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W. T. B. ROBERTS

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LASTING MACHINE

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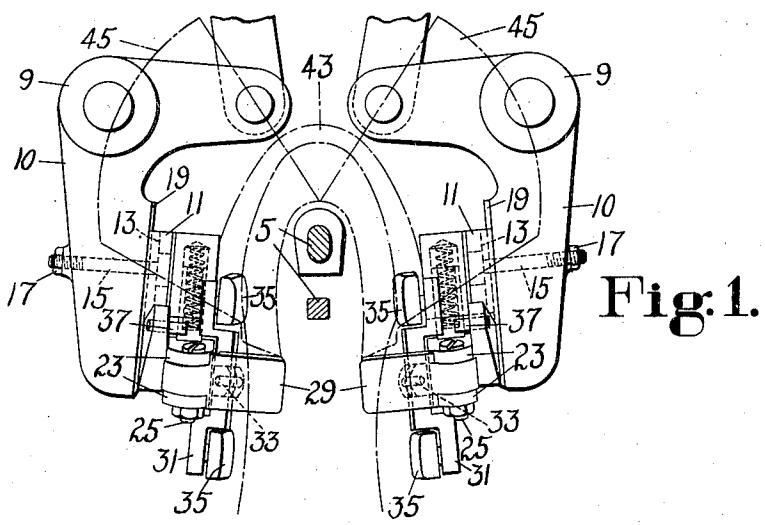


Fig. 1.

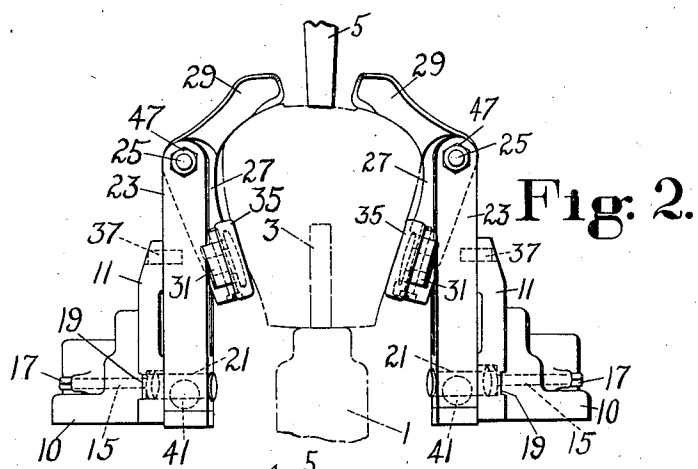


Fig. 2.

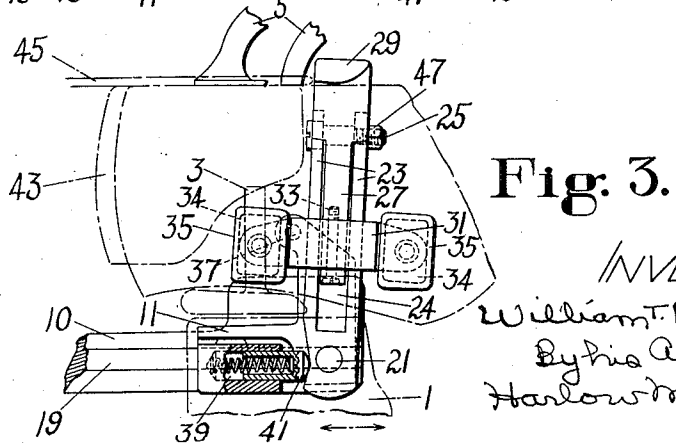


Fig. 3.

INVENTOR
William T. B. Roberts
By his Attorney,
Harlow M. Davis

UNITED STATES PATENT OFFICE

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LASTING MACHINE

William Thomas Buckingham Roberts, Leicester, England, assignor to United Shoe Machinery Corporation, Paterson, N. J., a corporation of New Jersey

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22 Claims. (Cl. 12—4)

This invention relates to lasting machines and more particularly to machines for lasting the heel ends of shoes. The invention is herein illustrated as embodied in means intended to form part of a machine of the type disclosed in United States Letters Patent No. 1,949,539, granted on March 6, 1934 upon an application of Joseph Gouldbourn, Fred Ricks and William T. B. Roberts, but it is to be understood that it is not limited to machines of that particular type.

Heel-end-lasting machines are commonly provided with heel-lasting wipers for wiping the marginal portion of the heel end of an upper on a last inwardly over an insole or other shoe bottom part (hereinafter referred to generically as the sole) and with a heel-end-clamping device or heel band for clamping the upper materials about the heel end of the last prior to the operation of the wipers on the upper. If the heel-end-lasting operation is performed, as it sometimes is, before the sides of the shoe forwardly of the heel end have been lasted, or under some conditions even if the lasting of the heel end follows the lasting of the sides, the heel band and wipers in their operation on the shoe may displace portions of the upper in such manner as to produce undesirable wrinkles or ears of loose upper material immediately in front of the heel-end portion of the shoe, unless special precautions are taken to avoid this result as by driving tacks to fasten the opposite side margins of the upper materials near the forward end of the heel seat in proper positions prior to the heel-end-lasting operation.

An object of the present invention is to provide in a heel-end-lasting machine improved means for controlling the upper materials in such manner as to avoid the above-mentioned objectionable conditions without the necessity for preliminarily fastening portions of the upper by tacks. To this and other ends, the construction herein shown comprises, in a machine having a work support movable to present a last and shoe to the lasting mechanism, novel means mounted independently of the work support and movable automatically into position to hold the upper materials in proper relation to the last and to a sole on the last in locations adjacent to the opposite side edges of the shoe bottom approximately at the forward end of the heel portion of the shoe prior to any substantial clamping action of the clamping means or heel band on the opposite sides of the heel end of the upper. As illustrated, this upper-controlling means comprises members which are movable widthwise of the shoe at its opposite sides and under some

conditions act to lay the marginal portions of the upper materials inwardly over the sole as well as to press them upon the sole in the above-mentioned locations, these members being supported on arms which operate them by swinging movements about axes extending heightwise of the shoe. To insure against the formation of any ears of loose upper material between these upper-controlling members and the heel-lasting wipers, these members, in accordance with a further feature of the invention, are so arranged that they engage portions of the upper thereafter engaged by the wipers in the wiping operation and are moved lengthwise of the shoe by the action of the wipers thereon. In accordance with still another feature of the invention, there are combined with the above-mentioned upper-controlling members, in the construction herein shown, other members which clamp the upper at the sides of the last in locations spaced substantial distances heightwise of the last from the edge of the shoe bottom and assist in supporting the last and shoe against tipping movements in the lasting operation. As illustrated, each of these other members has means thereon for clamping the upper in locations spaced apart lengthwise of the last and is itself arranged in fixed angular relation to the member associated therewith for controlling the upper at the edge of the shoe bottom as above described, both these members being mounted to swing as a unit about an axis extending lengthwise of the shoe to permit them to adjust themselves to the shoe.

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

In the drawing,

Fig. 1 is a plan view of a portion of a machine in which the invention is embodied:

Fig. 2 is a view in front elevation of the parts shown in Fig. 1; and

Fig. 3 is a view mainly in left-hand side elevation of parts shown in Fig. 1 at the right-hand side of the shoe.

Since the invention is herein illustrated as embodied in structure intended to form part of a machine of the same general type as disclosed in the above-mentioned Letters Patent, only such parts of the machine as it is necessary to refer to for an understanding of the invention are herein shown and will be particu-

larly described. The machine is provided with a shoe-supporting jack 1 provided on its upper end with a last pin 3 to receive a last and shoe positioned bottom upward for the operation of the machine thereon. As is common in machines of the illustrated type, this jack is supported, by means not herein shown, for forward and rearward swinging movements, as indicated by arrows on Fig. 3, so as to receive the shoe in an idle forwardly inclined position and to carry the shoe rearwardly to present it to the lasting mechanism. The jack is thus swung rearwardly by the operator and is then lifted by a treadle (not shown) until the heel end of the sole on the last comes into contact with hold-down members 5 which serve to position the shoe at the correct height for heel-lasting wipers, hereinafter more particularly referred to, to wipe the margin of the upper around the heel end inwardly over the sole and press it upon the sole.

In the construction herein shown there are provided a pair of bell-crank levers 9 (Fig. 1) which are supported and operated in substantially the same manner and by substantially the same means as the shoe-supporting bell-crank levers 198 disclosed in the above-mentioned Letters Patent. Instead, however, of serving only to assist in supporting the shoe and last against longitudinal and lateral tipping movements and against downward movement in the lasting operation, as in the construction shown in the above-mentioned Letters Patent, the bell-crank levers 9 herein shown carry members which are arranged to lay the marginal portions of the upper materials inwardly over the sole, if the materials have not already been laid inwardly, and to press them upon the sole in locations adjacent to the opposite side edges of the shoe bottom at or near the forward end of the heel seat. For this purpose each bell-crank lever 9 has adjustably fixed to its forwardly extending arm 10 a small bracket 11 which has therein a T-shaped groove 13 (Fig. 1) extending horizontally along the arm, and within this groove lies the head of a bolt 15 which extends through the arm and has a nut 17 thereon to clamp the bracket 11 in fixed position on the arm. After loosening the nut 17 the bracket 11 may, if necessary, be adjusted along the arm 10 for shoes of different sizes by sliding it relatively to the head of the bolt 15. Further to control the bracket 11, the bracket is provided with a second horizontally extending groove in which lies a rib 19 formed on the forwardly extending arm 10. A pivot pin 21 arranged to extend laterally of the shoe is fixed in the forward end of the bracket 11, and mounted to turn on this pin is an upwardly extending arm 23. The upper end of the arm 23 is bifurcated and it is provided in its inner face with a comparatively deep downwardly extending groove 24 (Fig. 3). A pivot 25 is mounted in the upper bifurcated end of the arm 23 to extend in directions lengthwise of the shoe, and mounted to swing on this pin is a depending rigid arm 27 which lies normally in the groove 24 in the arm 23 in contact with the latter at the bottom of the groove. Integral with the arm 27 in angular relation thereto above the pivot pin 25 is a rigid arm 29 arranged to extend inwardly over the shoe bottom, as more particularly hereinafter described, to press the marginal portion of the upper materials upon the sole adjacent to the edge of the

shoe bottom in a location at or near the forward end of the heel seat before the heel end of the upper is clamped to the sides of the last by a heel band 43 shown in broken lines in Figs. 1 and 3. The arm 29 is of considerable thickness, and as shown in Fig. 3 that portion of its lower face which is farthest from the extreme heel end of the shoe is rounded lengthwise of the shoe so that the rear portion only of the arm actually engages the upper and thus applies a firm localized pressure to the upper as the arm is carried inwardly over the margin of the sole.

The lower end portion of each arm 27 has a recess or notch at its inner side in which lies a horizontal cross-bar 31 pivoted to turn freely on an upwardly extending pin 33 in the arm. The opposite ends of this cross-bar have rectangular metal-blocks 34 (Fig. 3) projecting inwardly therefrom, and these blocks are covered by rubber pads 35. These pads are arranged to engage the inverted shoe upper just above its lower edge in locations spaced substantial distances apart lengthwise of the shoe where the side of the last slopes inwardly toward its top portion, and they thus assist in supporting the shoe and last against longitudinal and lateral tipping movements as well as against downward movement. Since the cross-bar 31 is free to turn on the pin 33 when the lower end of the arm 27 is moved out of the groove 24 in the arm 23, the pads 35 are permitted to assume positions in accordance with the contour of the side of the last, the turning of the cross-bar beyond predetermined positions being prevented by contact thereof with the arm 27.

Each arm 23, while movable about its supporting pin 21, is arranged normally to occupy a substantially vertical position in which its rear side is in contact with a stop pin 37 projecting inwardly from an upstanding portion of the bracket 11. For maintaining the arm 23 in this position, there is formed in the bracket 11 a short horizontal tubular guideway 39 in which is housed a spring-pressed plunger 41. This plunger bears against an inclined face on the lower end of the arm 23 just below the axis of the supporting pin 21 and accordingly tends to swing the arm rearwardly and holds it normally in contact with the pin 37. The lower end face of each arm 23 is concentric with the axis of the pin 21, and if it is desired for any reason to displace the two arms 23 from their normal upstanding positions when there is no shoe in the machine in order to permit, for example, better access to the heel band 43 which is directly behind the arms, the arms may be swung forwardly about the pins 21 through approximately 90° into substantially horizontal positions. The spring-pressed plungers 41 will then serve frictionally to maintain the arms in those positions until they are returned to their normal positions by the operator.

In the operation of a machine equipped with mechanism such as above described, the operator mounts a last and shoe on the heel pin 3 of the jack 1 when the jack is in its forwardly inclined position and then swings the jack rearwardly to carry the shoe into the open heel band 43, thereafter raising the jack by depression of its controlling treadle to position the heel end of the sole in contact with the hold-down members 5, as hereinbefore described. The operator then starts the power operation of the

machine, whereupon the forwardly extending arms 10 of the bell-crank levers 9 are swung automatically inward toward the jack, the jack being also pulled farther rearwardly to press the end face of the shoe firmly against the heel band. As the arms 10 are thus swung inwardly, the inwardly extending arms 29 engage the margin of the upper at the opposite sides of the shoe in locations approximately at the forward end of the heel-seat portion of the shoe and lay the margin over the sole if it has not already been laid inwardly, and in any case press it firmly upon the sole, the supporting arms 23 at this time being in contact with the stop pins

37. The rubber pads 35 also are carried into engagement with the shoe just above the lower edge of the upper in locations spaced apart lengthwise of the shoe forwardly and rearwardly of the locations where the arms 29 engage the shoe, the arms 27 and 29 rocking about the pivot pins 25 to permit the pads 35 to be pressed against the sides of the shoe. In this operation also the cross-bars 31 may swing about their pivots 33 to permit the pads to assume positions determined by the lengthwise contour of the last. It will be understood that by means of the character disclosed in the previously mentioned Letters Patent the bell-crank levers 9 are operated in such manner as to press the pads 35 and the arms 29 firmly against the shoe, the rear portions of the arms 29 pressing the marginal portions of the upper materials firmly inward and down upon the sole and the pads 35 engaging the shoe with such pressure as not only to clamp the upper firmly against the last but also to hold the shoe and last firmly for the lasting operation.

After the shoe has been clamped by the arms 29 and the pads 35 as above described, the heel band 43 is closed about the heel end of the shoe to clamp the upper firmly against the sides of the last. As indicated in Fig. 3, the lower portions of the forward ends of the heel band are cut away to provide room for the rearmost pads 35 and to permit the arms 29 to be positioned close in front of the forward ends of the heel band. After the heel band has been closed around the heel end of the shoe and while the arms 29 and the pads 35 are pressing against the upper, the heel-lasting wipers, which are shown in broken lines at 45 in Figs. 1 and 3, are advanced and closed over the heel seat to wipe the marginal portion of the upper inward over the sole. After the wipers have finished their wiping movements tacks are driven through them to fasten the upper to the sole as disclosed in the previously mentioned Letters Patent. Just before the wipers, however, reach their fully advanced and closed positions their forward ends come into contact with the rear sides of the arms 29 and thus cause these arms to move somewhat forwardly along the shoe in engagement with the upper, as indicated in Figs. 1 and 3, the arms 23 swinging about their pivots 21. Accordingly, the wipers near the end of their operative movements are in contact with the arms 29 and engage portions of the upper previously engaged by these arms, thereby insuring against the formation of any ears of loose upper material between the forward ends of the wipers and the rear faces of the arms. Since, moreover, the opposite side margins of the upper in locations approximately at the forward end of the heel seat are clamped and held in proper relation to the last and sole before the

upper is clamped at the sides of the heel end by the heel band and throughout the heel-end-lasting operation, insurance is afforded against any objectionable displacement of the upper materials by the heel band and wipers.

It will be understood that after the shoe has been operated upon as above described, the wipers are withdrawn from over the heel seat and the heel band 43 is opened to release the shoe. The bell-crank levers 9 are also returned to their starting positions to carry the shoe-clamping means thereon away from the shoe, after which the jack is swung forward to its idle position to permit the shoe to be removed.

In view of variations in the shapes of different shoes and in the character of the shoe materials, it may be desirable to adjust the arms 29 upward or downward relatively to the holddown members 5 so that these arms will engage the shoe with the desired pressure. For this purpose the pins 25 which support the arms 27 and 29 have eccentric portions on which these arms are mounted, as indicated by dotted lines in Fig. 3. After loosening nuts 47 on these pins, the pins may be turned by means of a screw driver inserted in slots in their ends to adjust the arms 29 as required.

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 heel-end-lasting mechanism including means for clamping an upper about the heel end of a last, and a work support movable to present a last and shoe to said lasting mechanism, of means movable automatically into position to hold the upper materials in proper relation to the last in locations adjacent to the opposite side edges of the shoe bottom approximately at the forward end of the heel portion of the last after the work support has received its shoe-presenting movement but prior to any substantial clamping action of said clamping means on the opposite sides of the heel end of the upper.

2. In a lasting machine, the combination with heel-end-lasting mechanism including a heel band for clamping an upper about the heel end of a last, and a work support movable to present a last and shoe to said lasting mechanism, of means movable automatically into position to hold the upper materials in proper relation to the last in locations adjacent to the opposite side edges of the shoe bottom immediately in front of the forward ends of said heel band after the work support has received its shoe-presenting movement but prior to any substantial clamping action of the heel band on the opposite sides of the heel end of the upper.

3. In a lasting machine, the combination with heel-end-lasting mechanism including means for clamping an upper about the heel end of a last, and a work support movable to present a last and shoe to said lasting mechanism, of means mounted independently of said work support and movable into position to hold the upper materials in proper relation to the last in locations adjacent to the opposite side edges of the shoe bottom approximately at the forward end of the heel portion of the last after the work support has received its shoe-presenting movement but prior to any substantial clamping action of said clamping means on the opposite sides of the heel end of the upper.

4. In a lasting machine, the combination with heel-end-lasting mechanism including means for

clamping an upper about the heel end of a last, and a work support movable to present a last and shoe to said lasting mechanism, of members movable automatically widthwise of the shoe at its opposite sides to lay the marginal portions of the upper materials inwardly over a sole on the last and to press them upon the sole in locations approximately at the forward end of the heel seat after the work support has received its shoe-presenting movement but prior to any substantial clamping action of said clamping means on the opposite sides of the heel end of the upper.

5. In a lasting machine, the combination with heel-end-lasting mechanism including a heel band for clamping an upper about the heel end of a last, and a work support movable to present a last and shoe to said lasting mechanism, of members mounted independently of said work support and movable widthwise of the shoe at its opposite sides to lay the marginal portions of the upper materials inwardly over a sole on the last and to press them upon the sole in locations immediately in front of the forward ends of said heel band after the work support has received its shoe-presenting movement but prior to any substantial clamping action of said heel band on the opposite sides of the heel end of the upper.

6. In a lasting machine, the combination with heel-end-lasting mechanism including means for clamping an upper about the heel end of a last, and a work support movable to present a last and shoe to said lasting mechanism, of members movable automatically widthwise of the shoe about axes extending heightwise of the shoe into positions to hold the upper materials in proper relation to the last in locations adjacent to the opposite side edges of the shoe bottom approximately at the forward end of the heel portion of the last after the work support has received its shoe-presenting movement but prior to any substantial clamping action of said clamping means on the opposite sides of the heel end of the upper.

7. In a lasting machine, the combination with heel-end-lasting mechanism including a heel band for clamping an upper about the heel end of a last, of members movable widthwise of the last relatively to said heel band about axes extending heightwise of the last into positions to hold the upper materials in proper relation to the last in locations adjacent to the opposite side edges of the shoe bottom immediately in front of the forward ends of said heel band prior to any substantial clamping action of the heel band on the opposite sides of the heel end of the upper.

8. In a lasting machine, the combination with heel-end-lasting mechanism including means for clamping an upper about the heel end of a last, and a work support movable to present a last and shoe to said lasting mechanism, of members mounted independently of said work support and movable widthwise of the shoe relatively to said clamping means about axes extending heightwise of the shoe into positions to hold the upper materials in proper relation to the last in locations adjacent to the opposite side edges of the shoe bottom approximately at the forward end of the heel portion of the last prior to any substantial clamping action of said clamping means on the opposite sides of the heel end of the upper.

9. In a lasting machine, the combination with heel-end-lasting mechanism including means for

clamping an upper about the heel end of a last and wipers for wiping the marginal portion of the heel end of the upper inwardly over a sole on the last, of members movable widthwise of the shoe relatively to said clamping means and wipers about axes extending heightwise of the shoe to lay the marginal portions of the upper materials at the opposite sides of the shoe inwardly over the sole and to press them upon the sole in locations approximately at the forward end of the heel seat before said wipers operate on the upper.

10. In a lasting machine, the combination with heel-end-lasting mechanism including means for clamping an upper about the heel end of a last and wipers for wiping the marginal portion of the heel end of the upper inwardly over a sole on the last, and a work support movable to present a last and shoe to said lasting mechanism, of members mounted independently of said work support and movable relatively to said clamping means and wipers about axes extending heightwise of the shoe to lay the marginal portions of the upper materials at the opposite sides of the shoe inwardly over the sole and to press them upon the sole in locations approximately at the forward end of the heel seat after the work support has received its shoe-presenting movement.

11. In a lasting machine, the combination with heel-end-lasting mechanism including wipers for wiping the marginal portion of the heel end of an upper inwardly over a sole on a last, of members supported for swinging movements widthwise of the last to lay the marginal portions of the upper materials inwardly over the sole and to press them upon the sole at the opposite sides of the shoe bottom in locations approximately at the forward end of the heel seat, said members being arranged to engage portions of the upper thereafter engaged by the wipers in the wiping operation and being supported also for forward swinging movements about axes extending widthwise of the last in response to the action of the wipers thereon, and spring means for thereafter moving said members reversely about said axes.

12. In a lasting machine, the combination with heel-end-lasting mechanism including means for clamping an upper about the heel end of a last and wipers for wiping the marginal portion of the heel end of the upper inwardly over a sole on the last, and a work support movable to present a last and shoe to said lasting mechanism, of members movable to press the marginal portions of the upper materials upon the sole at the opposite sides of the shoe bottom in locations approximately at the forward end of the heel seat after the work support has received its shoe-presenting movement but prior to any substantial clamping action of said clamping means on the opposite sides of the heel end of the upper, said members being arranged to engage portions of the upper thereafter engaged by the wipers in the wiping operation and being displaceable by the action of the wipers thereon.

13. In a lasting machine, the combination with heel-end-lasting mechanism including means for clamping an upper about the heel end of a last and wipers for wiping the marginal portion of the heel end of the upper inwardly over a sole on the last, and a work support movable to present a last and shoe to said lasting mechanism, of members mounted independently of

said work support and movable widthwise of the shoe to lay the marginal portions of the upper materials inwardly over the sole at the opposite sides of the shoe bottom and to press them upon the sole in locations approximately at the forward end of the heel seat prior to any substantial clamping action of said clamping means on the opposite sides of the heel end of the upper, said members being arranged to engage portions of the upper thereafter engaged by the wipers in the wiping operation and being movable lengthwise of the shoe in response to the action of the wipers thereon.

14. In a lasting machine, the combination with heel-end-lasting mechanism including means for clamping an upper about the heel end of a last, and a work support movable to present a last and shoe to said lasting mechanism, of devices movable automatically widthwise of the last into clamping engagement with the upper at the opposite sides of the last respectively after the shoe support has received its shoe-presenting movement but prior to any substantial clamping action of said first-named clamping means on the opposite sides of the heel end of the upper, each of said devices comprising means for holding the upper materials in proper relation to the last in a location adjacent to the edge of the shoe bottom approximately at the forward end of the heel portion of the last and also means for clamping the upper at the side of the last in a location spaced a substantial distance heightwise of the last from the edge of the shoe bottom.

15. In a lasting machine, the combination with heel-end-lasting mechanism including a heel band for clamping an upper about the heel end of a last, and a work support movable to present a last and shoe to said lasting mechanism, of devices movable automatically widthwise of the last into clamping relation to the upper at the opposite sides of the last respectively after the work support has received its shoe-presenting movement but prior to any substantial clamping action of the heel band on the opposite sides of the heel end of the upper, each of said devices comprising means for laying the marginal portion of the upper materials inwardly over a sole on the last and for pressing it upon the sole in a location approximately at the forward end of the heel seat and also means for clamping the upper at the side of the last forwardly of the heel band in a location spaced a substantial distance heightwise of the last from the edge of the shoe bottom.

16. In a lasting machine, the combination with heel-end-lasting mechanism including means for clamping an upper about the heel end of a last, and a work support movable to present a last and shoe to said lasting mechanism, of devices mounted independently of said work support for movements widthwise of the last into clamping relation to the upper at the opposite sides of the last respectively, each of said devices comprising means for holding the upper materials in proper relation to the last in a location adjacent to the edge of the shoe bottom approximately at the forward end of the heel portion of the last and also means for clamping and supporting the shoe and last in a location where the side of the last slopes inwardly toward its top portion.

17. In a lasting machine, the combination with heel-end-lasting mechanism including means for clamping an upper about the heel end of a last, and a work support movable to present a last

and shoe to said lasting mechanism, of devices mounted independently of said work support for movements widthwise of the last about axes extending heightwise of the last into clamping relation to the upper at the opposite sides of the last respectively, each of said devices comprising means for laying the marginal portion of the upper materials inwardly over a sole on the last and for pressing it upon the sole in a location approximately at the forward end of the heel seat and also means for clamping and supporting the shoe and last at the side of the last in a location spaced a substantial distance heightwise of the last from the edge of the shoe bottom.

18. In a lasting machine, the combination with heel-end-lasting mechanism, and a work support on which to mount a last and shoe for the heel-end-lasting operation, of devices for clamping the upper at the opposite sides of the last respectively, each of said devices comprising a member arranged to clamp and hold the upper in proper relation to the last and to a sole on the last in a location adjacent to the edge of the shoe bottom approximately at the forward end of the heel portion of the last and a member for clamping and supporting the shoe and last at the side of the last in a location spaced a substantial distance from the edge of the shoe bottom, said members being movable as a unit about an axis extending lengthwise of the last to permit them to adjust themselves to the shoe and last.

19. In a lasting machine, the combination with heel-end-lasting mechanism, and a work support on which to mount a last and shoe for the heel-end-lasting operation, of devices movable widthwise of the last into clamping relation to the upper at the opposite sides of the last respectively, each of said devices comprising a member arranged to lay the marginal portion of the upper inwardly over a sole on the last and to press it upon the sole in a location approximately at the forward end of the heel seat and a member arranged in angular relation to said first-named member for clamping and supporting the shoe and last at the side of the last in a location spaced a substantial distance from the edge of the shoe bottom, said members being movable as a unit about an axis extending lengthwise of the last to permit them to adjust themselves to the shoe and last.

20. In a lasting machine, the combination with heel-end-lasting mechanism, and a work support on which to mount a last and shoe for the heel-end-lasting operation, of devices movable widthwise of the last into clamping relation to the upper at the opposite sides of the last respectively, each of said devices comprising means for clamping and holding the upper in proper relation to the last and to a sole on the last in a location adjacent to the edge of the shoe bottom approximately at the forward end of the heel portion of the last and also means movable toward the shoe with said first-named means for clamping and supporting the shoe and last at the side of the last in different locations spaced apart lengthwise of the last and spaced substantial distances heightwise of the last from the edge of the shoe bottom.

21. In a lasting machine, the combination with heel-end-lasting mechanism, and a work support on which to mount a last and shoe for the heel-end-lasting operation, of devices movable widthwise of the last into clamping relation to

the upper at the opposite sides of the last respectively, each of said devices comprising a member arranged to lay the marginal portion of the upper inwardly over a sole on the last and to press it upon the sole in a location approximately at the forward end of the heel seat and an arm arranged in fixed angular relation to said member and extending heightwise of the last, said arm having thereon a member mounted to turn about an axis extending heightwise of the last and provided with means for clamping and supporting the shoe and last in locations spaced apart lengthwise of the last, said first-named member and arm being mounted to turn about an axis extending lengthwise of the last to permit them to adjust themselves to the shoe and last.

22. In a lasting machine, the combination with heel-end-lasting mechanism, and a work support on which to mount a last and shoe for the heel-end-lasting operation, of devices movable widthwise of the last into clamping relation to

the upper at the opposite sides of the last respectively, each of said devices comprising a pair of arms arranged to extend respectively widthwise and heightwise of the last in angular relation to each other and mounted to turn as a unit about an axis extending lengthwise of the last to permit them to adjust themselves to the shoe and last, said widthwise extending arm being arranged to lay the marginal portion of the upper inwardly over a sole on the last and to press it upon the sole in a location approximately at the forward end of the heel seat, and a cross-bar mounted on the other arm to turn about an axis extending heightwise of the last to conform to the contour of the last and having at its opposite ends members for clamping and supporting the shoe and last in location spaced apart lengthwise of the last where the side of the last slopes inwardly toward its top portion.

WILLIAM THOMAS
BUCKINGHAM ROBERTS.