise of the shoe, and a resiliently flexible member fastened to said wiper head and under which said arm is introduced by movement thereof lengthwise of the shoe for controlling it thereafter with respect to movement heightwise of the shoe.

10. In a lasting machine, the combination with means for supporting a shoe, and means for lasting the marginal portion of an end of the upper inwardly over an insole, of a holddown for engaging the insole at that end of the shoe, a support for said holddown mounted for swinging movement lengthwise of the shoe about an axis extending heightwise of the shoe to carry the holddown from an idle position to a position over the bottom of the shoe and for reverse swinging movement thereafter to carry the holddown into position to control the end of the insole in the lasting operation, said support being also movable in directions heightwise of the shoe, and a member into operative relation to which said support is thus reversely movable lengthwise of the shoe for controlling it thereafter with respect to movement heightwise of the shoe and for thereby maintaining the holddown in position to press on the insole.

11. In a lasting machine, the combination with means for supporting a shoe bottom upward, wipers for wiping the marginal portion of an end of the upper inwardly over an insole, and a wiper head located beyond the end of the shoe for supporting said wipers, of a holddown for engaging the insole at that end of the shoe, an arm supporting said holddown and mounted for swinging movements lengthwise of the shoe about an axis extending heightwise of the shoe, the arm being thus movable in one direction from a position over said wiper head to carry the holddown to a position over the bottom of the shoe and being reversely movable thereafter to carry the holddown into position to control the end of the insole during the action of the wipers on the upper, the arm being movable also in directions heightwise of the shoe, and a member mounted on said wiper head and under which said arm is introduced by such reverse movement thereof lengthwise of the shoe for controlling it thereafter with respect to movement heightwise of the shoe.

12. In a lasting machine, the combination with wipers for wiping the marginal portion of the heel end of an upper inwardly over an insole, a heel band for embracing and clamping the upper around the heel end of the shoe, and a shoe support movable to carry the shoe lengthwise toward said heel band, of a holddown for engaging the heel end of the insole, said holddown being supported for movement into engagement with the heel end of the insole prior to the movement of the shoe support to carry the shoe toward the heel band and for movement thereafter with the shoe as the shoe is carried lengthwise toward the heel band.

13. In a lasting machine, the combination with wipers for wiping the marginal portion of the heel end of an upper inwardly over an insole, a heel band for embracing and clamping the upper around the heel end of the shoe, and a shoe support movable to carry the shoe lengthwise toward said heel band, of a holddown for engaging the heel end of the insole, said holddown being supported for movements lengthwise and heightwise of the shoe into engagement with the heel end of the insole prior to the movement of the shoe support to carry the shoe toward the heel band and for reverse movement thereafter in a direction lengthwise of the shoe to accompany the shoe in its movement toward the heel band.

14. In a lasting machine, the combination with wipers for wiping the marginal portion of the heel end of an upper inwardly over an insole, a heel band for embracing and clamping the upper around the heel end of the shoe, and a shoe support movable to carry the shoe lengthwise toward said heel band, of a holddown for engaging the heel end of the insole, an arm supporting said holddown and mounted for swinging movements lengthwise and heightwise of the shoe respectively about different axes, the arm being thus movable lengthwise and heightwise of the shoe to carry the holddown to a position over the heel end of the shoe and into engagement with the insole prior to the movement of the shoe support to carry the shoe toward the heel band and being reversely movable thereafter in a direction lengthwise of the shoe to permit the holddown to accompany the shoe in its movement toward the heel band.

15. In a lasting machine, the combination with means for lasting the marginal portion of an upper inwardly over an insole and against a lip on the insole, of a device for supporting the lip at its inner side against the inwardly directed pressure of said lasting means, and mechanism including an operating member common to said lasting means and said lip-supporting device for moving them respectively in opposite directions toward each other in the lasting of the upper over the insole.

16. In a lasting machine, the combination with means for lasting the marginal portion of an upper inwardly over an insole and against a lip

on the insole, of a device for supporting the lip at its inner side against the inwardly directed pressure of said lasting means, an operating member for imparting inward movement to said lasting means, and mechanism arranged to be operated by said member to impart to said lip-supporting device movement in an outward direction toward said lasting means only after the lasting means has received a portion of its inward movement to last the upper over the insole.

17. In a lasting machine, the combination with wipers movable to wipe the marginal portion of an end of an upper inwardly over an insole and to press it against a lip on the insole, and a member movable thus to operate the wipers, of a device for supporting the lip at its inner side against the inwardly directed pressure of the wipers, and mechanism arranged to be operated by said member to impart to said lip-supporting device movement outwardly toward the wipers in the course of the inward movements of the wipers.

13. In a lasting machine, the combination with wipers movable to wipe the marginal portion of an end of an upper inwardly over an insole and to press it against a lip on the insole, and a member movable thus to operate the wipers, of a device for supporting the lip at its inner side against the inwardly directed pressure of the wipers, and mechanism including lost-motion means for imparting to said lip-supporting device by said wiper-operating member movement outwardly toward the wipers only after the wipers have received a portion of their inward wiping movements.

19. In a lasting machine, the combination with wipers movable to wipe the marginal portion of an end of an upper inwardly over an insole and to press it against a lip on the insole, and a hand lever for thus operating the wipers, of a device for supporting the lip at its inner side against the inwardly directed pressure of the wipers, and means for forcing said lip-supporting device lengthwise of the shoe toward the lip by the movement of said hand lever.

20. In a lasting machine, the combination with wipers movable to wipe the marginal portion of an end of an upper inwardly over an insole and to press it against a lip on the insole, and a hand lever for thus operating the wipers, of a device for supporting the lip at its inner side against the inwardly directed pressure of the wipers, and mechanism arranged to be operated by said hand lever to force said lip-supporting device lengthwise of the shoe toward the lip, said mechanism including lost-motion means to render the hand lever ineffective thus to operate said device until the wipers have nearly completed their inward wiping movements.

21. In a lasting machine, the combination with wipers movable to wipe the marginal portion of an end of an upper inwardly over an insole and to press it against a lip on the insole, and a hand lever for thus operating the wipers, of a device for supporting the lip at its inner side against the inwardly directed pressure of the wipers, an arm supporting said device and mounted for swinging movements in directions lengthwise of the shoe, a member for swinging said arm in the direction to force said device toward the lip at the end of the insole, and means for operating said member by the wiper-operating movement of said hand lever.

22. In a lasting machine, the combination with wipers movable to wipe the marginal portion of an end of an upper inwardly over an insole and to press it against a lip on the insole, and a hand lever for thus operating the wipers, of a device for supporting the lip at its inner side against the inwardly directed pressure of the wipers, an arm supporting said device and mounted for swinging movements in directions lengthwise of the shoe, a bell-crank lever arranged to act on said arm to force said device lengthwise of the shoe toward the lip at the end of the insole, and a connection for thus operating said bell-crank lever by the wiper-operating movement of said hand lever.

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