

April 30, 1963

E. A. DESCHENES

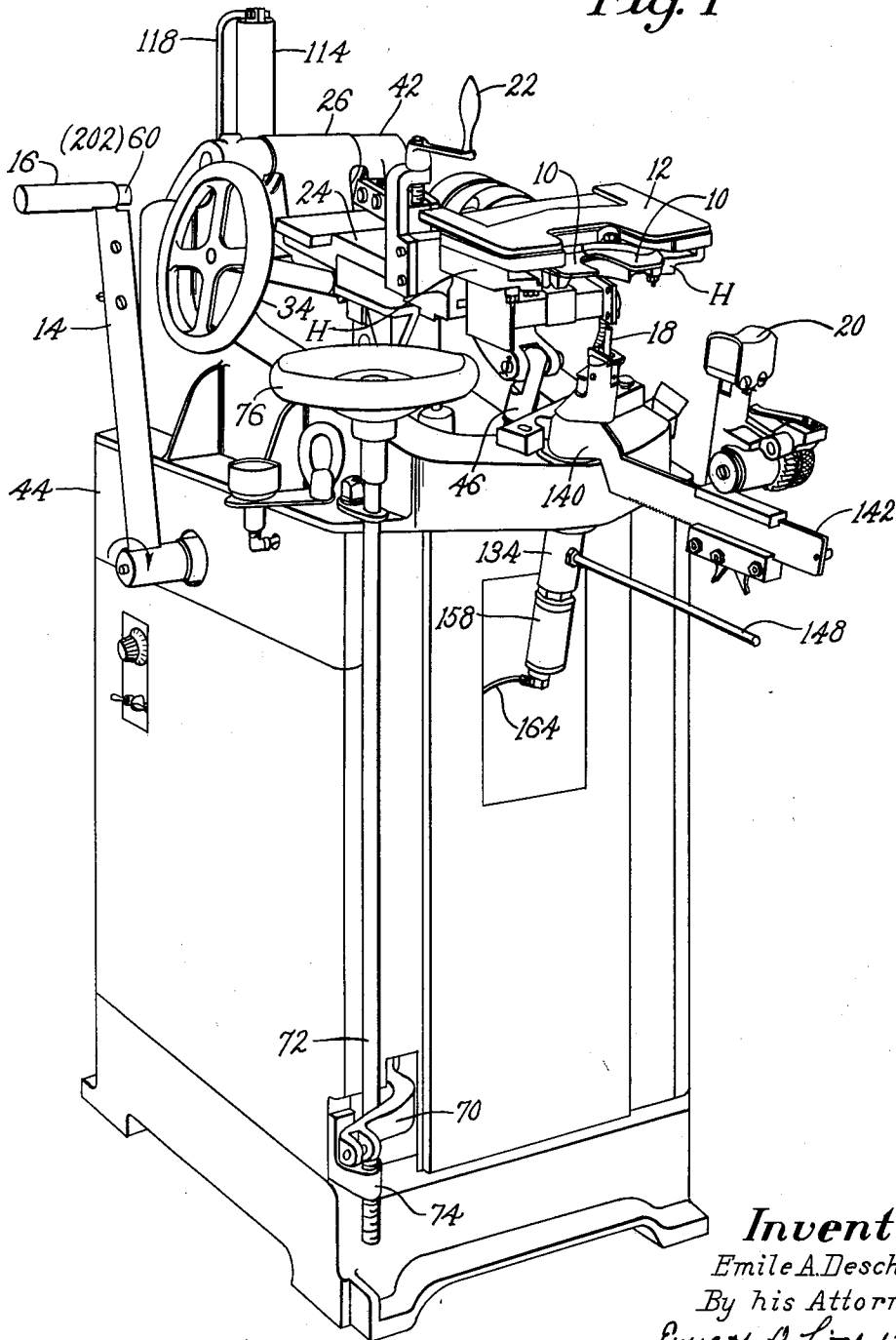
3,087,176

LASTING MACHINES

Filed March 13, 1962

5 Sheets-Sheet 1

Fig. 1



Inventor
Emile A. Deschenes
By his Attorney
Ernest P. Littlefield

April 30, 1963

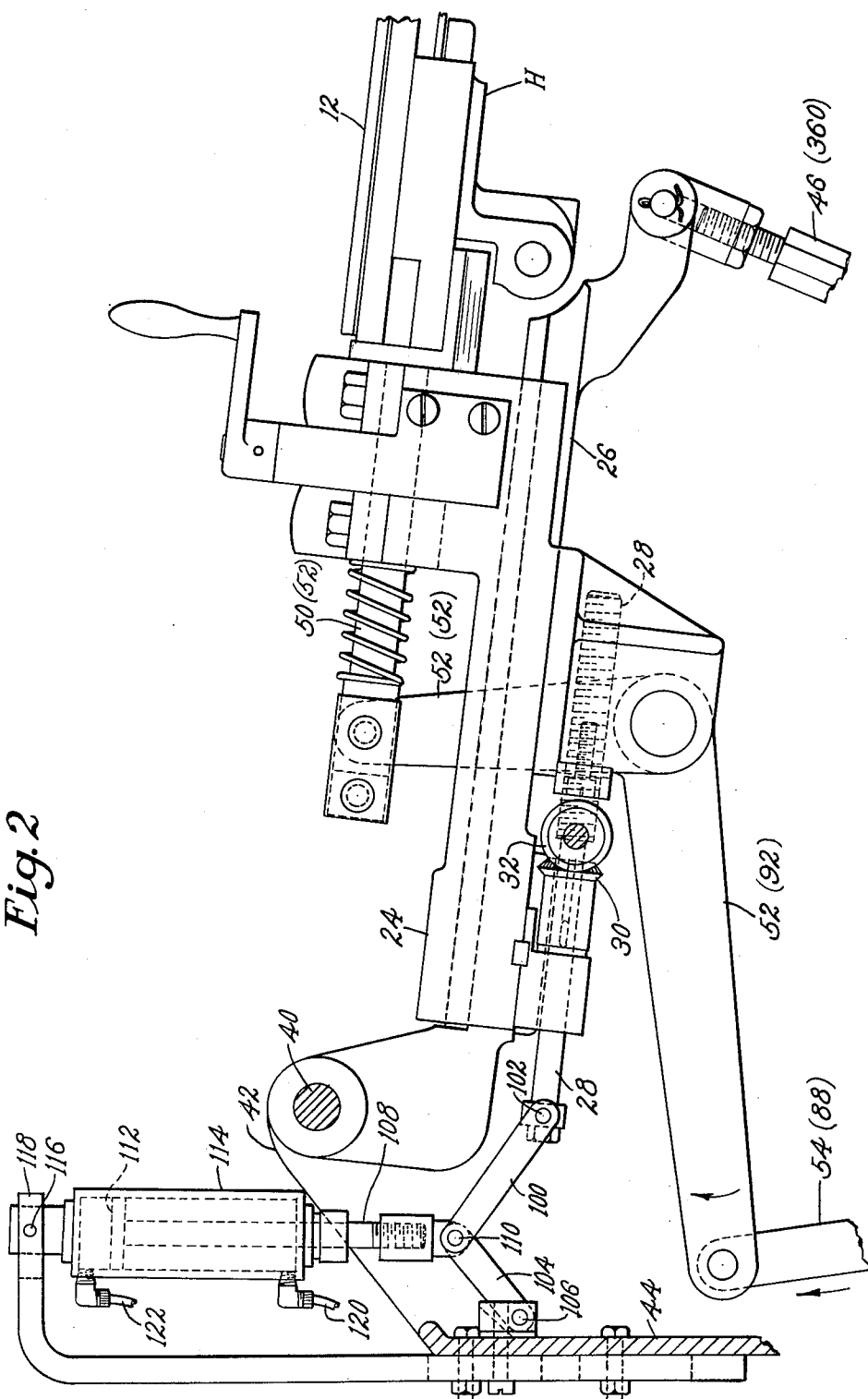
E. A. DESCHENES
LASTING MACHINES

3,087,176

Filed March 13, 1962

5 Sheets-Sheet 2

Fig. 2



April 30, 1963

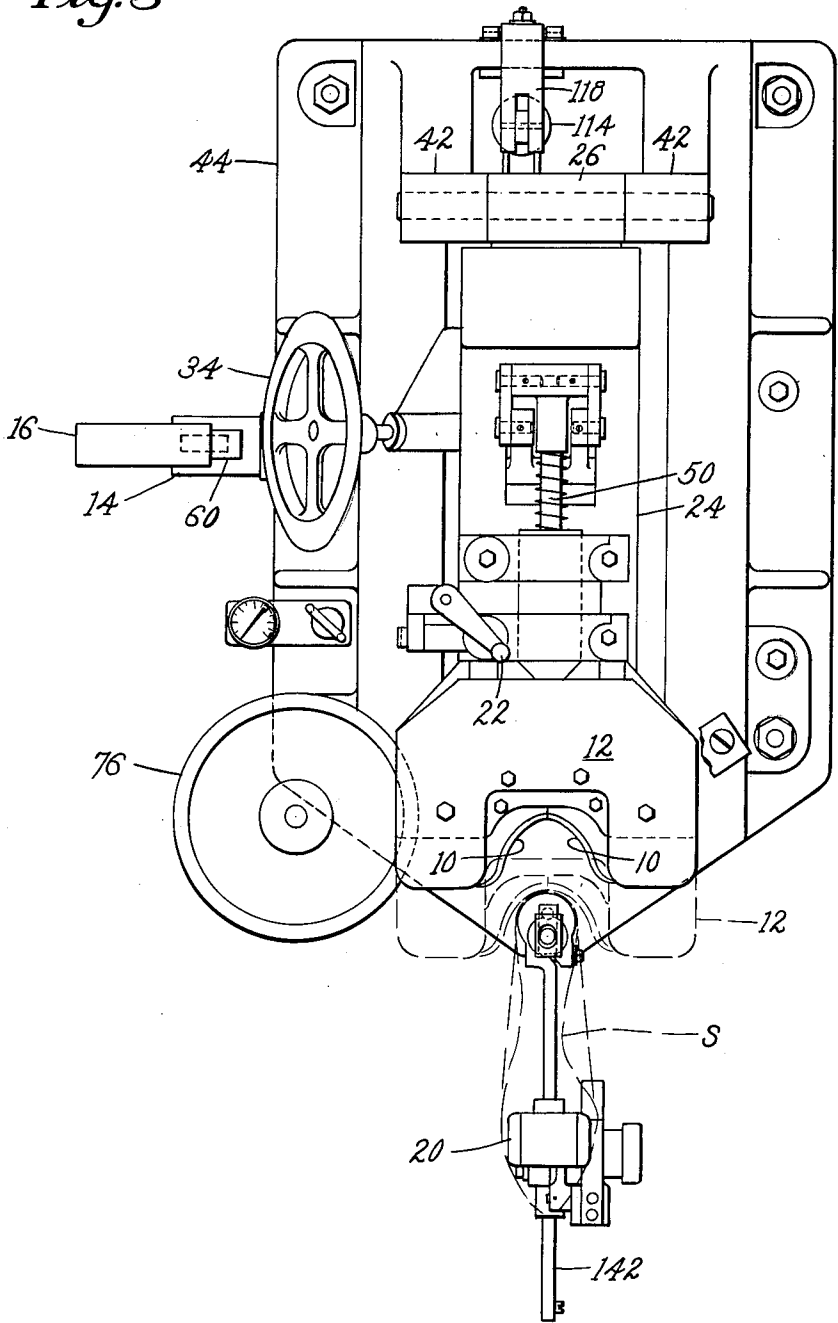
E. A. DESCHENES
LASTING MACHINES

3,087,176

Filed March 13, 1962

5 Sheets-Sheet 3

Fig. 3



April 30, 1963

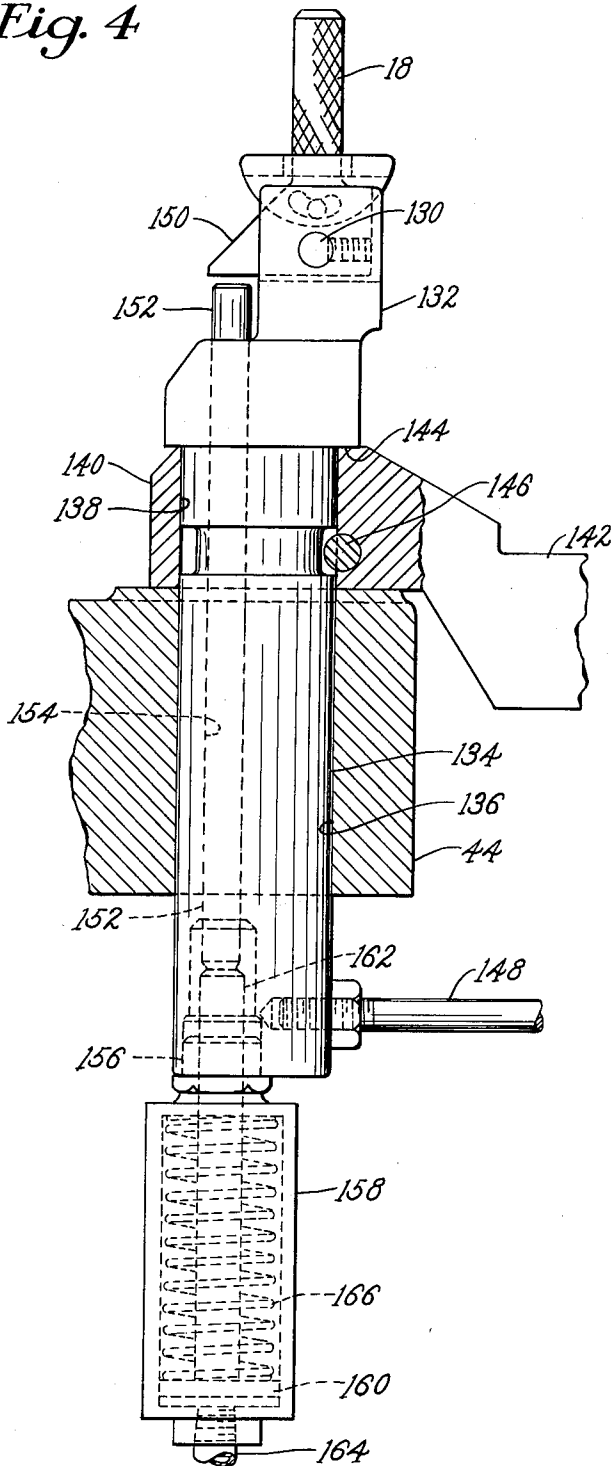
E. A. DESCHENES
LASTING MACHINES

3,087,176

Filed March 13, 1962

5 Sheets-Sheet 4

Fig. 4



April 30, 1963

E. A. DESCHENES

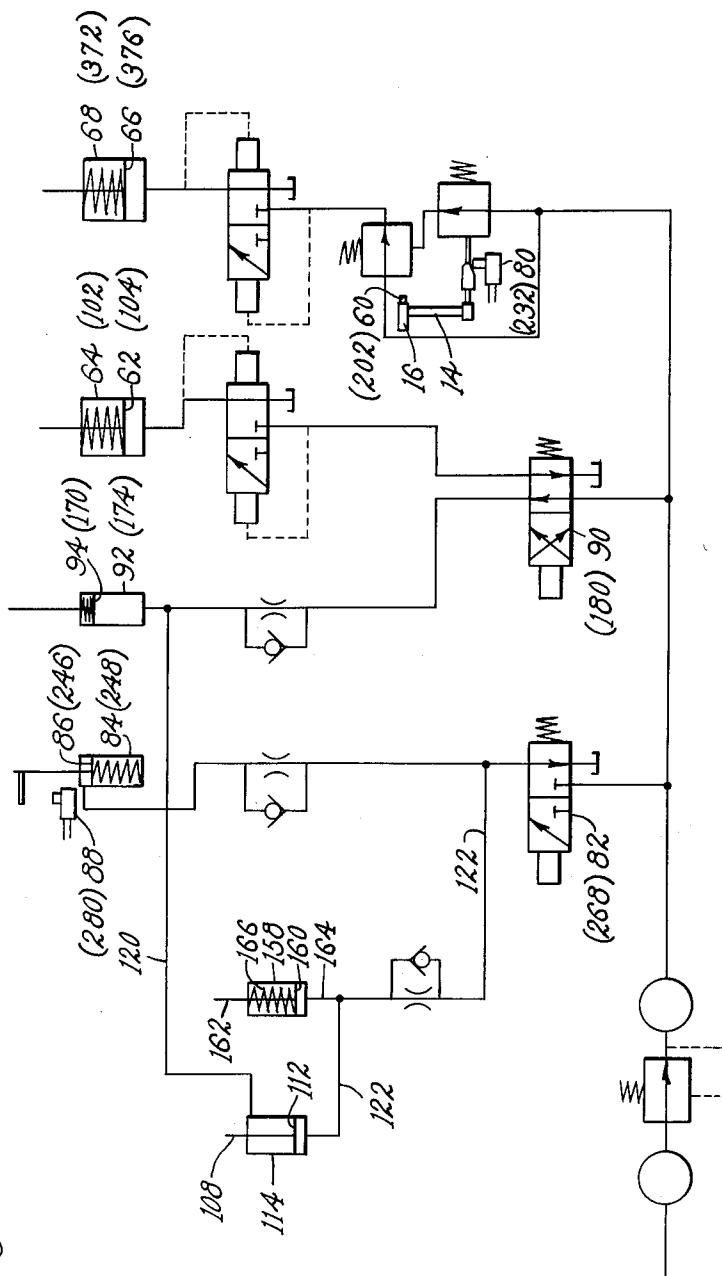
3,087,176

LASTING MACHINES

Filed March 13, 1962

5 Sheets-Sheet 5

Fig. 5



1

3,087,176

LASTING MACHINES

Emile A. Deschenes, Danvers, Mass., assignor to United Shoe Machinery Corporation, Boston, Mass., a corporation of New Jersey

Filed Mar. 13, 1962, Ser. No. 179,421

8 Claims. (Cl. 12—12.5)

This invention relates to lasting machines, and particularly to a novel and improved machine for lasting heel ends of shoes of the general type disclosed in a copending application for United States Letters Patent Serial No. 101,426, filed April 7, 1961, in the name of the present inventor, now Patent No. 3,040,345 granted June 26, 1962. It is to be understood, however, that in their broader aspects, features of the invention are not limited to embodiment in a heel end lasting machine of the type disclosed in the mentioned application or to the exact mechanical construction herein shown.

In the lasting machine disclosed in the mentioned application, the shoe to be lasted is mounted on a support comprising a last pin, fixed relatively to a frame, and an associated toe rest and the upper materials are wiped inwardly over and pressed against the heel end of the shoe bottom by means of the usual heel end wipers which are actuated by power operated means under the control of a manually movable member, i.e., a hand lever. The heel end wipers, which are associated with a wiper head, are usually heated to improve their wiping action and to accelerate the setting of adhesive, when the latter is used to secure the lasting margin of the upper materials in lasted position, and the wiper head is mounted on the frame in a fixed position, relative to movement longitudinally of a shoe on the support, with the open and retracted wipers located quite close to the heel end of the shoe. Accordingly, the placing of a shoe on the last pin of the shoe support is rather difficult and, where the wipers are heated, somewhat dangerous.

It is an object of this invention to provide a novel and improved heel end lasting machine wherein these difficulties are avoided and the placing of a shoe on the shoe support made easy and safe. To this end, and in accordance with a feature of the invention, in the herein illustrated machine the wiper head is mounted for movements to and from an idle position in which the wipers are spaced a considerable distance from the heel end of a shoe on the support and an operating position in which the wipers are located close to the heel end of the shoe, and power operated means are provided for effecting such movements of the wiper head, together with a member for controlling the operation of the wiper head moving means which is conveniently mounted on the manually movable wiper operating member. More particularly, in the herein illustrated machine, the wipers are actuated by fluid pressure operated means under the control of the manually movable wiper operating member and fluid pressure operated means are also provided for effecting the movements of the wiper head. The member for controlling the wiper head moving means being also adapted to render the wiper actuating means operative.

Preferably, and in the herein illustrated machine, power operated means are provided for rocking the last pin to clamp the toe end of a shoe mounted thereon against the toe rest and, further to facilitate and speed up the operation of the machine, the member on the wiper operating member for controlling the operation of the wiper head moving means, and for rendering the wiper actuating means operative, is also adapted to render the last pin rocking means operative.

These and other objects and features of the invention will appear in the following detailed description of a

2

preferred embodiment illustrated in the accompanying drawings and will be pointed out in the claims.

In the drawings,

FIG. 1 is a view in perspective of a heel seat lasting machine embodying the features of this invention;

FIG. 2 is a view in side elevation and at an enlarged scale of a portion of the machine shown in FIG. 1;

FIG. 3 is a plan view of the machine;

FIG. 4 is a view in side elevation and at an enlarged scale of a portion of the machine; and

FIG. 5 is a diagram of the fluid pressure operating and electrical control systems associated with the machine.

Referring to these drawings, the machine therein illustrated is essentially the same as the machine shown in United States Letters Patent No. 2, 982,980, granted May 9, 1961, in the name of Joseph O. Faneuf, Richard M. Elliott, and Daniel E. Chaplin, but modified for use in lasting the heel ends of shoes, in the manner suggested in Patent No. 3,040,345, referred to above.

Thus, the herein illustrated machine is provided with a pair of heel lasting wipers 10, 10, which are associated with a wiper head 12 and are adapted to be advanced and closed, in response to movement of a wiper actuating lever 14 by means of a handle 16, to wipe the upper materials inwardly over the heel end of a shoe S mounted on a last pin 18 and a toe support 20. Preferably, and as herein illustrated, electrical heating means, indicated generally by reference characters H, H, FIGS. 1 and 2, are associated with the wiper head 12. As in the machine of the Faneuf et al. patent, the wiper head is mounted in angular adjusting movement, by means including a hand crank 22 on a carriage 24, FIG. 2, while the carriage is slidably supported on a table, or arm, 26 for linear adjusting movement by means including a screw 28, bevel gears 30, 32 and hand wheel 34, FIGS. 1 and 3. The table 26 is pivotally mounted, by means of a trunnion shaft 40, between upstanding portions 42, 42 of a machine frame construction indicated generally by the reference character 44 and is adapted to be swung about this pivotal mounting for the purpose of effecting relative movements of the wipers heightwise of the shoe being lasted by means including a link 46 (corresponding to the link 360 of the Faneuf et al. patent see FIG. 4 thereof). The wipers are controlled by cams (not shown) contained within the wiper head 12 and are actuated by means including an operating rod 50 bell crank lever 52 and link 54 (corresponding respectively to the rod 52 bell crank lever 92 and link 88 of the Faneuf et al. patent).

Insofar as the features of the present invention are concerned the wipers 10 10 could be advanced and closed directly by a swinging movement of the lever 14 forwardly from the position shown in FIG. 1 (see arrow), thus to move the link 54 upwardly and swing the bell crank lever 52 in a clockwise direction, FIG. 2. Actually, the herein illustrated machine is provided with power operated means for actuating the wipers, similar to that shown in the Faneuf et al. patent, which are rendered operative in response to an initial inward movement of a push button 60, carried by the handle 16, and including a wiper operating piston 62, contained within a cylinder 64, as diagrammatically illustrated in FIG. 5 of the drawings. The machine also has a piston 66 operating within a cylinder 68 for swinging the table 26 in a clockwise direction, FIG. 2, thus to cause the wipers to exert bedding pressure on the upper materials, after these materials have been wiped inwardly over the heel end of the shoe being lasted, in response to a still further movement of the push button 60 (this last-mentioned piston 70 and cylinder corresponding to the piston 376 and cylinder 372 of the Faneuf et al. patent, while the aforementioned push button 60, piston 62, and cylinder 64 correspond to

3

the push button 202, piston 104 and cylinder 102 of the Faneuf et al. patent).

At its lower end, the link 46 is connected to one end of a lever 70, the opposite end of which extends out through the lower portion of the machine, as shown in FIG. 1. A spring (not shown) located within the frame construction, is arranged to move the link 46 yieldingly upwardly to the extent determined by the engagement of the outer end of the lever with a stop collar (not shown) carried by a rod 72, the lower end of which is threaded into a boss 74, associated with the machine frame. At its upper end, this rod carries a hand wheel 76 by means of which the rod 72 may be rotated to change the vertical position of the stop collar and hence to vary the heightwise position in which the wiper head is yieldingly held by the aforementioned spring.

The power operated mechanism provided in the machine is the same as that of the Faneuf et al. patent, and is diagrammatically illustrated in FIG. 5. Thus, there is a switch 80 (corresponding to switch 232 of the Faneuf et al. patent, see FIG. 15) which is adapted to be closed in response to the initial movement of the push button 60, thus to energize the solenoid of a valve 82 (corresponding to valve 268 of Faneuf et al.). With its solenoid thus energized, the valve 82 is shifted to a position to admit fluid under pressure to a cylinder 84 in which there is a piston 86 (corresponding to cylinder 248 and piston 246 of Faneuf et al.). As the piston 86 is moved downwardly, a switch 88 (corresponding to switch 280 of Faneuf et al.) is closed, thus energizing the solenoid of a valve 90 (corresponding to valve 180 of Faneuf et al.). With its solenoid thus energized, the valve 90 is shifted to a position to connect a cylinder 92 containing a piston 94 (corresponding to cylinder 174 and piston 170 of Faneuf et al.) to exhaust and, at the same time, to admit fluid under pressure to the previously mentioned cylinder 64. As will be readily understood by reference to the Faneuf et al. patent, this initial movement of the push button thus renders the servo controlled power mechanism for actuating the wipers operative so that the wipers may be advanced and closed in response to the forward swinging movement of the lever 14, in exactly the same manner as is done in the machine disclosed in the Faneuf et al. patent. Also, at the conclusion of the overwiping action, the wipers may be forced downwardly by the piston 66, thus to apply bedding pressure to the upper materials in response to a further inward movement of the push button.

In order to facilitate the presentation of a shoe to be lasted to the machine, the wiper head is withdrawn to the retracted position in which it is shown in FIGS. 1 and 2, and in the solid lines in FIG. 3, when the machine is idle, by means of a toggle including a link 100, pivotally connected by a pin 102, at one end, to the left-hand end of the adjusting screw 28, FIG. 2, and a link 104, connected at one end to the machine frame by means of a pin 106, these two links being connected together at their other ends and to a piston rod 108 by means of a pin 110. The piston rod 108 extends from a piston 112 contained within a cylinder 114, see also FIG. 5, and this cylinder is pivotally supported at one end, by means of a pin 116, on a bracket member 118 which is fastened to and extends upwardly from a portion of the machine frame construction 44. As shown diagrammatically in FIG. 5, the lower end of the cylinder 114 (FIG. 2), upper end (FIG. 5), is connected by means of a conduit 120 to a pressure line leading from the valve 90 to the cylinder 92, which is associated with the servo controlled power operating mechanism for the wipers, while the upper end of the cylinder 114 (FIG. 2), lower end (FIG. 5) is connected by a conduit 122 to a pressure line leading from the valve 82, also associated with the wiper operating mechanism. As will be understood by referring to FIG. 5, as well as to the above brief description of the operation of the machine as set forth in the Faneuf et al. patent, in response to an

4

initial movement of the push button 60, to render the servo controlled power wiper operating mechanism operative, fluid under pressure will also be applied to the conduit 122, through valve 82, while the conduit 120 will be connected to exhaust through the valve 90.

The piston 112 will now be moved downwardly within the cylinder 114, FIG. 2, and the toggle formed by the links 100, 104 will be fully straightened when the piston reaches the lower end of its stroke. As a result of this straightening of the toggle, the carriage 24 and with it the wiper head 12 and wipers 10, 10 will be shifted to the right, FIG. 2, and downwardly, FIG. 3, to the operative position indicated by the broken lines in FIG. 3 and with the open and retracted wipers located quite close to the heel end of a shoe mounted on the last pin with its toe end on the toe rest 20. From this position, the wipers 10, 10 are now advanced and closed by the servo controlled power operating mechanism in response to a forward swinging movement of the lever 14 by means of the handle 16, and at the conclusion of this overwiping action, the wipers will be caused to exert a heavy bedding pressure on the overwiped lasting margin of the upper materials in response to further inward movement of the push button 60.

Finally, the push button is released for return to its original position by means of a spring, not shown, thus relieving the bedding down pressure of the wipers and rendering the servo controlled power operating mechanism for operating the wipers inoperative. Also, as the push button returns to its original position, valves 82 and 90 are returned to their original positions as shown in FIG. 5 so that fluid under pressure is supplied to the lower end of the cylinder 114 (FIG. 2), upper end (FIG. 5), while the upper end of this cylinder (FIG. 2), lower end (FIG. 5), is connected to exhaust, whereupon the toggle formed by the links 100 and 104 is broken and the carriage 24 and wiper head 12 are moved back to the normal retracted position in which these parts are shown in FIG. 2 and in the solid lines in FIG. 3. The wiper operating lever 14 is now swung rearwardly to retract and open the wipers 10, 10.

Further to facilitate the loading of a shoe into the machine and the clamping of it in operating position, fluid pressure operated means are provided for rocking the last pin 18 in a clockwise direction, FIG. 4, thus to cramp the toe end of a shoe mounted on the last pin firmly against the toe support 20. Referring to FIG. 4, the last pin 18 is pivotally mounted by means of a pin 130 in the offset upper end portion 132 of a spindle 134 which is rotatably mounted within a vertically extending bore 136 formed in a portion of the machine frame 44. This spindle passes through a bore 138 formed in the inner split end portion 140 of a supporting bar 142 on which the toe support is adjustably mounted, FIG. 1, the spindle having a shoulder 144 which rests on the end 140 of the bar 142. A binding screw 146 is provided for clamping the split end 140 around the spindle and an operating arm 148 is threaded into the lower end of the spindle for purposes which are explained in the above-mentioned co-pending application, but which have no particular bearing on the present invention.

Formed integrally with the last pin 18 is an offset arm portion 150 which is directly in line with a push rod 152 slidably mounted within a bore 154, formed in the spindle 134. Secured to the lower end of the spindle by means of a threaded boss 156 is a cylinder 158 in which there is a piston 160 carrying a piston rod 162 which extends upwardly and abuts the lower end of the push rod 152. The space in the cylinder 158 beneath the piston 160 (FIG. 5) is connected to the conduit 122 by means of a conduit 164. When the machine is idle, and before the push button 60 has been moved initially to activate the wiper operating mechanism and, as explained above, to project the wiper head to operating position, a spring 166 holds the piston in its lowermost position in which the

5

push rod 152 is out of engagement with the arm 160. However, in response to the initial movement of the push button 60, as the wiper head is projected to operating position and the wiper operating mechanism is rendered operative, the piston 160 will be forced upwardly by fluid under pressure admitted to the cylinder 158 through the valve 82, and conduits 122 and 164, thereby swinging the last pin 18 in a clockwise direction to clamp the toe end of a shoe mounted thereon (FIG. 3) firmly against the toe support 20, in a manner which should be quite apparent. At the conclusion of the lasting operation, when the push button is released, cylinder 158 will be connected to exhaust, thus permitting the spring 166 to retract the piston 160 and releasing the shoe for removal from the machine.

From the foregoing paragraphs it will be apparent that when the operator takes a shoe in his right hand and places it upon the last pin 18 with its forepart on the toe support 20, his view of the last pin is unobstructed and, with the wiper head retracted, there is no danger of his hand coming in contact with the heated wipers. Also, while still holding the shoe with his right hand the operator can push the button 60 with the thumb of his left hand, thus causing the shoe to be clamped against the toe support 20 and the wiper head 12 to be projected to operative position. Now the lever 14 may be utilized to operate the wipers in the usual manner, the whole operation effected quickly and efficiently.

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

1. A machine for lasting the heel end of a shoe having, in combination, a frame, a support for a shoe mounted in fixed position on said frame, a wiper head provided with heel end wipers, means for operating said wipers including a manually movable member, said wiper head being mounted for movements to and from an idle position in which said heel end wipers are spaced a considerable distance from the heel end of a shoe mounted on said support and an operating position in which the wipers are located close to the heel end of the shoe, power operated means for effecting such movements of the wiper head, and a member on said manually movable member for controlling the operation of said power operated means for moving the wiper head.

2. A machine for lasting the heel end of a shoe having, in combination, a frame, a support for a shoe mounted in fixed position on said frame, a wiper head provided with heel end wipers, fluid pressure operated means for actuating said wipers, a manually movable member for controlling said wiper actuating means, said wiper head being mounted for movements to and from an idle position in which said heel end wipers are spaced a considerable distance from the heel end of a shoe mounted on said support and an operating position in which the wipers are located close to the heel end of the shoe, power operated means for effecting such movements of the wiper head, and a member on said manually movable member for controlling the operation of said power operated means for moving the wiper head and for rendering said fluid pressure operated wiper actuating means operative.

3. A machine for lasting the heel end of a shoe having, in combination, a frame, a support for a shoe mounted in fixed position on said frame, a wiper head provided with heel end wipers, fluid pressure operated means for actuating said wipers, a manually movable member for controlling said wiper actuating means, said wiper head being mounted for movements to and from an idle position in which said heel end wipers are spaced a considerable distance from the heel end of a shoe mounted on said support and an operating position in which the wipers are located close to the heel end of the shoe, fluid pressure operated means for effecting such movements of the wiper head, and a member on said manually movable member for

6

controlling the operation of said fluid pressure operated means for moving the wiper head and for rendering said fluid pressure operated wiper actuating means operative.

4. A machine for lasting the heel end of a shoe having, in combination, a frame, a support for a shoe mounted in a fixed position on the frame comprising a last pin and a toe rest associated with said last pin, power operated means for rocking said last pin to clamp the toe end of a shoe thereon against the toe rest, a wiper head provided with heel end wipers, means for operating said wipers including a manually movable member, said wiper head being mounted for movements to and from an idle position in which said heel end wipers are spaced a considerable distance from the heel end of a shoe on said support and an operating position in which the wipers are located close to the heel end of the shoe, power operated means for effecting such movements of the wiper head, and a member on said manually movable member for controlling the operation of said power operated means for moving the wiper head and for rendering said power operated last pin rocking means operative.

5. A machine for lasting the heel end of a shoe having, in combination, a frame, a support for a shoe mounted in a fixed position on the frame comprising a last pin and a toe rest associated with said last pin, power operated means for rocking said last pin to clamp the toe end of a shoe thereon against the toe rest, a wiper head provided with heel end wipers, power operated means for actuating said wipers, a manually movable member for controlling said wiper actuating means, said wiper head being mounted for movements to and from an idle position in which said heel end wipers are spaced a considerable distance from the heel end of a shoe on the support and an operating position in which the wipers are located close to the heel end of the shoe, power operated means for effecting such movements of the wiper head, and a member on said manually movable member for controlling the operation of said power operated means for moving the wiper head and for rendering said power operated last pin rocking means and said power operated wiper actuating means operative.

6. A machine for lasting the heel end of a shoe having, in combination, a frame, a support for a shoe mounted in a fixed position on the frame comprising a last pin and a toe rest associated with said last pin, fluid pressure operated means for rocking said last pin to clamp the toe end of a shoe thereon against the toe rest, a wiper head provided with heel end wipers, power operated means for actuating said wipers, a manually movable member for controlling said wiper actuating means, said wiper head being mounted for movements to and from an idle position in which said heel end wipers are spaced a considerable distance from the heel end of a shoe on the support and an operating position in which the wipers are located close to the heel end of the shoe, fluid pressure operated means for effecting such movements of the wiper head, and a member on said manually movable member for controlling the operation of said fluid pressure operated means for moving the wiper head and for rendering said fluid pressure operated last pin rocking means and said power operated wiper actuating means operative.

7. A machine for lasting the heel end of a shoe having, in combination, a frame, a support for a shoe mounted in a fixed position on the frame comprising a last pin and a toe rest associated with said last pin, power operated means for rocking said last pin to clamp the toe end of a shoe thereon against the toe rest, a wiper head provided with heel end wipers, fluid pressure operated means for actuating said wipers, a manually movable member for controlling said wiper actuating means, said wiper head being mounted for movements to and from an idle position in which said heel end wipers are spaced a considerable distance from the heel end of a shoe on the support and an operating position in which

7

the wipers are located close to the heel end of the shoe, power operated means for effecting such movements of the wiper head, and a member on said manually movable member for controlling the operation of said power operated means for moving the wiper head and for rendering said power operated last pin rocking means and said power operated wiper actuating means operative.

8. A machine for lasting the heel end of a shoe having, in combination, a frame, a support for a shoe mounted in a fixed position on the frame comprising a last pin, and a toe rest associated with said last pin, fluid pressure operated means for rocking said last pin to clamp the toe end of a shoe thereon against the toe rest, a wiper head provided with heel end wipers, fluid pressure operated means for actuating said wipers, a manually movable member for controlling said wiper actuating

8

means, said wiper head being mounted for movements to and from an idle position in which said heel end wipers are spaced a considerable distance from the heel end of a shoe on the support and an operating position in which the wipers are located close to the heel end of the shoe, fluid pressure operated means for effecting such movements of the wiper head, and a member on said manually movable member for controlling the operation of said fluid pressure operated means for moving the wiper head and for rendering said fluid pressure operated last pin rocking means and said fluid pressure operated wiper actuating means operative.

References Cited in the file of this patent

UNITED STATES PATENTS

2,982,980 Faneuf et al. May 9, 1961