J. H. DEZIEL.

SHOE LASTING MACHINE.

APPLICATION FILED SEPT. 7, 1909. RENEWED DEC. 27, 1910.

997,652.

Patented July 11, 1911.

3 SHEETS—SHEET 1.

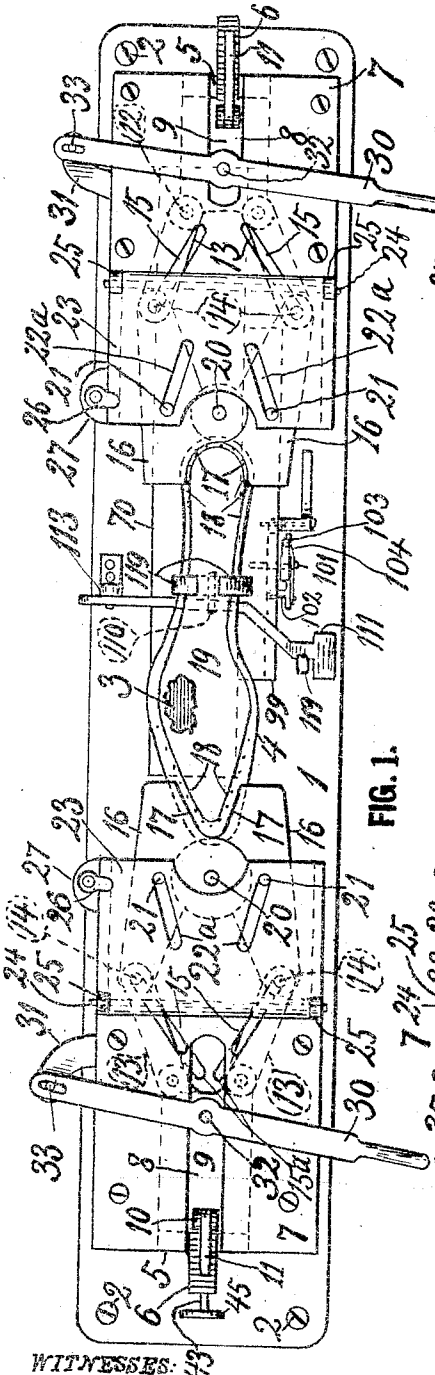

FIG. 1.

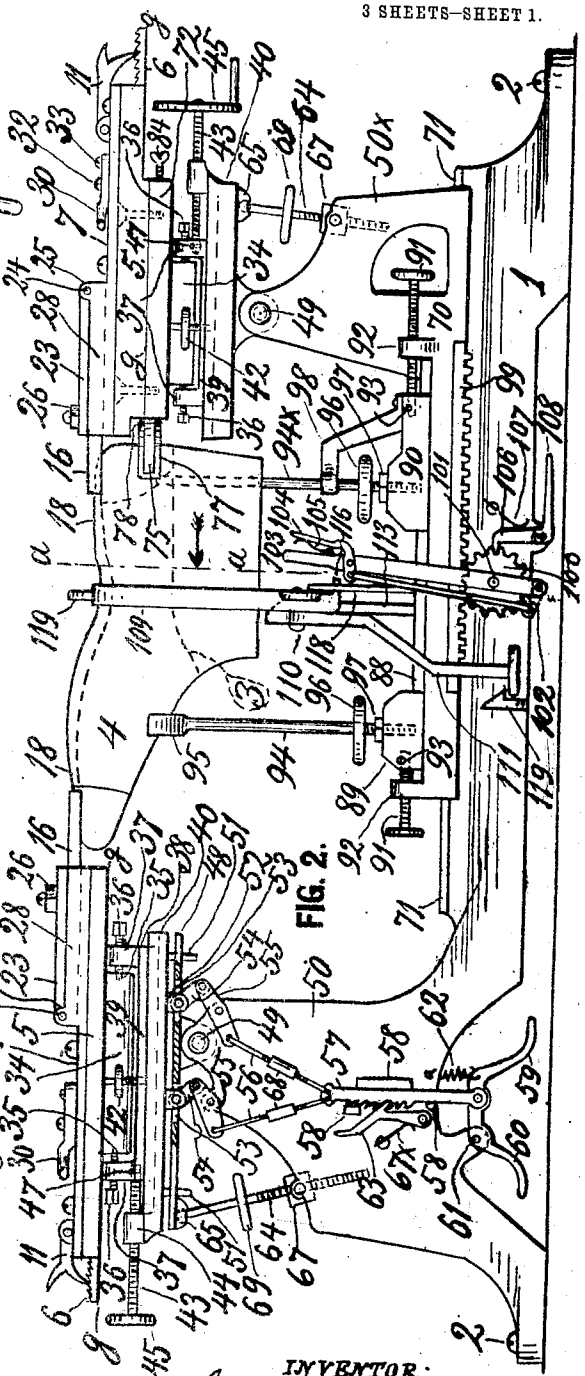

FIG. 2.

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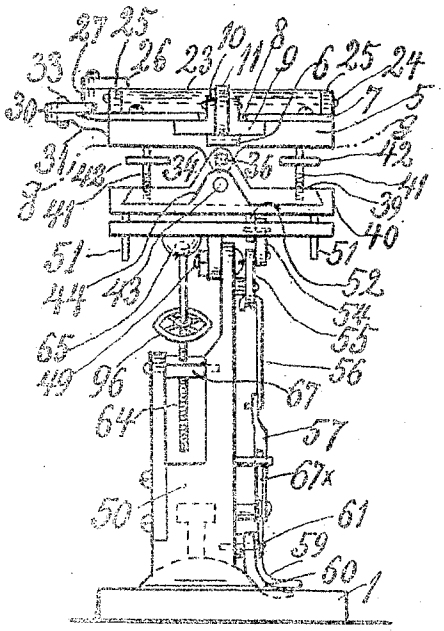

FIG. 3.

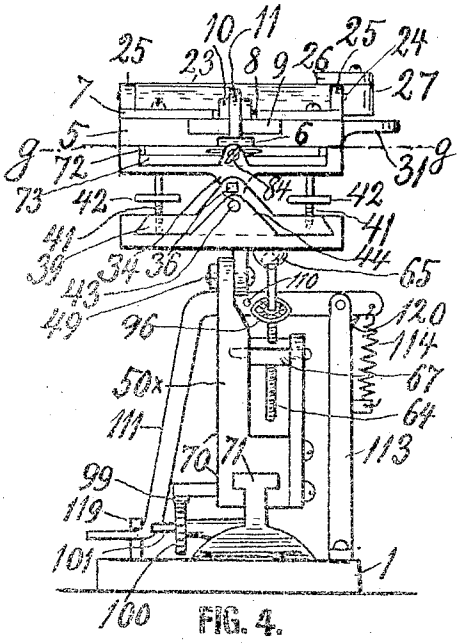

FIG. 4.

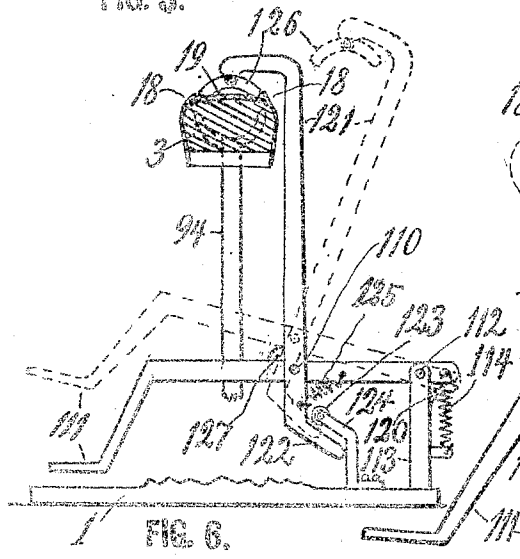

FIG. 6.

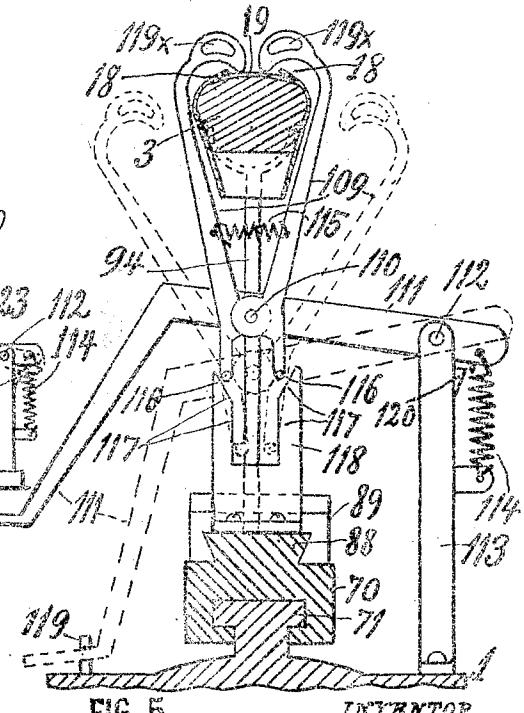

FIG. 5.

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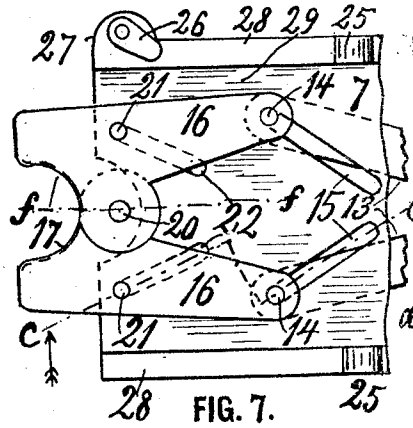

FIG. 7.

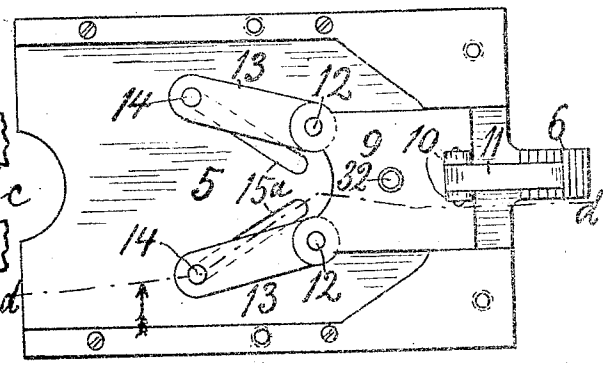

FIG. 8.

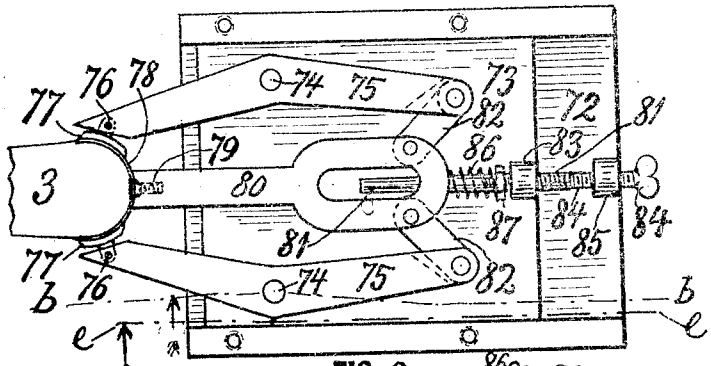

FIG. 9.

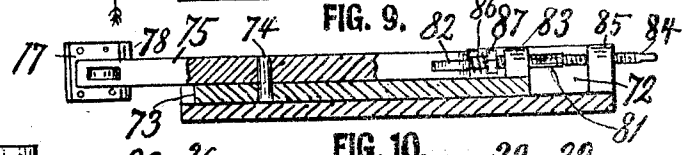

FIG. 10.

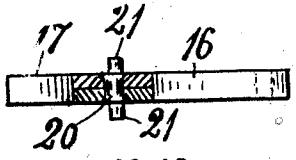

FIG. 12.

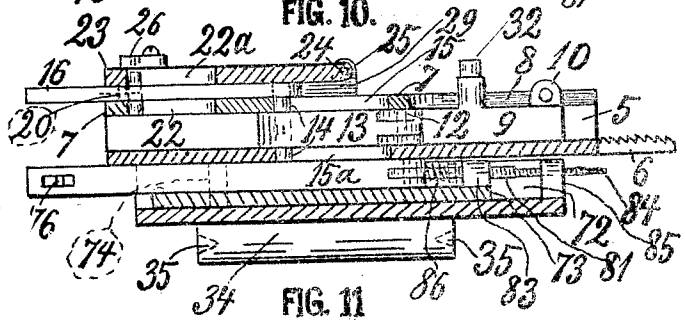

FIG. 11

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UNITED STATES PATENT OFFICE.

JOHN H. DEZIEL, OF STILLWATER, MINNESOTA, ASSIGNOR, BY DIRECT AND MESNE ASSIGNMENTS, TO DEAN LA ROCHE, OF STILLWATER, MINNESOTA.

SHOE-LASTING MACHINE.

997,652. Specification of Letters Patent. Patented July 11, 1911.

Application filed September 7, 1909, Serial No. 516,508. Renewed December 27, 1910. Serial No. 599,534.

To all whom it may concern:

Be it known that I, JOHN H. DEZIEL, a citizen of the United States, residing at Stillwater, in the county of Washington and State of Minnesota, have invented a new and useful Shoe-Lasting Machine, of which the following is a specification.

My invention relates to machines for lasting boots and shoes; and the main object is to provide an efficient device by which to gather and hold the heel and toe edges of the upper-leather in over the inner sole while the same is being tacked thereto on the last. This and other objects I attain by the novel construction and arrangement of parts illustrated in the accompanying drawing, in which,

Figure 1 is a top or plan view of my improved lasting machine with a last and shoe thereon in it. Fig. 2 is a front side elevation of the machine in Fig. 1 with the plate 48 of the left end partly in section. Fig. 3 is a left hand end elevation of the machine in Fig. 2 with wheel 45 and some other parts omitted. Fig. 4 is a right hand end elevation of Fig. 2 with wheel 45 and some other parts omitted. Fig. 5 is a cross section on the line *a—a* of Fig. 2, with all parts omitted which would confuse and which are not in need of further illustration. Fig. 6 is a modification of some of the parts shown in Fig. 5. Fig. 7 is a top view of an enlarged portion near the right hand end of Fig. 1, with the hinged lid 23 removed. Fig. 8 is a top view of the right hand end of the machine with the cover 7 and all above it removed. Fig. 9 is a top view of the right hand end of the machine with the portion all above line *g—g* removed. Fig. 10 is a section on the line *b—b* of Fig. 9. Fig. 11 is a sectional view of the frame work in Figs. 7, 8 and 9 (put together as in Figs. 1 and 2) on the lines *c—c*, *d—d* and *e—e* respectively, exposing the mechanism contained within the chambers thus intersected; the dog 11 is omitted. Fig. 12 is a section on the line *f—f* in Fig. 7 of the wipers only.

Referring to the drawings by reference numerals, 1 designates the main frame or bed of the machine which may be secured to the floor by screws 2. In view of the position of the heel and toe of the last 3 and shoe 4 in Figs. 1 and 2, I will for shortness refer to the left hand end of the machine as the toe end and the opposite end as the heel end. It will then be seen that above the lines *g—g* in Figs. 2, 3 and 4 the parts are so similar that the following description will answer for both ends. In a chamber 5 having at its rear end a ratchet rack 6 and its top closed by a cover 7 with a slot 8 in it, is arranged a slide 9 (see Fig. 8) whose rear end is provided with lugs 10 between which is pivoted a dog 11 adapted to engage the rack and hold the slide in the desired forward position. To the front corners of the slide are pivoted at 12 two links 13, in whose front ends are fixed vertical pins 14 extending upwardly through obliquely diverging slots 15 in the cover and engaging in holes in the rear ends of two plates 16 known as the wipers, because their front ends are formed with rounded edges 17 adapted to act in a wiping manner to gather the edges 18 of the upper leather upward and inward upon the sole 19 which is tacked on the last, and hold them while they are being tacked to the sole and the last preparatory to further work on the shoe. The pins 14 may also extend downwardly into slots 15 in the bottom of the chamber. The wipers are pivotally secured together at 20; and at opposite sides from said pivot each wiper is provided with a fixed pin 21, whose lower end is guided in an oblique slot 22 in the cover 7, and its upper end may be guided in similar slots 22ª in a lid 23, which is hinged at 24 to lugs 25 of the cover 7 and is held closed over the wipers by a latch 26 pivoted upon a lateral lug 27 of the cover 7; the latter having upstanding side ribs 28 for the lid to rest on, a wiper chamber 29 (see Fig. 7) is thus provided for the wipers. The slide 9 is operated by a hand lever 30 pivoted at 33 with one end to a bracket 31 fixed either on the chamber 5 as shown, (or it may be on the cover 7 thereof), and engaging a stud 32 projecting upward from the slide through the slot 8 in the cover.

At the toe end of the machine the chamber 5 has a bottom rib 34 whose ends are provided with cavities 35 for the points of pivot screws 36 to engage and trunnion the chamber so it may be tilted to either side; said screws 36 are threaded in lugs 37 of a slide 39 (see Fig. 3), guided to slide in a frame plate 40 and having threaded into it two jack screws 41, provided with finger wheels 42 by which they may be turned and thus lift the desired side of the chamber 5

engaged by their upper ends. The slide 38 is adjustable to and from the last by means of a screw 43 threaded in a lug 44 of the frame plate and having one end provided with a hand wheel 45 and the other end with an annular groove (not shown) engaged by a pin 47 in the slide.

The frame plate 40 normally rests upon a supporting plate 48, which is pivoted at 49 to the top of a support 50 provided upon the main frame 1. The frame 40 is provided with downward studs 51 guiding in holes in the plate 48, and is also provided with lugs 52 projecting through slots 53 in the supporting plate and operated by links 54 and bell-crank levers 55, the latter being mounted on the support 50 and having each one end connected by a rod 56 to a rack 57, which is slidable vertically between guides 58 fixed on the support, and has its lower end attached to a double-armed foot lever 59, 60, which is fulcrumed at 61 and normally holds the rack elevated by the action of a spring 62 which supports the main arm 59 of the lever. On the support 50 is further pivoted a finger operated dog 63, normally held in engagement with the rack by a spring 67x. The plate 48 may be tilted on its joint 49, by a screw 64, having its upper end connected to the plate by a ball-and-socket joint 65 and its lower end threaded in a nut block 67 trunnioned in the support 50. To permit more readily such tilting the rods 56 are each made in two sections joined together by a turn-buckle 68. The screw 64 is provided with a small wheel 69 by which it is turned.

At the heel end of the machine the elements 49, 65, 67 and 69, being like the corresponding parts at the toe end, need no further description; but at the heel end it will be seen that the support 50x, is not rigid but is a portion of a carriage 70, sliding on a T-shaped rib 71 at the top of the bed-plate 1, and is operated by means presently to be described. The heel end of the machine is different from the toe end by having the frame plate 40 pivoted directly at the joint 49, and further by having between the rib 34 and the slide chamber 5 a chamber 72, (see Figs. 4, 9, 10 and 11,) in which is located the following pad-actuating mechanism.

In the chamber 72 is slidably guided a plate 73, upon which are pivoted at 74 two levers 75, to whose front ends are pivoted at 76 clamping blocks 77, to which are secured the ends of the heel pad 78 (of leather or other flexible material), whose middle is secured by one or more screws 79 to a push bar 80, whose rear end is guided on a stud 81 and connected by links 82 with the rear ends of the levers 75. The stud 81 is slidably mounted in a lug 83 of the plate 73, and has its rear end butting against the point of a thumb screw 84 threaded in a lug 85 of the chamber 72. Said screw is to regulate the tension of a spring 86, which is interposed between the end of the push-bar 80 and a nut 87 threaded upon the slidable stud.

As best shown in Figs. 2 and 5, the carriage 70 has a dovetail rib 88, on which slide two dovetailed blocks 89 and 90, each of which is moved and held by a hand screw 91, threaded through a lug 92 of the carriage and swivel-jointed on a pin 93 in the block. In the block 89 is threaded the lower end of a prop 94, whose top end 95 is crutch-shaped to support the front part of the last 3. In the block 90 is similarly threaded a prop 94x, whose upper end passes into a hole near the heel end of the last; both props are provided with hand wheels 96 and may have jam-nuts 97 to hold them in the positions they are turned by the said wheels. The heel prop 94x being subjected to considerable lateral strain, is guided in a bracket 98 fixed upon the prop-carrying block 90.

For purpose of moving the carriage 70, it is provided with a rack 99, which is engaged by the upper edge of a cog-wheel 100, mounted on a stud 101 on the frame, and having its lower edge engaged by a dog 102, pivoted to the lower end of a hand lever 103, which is also mounted on the stud 101 and is provided with a finger lever 104, whose spring 105 causes the dog to normally engage the cogs of the wheel. The wheel is held in any desired position by a dog 106 normally held in engagement with the wheel by a spring 107, said dog has an arm 108, for the operator to press on with his foot to disengage the dog while he operates the hand lever 103 and the finger lever thereon so as to move the carriage to the desired position or proximity to the toe end of the machine, according to the length of the shoe to be operated on.

To keep the last firmly down upon its supporting props during operation, I provide, as in Fig. 5, a pair of hook levers 109 adapted to take hold upon the last 3 as shown. The said hook levers are pivoted at 110 together and to a foot lever 111, which is pivotally mounted at 112 to a post 113 and normally impelled upward at its front end by a spring 114 acting downward on its rear end. The hook levers are normally closed together by a spring 115, the lower ends of the levers extend below the pivot 110 and are formed with lateral fingers 116 adapted to engage the inner edges 117 of a cam bracket 118, fixed on the carriage, and thus spread the upper ends of the hook levers to the dotted positions shown in Fig. 5. When the foot lever is down it may be swung slightly sidewise and thus engaged and held down by a catch 119 on the main frame.

In operation of the mechanism just described, it will be understood that when the foot lever 111 is released from the catch 119, the spring 114 elevates it until it stops on lug 120 and the hook levers are closed by the spring 115 above the last; as the operator now steps on the foot lever the hooks will hold the last firmly down, while the tacking of the leather takes place, whereupon the operator takes hold of the finger holds 119ˣ of the hook levers and spreading them sufficiently to dis-engage them from the last, he presses the foot lever so far down that the cam 118 engages and spreads the hook levers and holds them spread as long as the foot lever is in a lowered position.

In the modification in Fig. 6 but a single hook lever is employed, and said lever passes upward and outward to the dotted position when the foot lever is released, as the spring 114 then throws the curved arm 122 of the hook lever against a roller 123 in a bracket 124 fixed on the frame, and as the foot lever 111 is pressed down by the foot a light spring 125 brings the hook lever with its pivoted rocking piece 126 down upon the sole on the last; such swinging of the hook lever being limited by a stopping lug 127 on the foot lever.

The operation of the other mechanisms of the machine may be further described as follows: The carriage is moved to the desired place and the last props adjusted as to their height and distance apart, and the screws 64 and 41 are turned until the wipers 16 assume a substantially parallel position to the portions of the shoe sole and last they are to enter upon. The last with shoe sole and upper leather placed on it in the usual manner for such operation, being put in place upon the props, is engaged by the hook levers, or a single hook lever as in Fig. 6 if the foot-wear operated on is a boot, as the boot shank will get more room in Fig. 6 than in Fig. 5. The heel pad is then forced against the heel by turning the wheel 45 of the heel end, the hand levers 30 are then swung inward so that the wipers 16 will gather in and close down the edges 18 of the upper-leather and hold them down while they are being secured by tacks in the usual manner. When the lever 30 at the heel end is swung inward the heel, being usually flat, the wipers will work without any vertical movement to them, and they may also stay upon the heel by mere friction during the tacking process, thus possibly dispensing with the dog 11 and rack 6 at the heel end; but the toe wipers must have a vertical movement, which is given to them by the foot lever 59 while the forward movement is given by the hand lever 30, so that the toe wipers gather or wipe the upper-leather upward and then inward upon the sole on the last, and as said leather has a great tendency to spring back again the dog 11 and rack 6 come into good service. When the tacking is done the dog, or dogs, 11 are raised, the levers 30 swung apart, screw 43 at heel end loosened, the hook lever or levers holding the last down are disengaged as is also the dog 63 at the toe end and if the frame 40 does not come down by its weight the lever arm 60 is depressed, the partly finished shoe and its last are removed and replaced by another last with leather on it. The shoe shown in Fig. 1 is curved laterally the way the left foot shoes usually are, while right foot shoes are curved in the opposite direction. For this reason the toe wipers, and for some shoes also the heel wipers, have one of the edges 17 more slanting than the other, as clearly shown at the toe end of the last in Fig. 1; hence whenever the operator changes from operating on the left foot shoes to right foot shoes or vice versa he reverses the toe wipers. This is done by simply turning the latch 26, throwing the lid 23 open, turning the wipers upside down and closing the lid again by the latch 26. As already stated, where the heel requires it the heel wipers may also be reversed, and where the shape of the heel does not require reversing, it is still a great advantage to be able to reverse the wipers so that the portions of them engaging the leather may be worn from both sides and thus last twice as long as if never reversed. The screw 84, as already indicated in the description, will adjust the tension of the spring 86, which will thus cause more or less pressure on the pad 78 as may be required for light and heavy leather operated on. The hand screw 45 at the toe end of the machine may be employed to give extra hard forward pressure to the toe wipers where the toe leather is very stiff or thick, but for machines working only on ordinary or light leather said screw 45 and slide 39 may be omitted, the lugs 37 of said slide being in that case formed integral upon the frame plate 40, as will be fully and readily understood from this description without further illustration. It will be understood that the straight front slots 22 and 22ª insure straight forward movement and equal closing and spreading of the wipers while the slots 15 and 15ª cause the closing and opening of the wipers as the latter are moved by the links 13.

Having thus described my invention, what I claim is:

1. In a lasting machine and mounted in a suitable frame, the combination with a wiper chamber of wipers guided to slide therein and project forward beyond the chamber, said wipers being pivotally secured together in pairs and provided each with a fixed pin some distance from the pivot, one at each

opposite side thereof, said chamber having rear-wardly converging slots or grooves adapted to receive and guide said pins, a slide guided in the frame work, means for reciprocating the slide, links connecting the slide with the rear ends of the wipers, the front ends of said links having their pivots projected beyond the joints, and the adjacent frame work having rear-wardly converging grooves or slots engaging said projecting ends of the pivots; said wipers being freely detachable from the links and reversible with either side down in the chamber, and the chamber having its top or cover arranged for easy opening and closing; said wipers having their wiping edges arranged at different angles to the line of movement to and from the shoe operated on.

2. A lasting machine comprising in combination a horizontally elongated frame, last supporting means near the middle thereof, a support near one end of the frame, a toe-operating mechanism mounted on the support and comprising a supporting plate pivoted to tilt to and from the last support, a frame plate guided on the supporting plate to move up and down near above it, a foot lever and intermediate rods, levers and links arranged to raise and lower the frame plate by the operator's foot, and a screw for tilting and holding the pivoted plate at various inclinations toward the last, a wiper chamber pivotally mounted upon the frame plate to tile laterally on its pivots, screws for regulating such tilting, toe wipers moving in said chamber and a hand lever operatively connected with the wipers for moving them from and toward the toe of the last, and means automatically closing and opening the wipers as they are moved by the lever, substantially as set forth.

3. A lasting machine comprising in combination, a horizontally elongated frame, a carriage sliding thereon, last supports mounted on the carriage, a support on the outer end of the carriage, a heel operating mechanism mounted on the support and comprising a frame plate with means for tilting it to and from the last supports, a slide (39) guided on the frame plate and a hand screw for moving it, a chamber pivotally mounted on the said slide to tilt from side to side thereon and screws for regulating such tilting, a slide in said chamber, and pivotally mounted thereon a pair of levers, a pad adapted to press about the heel of the last, blocks secured near the ends of the pad and pivotally attached to the front ends of the levers, a push-bar having its front end secured to the middle of the pad and its rear portion link-connected to the rear ends of the levers, said slide having upon its rear end a lug and the chamber having in rear thereof a second lug, a screw-threaded stud sliding in the first mentioned lug and guidingly inserted in the push bar, a nut on the stud and a spring interposed between the nut and the end of the push bar, and a tension regulating screw threaded in the second lug and butting against the rear end of the stud.

4. A lasting machine comprising in combination, a horizontally elongated frame, last supporting means near the middle thereof, a support near one end of the frame, a toe-operating mechanism mounted on the support and comprising a supporting plate pivoted to tilt to and from the last supports, a frame plate guided on the supporting plate to move up and down near above it, a foot lever and intermediate rods, levers and links arranged to raise and lower the frame plate by the operator's foot, and a screw for tilting and holding the pivoted plate at various inclinations toward the last, a wiper chamber pivotally mounted upon the frame to tilt laterally on its pivots, screws for regulating such tilting, toe wipers moving in said chamber and a hand lever operatively connected with the wipers for moving them from and toward the toe of the last, and means automatically closing and opening the wipers as they are moved by the lever, substantially as set forth; said chamber for the wipers being mounted upon the frame plate by an intermediate slide (39) having a hand screw for moving it toward and away from the last supports.

In testimony whereof I affix my signature, in presence of two witnesses.

JOHN H. DEZIEL.

Witnesses:
O. A. BINKER,
E. C. WILLIAMS.