

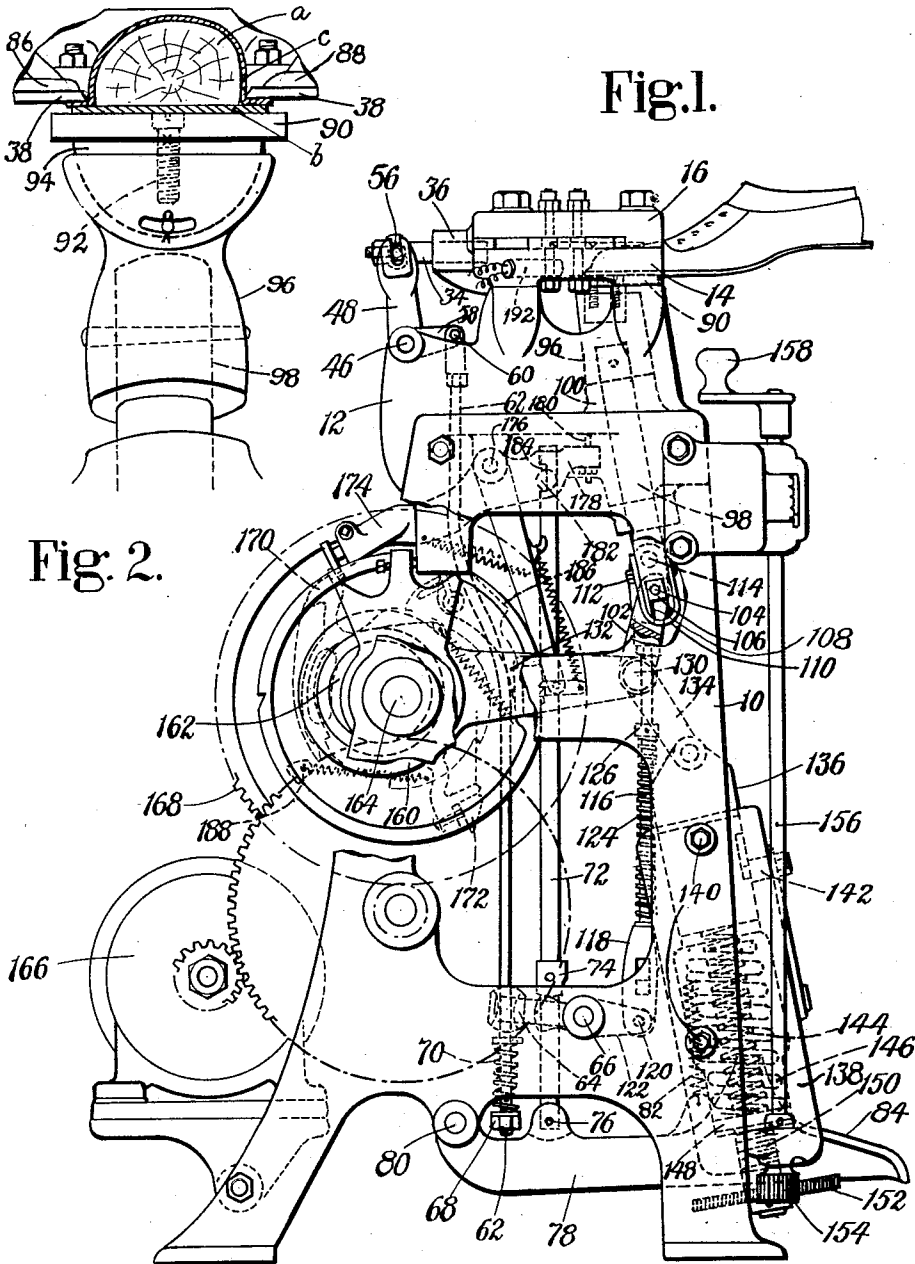
March 1, 1932.

R. E. DUPLESSIS

1,847,334

MACHINE FOR OPERATING UPON THE TOE PORTIONS OF BOOTS AND SHOES

Original Filed Jan. 3, 1928 2 Sheets-Sheet 1



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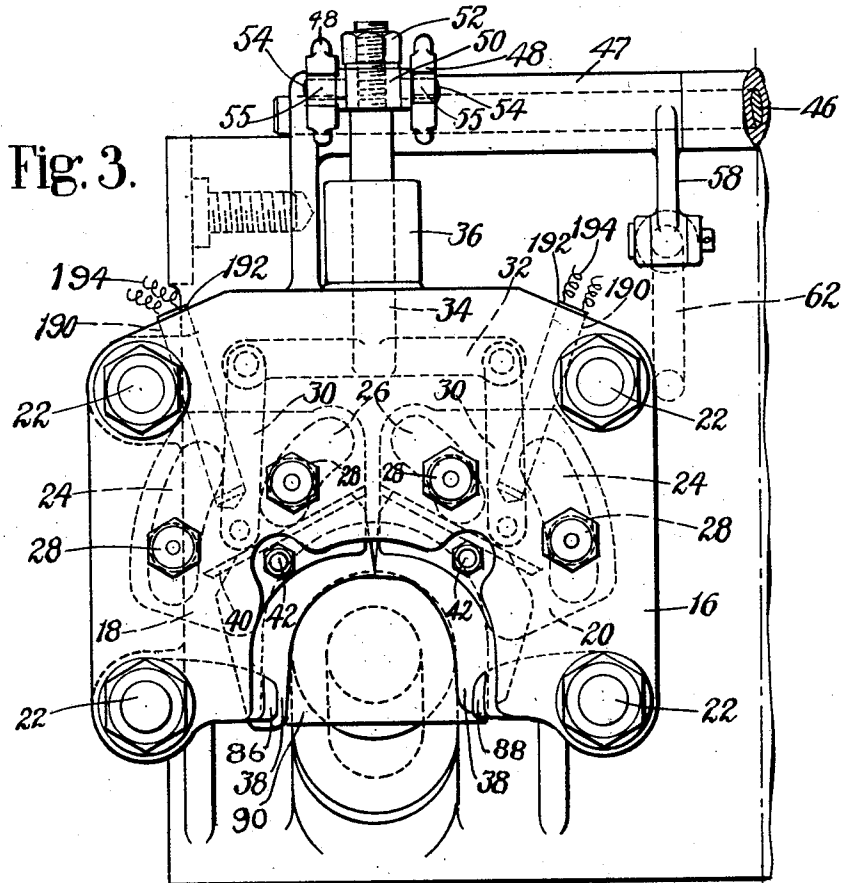
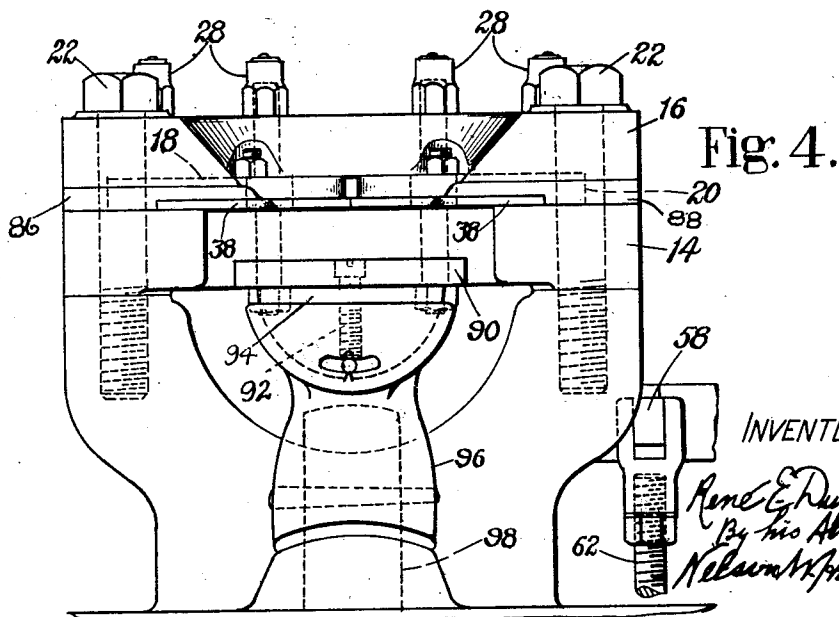
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UNITED STATES PATENT OFFICE

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MACHINE FOR OPERATING UPON THE TOE PORTIONS OF BOOTS AND SHOES

Application filed January 3, 1928, Serial No. 244,230. Renewed January 28, 1930.

This invention relates to machines for operating on the toe portions of stitchdown shoes, and particularly to machines for lasting the toe portions of such shoes and for pressing their outturned flanges.

In one system extensively used in making stitchdown shoes, an extension sole is fastened to the bottom of a last and a lining and an upper are assembled upon the last. A heated toe box of absorbent material containing wax and gum is placed between the upper and lining at the toe, and the upper, including the toe box, is shaped over the last, the margins of the upper, box and lining being outturned and pressed against the projecting margin of the sole. The pressure exerted causes some of the melted gum to be forced through the lining which is thus caused to adhere to the margin of the sole. The pressure exerted on the upper during the lasting operation also forces some of the melted wax and gum out of the toe box against the inner surface of the upper and the outer surface of the lining, so that when the wax and gum cool the upper and lining adhere to the toe box and the adhesion of the flanged margin of the lining to the sole holds all the upper materials in laster position. Objects of this invention are generally to improve and perfect machines for lasting stitchdown shoes and to provide a convenient, effective and speedy machine for this work without sacrificing any of the advantages of prior machines.

In the organization of the illustrated machine, a pair of wipers is provided, the wipers being constructed and arranged for advancing and closing movement relatively to the shoe but having no movement heightwise of the shoe. The wipers are preferably arranged in a horizontal plane in full view of the operator and with the opening between them facing the operator. The shoe is presented right side up to the wipers and in a plane below the wipers, the bottom of the shoe resting on a support having a sole-supporting face parallel to the plane of the wipers and of sufficient extent to support the last and the shoe, including the projecting margin of the sole attached to the last. The support is arranged for movement heightwise

of the shoe to effect wiping action of the wipers at the end and sides of the last toward the last bottom. In the illustrated machine, the wipers are operated to advance and close upon the shoe in conjunction with the heightwise movement of the support, the wipers being thereby positioned in wiping relation to the shoe during said heightwise movement. Also, as illustrated, the heightwise movement of the shoe support relatively to the wipers is preferably in a path inclined toward the wipers so that, as the shoe is moved upwardly through the wipers, it will be also crowded lengthwise toward the wipers. Also, as illustrated, the shoe support is constructed and arranged for tipping movement about an axis extending lengthwise of the shoe and located near the last bottom so that at the completion of the wiping operation the shoe support can tip to equalize the pressure between the wipers and the shoe support upon the outturned flange of the upper and the projecting margin of the sole at the two sides of the shoe in case the upper materials or the sole should be of different thickness at the two sides of the shoe. As illustrated, the shoe support is moved by manually operated means which is also connected to the wipers to effect their operation in conjunction with the movement of the support. The manually operated means is adapted for repeated operation to work the upper into lasted position and, after the wiping operation has been satisfactorily effected, is, in the illustrated machine, constructed and arranged to have a further movement by which power-operated means is set in operation to effect relative movement between the shoe support and wipers and to press the outturned flange of the upper and the projecting margin of the sole firmly together and, if the upper materials include cement, to cause firm adhesion between the upper materials and the sole. Preferably the power means is organized to stop with the work under pressure to give time for the upper materials to set in lasted condition and for the adhesion to take place.

In the illustrated machine, the connections between the work support and the wipers for effecting their advancing and closing move-

ments include yielding means, shown as a spring, by which the wipers are maintained in yielding engagement with the upper during the heightwise movement of the shoe between them, and the connections between the manually operated means and the shoe support also include yielding means, preferably a spring. The two yielding means permit movement of the manually operated means after the movement of the shoe support has been arrested by contact of the projecting margin of the shoe with the wipers to permit the power means to be set in operation. Moreover, in the illustrated machine, as the wiping operation is caused to progress by upward movement of the shoe support the tension of the wiper operating spring is progressively increased, so that at the final portion of the lasting operation when the upper is being worked into the angle between the side of the last and the projecting margin of the sole, the wipers are held firmly advanced and closed to shape the upper into said angle.

These and other novel constructions and combinations of parts will be understood from the following detailed description when read in connection with the accompanying drawings and will be pointed out in the appended claims.

In the drawings,

Fig. 1 is a side elevation of a stitchdown lasting machine embodying the present invention;

Fig. 2 is a detailed view of the shoe support and wipers showing the shoe in section and the wipers located at the termination of the lasting operation;

Fig. 3 is a plan view of the head of the machine; and

Fig. 4 is a front elevation of the parts shown in Fig. 3.

The illustrated machine is designed for lasting the toe portions of stitchdown shoes by shaping the upper of the toe portion to the last and pressing the outturned margin of the upper against the projecting margin of the sole.

Referring now to Fig. 1 of the drawings, the numeral 10 indicates a frame on the upper portion 12 of which is mounted a wiper head consisting of a block 14 having a flat upper surface arranged in a horizontal plane and a cover plate 16 between which are disposed a pair of wiper carriers 18, 20, Fig. 3, the plate 16 being recessed to provide space to receive the carriers and being secured with the block 14 to the portion 12 of the frame by cap screws 22. Each of the wiper carriers 18, 20 is provided with two curved cam slots 24, 26, which receive stationary guide rolls 28 secured between the block 14 and the cover plate 16. Each carrier is connected by a link 30 to a cross-head 32 which is on a plunger 34 guided for longitudinal movement in a bearing 36 formed on the block 14. To the

wiper carriers 18, 20 are secured respectively wipers 38, 38, each wiper having a beveled rear edge which engages a similarly beveled surface 40 on the wiper carrier and being held in position on the carrier by a stud 42. Forward movement of the plunger 34 causes bodily movement of the wiper carriers and wipers toward the shoe, and the rolls 28 acting in the curved cam slots 24, 26 cause closing movement of the wipers relatively to each other, the curvature of the cam slots 24, 26, being such that the wipers turn about the meeting point of their edges.

To operate the plunger 34 a horizontal shaft 46 is mounted in the portion 12 of the frame and carries a sleeve 47 on which is an arm 48 the upper end of which is bifurcated to receive a head 50 secured to the plunger 34 by a nut 52 (Fig. 3), the head 50 having projecting pins 54 carrying blocks 55 which engage slots 56 in the bifurcations of the arm 48, the blocks having flanges to prevent their slipping off the pins. The sleeve 47 has a horizontal arm 58 to which is pivoted at 60 a rod 62. The lower end of the rod passes through the end of the rear arm 64 of a lever fulcrumed at 66 to the frame 10. Between the arm 64 and a nut 68 on the end of the rod 62 is a compression spring 70. Between the rod 62 and the fulcrum 66 a rod 72 passes by the arm 64 and carries a block 74 which is arranged to bear on the upper surface of the arm 64. The rod 72 is connected at 76 to a treadle lever 78 fulcrumed at 80 to the frame 10 and held normally in elevated position by a spring 82. Depression of the forward end of the treadle lever 78 which has a treadle 84 turns the arm 64 and causes it to act through the spring 70 to pull downwardly on the rod 62 which acts through the angle lever 58, 48 to move the plunger 34 forwardly to advance and close the wipers.

In order to afford additional support for the wipers, bracing members 86, 88 are provided. One of these is located near the forward end of each wiper and extends over the wiper to a point adjacent to its edge, being secured in place beneath the cover plate 16 by one of the cap screws 22. These members 86 and 88 help to take the upward thrust of the wipers due to pressure of the work against them and prevent deflection or breakage of the wipers.

The work, which consists of a last having an upper mounted thereon and a sole attached thereto, the margin of the sole extending beyond the last bottom, is supported on a plate 90 (Fig. 2) which is secured by screws 92 to a segmental block 94 (Fig. 4) seated in a member 96 and so constructed and arranged that the block 94 and the attached plate 90 can tip to a limited extent in the member 96 about an axis which extends lengthwise of the last and is located near

the last bottom. This construction permits the plate 90 to tip on said axis to equalize the pressure of the wipers on the outturned flange of the upper in case the thickness of the flange or of the sole at the two sides of the shoe is not the same.

The member 96 is mounted on the upper end of a post 98 arranged for endwise movement in the frame 10 in a direction slightly rearwardly inclined from the vertical so that as the support 90 is raised toward the horizontally arranged wipers the support has a component of rearward movement which tends to crowd the shoe lengthwise toward the wipers. The arrangement of the wipers in a horizontal plane with the shoe bottom downward enables the operator readily to observe the action of the wipers on a shoe presented to the machine. The lower end of the post 98 has a lost motion connection to an upper link 102 of a toggle the upper joint of which is formed by a pin 104 extending through the link 102 and a block 106 which block is arranged for limited sliding movement in a slot 108 formed in the post 98 and is held in place by a strap 110 passing over the open end of the slot and secured by a bolt 112 to the post 98. The amount of lost motion which the block 106 has in the slot 108 is equal to or slightly greater than the amount of movement heightwise of the shoe which it is desired to give the work support relatively to the wipers. Normally the end of the slot 108 in the post 98 rests on the block 106.

The post 98 near its lower end has a transverse pin 114 to which is connected the upper end of a rod 116 the lower end of which is arranged for free longitudinal movement in a connecting member 118 which is pivoted at 120 to a forward arm 122 of the lever pivoted at 66 the rearward arm 64 of which has been referred to. On the rod 116 is a compression spring 124 which is held between the connecting member 118 and a collar 126 adjustably fixed to the rod 116. Depression of the forward end of the treadle lever by the operator's foot therefore acts not only to advance and close the wipers, as already described, but also acts to lift the forward arm 122 and hence, through the spring 124, to raise the work support 90. The raising of the work support and the advancing and closing of the wipers therefore take place simultaneously and when the movement of the wipers is arrested by contact with the shoe, the spring 70 may yield and permit further upward movement of the support through the spring 124 to effect wiping of the upper heightwise of the toe toward the sole. When the shoe support has been raised sufficiently to cause the wipers to press the outturned flange of the upper against the projecting margin of the sole, the treadle is still depressible against

both the springs 70 and 124 to trip the clutch in a manner to be explained.

The described movement of the work support can occur by reason of the lost motion of the slotted end of the post 98 relatively to the block 106 without causing movement of the toggle link 102 the upper pivot of which is in the block 106. The lower end of the link 102 is pivoted at 130 to an eccentric rod 132, as is also the upper end of the other link 134 of the toggle. The lower end of the link 134 is pivoted to a plunger 136 arranged for movement in alinement with the post 96 in a cylindrical bore in a member 138 secured by screws 140 to the frame 10. Movement of the plunger is limited by a screw 142 the end of which engages a longitudinal slot in the plunger 136. Beneath the plunger 136 and normally supporting it at the upper limit of its movement is a light spring 144 surrounding which is a heavy spring 146. Both springs rest on a plate 148 which can be moved lengthwise of the springs by means of a screw 150 threaded through the bottom of the member 138 and engaging the plate 148. The screw 150 carries a gear 152 with which a pinion 154 on a rod 156 meshes, the upper end of the rod being provided with a crank handle 158. By turning the crank the heavy spring 146, the upper end of which is shown as spaced from the lower end of the plunger 136, may be raised bodily until the space between it and the plunger is taken up, to vary the pressure exerted on the work by straightening of the toggle 102, 134. Adjustment of the pressure can thus be made without tensioning the heavy spring.

The eccentric rod 132, described as connected to the center joint 130 of the toggle 102, 134, carries an eccentric strap 160 which surrounds an eccentric 162 rotating on a shaft 164. A motor 166 is connected through suitable reducing gears, as shown in Fig. 1, to a gear 168 on the shaft 164, and between the gear 168 and the eccentric 162 is a half-revolution clutch mechanism, which may be of any suitable type, so that when the clutch is tripped the gear 168 will impart a half revolution to the eccentric 162 and cause it to stop with the toggle 102, 134 straightened and the work under pressure. The clutch is thrown out by engagement of one of two stop projections 170, 172 with the rear arm 174 of a stop lever pivoted at 176 to the frame 10 and having a forward arm 178 carrying a stop screw 180 to limit movement of the arm 174 toward the clutch. The arm 178 carries a slabb-off pin 182 which engages an elongated notch 184 in the rear face of the rod 72, described as connected to the treadle lever 78, the notch being of sufficient length to permit the desired movements of the work support and wipers by operation of the treadle as described without tripping the clutch. However, when the toe of the shoe has been satis-

factorily lasted and it is desired to have the work support operated by power to force the projecting margin of the sole forcibly against the outturned flange of the upper, which, of course, is backed up by the toe-embracing wipers, the treadle can be further depressed against the springs 70, 124 until the upper end of the notch 184 engages the pin 182 and raises the arm 174 of the stop lever away from the stop projection 170, permitting the clutch to operate and cause rotation of the eccentric 162. Soon after the eccentric 162 starts, a face 186 on the eccentric-carrying member strikes the rod 72 and disengages the notch 184 from the pin 182, allowing the arm 174 to drop into position to engage the other stop projection 172 and stop the machine after the eccentric has made a half revolution. A similar face 188 on the eccentric-carrying member disengages the notch 184 from the pin 182 when the machine is restarted to release the pressure.

The specific clutch mechanism and other details for controlling reverse movement of the eccentric and over-running of the clutch when the pressure is being released, herein shown by way of illustration but which form no part of the present invention, are fully explained in Letters Patent of the United States No. 1,674,085, granted June 19, 1928, on application of Ballard and Seely to which reference may be had for more complete explanation thereof.

The block 14, upon which the wiper carriers 18, 20 are mounted, is provided on each side with a hole 190 to receive a heating unit 192 the terminals of which are indicated at 194. In treating some classes of work, for example those in which celastic material is included in the toe box, it is desirable to have the wipers heated to assist in setting and hardening the upper materials to hold them in lasted position. In other work where a toe box of thermoplastic material is used, it is desirable to heat the toe box prior to its insertion in the shoe. In that case the wipers are not heated and serve to conduct away the heat of the toe box and permit the gums exuded by the pressure on the flange of the upper to set and hold the flange to the sole.

The work to be operated upon consists, as the operator receives it, of a last *a* having secured to its bottom an extension sole *b* and an upper *c* which is secured to the last at its rear end and includes a lining between which and the upper leather there is inserted a toe stiffener or toe box, the upper, stiffener and lining constituting the upper materials. In some instances an insole of the same size and shape as the last bottom is first attached to the last and the lining turned inwardly and cemented to it. Sometimes the margin of the toe box is also turned inwardly. The operation of the machine, however, will be substantially the same whether the upper ma-

terial upon which the machine is to operate consists only of the upper, of the upper and toe box or of the upper, toe box and lining, and, since the latter case presents the most difficult lasting condition, it will be assumed in describing the operation of the machine that the outturned portion of the upper includes the upper leather, toe stiffener and lining. For the sake of convenience and simplicity the upper in Fig. 2 of the drawings is shown as a single layer. It is a usual practice, just before the shoe is presented to the lasting machine operator, to insert between the upper and lining a heated toe box of thermo-plastic material, for example the well-known Beckwith toe box.

In the operation of the machine, the toe of a shoe having a heated toe box between its upper and lining is placed on the support 90 and, by pressure of his foot on the treadle 94, the operator raises the shoe support through the spring 124 which, however, is sufficiently stiff to move the shoe against the wiping pressure. Simultaneously with the upward movement of the work support the wipers 36, 38 are advanced and closed yieldingly through the spring 70 which, when the wipers come into engagement with the shoe, permits the forward and closing movement of the wipers to stop while the upward movement of the shoe continues to cause the wipers to wipe the upper heightwise of the shoe toe toward the last bottom. As this wiping operation progresses the tension of the spring 70 is progressively increased to force the wipers harder against the last with sufficient pressure to enable them to perform the more difficult, concluding portion of the lasting operation during which the upper materials are being shaped into the angle between the last and the projecting margin of the sole. In case a single depression of the treadle is ineffective to produce the desired lasting effect, the operator may release the treadle and repeat the operation. When the toe has been satisfactorily lasted, the outturned flange of the upper and the projecting margin of the sole will be held under pressure between the work support and the wipers. The operator then depresses the treadle still farther against the springs 70, 124 to trip the clutch, whereupon the eccentric 162 is given a semi-rotation to straighten the toggle 102, 134 and apply a powerful upward thrust to the work support through the spring 144, the machine stopping with the work under pressure. This power-effected pressure insures that the outturned margin of the upper will be flattened against the projecting margin of the sole, and that the thermo-plastic material in the toe box will be forced through the lining to cause adhesion of the lining to the sole as well as to insure that the upper, toe box and lining will be secured to each other. The stopping of the machine with the work under

pressure permits time to be allowed for the cooling and setting of the heated thermoplastic material as well as for the setting of the upper in lasted position.

5 In order that the operator may not have to wait for the setting to occur, the machine is preferably of duplex form, so that while the shoe remains under pressure in the mechanism on one side of the machine the mechanism on the other side may be operated to last and press another shoe. In case a still longer time is required for the setting of the upper materials, two duplex machines may be used by one operator, the lasting mechanisms being operated in succession. When it is desired to release the shoe, the treadle 84 is again depressed and the parts of the machine are restored to their normal position.

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

1. In a machine for lasting the upper of a stitchdown shoe over the toe portion of a last, the combination of a support to receive a shoe upper right side up on a last having a projecting sole attached thereto and to support the shoe and last including the margin of the sole, toe embracing wipers organized to advance and close relatively to the toe of the last during operation of the wipers on the shoe, and means for effecting movement of the support heightwise of the shoe to cause the wipers to conform the upper to the end and sides of the last and to press the outturned margin of the upper against the margin of the sole.

2. In a machine for wiping the upper of a stitchdown shoe over the toe portion of a last, the combination of toe-embracing wipers organized to advance and close relatively to the toe of the last during their operation on the shoe, means for operating the wipers, a shoe support to receive the shoe right side up and support the shoe including the projecting margin of the sole for the operation of the wipers, and means for moving the support heightwise of the shoe to last the toe.

3. In a machine for wiping the upper of a stitchdown shoe over the toe portion of a last and pressing the outturned margin of the upper against the projecting margin of the sole, the combination of wipers organized to advance and close relatively to the toe of the last during their operation on the shoe, a shoe support to receive a shoe right side up and to support the shoe and last including the projecting margin of the sole, and means for moving the support to cause the wipers to wipe the upper heightwise of the last toward the shoe bottom and to press the outturned flange of the upper against the projecting margin of the sole.

4. In a machine for lasting stitchdown shoes, the combination of end embracing

wipers constructed and arranged for simultaneous advancing and closing movements, a support to receive the bottom of a shoe presented right side up to the wipers and adapted to support the shoe and last including the projecting margin of the sole on the last, means for effecting movement of the support heightwise of the shoe to bring the shoe into the field of operation of the wipers, and means operating throughout the movement of the support to urge the wipers toward the shoe and to cause the wipers to be effective to wipe the upper over the last and against the projecting margin of the sole.

5. In a machine for lasting stitchdown shoes, the combination of end embracing wipers constructed and arranged for simultaneous advancing and closing movements, a support to receive the bottom of a shoe presented right side up to the wipers and adapted to support the shoe and last including the projecting margin of the sole upon the last, and means for effecting relative movement between the support and the wipers in a path inclined to the plane of the wipers to bring the shoe into the field of action of the wipers and to effect a relative lengthwise approaching movement of the shoe and wipers during the wiping operation.

6. In a machine for lasting the toes of stitchdown shoes, the combination of a pair of toe embracing wipers constructed and arranged for advancing and closing movement relatively to the last in a plane parallel to the last bottom, a support to receive the bottom of the forepart of the sole of a shoe on its last presented right side up to the wipers, and manually actuated means for effecting movement of the support heightwise of the shoe to bring the shoe into the field of action of the wipers and to effect action of the wipers heightwise of the shoe toward the shoe bottom, said means also effecting advancing and closing movements of the wipers.

7. In a machine for lasting the toes of stitchdown shoes, the combination of a pair of toe embracing wipers constructed and arranged for advancing and closing movement relatively to the last during their operation on a shoe, a support to receive the bottom of the shoe presented right side up to the wipers, and means for effecting movement of the support heightwise of the shoe in a path inclined toward the wipers to bring the shoe into the field of action of the wipers to effect action of the wipers heightwise of the shoe toward the shoe bottom and to crowd the shoe lengthwise toward the wipers during their wiping action.

8. In a machine for lasting the toe portions of stitchdown shoes, the combination of a pair of toe embracing wipers constructed and arranged for simultaneous advancing and closing movements, a support to receive

the bottom of a last having thereon an upper and a sole with its margin projecting beyond the last bottom, the shoe being presented right side up on the support and beneath the wipers, means for effecting preliminary relative movement between the support and the wipers heightwise of the last to shape the upper to the last and into the angle between the side of the last and the projecting margin of the sole, and power-operated means for effecting final relative movement between the support and the wipers to press the outturned flange of the upper against the projecting margin of the sole.

9. In a machine for lasting the toe portions of stitchdown shoes, the combination of a pair of toe embracing wipers constructed and arranged for advancing and closing movement, a support to receive the bottom of a last having thereon an upper and a sole with its margin projecting beyond the last bottom, the shoe being presented right side up on the support and beneath the wipers, means for effecting preliminary relative movement between the support and the wipers heightwise of the last to shape the upper to the last and into the angle between the side of the last and the projecting margin of the sole, and power-operated means for effecting final relative movement between the support and the wipers to press the outturned flange of the upper against the projecting margin of the sole, said power-operated means being constructed and arranged to stop with the shoe under pressure to allow the upper materials to set in lasted condition.

10. In a machine for lasting the toe portions of stitchdown shoes, the combination of a pair of end embracing wipers constructed and arranged both to advance and close toward the shoe toe during operation of the wipers upon the shoe, a support to receive the bottom of a shoe presented right side up to the wipers and to support the projecting margin of the sole of the shoe, manually operated means for effecting preliminary relative movement of the support and wipers to shape the upper over the toe of the last and into the angle between the side of the last and the projecting margin of the sole, and power-operated means for effecting further relative movement between the support and wipers to press the outturned flange of the upper against the projecting margin of the sole.

11. In a machine for lasting the toe portions of stitchdown shoes, the combination of a pair of end embracing wipers constructed and arranged simultaneously to advance and close toward the shoe toe, a shoe support to receive the bottom of a shoe presented right side up to the wipers and to support the projecting margin of the sole of the shoe, manually operated means for

effecting preliminary relative movement of the support and wipers heightwise and lengthwise of the shoe to cause the wipers to shape the upper over the toe of the last and into the angle between the side of the last and the projecting margin of the sole, and power-operated means for effecting further relative heightwise movement between the support and wipers to press the outturned flange of the upper against the projecting margin of the sole.

12. In a machine for lasting stitchdown shoes, the combination of end embracing wipers constructed and arranged for advancing and closing movement, a support to receive the bottom of a shoe and last presented right side up to the wipers, means for effecting relative movement between the support and wipers heightwise of the shoe to bring the shoe and last into the field of operation of the wipers, and wiper-operating means constructed and arranged to be operated during the relative heightwise movement between the support and the wipers to cause the wipers to advance and close upon the last during the relative movement of the support and wipers heightwise of the shoe and to remain in wiping relation to the last substantially throughout said heightwise movement.

13. In a machine for lasting the toe portions of stitchdown shoes, the combination of a pair of end embracing wipers constructed and arranged to advance and close relatively to the toe portion of a shoe upper supported on a last, a shoe support, means for relatively moving the wipers and support heightwise of the shoe to introduce the shoe toe between the wipers, and means for advancing and closing the wipers yieldingly until they engage the shoe and press the upper against the last, the movement of the wipers being arrested by the shoe during continued relative heightwise movement of the wipers and support and being maintained in wiping relation to the shoe during said heightwise wiping movement to conform the upper to its last.

14. In a machine for lasting the toe portions of stitchdown shoes, the combination of toe embracing wipers constructed and arranged to advance and close relatively to the toe of the shoe, a support for the shoe bottom including the projecting margin of a sole, means for relatively moving the wipers and support heightwise of the shoe, and means connected to said last-named means for advancing and closing the wipers to cause them to engage the shoe upper and press it against the last substantially throughout said relative heightwise movement, the wiper advancing and closing means being constructed and arranged to increase the pressure of the wipers against the shoe as the lasting operation progresses to wipe the upper against the sides and end of the toe of the last and into the angle

between the side of the last and the projecting margin of the sole.

15. In a machine for lasting the toe portions of stitchdown shoes, the combination of toe embracing wipers constructed and arranged to advance and close relatively to the toe of the shoe, a support for the shoe bottom including the projecting margin of the sole, manually operated means for moving the support heightwise of the shoe, connections from said manually operated means to effect advancing and closing movement of the wipers in conjunction with the upward movement of the support, said manually operated means being constructed and arranged for repeated operation so that the lasting operation may be repeated until the upper has been satisfactorily shaped to the last, and power-operated means for effecting further movement of the support after the lasting operation is concluded to press the outturned flange of the upper against the projecting margin of the sole.

16. In a machine for lasting the toe portions of stitchdown shoes, the combination of toe embracing wipers constructed and arranged to advance and close relatively to the toe of the shoe, a support for the shoe bottom including the projecting margin of the sole, manually operated means for moving the support heightwise of the shoe, connections from said manually operated means to effect advancing and closing movement of the wipers in conjunction with the movement of the support, said manually operated means being constructed and arranged for repeated operation so that the lasting operation may be repeated until the upper has been satisfactorily shaped to the last, and power-operated means for effecting further movement of the support after the lasting operation is concluded to press the outturned flange of the upper against the projecting margin of the sole, said last-named means being constructed and arranged to stop with the work under pressure to effect final setting of the upper materials in lasted condition.

17. In a machine for lasting the toe portions of stitchdown shoes, the combination of toe embracing wipers constructed and arranged to advance and close relatively to the toe of the shoe, a support for the shoe bottom including the projecting margin of the sole, manually operated means for moving the support heightwise of the shoe, connections from said manually operated means to effect advancing and closing movement of the wipers in conjunction with the movement of the support, said manually operated means being constructed and arranged for repeated operation so that the lasting operation may be repeated until the upper has been satisfactorily shaped to the last, and power-operated means for effecting further movement of the support after the lasting operation is concluded to press the outturned flange of

the upper against the projecting margin of the sole, said power means being brought into action by movement of the manual means beyond that required to effect the lasting operation.

18. In a machine for lasting the toe portions of stitchdown shoes, the combination of a pair of toe embracing wipers constructed and arranged to advance and close over the shoe, a support for the shoe bottom including the projecting margin of the sole, manually operated means, and connections from said manual means to the shoe support and to the wipers so that operation of the manual means will cause the wipers to advance and close and will cause the shoe toe to pass between the wipers, the wipers being simultaneously advanced and closed upon the shoe to maintain them in wiping relation to the shoe toe during its movement between them.

19. In a machine for lasting the toe portions of stitchdown shoes, the combination of a pair of toe embracing wipers constructed and arranged to advance and close toward the shoe, a support for the shoe bottom including the projecting margin of the sole, a treadle, connections from the treadle to the shoe support to cause the support to be raised by depression of the treadle to bring the shoe into the field of operation of the wipers, connections from the treadle to the wipers so that depression of the treadle will cause the wipers to advance and close and the shoe to be raised to cause the shoe toe to pass between the wipers and the wipers to be simultaneously advanced and closed upon the shoe to maintain them in wiping relation to the shoe toe during its upward movement.

20. In a machine for operating on the toe portions of stitchdown shoes, the combination of a pair of end embracing members to engage the outturned flange of the upper, and a support to receive the bottom of a shoe to be treated and adapted to sustain the margin of the sole which projects beyond the last bottom, said support being mounted for movement about an axis extending lengthwise of the shoe to equalize the pressure of the flange engaging members at opposite sides of the last.

21. In a machine for lasting the toe portion of a stitchdown shoe having a sole which projects outwardly beyond the last bottom, the combination of a pair of end embracing wipers to engage the upper on the last, a support to receive the bottom of the shoe to be treated and adapted to sustain the margin of the sole which projects beyond the last bottom, said support being mounted for movement about an axis extending lengthwise of the shoe to equalize the pressure of the wipers at opposite sides of the last, and means for causing relative movement between the support and the wipers to effect the lasting operation of the wipers upon the shoe.

22. In a machine for lasting the toe portions of stitchdown shoes, the combination of toe embracing wipers constructed and arranged to advance and close relatively to the toe of the shoe, a support for the shoe bottom including the projecting margin of the sole, manually operated means for moving the support heightwise of the shoe, and connections from said manually operated means to effect advancing and closing movement of the wipers in conjunction with the upward movement of the support.

23. In a machine for lasting the toe portions of stitchdown shoes, the combination of toe embracing wipers, a support for the shoe bottom including the projecting margin of the sole, manually operated means for moving the support heightwise of the shoe, and power-operated means for effecting further movement of the support after the lasting operation is concluded to press the outturned flange of the upper against the projecting margin of the sole, said means being constructed and arranged to stop with the work under pressure to effect final setting of the upper materials in lasted condition.

24. In a machine for lasting the toe portions of stitchdown shoes, the combination of toe embracing wipers, a support for the shoe bottom including the projecting margin of the sole, manually operated means for moving the support heightwise of the shoe, said manually operated means being constructed and arranged for repeated operation so that the lasting operation may be repeated until the upper has been satisfactorily shaped to the last, and power-operated means for effecting further movement of the support after the lasting operation is concluded to press the outturned flange of the upper against the projecting margin of the sole, said power means being brought into action by movement of the manual means beyond that required to effect the lasting operation.

25. In a machine for lasting the toe portions of stitchdown shoes, the combination of a pair of yieldingly closed end embracing wipers to wipe the upper over the toe portion of the last and press the outturned flange of the upper upon the projecting margins of the sole, a support to receive the bottom of the shoe to be lasted and adapted to sustain the margin of the sole which projects beyond the last bottom, manually operated means for effecting movement of the support toward the wipers to initiate the operation of the wipers upon the upper to wipe it heightwise of the last at the end and sides of the last, and power-operated means constructed and arranged to be set in operation by further movement of said manually operated means for effecting powerful pressing of the outturned flange and sole margin between the support and wipers and for maintaining the work under pressure.

26. In a machine for lasting the toe portion of a stitchdown shoe the upper of which is to be shaped to the toe portion of a last and pressed against a projecting margin of the sole, the combination of a pair of end embracing wipers constructed and arranged for advancing and closing movement, yielding means tending to hold said wipers in advanced and closed position, a support to receive the bottom of a shoe to be treated, manually operated means for effecting relative movement between the support and the wipers to effect the lasting operation of the wipers upon the shoe, and power-operated means constructed and arranged to be set in operation by further movement of said manually operated means for effecting the powerful pressing of the outturned flange and sole margins between the support and said wipers.

27. In a machine for lasting the toe portion of a stitchdown shoe having a sole which projects outwardly beyond the last bottom, the upper of which is to be shaped to the last and its outturned margin pressed against the projecting margin of the sole, the combination of a pair of end embracing wipers constructed and arranged to advance and close toward the toe of the last and to engage the outturned flange of the upper, a support to receive the bottom of a shoe to be treated and adapted to sustain the margin of the sole which projects beyond the last bottom, manually operated means for effecting relative movement between the support and the wipers to initiate the lasting operation of said wipers, and power-operated means constructed and arranged to be set in operation by a further movement of said manually operated means for effecting power pressure on the outturned flange and the sole margin between said support and said wipers.

28. In a machine for operating on the toe portions of stitchdown shoes having soles which project outwardly beyond the last bottom, the combination of a pair of end embracing members to engage the outturned flange of the upper, a support to receive the bottom of a shoe to be treated and adapted to sustain the projecting margin of the sole, manually operated means for effecting relative movement between the support and the flange engaging members to initiate the operation of said members upon the shoe, and power-operated means constructed and arranged to be set in operation by further movement of said manually operated means for effecting a powerful pressing of the outturned flange and sole margins between the support and said members.

29. In a machine for operating on the toe portions of stitchdown shoes, the combination of a pair of end embracing members to engage the outturned flange of the upper, a support to receive the bottom of a shoe to be treated and adapted to sustain the margin

of the sole which projects beyond the last bottom, manually operated means for effecting relative movement between the support and the flange engaging members to initiate the operation of said members upon the shoe, and power-operated means constructed and arranged to be set in operation by further movement of said manually operated means for effecting a powerful pressing of the outturned flange and sole margins between the support and said members, said power means being constructed and arranged to stop with the work under pressure.

30. In a machine for lasting stitchdown shoes, the combination of a support to receive the bottom of a shoe to be lasted and adapted to sustain the margin of a sole which projects beyond the last bottom, toe embracing means constructed and arranged to move longitudinally of the shoe and simultaneously to close laterally of the shoe, said support being arranged for movement relatively to the wipers for wiping the toe portion of the upper at the end of the toe and on opposite sides of the median line of the last simultaneously over the sides of the last and into firm contact with the projecting marginal portions of the sole, means for causing movement of said toe embracing means longitudinally and laterally of the shoe to press portions of the upper into the angle between the last and the sole margin, and means for effecting movement of the support relatively to the toe embracing means.

31. In a machine for operating upon stitchdown shoes having soles with their margins projecting beyond the sides of a last, the combination of a work support constructed and arranged for sustaining the last and the sole margins, toe lasting means comprising members movable relatively to each other and movable together longitudinally of the last, said movements taking place during operation of the wipers on the shoe, said lasting means and the work support being arranged for relative movement for wiping the upper of a stitchdown shoe yieldingly over the sides of the last and for pressing portions of the upper at the end of the toe and on each side of the last simultaneously into finally lasted position in firm contact with the upper surface of the marginal portions of the sole, and manually actuated means for effecting said relative movement.

32. In a machine for lasting stitchdown shoes, the combination of a support for the bottom of a shoe adapted to sustain a last and marginal portions of the sole that project beyond the bottom of the last, toe lasting means comprising a pair of wiper plates constructed and arranged for advancing movement lengthwise of the last during their operation on the shoe and for relative closing movement toward each other and adapted upon movement of the support relatively

to said wipers to wipe the toe portions of the upper of the shoe over the last at the end and on each side of the median line thereof to press outturned portions of the upper about the toe portion thereof simultaneously in finally lasted position in firm contact with the upper surface of the projecting marginal portions of the sole, and means for causing movement of the support relatively to the lasting means to effect the lasting operation.

33. In a machine for lasting stitchdown shoes, the combination of a support for the bottom of a shoe adapted to sustain a last and the marginal portions of a sole that project beyond the bottom of the last, a pair of end embracing wipers pivoted together at their ends adjacent to the end of the shoe and constructed and arranged for bodily advancing movement lengthwise of the shoe and for relative closing movement to adapt them to shape the toe of the shoe and operative upon movement of the support heightwise of the shoe to wipe portions of the upper of the shoe over the end and sides of the last and to press outturned portions of the upper peripherally of the toe simultaneously into finally lasted position in firm contact with the upper surface of the marginal portions of the sole, and means for effecting movement of the support heightwise of the shoe toward the wipers.

34. In a machine for lasting stitchdown shoes, the combination of a support constructed and arranged to receive the bottom of a shoe and to support marginal portions of the sole that project beyond the bottom of a last, means for effecting movement of the support heightwise of the shoe, toe lasting means comprising end embracing wipers constructed and arranged for bodily movement lengthwise of the toe and for closing movement, and means for effecting said bodily and closing movements of the wipers during the heightwise movement of the support to last the upper against the sides of the toe to wipe portions of the upper of the shoe over the end and sides of the last and to press outturned portions of the upper about the periphery of the toe in finally lasted position into the angle between the side of the last and the projecting marginal portions of the sole and in firm contact with the upper surfaces of said marginal portions.

35. In a machine for lasting stitchdown shoes, the combination of a support for the bottom of a shoe adapted to sustain a last and the marginal portions of the sole that project beyond the bottom of the last, wiping members movable relatively to each other and movable bodily lengthwise of the shoe, said members being operative upon movement of the support heightwise of the shoe to wipe portions of the upper of the shoe over the end and sides of the last and

to press outturned portions of the upper into
firm contact with the upper surface of the
marginal portion of the sole about the toe,
means for causing said bodily and relative
movements of the members to occur during
5 operation of the members on the shoe, and
means for causing said heightwise movement
of the support relatively to the wiping mem-
bers to effect the wiping and pressing oper-
ations.

10 In testimony whereof I have signed my
name to this specification.

RENÉ E. DUPLESSIS.

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