

April 22, 1924.

1,490,969

J. FAUSSE ET AL

LASTING MACHINE

Filed Sept. 2, 1919

2 Sheets-Sheet 1

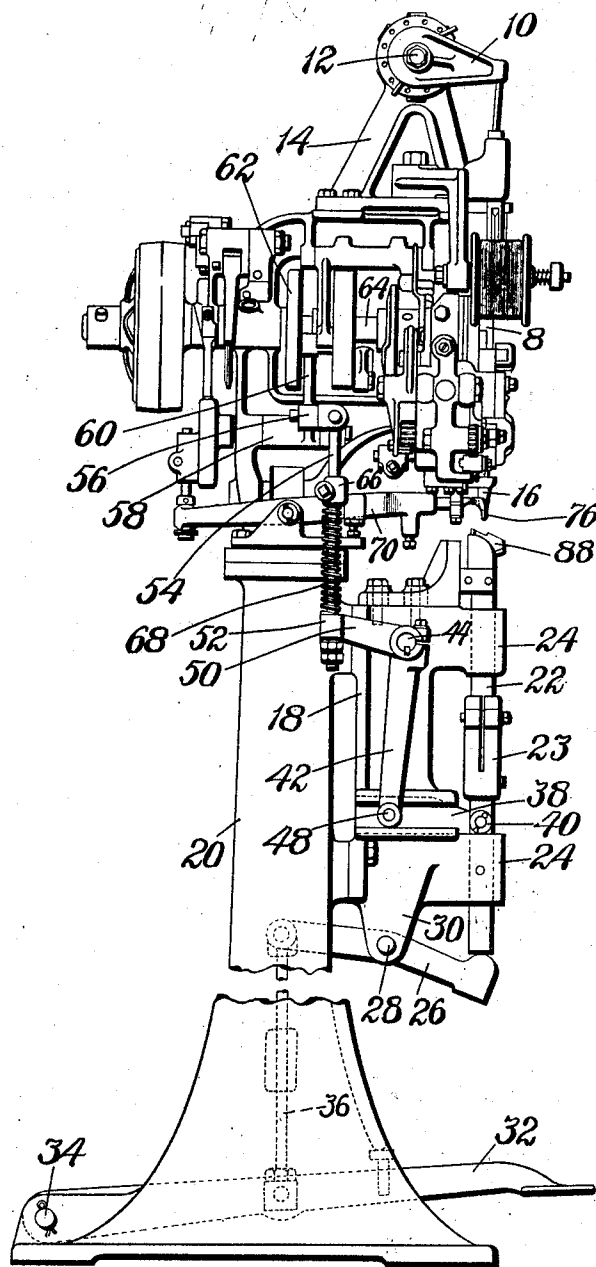


Fig. 1.

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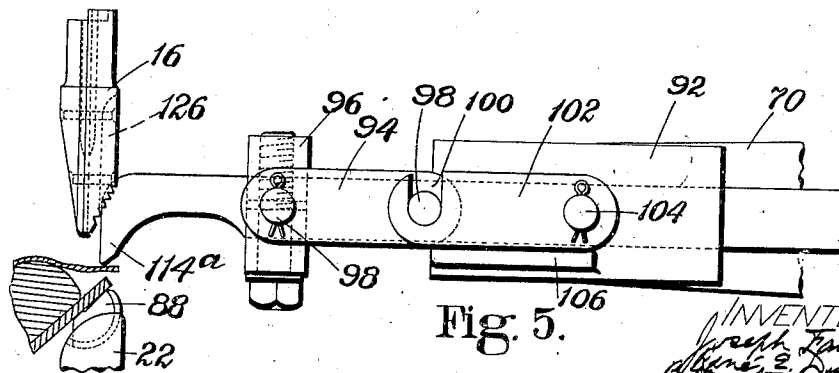
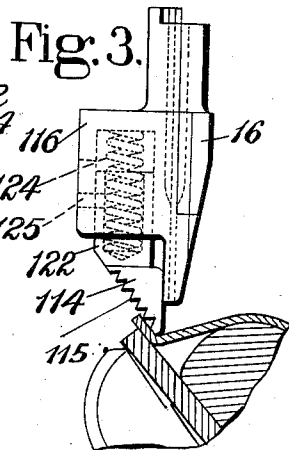
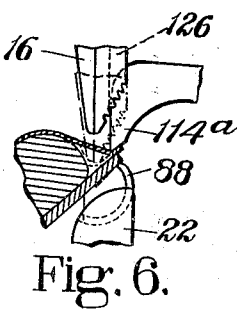
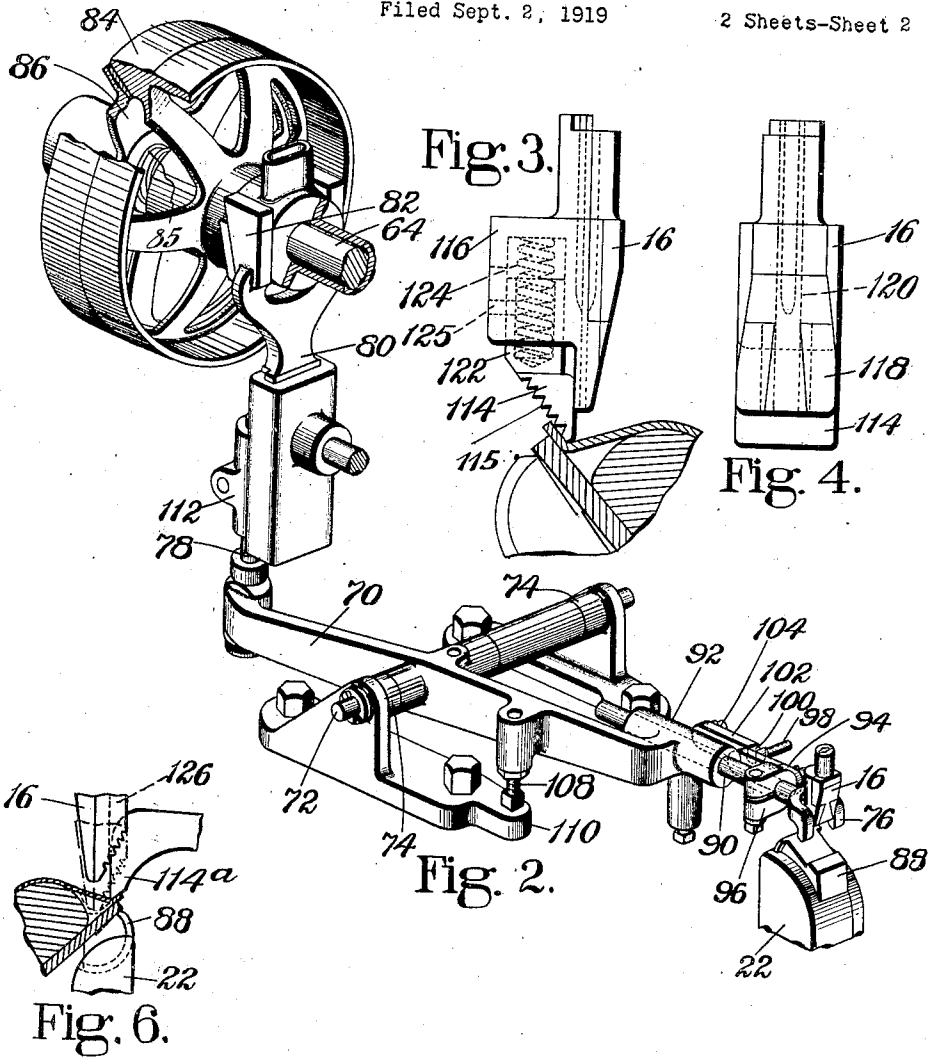
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2 Sheets-Sheet 2



INVENTORS
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UNITED STATES PATENT OFFICE.

JOSEPH FAUSSE, OF BROCKTON, AND RENÉ EDOUARD DUPLESSIS, OF BEVERLY, MASSACHUSETTS, ASSIGNORS TO UNITED SHOE MACHINERY CORPORATION, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

LASTING MACHINE.

Application filed September 2, 1919. Serial No. 321,206.

To all whom it may concern:

Be it known that we, JOSEPH FAUSSE, a citizen of the United States, residing at Brockton, in the county of Plymouth and State of Massachusetts, and RENÉ E. DUPLESSIS, a subject of the King of Great Britain, residing at Beverly, in the county of Essex and State of Massachusetts, respectively, have invented certain Improvements in Lasting Machines, 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.

15 This invention relates to lasting machines and more particularly to machines for lasting stitchdown shoes.

In the manufacture of stitchdown shoes by methods which involve the use of the well-known staple lasting machine, the operative takes the work, which comes to him with the sole secured to the bottom of the last and the upper assembled rather loosely on the last, and first pulls the upper tightly over the last, stretching the leather and apportioning the proper amount of the upper to each side of the last. The shoe is then presented to the staple lasting machine, the operator holding the margin of the upper against the margin of the sole thus bridging the upper across the space between the side of the last and the sole margin. With the upper positioned in the manner described, the lasting tool is caused to wipe the upper down over the side of the last and tuck it into the angle between the last and sole margin where it is secured by a staple to hold the upper in lasted condition. In order to make a well lasted shoe, the upper should be held firmly by the fingers of the hand with the marginal portions of the upper bridging the space between the last and the sole margin, as described, thus materially assisting the lasting tool in drawing the upper tightly about the last and causing it to conform to the last. However, there is oftentimes considerable difficulty in holding the upper manually adjacent to the point of operation because of scantiness in the uppers furnished the operative. Moreover, the careless and inefficient operative not infrequently neglects

to hold the upper properly bridged from the last to the sole margin and this is particularly true towards the end of the day's work. Hence there is often considerable variation in the workmanship displayed in shoes made by different operatives and by the same operative during different portions of the working day.

It is an object of this invention to provide improved means for ensuring that the upper will be caused to conform closely to the last in lasting operations.

In one aspect the invention comprises means for holding the upper of a shoe in such manner that its marginal portion bridges the space between the last and the sole margin while in contact with the latter, said means being arranged for co-operation with the lasting instrumentalities in stretching the upper over the last and securing it in lasted condition.

Preferably the said upper holding means is so mounted as to project below or in advance of the lower end of the lasting tool to engage the upper of the shoe presented on the work support, to press the upper against the margin of the sole, and hold it bridging the space between the last and the sole margin for the operation of the tool, the latter and the holding means subsequently moving relatively to each other to effect the lasting operation.

In another aspect the invention contemplates the provision of means for clamping the margin of the upper upon the sole margin in bridging relation to the space between the last and sole margin and arranged to be controlled by the movements of the work support for stretching the upper of a shoe in co-operation with the lasting tool which wipes the upper over the side of the last.

During lasting operations the lasting tool and the work support, in the illustrative construction, are moved relatively to each other by manually controlled means, thus enabling the operative to see that the work is properly positioned to be engaged by the tool and by the upper holding means above described. Subsequently and in the same cycle of operations the approaching movement of the lasting tool and the work support is completed by power means whereby

the lasting is much more effectively performed and the staple fastening more surely clinched than if foot power were depended upon entirely for these operations. Hence
5 at a predetermined point in the relative movement of the lasting tool and the work support the said power means is caused to operate for the purposes described. Conveniently the work holding means which
10 projects in advance of the lasting tool is utilized to control the said power means, connections being provided between said holding means and the clutch devices whereby the time of operation of the power means
15 is determined.

From another viewpoint the invention resides in a work holding means arranged to co-operate with the lasting instrumentalities in lasting operations and constructed
20 and arranged to control the application of power to said instrumentalities.

In an illustrative embodiment of the invention the work holding means which co-operates with the lasting tool is mounted
25 at one end of a lever in position to contact with the work as the latter is presented in position for the operation of the lasting tool, the other end of the lever being connected to the clutch device on the main
30 shaft of the machine, rotation of which causes relative movement of the work support and lasting tool in lasting operations. From one viewpoint the work holding
35 means at the end of the lever is a work contacting member by which the lever is operated at the proper time to control the power means for operating the lasting instrumentalities. This construction has the
40 advantage of substituting a work controlled operated starting means thus simplifying the construction of the machine and rendering it easier for the operative to run the machine.

In still another aspect of the invention, considered with especial reference to embodiment in a machine in which the work support and lasting tool are relatively
45 moved toward each other in lasting operations by means including a foot power treadle for directly operating the work support and also power means for operating the same, important features of the invention consist in the organization by which the
50 power means is controlled by the work presented on said work support.

Other objects and advantages of the invention will become apparent from the following detailed description and will be
60 pointed out in the claims:—

In the drawings:—

Fig. 1 is a view in side elevation of a staple lasting machine embodying the invention;

Fig. 2 is a detailed view in perspective of the starting and stopping mechanism;

Fig. 3 is a detailed view illustrating the operation of the lasting devices;

Fig. 4 is a view of the lasting devices shown in Fig. 3 looking from the right in
70 said figure;

Fig. 5 is a detailed view showing a lasting member which forms also a part of the starting and stopping mechanism; and

Fig. 6 is a view similar to Fig. 5 showing
75 the parts in another position and at the end of the lasting operation.

In the illustrative machine the fastening inserting mechanism may be of any well-known type but is preferably that disclosed
80 in Patent No. 1,016,930, granted February 13, 1912 to William H. Borden. The machine comprises staple forming and driving mechanisms of which the driver bar as shown at 8 in Fig. 1 is arranged to be operated in its downward stroke by the spring
85 pressed lever 10 pivoted at 12 upon the bracket 14 on the head of the machine. The said driver bar 8 carries the usual driver at its lower end for driving the staples
90 through and from the staple nozzle 16, the latter being constructed in the form of a lasting tool designed to wipe the upper down over the side of the last and tuck it into the angle between the last and the margin of the sole in the operation of lasting
95 an outturned upper of a stitchdown shoe. Conveniently the lasting tool is like that shown and described in Patent No. 1,117,087, granted November 10, 1914 to
100 Adam H. Prenzels.

Mounted in the bracket 18 on the standard 20 is a work supporting post 22 slidably mounted in bearings 24 provided by
105 said bracket, the post being so constructed as to present an extension below the lower bearing arranged to be contacted by the forward end of a lever 26 pivoted at 28 in the extension 30 of the bracket. The work support may be operated manually from
110 the treadle 32 which is pivoted at 34 in the foot of the standard and is connected by link 36 with the work support operating lever 26. Preferably the work supporting post 22 is extensible through a turn-buckle
115 construction 23 to adjust the work with respect to the nozzle 16.

Power means is also provided for operating the work supporting post 22, the said means comprising preferably wedges arranged to lift the post in co-operation with
120 rolls secured thereto, Fig. 1 of the drawings showing one of the wedges 38 in opposed relation to one of the rolls 40. The means for operating the wedges comprises a rocker arm 42 secured to a rock shaft 44 and operatively connected at its lower end 48 with one of the wedges, sufficient play or lost

motion being provided so that there is no binding between the rocker arm and the wedge upon oscillation of the former. Fixedly mounted on the rock shaft 44 is an arm 50 carrying at its outer end a stud 52 which is rotatable in a bearing (not shown) in the end of the arm. Passing through the rotatable stud 52 is a rod 54 connected at its upper end to one arm of a bell crank 56 pivoted in bearings 58 in the head of the machine, the said bell crank comprising an arm 60 which carries a roll (not shown) that travels in a cam groove in the cam 62 on the main shaft 64. Surrounding the rod 54 between the stud 52 and an adjustable collar 66 is a spring 68 arranged to yieldingly transmit the motion of the bell crank 56 to the rock shaft 44. With the parts in the position shown in Fig. 1, oscillation of the bell crank 56 does not effect rocking of the shaft 44 since the wedges 38 are obstructed by the rolls 40 and hence the spring 58 is simply compressed under the conditions described. If, however, the work supporting post be lifted preliminarily by the treadle 32 so that the axes of the rolls 40 are above the ends of the wedges, operation of the latter through the mechanism described will cause the post to be lifted by the power means to force the work firmly against the lasting tool and hold it in the described position until the staples are driven and firmly clenched. For a more detailed description of the power means for lifting the work support reference should be had to Patent No. 1,291,754, granted Jan. 21, 1919 to Matthias Brock.

The starting and stopping mechanism for the machine comprises in the illustrative construction a lever 70 arranged to turn about a pivot 72 supported in bearings 74 in the head of the machine and having at its forward end a work contacting portion embodied in the forked member 76. The other end of the lever is connected by means of a rod 78 to a slide 80 provided at its upper end with a wedge member 82 operative upon downward movement to press a loose pulley 84, against the resistance of spring 85, firmly into contact with the clutch member 86 which is fixed to the shaft 64. It will be understood that when work supported on the work support 88 at the upper end of the post 22 is pressed against the forward end of the lever 70, the clutch mechanism comprising the power pulley 84 will be operated to cause rotation of the main shaft and, therefore, operation of the fastening inserting mechanism and of the power means for lifting the work support. In the preferred construction the forked member 76 is carried at the forward end of a rod 90 slidable in a bearing 92 in the lever 70 so that the work contacting portion of the member 76 may be adjusted ac-

curately with respect to the nozzle 16 and so that it may be moved rearwardly entirely out of operative position. The means for adjusting the forked work contacting member comprises preferably a link member 94 adjustably secured to the rod 90 by means of a split collar 96 and having a stud or pin 98 adapted to be received in a socket 100 in a catch member 102 pivoted at 104 to the side of the bearing 92 and resting upon a bracket 106 extending laterally from the bearing. When it is desired to move the forked member 76 rearwardly out of operative position the pin or stud 98 is lifted out of its socket, whereupon the member, together with its supporting rod 90, may be slid rearwardly. In re-positioning member 76, all that is necessary is to move the member forwardly until the pin 98 can be dropped into the socket 100, the pin and socket co-operating not only to position the member 76 accurately with respect to the nozzle or lasting tool 16 but to maintain said member in proper position. For the purpose of adjusting the member 76 vertically along the sides of the lasting tool 16, there is provided an adjustable bolt or stud 108 mounted in the lever 70 and arranged to contact with an abutment 110 on a bracket extending from the head of the machine. It will be understood that adjustment of the bolt 108 will be followed by adjustment of the rod 78 in the split collar 112 carried by the slide 80.

Means is provided for engaging the marginal portion of the upper to hold it in bridging relation to the space between the last and the margin of the sole and to co-operate with the lasting tool in stretching the upper over the last. In the illustrated construction the said means comprises a clamping member 114 (Fig. 3) slidably arranged on the lasting tool. For this purpose the tool is provided with a socket member 116 dovetailed into the side portions of the tool as indicated at 118 in Fig. 4, the construction being such as to strengthen the side portion of the combined staple guiding nozzle and lasting tool. Upon reference to Figs. 3 and 4 the function of the nozzle 16 as a staple guiding member is seen to be clearly indicated by the dotted lines 120 which define the passageway for both the staple fastener and for the driver which drives it into the work. Referring again to Fig. 3, it will be seen that the work clamping member 114 has a shank portion 122 slidably received in a socket in the member 116 and having itself a socket to receive a portion of a spring 124 which projects the clamping member 114 into operative position and is so arranged as yieldingly to hold the upper in clamped position on the margin of the sole, and permit relative movement between the clamping mem-

ber and the lasting tool whereby the latter is enabled to tuck the bridging portion of the upper securely into the angle between the last and sole margin and hold it there during the insertion of the fastening. As shown in Fig. 4 the clamping member or presser 114 is of substantially the same width as the lasting tool 16, comparing the operative end of each of these members.

In the operation of clamping marginal portions of the upper upon a margin of the sole and maintaining the upper in clamped position during the lasting operation, the margin of the upper is flattened out on the sole margin. Hence, after the lasting operation is completed by the lasting tool which forces the upper into firm contact with the margin of the sole closely adjacent to the last, there is presented a shoe having a projecting outturned upper laid flat against the sole margin, and the combined upper and sole margins because of the clamping operation between the lasting tools and the work support are flattened out and in excellent condition for the attachment of the welt and for other finishing operations on the shoe. If desired, the clamping member 114 may be provided with a corrugated or toothed portion as shown at 115 in Fig. 3 whereby the margin of the upper may be the more securely engaged to hold it in desired position during lasting operations. In the illustrative construction, a pin 125 movable in a slot in the side of member 116 is operative to limit the movements of the clamping member 114. With reference to the showing of Figs. 2 and 3, it is pointed out that the lasting tool 16, together with the clamping member or presser 114 are embraced by the bifurcated end 76 on the trip lever 70 so as to ensure that the said lever will be engaged by the shoe properly presented on the work support to cause the tripping of the lever to start the machine at the proper time. Inasmuch as the clamping member or presser 114 performs all the necessary clamping action to hold the upper bridged from the last to the sole margin, the construction and arrangement of the lever 70 is preferably that of the ordinary trip lever.

While the work clamping member 114 may be slidably mounted with respect to the lasting tool, it is to be understood that the said member may instead be pivotally mounted with respect thereto so as to yield upwardly and permit the lasting tool to engage the upper. Such pivotal mounting of the work clamping member is shown in the construction illustrated in Fig. 5 of the drawings wherein the upper clamping member 114^a constitutes a part of the starting lever 72 and when displaced relatively to the tool 16 is slidable in a slot 126 in the rear portion of the lasting tool 16. When it is

desired to dispense with the starting lever as an operative part of the machine, the work contacting end may be moved rearwardly upon lifting the pin 98 from the slot 100 in the link 102 as previously described in connection with the forked end of the starting lever disclosed in Fig. 2 of the drawings. With the work clamping member 114^a in operative position, the work resting on the work support 88 is so presented to the lasting instrumentalities that the work clamping member engages the margin of the upper and presses it against the margin of the sole, thus holding the marginal portion of the upper in bridged relation to the space between the last and the sole margin, as indicated in Figs. 5 and 6. The function of the upper clamping member 114^a is to hold the margin of the upper so that, as the lasting tool 16 engages the upper and tucks it down into the angle as indicated in Fig. 1, the upper will be stretched over the last. The resistance of clamping member 114^a to upward movement is provided for in the illustrative machine by connections which operate to compress the spring 85. While in the illustrated construction the lasting operation is performed as a result of the continued upward movement of the work support it will be understood that the construction might be such as to force the lasting tool downwardly to tuck the upper into the angle as described and secure it in lasted position.

While the upper clamping member and the starting lever may be mounted as a single means for performing the functions above described, the starting lever and especially the operative end thereof may be structurally distinct from the work clamping member as shown particularly in Figs. 2 and 3 wherein the work clamping member 114 is slidably mounted in the lasting tool and embraced by the forked end member 76 of the starting lever, as above described. In operation, the work presented on the work support 88 first comes in contact with the work clamping member 114 which holds the margin of the upper against the margin of the sole to bridge the space between the last and the sole margin as clearly disclosed in Fig. 3. Immediately thereafter the work engages the forked end 76 of the trip lever 70 to cause a tripping of the clutch whereby the power means is caused to lift the work support the remainder of the distance to cause operation of the lasting instrumentalities. On further upward movement of the work support the upper clamping member retreats as the lasting tool is relatively advanced into contact with the upper to press the latter firmly into contact with the sole margin in the angle between the last and sole. It will be understood that the lasting tool or upper clamping member 114 may be

used entirely independently of the tripping lever and that it may find application in a machine in which the starting and stopping mechanism is of any well-known type, as for instance, like that of the treadle controlled starting and stopping mechanism disclosed in the said patent to Brock.

Having thus described our invention we claim as new and desire to secure by Letters Patent of the United States is.

1. In a machine of the class described, lasting instrumentalities for lasting an upper and securing it in lasted condition comprising a work support and a lasting tool movable in directions toward and from each other to effect lasting operations, in combination with means for holding the upper of a shoe bridged from the last to the margin of the sole preliminary to the operation of the lasting tool, the said means being so constructed and arranged as to effect its holding operation by clamping the marginal portion of the upper directly against the sole margin closely adjacent to the periphery thereof so as to bridge the upper between the last and the sole margin.

2. In a machine of the class described, a work support, a lasting tool for wiping the upper of a shoe over the side of the last and for tucking it into the apex of the angle between the last and the sole margin, and means controlled by the work for holding the upper bridged across a space between the last and the sole margin preliminary to the operation of the lasting tool.

3. In a machine of the class described, a work support, a lasting tool, means for inserting a fastening to secure the upper in lasted condition, and means for holding the marginal portion of the upper in such relation to the last that it bridges the space between the last and the sole margin and for co-operation with the lasting tool in stretching the upper over the last and in making it conform to the last.

4. In a machine of the class described, a work support and lasting instrumentalities comprising a lasting tool controlled by the work for holding the upper bridged across the space between the last and the sole margin, and a second lasting tool designed to wipe the upper over the side of the last and tuck it into the apex of the angle between the last and the sole margin while it is held by the first lasting tool.

5. In a machine of the class described, a work support, a lasting tool for wiping the upper of a shoe over the side of the last and for tucking it into the angle between the last and the sole margin, said tool having a slot in one face thereof, and means movable in said slot for holding the upper bridged across a space between the last and the sole margin preliminary to the operation of the lasting tool.

6. In a machine of the class described, a work support and lasting tool for wiping the upper over the side of the last, and means projecting below or in advance of the lasting tool and movable in a direction parallel to the long axis of the lasting tool for holding the margin of the upper bridged from the last to the sole margin preliminary to the operation of the lasting tool.

7. In a machine of the class described, a work support, a lasting tool for wiping the upper over the side of the last, and a member mounted in the lasting tool and movable with respect thereto to engage the marginal portion of the upper to hold it in bridging relation to the space between the last and the marginal portion of the sole and co-operating with the lasting tool to conform the upper to the last.

8. In a machine of the class described, a work support, a lasting tool, said work support and lasting tool being movable relatively to each other to wipe the upper over the side of the last in lasting operations, and means for engaging the marginal portion of the upper to co-operate with the lasting tool in conforming the upper to the last, said means operating also to control movements of the work support.

9. In a machine of the class described, a work support, a lasting tool for wiping the upper over the last, power means for operating the work support and tool relatively to each other, and means co-operating with the lasting tool in conforming the upper to the last and arranged to control said power means.

10. In a machine of the class described, a work support, power means for operating the work support, a lasting tool for wiping the upper over the last, means co-operating with the lasting tool to stretch the upper over the last, and means controlled by the work for causing the operation of said power means.

11. In a machine of the class described, a work support, a lasting tool for wiping the upper over the side of the last and into contact with the margin of the sole, and means controlled by the movements of the work support and co-operating with the lasting tool for stretching the upper over the last, the said means being constructed and arranged to contact with only one side or surface of the upper in clamping the contacted portion directly against the sole margin.

12. In a machine of the class described, a work support, a lasting tool for wiping the upper over the side of the last, and means mounted to move in a slot in the lasting tool for co-operation therewith in stretching the upper over the last.

13. In a machine of the class described, a work support, a lasting tool for wiping the upper over the side of the last, said tool

having a slot in one face thereof, and means movable in said slot and co-operating with the lasting tool for stretching the upper over the last.

14. In a machine of the class described, a work support, a lasting tool for wiping the upper over the last, power means for causing relative movements of the work support and tool, and a single means for co-operating with the lasting tool arranged to retreat as the latter is relatively advanced for stretching the upper over the last, said means being operative for controlling the operation of said power means.

15. In a machine of the class described, a work support, power means for operating the work support, a lasting tool for wiping the upper over the last, and a single means for co-operating with the lasting tool for stretching the upper over the last and for controlling the operation of said power means.

16. In a machine of the class described, a work support, treadle mechanism for operating the work support, power means for operating the work support, a lasting tool for co-operating with the work support in wiping an upper over the side of the last, and means co-operating with the lasting tool in stretching the upper over the last and arranged to control said power means.

17. In a machine of the class described, a work support, a lasting tool, treadle mechanism for causing relative movement of the work support and lasting tool, power means for causing said relative movement of the tool and work support, and means controlled by the work for causing the operation of said power means.

18. In a machine of the class described, a work support, a lasting tool, power means for causing relative movement of the work support and lasting tool, and means controlled by the work for stretching the upper over the last in co-operation with the said lasting tool and for controlling said power means.

19. In a machine of the class described, a work support, a lasting tool, power means for causing relative movement of the work support and lasting tool, means co-operating with the lasting tool for stretching the upper over the last, and means controlled by the work for causing the operation of said power means.

20. In a machine of the class described, a work support, a lasting tool, power means for causing relative movement of the work support and lasting tool, means for co-operating with the lasting tool for stretching the upper over the last, means controlled by contact with the shoe for controlling said power means, and means for moving said controlling means to inoperative position.

21. In a machine of the class described, a work support, a lasting tool, power means for causing relative movement of the work support and lasting tool, means for co-operating with the lasting tool for stretching the upper over the last, and a lever having a work contacting portion for controlling said power means.

22. In a machine of the class described, a work support, a lasting tool, power means for causing relative movement of the work support and lasting tool, and means mounted in the lasting tool and controlled by the work support for co-operating with the lasting tool in lasting the upper over the last.

23. In a machine of the class described, a work support, a lasting tool, power means for moving the work support and lasting tool relatively to each other to cause the lasting tool to wipe the upper over the last, and means controlled by the movement of the work support for co-operation with the lasting tool in stretching the upper over the last and for controlling said power means.

24. In a machine of the class described, a work support, a lasting tool, treadle mechanism for causing relative movement of the work support and lasting tool, power means for moving the work support and lasting tool relatively to each other to cause the lasting tool to wipe the upper over the last, means controlled by the work support for co-operating with the lasting tool for stretching the upper over the last and for controlling said power means to cause operation of the same at the proper time in the upward movement of the work support by said treadle mechanism.

25. In a machine of the class described, a work support, a lasting tool, power means for causing relative movement of the work support and lasting tool, a single means for stretching the upper over the last in co-operation with the said lasting tool and for controlling said power means, comprising a work contacting member, and means for locking the member in operative position.

26. In a machine of the class described, a work support, means for lasting a shoe, power means for operating the lasting means, and means co-operating with the lasting means to conform the upper to the last arranged to control said power means.

27. In a machine of the class described, a work support, a stationary lasting tool, and means comprising a single clamping member operative directly to clamp the marginal portion of the upper on the margin of the sole in such relation to the last that it bridges the space between the last and the sole margin, said means co-operating with the lasting tool in stretching the upper over the last and in making it conform to the last.

28. In a machine of the class described, a

work support, and lasting instrumentalities comprising a lasting tool movable with the work support for holding the upper bridged across the space between the last and the sole margin and a second lasting tool designed to wipe the upper over the side of the last while it is held by the first lasting tool.

29. In a machine of the class described, a work support, a lasting tool for wiping the upper over the side of the last and securing it in lasted condition, and means to engage the marginal portion of the upper independently of the lasting tool to hold it in bridging relation to the space between the last and the marginal portion of the sole and co-operating with the lasting tool to stretch the upper over the last.

30. In a machine of the class described, lasting instrumentalities for wiping the upper over the side of the last and securing it in the angle between the last and the sole margin, and comprising a lasting tool, and means, movable in a direction substantially parallel to the long axis of the lasting tool, for engaging the marginal portion of the upper independently of the lasting tool to hold the upper in bridging relation to the space between the last and the sole margin preliminary to the operation of the lasting tool.

31. In a machine of the class described, a work support, a lasting tool, said work support and lasting tool being relatively movable to effect lasting operation on the upper of a shoe, and a member movable parallel to the long axis of the lasting tool and arranged to co-operate with the latter in lasting operations.

32. In a machine of the class described, a lasting tool, a work support movable relatively to the lasting tool in a direction toward and from the latter in effecting lasting operations upon the uppers of shoes, and a member co-operating with the work support to clamp the upper only at a substantial distance from the edge of the last and hold it bridging the space between the last and the sole margin for the operation of the lasting tool.

33. In a machine of the class described, a work support and a lasting tool relatively movable with respect to each other in lasting operations upon uppers of shoes, and a member mounted closely adjacent the lasting tool to move relatively thereto in a direction parallel to the long axis of the lasting tool for co-operation therewith in tensioning the upper over the last and in tucking it into the angle between the last and the sole margin.

34. In a machine of the class described, a work support, a lasting tool, said support and tool being relatively movable with respect to each other to effect lasting opera-

tions, and a member co-operating with the work support to clamp the work thereon and movable with the work support to present the upper to the lasting tool with the marginal portion thereof bridging the space between the last and the sole margin.

35. In a machine of the class described, a work support, a lasting tool having a socket therein, said lasting tool and work support being relatively movable to effect lasting operations on the uppers of shoes, and a member mounted in the socket in the lasting tool and spring-pressed outwardly to clamp and flatten the margin of the upper on the margin of the sole with the upper bridging the space between the last and the sole margin, and means for causing the lasting tool to tension the upper over the last and tuck it into the angle between the last and the sole margin.

36. In a machine of the class described, a lasting tool, a work support, said tool and support being relatively movable to effect lasting operations on the uppers of shoes, a member mounted in the lasting tool and having a corrugated surface for clamping the margin of the upper and pressing it flat against the marginal portion of the sole supported on the work support and for holding the upper bridging the space between the last and the sole margin, and means for causing the lasting tool to tension the upper over the last and tuck it into the angle between the last and the sole margin.

37. In a machine of the class described, a work support, a lasting tool, said work support and lasting tool being relatively movable to cause the tool to wipe the upper of a shoe over the side of the last within the shoe, and a member for pressing the margin of the upper flat against the margin of the sole.

38. In a machine of the class described, a lasting tool, a work support movable relatively to the lasting tool in lasting operations upon the uppers of shoes, and a member co-operating with the work support to clamp the upper upon the margin of the sole to press it flat and to hold it bridging the space between the last and the sole margin for the operation of the lasting tool, the sole and tool being relatively movable along a path at a substantial angle to the sole margin to engage a portion of the upper to tuck it into the angle between the last and sole margin.

39. A machine of the class described, having, in combination, a lasting device, co-operating members arranged to receive an out-turned sole attaching portion of a shoe upper against the top face of a projecting portion of a sole, and operating mechanism for causing said members to clamp the sole and upper together and then to cause operation of the lasting device to engage the shoe up-

per on the side of the last and tuck it into the angle between the sole and the side of the last.

40. A machine of the class described, having, in combination, co-operating members to receive an outturned sole attaching portion of a shoe upper against the top face of a projecting portion of a sole, a lasting device arranged at a substantial angle to one of the co-operating members, and operating mechanism for causing said members to clamp the sole and upper together and then to cause operation of the lasting device to tuck the upper into the angle formed by the sole and side of the last.

41. A machine of the class described, having, in combination, co-operating members to receive an outturned sole attaching portion of a shoe upper against the top face of a projecting portion of a sole, a lasting device, one of the co-operating members and the lasting device being relatively movable along a path at a substantial angle to the said one of the co-operating members, and operating mechanism for causing said members to clamp the sole and upper and then to cause operation of the lasting device to tuck the upper into the angle formed by the sole and the side of the last.

42. A machine of the class described, having, in combination, means for clamping an outturned sole attaching portion of a shoe upper against the top face of a projecting portion of the sole, and a lasting tool movable relatively to said clamping means to engage a portion of the upper and wipe it over the side of the last into the angle between the last and the sole margin.

43. A machine of the class described, hav-

ing, in combination, means for gripping the margin of a shoe upper and the edge portion of the sole together and holding them with a portion of the upper bridging the angle formed by the sole margin and the side of the last, and a lasting tool arranged to engage the bridging portion of the upper to wipe it over the side of the last and tuck it into said angle.

44. A machine of the class described, having, in combination, relatively movable members for gripping the margin of a shoe upper and the edge portion of the sole to hold them into firm contact, a lasting tool arranged at a substantial angle to one of said members, and operating means for causing the lasting tool to engage the upper and tuck it into the angle between the side of the last and the sole while the upper is held by the first two members.

45. A machine of the class described, having, in combination, two members arranged yieldingly to grip the marginal portion of a shoe upper and the edge portion of a sole and hold them from slipping with respect to each other during stretching of the upper in the lasting operation, and a lasting tool operating to wipe the upper over the side of the last for tucking the upper into the angle between the side of the last and the sole.

In testimony whereof I, the said JOSEPH FAUSSE, have signed my name to this specification.

JOSEPH FAUSSE.

In testimony whereof I, the said RENÉ E. DUPLESSIS, have signed my name to this specification.

RENÉ EDOUARD DUPLESSIS.