Nov. 25, 1941. P. BRAUNER 2,263,673

MACHINE FOR APPLYING PRESSURE TO SHOE BOTTOMS

Filed Jan. 22, 1940 4 Sheets-Sheet 1

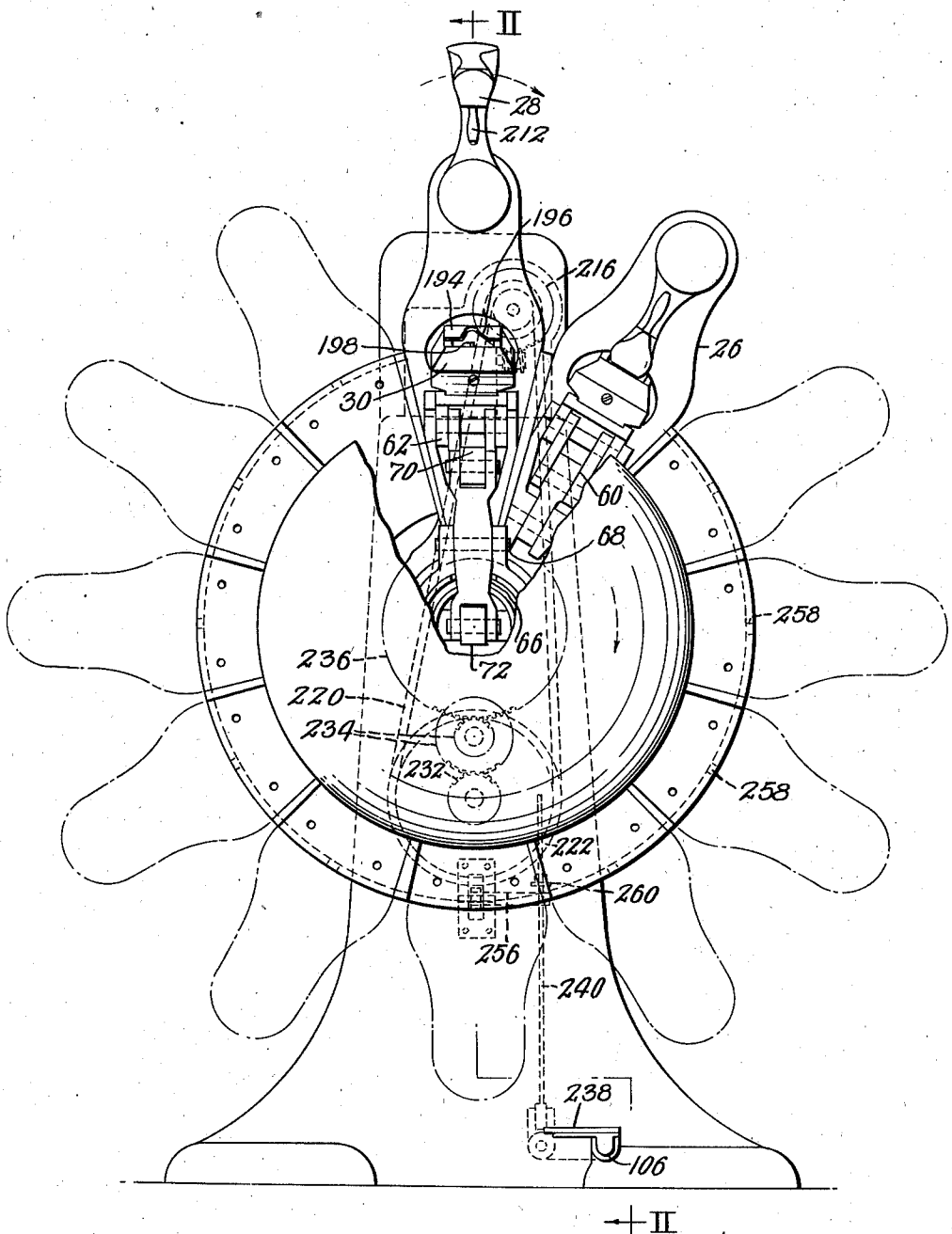


Fig. 1.

INVENTOR
Pincus Brauner
By his Attorney
Victor Cobb

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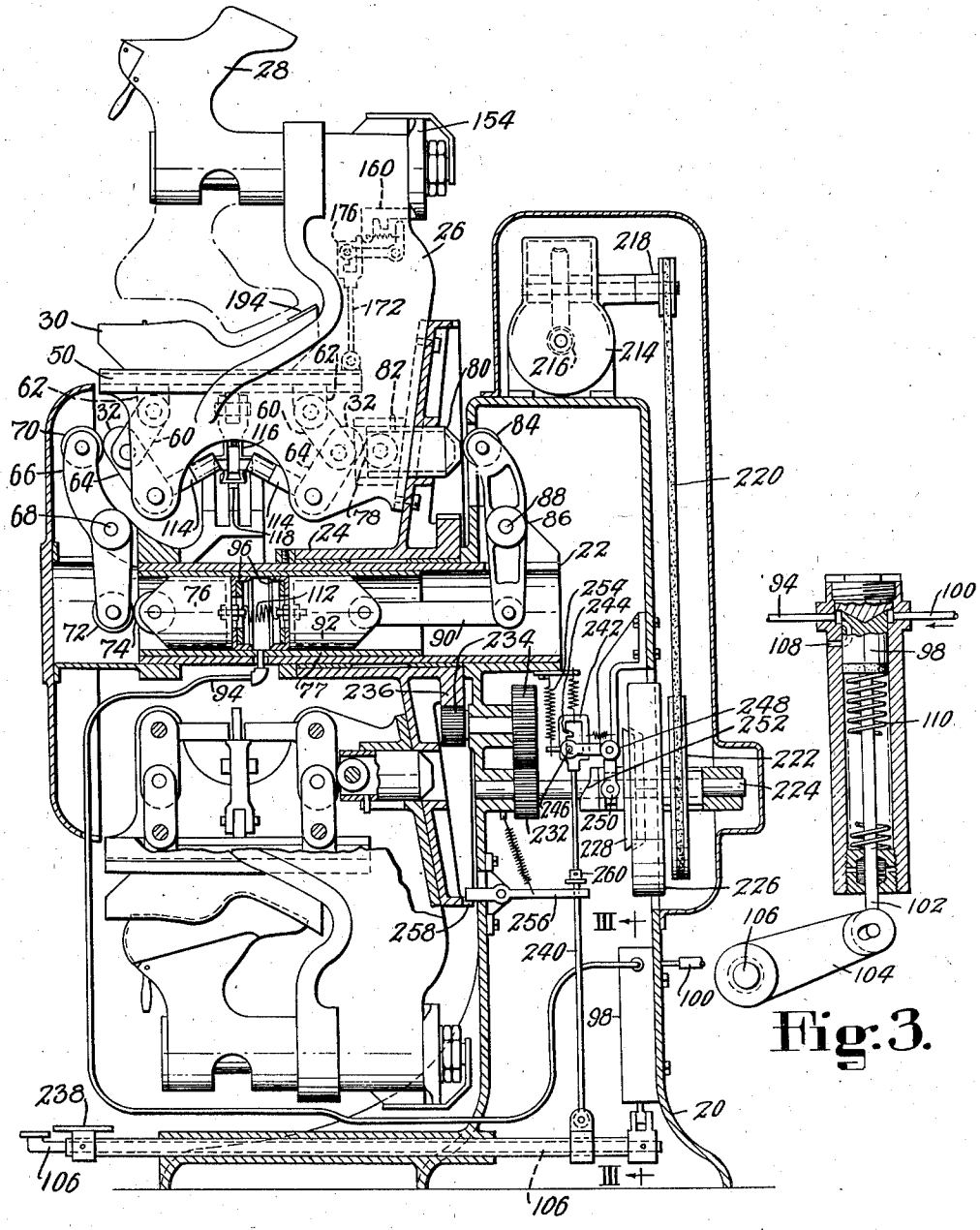


Fig. 3.

Fig. 2.

INVENTOR
Pincus Brauner
By his attorney
Victor Cobb.

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MACHINE FOR APPLYING PRESSURE TO SHOE BOTTOMS

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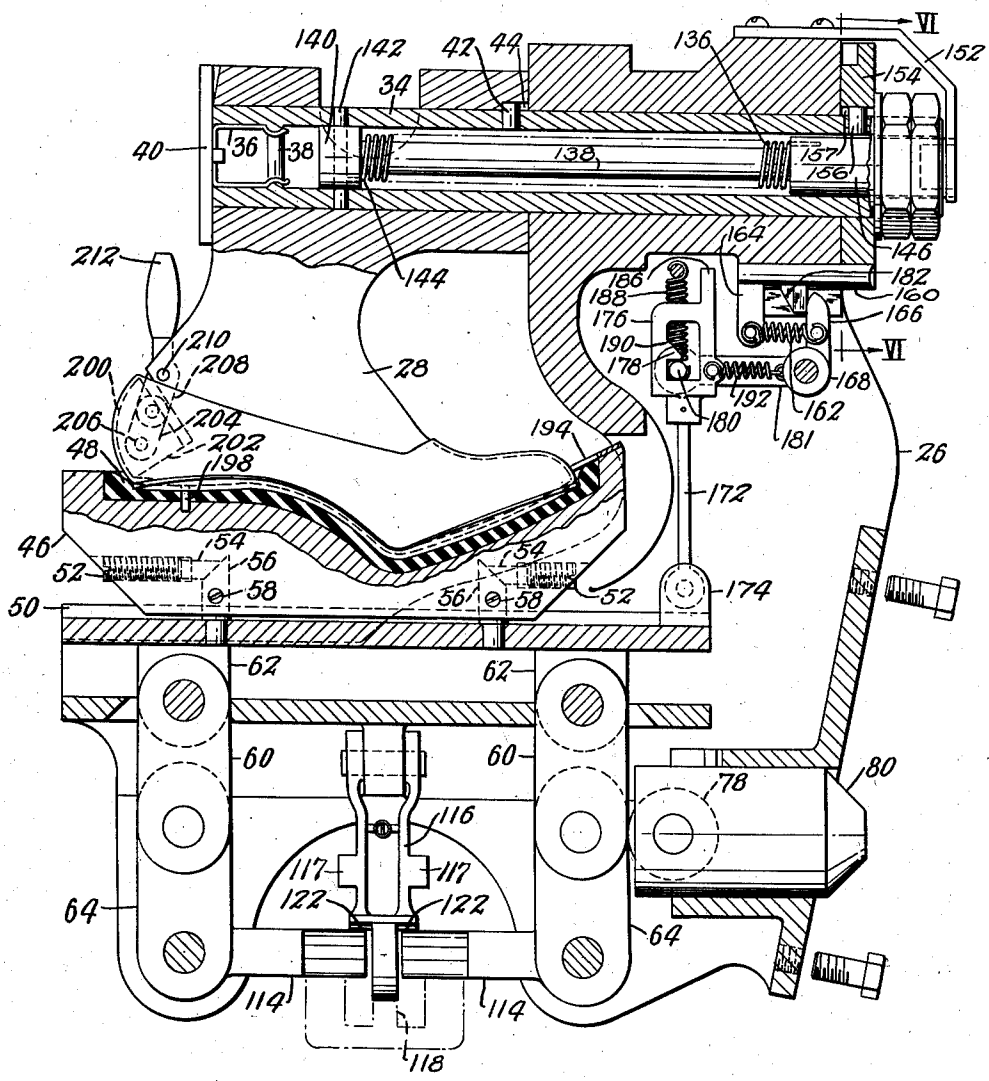


Fig. 4.

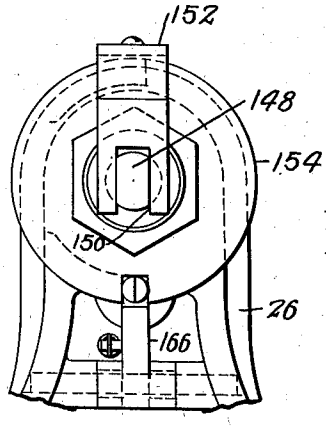


Fig. 5.

INVENTOR
Pincus Brauner
By his attorney
Victor Cobb.

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MACHINE FOR APPLYING PRESSURE TO SHOE BOTTOMS

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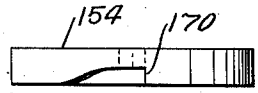


Fig. 7.

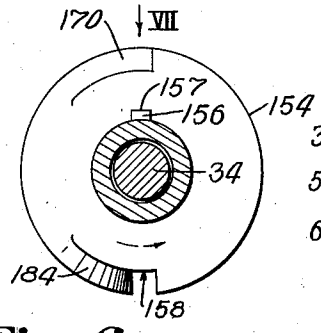


Fig. 6.

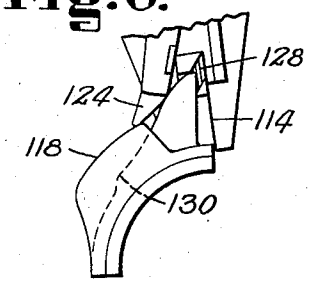


Fig. 9.

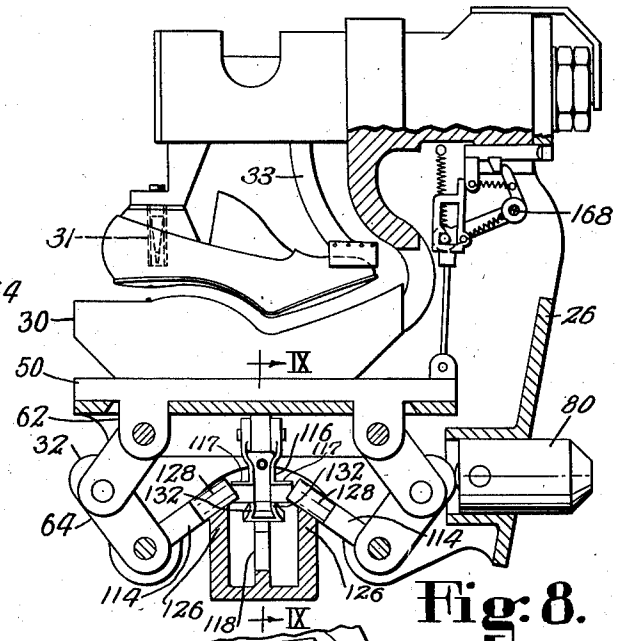


Fig. 8.

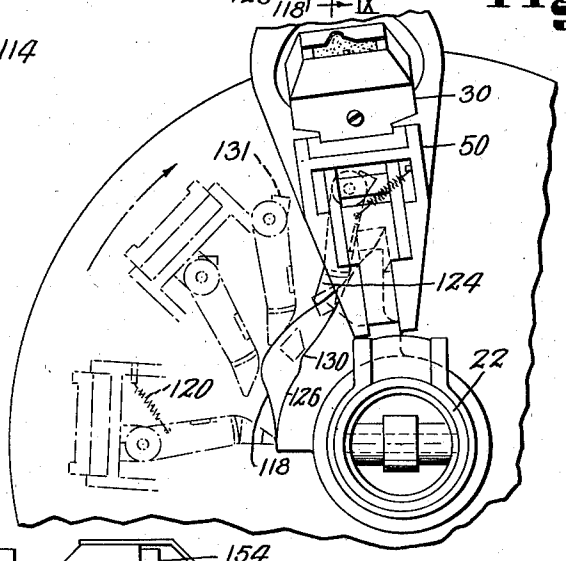


Fig. 10.

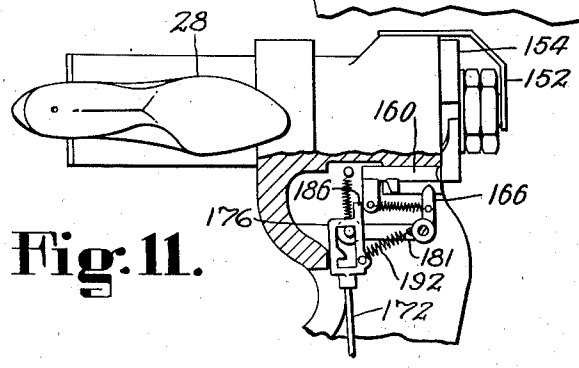


Fig. 11.

INVENTOR
Pincus Brauner
By his attorney
Victor Cobb.

Patented Nov. 25, 1941 2,263,673

UNITED STATES PATENT OFFICE

2,263,673

MACHINE FOR APPLYING PRESSURE TO SHOE BOTTOMS

Pincus Brauner, Haverhill, Mass., assignor to United Shoe Machinery Corporation, Borough of Flemington, N. J., a corporation of New Jersey

Application January 22, 1940, Serial No. 314,937

25 Claims. (Cl. 12—37)

This invention relates to machines for applying pressure to shoe bottoms and is herein illustrated as embodied in a sole attaching press of the wheel type having a number of pressure applying units located on the wheel.

In the manufacture of shoes in which the soles are attached by cement, after the sole has been placed on the shoe, it is necessary to apply a substantial amount of pressure against the bottom of the shoe so as to insure that the sole and shoe will be firmly bonded together. This pressure must usually be maintained for an appreciable time to obtain a strong adhesive bond. Because of the necessity of maintaining the pressure on the bottom of the shoe, it is the usual practice to perform the sole attaching operation on a machine having a number of pressure applying units which are moved successively into and out of the loading station at which the operator inserts and removes a shoe from the machine.

It is an object of the present invention to provide a machine for applying direct pressure to the bottom of a shoe and maintaining this pressure for a period sufficient to allow the cement to bond properly. It is a further object of the invention to provide a machine of this type which is easy to operate and is mechanically of such simple construction that it may be manufactured at low cost and will not be subject to breakdown due to mechanical failure.

Accordingly, the invention comprises a wheel or spider which is mounted for rotation on a horizontal axis. Each arm of the spider carries a pressure applying unit which is composed of a shoe support, a sole pad, and toggles, one at each end of the pad, operative to move the sole pad toward the support and thus apply pressure to the bottom of a shoe carried thereon. In order to straighten the toggles, there is provided a pair of pistons actuated by fluid pressure and operable through linkage to apply pressure at the knees of the toggles of the pressure applying unit which is at the loading station. In order to maintain the pressure on the shoe bottom from the time when the unit leaves the loading station until it returns thereto, there is provided a latch which locks the sole pad and support in pressure applying relation to one another during the rotation of the wheel. Means are also provided for releasing this latch and effecting a movement of separation between the sole pad and the shoe support as they move into the loading station. A further feature of the invention resides in the provision of a mounting for the shoe support whereby the latter may swing into and out of operative position about an axis extending lengthwise of a shoe on the support and substantially parallel to the axis of the spider or wheel. Means is also provided for automatically swinging the support into inoperative position as the unit moves into the loading station, this means being automatically set in operation during the separating movement of the sole pad and the shoe support.

The invention will be better understood when considered in relation to the drawings, in which

Fig. 1 is a front elevation of the machine;

Fig. 2 is a vertical section of the machine along the line II—II of Fig. 1;

Fig. 3 is a section of the air valve along the line III—III of Fig. 2;

Fig. 4 is a view, partly in section, of one of the pressure applying units;

Fig. 5 is a rear elevation of the shoe support and its mounting;

Fig. 6 is a view of the shoe support latching disc along the line VI—VI of Fig. 4;

Fig. 7 is an edge view of the latching disc from a point indicated at 7 in Fig. 6;

Fig. 8 is a view of one of the pressure applying units in separated or inoperative position, showing the operation of the latch carried thereby, and illustrating an alternative form of support for a shoe on a last;

Fig. 9 is a view along the line IX—IX of Fig. 8 and showing the stationary cams for unlocking the pressure latch and breaking the toggles;

Fig. 10 shows the operation of the cam for releasing the pressure latch; and

Fig. 11 shows the latch and the shoe support midway in the swinging movement of the latter from operative to inoperative position.

As illustrated in Figs. 1 and 2, the invention comprises a base 20 carrying a hollow horizontal shaft 22 on which is mounted a rotatable wheel 24. On this wheel or spider are mounted a number of pressure applying units each of which is composed of an arm 26 carrying a shoe support 28, a sole pad 30, and a pair of toggles 32. The machine is illustrated with twelve of these units, but it will be obvious that a greater or lesser number may equally well be employed. As illustrated, the shoe support 28 is of metal and of such shape and size that a shoe may be slipped over it, but, if desired, the support may be removed and a last carrier such as that illustrated in Fig. 8 comprising a heel pin 31 and a toe rest 33 may be substituted. For this purpose a shaft 34 (Fig. 4) is mounted in the arm and the shoe support is bored to fit over the end of this shaft and to be locked there by a clip 36 the ends of which fit over a rib 38 formed in a boring in the shaft. This clip is secured to a plate 40 the periphery of which engages the support and holds it on the shaft. The support is secured against rotation relative to the shaft by a pin 42 which engages a slot 44 in the support.

The sole support or pad box comprises a metal base 46 the top surface of which is shaped to conform substantially to the bottom of a shoe.

The central portion of the upper surface of this base is hollowed out to receive a rubber pad 48 which is preferably molded to conform to the shoe bottom and thus insure equal pressure against the sole at all points. Adjustment of the pad box in a heightwise direction relative to a table 50 upon which it rests is effected by two adjusting screws 52 bearing against pins 54. The ends of these pins 54 are beveled and engage correspondingly beveled surfaces on the ends of two pins 56 secured to the table 50 by set screws 58. Thus, turning the screws 52 will raise or lower the pad box relative to the table 50 upon which it rests.

Movement of the pad box 30 toward and away from the shoe support, that is, into and out of pressure applying position, is effected by the toggles 32. The upper ends 60 of the toggles are connected to projections 62 extending downwardly from the table, and the lower links 64 of the toggles are connected directly to the spider 24. Thus, by pressure upon the knees of the toggles, the pad box is moved upwardly toward the shoe support and into pressure applying position. In order to straighten the left-hand or forward toggle, a lever 66 is pivoted at 68 in the shaft 22. The upper end of this lever carries a roll 70 which bears against the knee of the toggle and the lower end of the lever carries another roll 72 which bears against a similar roll 74 carried by a piston 76 mounted for sliding movement in a cylinder 77 in the hollow shaft 22. The other toggle has bearing against its knee a roll 78 carried by a cylindrical plunger 80 mounted in the arm 26 and held against rotation relative thereto by a pin and slot arrangement 82. A roll 84 carried by one end of a lever 86 pivoted at 88 in the frame 20 engages the end of this plunger 80 to cause it to straighten the toggle knee at the appropriate time. The other end of the lever 86 is connected by a link 90 to a piston 92 similar to the piston 76 and slidable in the cylinder 77. Thus, movement of the two pistons 76 and 92 applies pressure to the knees of the toggles 32 and causes them to straighten.

The pistons 76 and 92 are operated by means of compressed air which is introduced into the cylinder between the two pistons through a tube 94, gasket members 95 being provided to assist in sealing this cylinder. The air tube 94 is connected to some suitable source of compressed air 100 by a valve 98 which is operated by a rod 102 connected to a slotted arm 104 (Fig. 3) carried by an air treadle rock shaft 106. The valve is provided with an exhaust port 108 arranged so that when it is held in closed position by a spring 110 the air in the space between the pistons 76 and 92 is permitted to escape to allow the pistons to be drawn inwardly toward each other by a spring 112. When the air treadle valve 98 is moved downwardly, however, the exhaust port 108 is first closed and then air from the source of supply 100 passes through the valve 98 into the tube 94 and thence into the chamber between the pistons 76 and 92.

As the air causes the pistons to move apart and thus straighten the toggles, two arms 114 (Figs. 2 and 4) each rigid with the lower links 64 of the toggles swing downwardly toward one another. Continued movement of the toggles lifts the table 50 upwardly until a latch member 116 pivotally carried on the spider 24 and having wings 117 to prevent it from falling between the arms 114 is pulled by a spring 120 (Fig. 10) into the position shown in Fig. 4. In this position shoulders 122 of the latch engage the ends of the arms 114 and thus hold the toggles in their straightened position from the time that the unit moves out of the loading station at the top of the machine until the wheel has made one complete rotation and is carrying the unit back into the loading station again.

The release of the latch 116 and the breaking of the toggles may advantageously take place as the unit moves into the loading station. Referring now to Figs. 9 and 10, a stationary cam 118 which is carried by the hollow shaft 22 is arranged in such position as to engage a tail piece 124 of the latch 116 and cause the latter to move out of engagement with the arms 114 as the unit is moving into the loading station. To insure that the toggles will be broken, there are also provided two stationary cams 126 which engage beveled portions 128 at the ends of the arms 114 and as the unit is moved into loading station, the cams lift these arms upwardly and cause the toggles to be broken. It is to be noted that the configurations of the cams 118 and 126 are such that the latch 116 is first released, the arms 114 are given an initial impulse by the bump 130 of the cam 126 and then are moved progressively upward. The cam 118 is so constructed that when the pressure applying unit is at the loading station and the support and pad box are separated, the cam and the latch are not in engagement, but the wings of the latch are held lightly against the back sides of the arms 114 by the spring 120. As the toggles straighten, the arms 114 slide over the surface formed by the wings and the ribs 132 on the latch. The latch is thus kept out of the way of the arms until they have reached a point in their downward movement such that the shoulders 122 may slip over the ends of the arms and hold the pad box and support in pressure applying position. It is to be noted that the movement of the latch imparted to it by the spring 120 is limited by a lug 131 on the latch which strikes the under side of the table 50 when the latch is in position to engage the ends of the arms 114.

In order to simplify removal of a shoe from the support and putting another one on, it has been found desirable to swing the shoe support about an axis lengthwise of a shoe and substantially parallel to the axis about which the wheel rotates. To this end the shaft 34 upon which the support is mounted is journaled for rotating movement in the end of the arm 26 so that the support may be swung from the operative position shown in Fig. 8 into the inoperative position illustrated in Figs. 1 and 2. It is desirable that this swinging movement should be effected automatically as the unit moves into the loading station. To accomplish this, the shaft 34 is bored to receive a coil spring 136 through the center of which passes a rod 138, the spring being under clockwise stress, as viewed in Fig. 5, when the support is in operative position. A head 140 on this rod is of the same diameter as the bore in the shaft and is secured therein by a pin 142. One end 144 of the spring is secured to the head of this shaft and the other end is fastened to a plug 146 fitting loosely in the end of the hollow shaft 34. As shown in Fig. 5, the end 148 of this plug is slabbed off to fit into a slot 150 cut in the end of a clip 152 secured to the arm 26. Thus, the support 28 is urged in a clockwise direction as viewed in Fig. 5 by the spring 136.

In order, however, to hold the support in operative position once it has been swung to that point,

there is provided a latching disc 154 (Figs. 4, 6, and 7) which is made rotatable with the shaft by a pin 156 affixed to the shaft 34 and entering a slot 157 in the latching disc 154. The disc is slotted at 158 (Fig. 6) to receive the end of a pin 160 (Fig. 4) slidably carried in a boring in the arm 26, the end of the pin being yieldably held in the slot by a spring 162 acting between an ear 164 integral with the pin 160 and one arm 166 of a bell crank lever 168. When the support is swung downwardly into operative position against the tension of the spring 136, thus rotating the disc 144, the pin 160 slips into the slot 158 in the latching disc and thus holds the support against reverse swinging movement which would otherwise be imparted to it by the tensioned spring 136. A recess 170 in the latching disc at the top side thereof limits the swinging movement of the support in its rotation from operative to inoperative position.

It is desirable that the swinging movement of the form to inoperative position should be effected automatically as the unit moves into the loading station. To this end a rod 172 is pivotally connected to an ear 174 carried by the table 50. A latching member 176 is secured to the end of the rod 172 and a lug 178 carried by the latching member engages a pin 180 on a horizontal arm 181 of the bell crank lever 168. The arm 166 of the bell crank engages a lug 182 on the pin 160. Thus, downward movement of the table 50 causes the bell crank lever to turn in a counterclockwise direction as viewed in Fig. 4, causing the pin 160 to move out of the slot 158 to permit the latching disc to rotate. The support is now free to swing 180° in response to the tension of the spring 136, this swinging movement being stopped by the shoulder 170 on the latching disc 154. Rotation of the disc causes a cam surface 184 (Fig. 6) on the latching disc to move the pin further in the direction in which it has been carried by the arm of the bell crank. As the pin 160 moves in this direction it strikes a lug 186 (Fig. 4) on the latch member 176 and forces the latter to the left sufficiently so that the pin 180 no longer engages the lug 178, leaving the bell crank 168 free to be returned to its normal position by a spring 188. The parts are then in the relation shown in Fig. 11. When the support is swung down into operative position, the spring 162 causes the pin 160 to move into the slot 158, thus locking the support in operative position. When the toggles are straightened and the rod 172 moves upwardly, the beveled upper surface 190 of the lug 178 strikes the pin 180 and causes the latching member to move to the left against a spring 192 until the latching member has risen sufficiently to permit the spring 192 to pull it rearwardly, thereby bringing the lower surface of the lug 178 into engagement with the pin 180 in position to operate the latching pin 160 when the pad box 30 and the plate 50 move downwardly.

It is to be noted that when the support is swung into operative position and is locked there by the pin 160 it will always be in a definite relation to the pad box 30. Consequently, if a sole is properly located on the pad box, it must be attached to the shoe in proper position. To assist in positioning the sole on the pad there is provided a toe gage 194 (Figs. 1, 2, and 4) which is fastened to the metal base 46 of the pad box and has a V-shaped notch 196 into which the toe end of the sole may be inserted. The heel end of the sole is positioned by a pin 198 which enters a hole punched at the proper location in the heel end of the sole. Further to insure that the shoe and the sole will be in proper registration with one another the support 28 is made expansible, so that the shoe will fit tightly thereon. The heel end of the support is recessed to receive an approximately triangular block 200 which is slidable in a direction lengthwise of the shoe upon the inclined surface 202 which forms one side of the recess. Sliding movement of the triangular member is effected by means of a toggle composed of a link 204 pivoted at 206 in the triangular member and a second link 208 which is pivoted at 210 in the support and is integral with a handle 212 by which the toggle may be straightened or broken. By this means it will be made certain that the shoe is always in proper position on the support, and thus if the sole gages have been set properly the shoe and sole must come together in exactly the proper registration.

Power for moving successive units into and out of the loading station is provided by a motor 214 connected by a worm and worm gear 216 to a pulley 218. A belt 220 passes over this pulley and a second pulley 222 mounted for free rotation on a shaft 224, the second pulley 222 being rigid with a fly wheel 226 also freely rotatable on the shaft 224. A clutch 228, which may advantageously be of the cone type, is provided to connect the fly wheel to the shaft 224. A gear 232 is also secured to the shaft 224 and this gear, through intermediate gears 234, drives a gear 236 integral with the wheel. The gear ratios are such that a single revolution of the clutch and the shaft 224 causes the spider to rotate $\frac{1}{12}$ of a revolution, thus moving one pressure applying unit out of the loading station and moving the next succeeding unit into that position.

A treadle 238 is provided to operate the clutch 228. This treadle is connected by means of a rod 240 to a latch member 242 having a lug 244 which engages a pin 246 carried by one arm of a bell crank 248 pivoted on the frame 20. The other arm of the bell crank carries a shifter fork 250 which engages a groove in the clutch. Downward movement of the rod 240 causes the lug 244 to swing the bell crank about its pivot, thus moving the clutch 228 into engagement with the fly wheel. As the shaft 224 approaches the end of one revolution, a rotating cam 252 integral with the shaft strikes the latching member 242 and moves it forwardly so that the lug 244 no longer engages the pin 246. A spring 254 then causes the bell crank to swing in a clockwise direction, as shown in Fig. 2, thus disengaging the clutch and stopping the movement of the wheel.

A lever 256 pivoted on the frame engages one of a series of notches 258 in the wheel in order to lock the latter in position so that the rolls 70 and 84 will engage the knees of the toggles at the proper points. When the treadle rod 240 is depressed, a collar 260 strikes the end of the lever 256 and swings it out of locking position, thus permitting the turret to rotate.

The function of the various parts of the machine having been explained in connection with the description of the details of the machine, only a brief summary of its operation is necessary. With the parts in the position shown in Figs. 1 and 2, the operator slips a shoe over the form 28 or if a last support is being used places a last and shoe on the support and sets a sole on the pad in proper position according to the sole locating means. The support is next swung downwardly into operative position over the sole where it is locked by the pin and the latching disc. He then

depresses the air treadle 106 and causes air under pressure to be introduced into the space between the two pistons 76 and 92. As the toggles are straightened to the position shown in Fig. 4, the engagement of the shoulders 122 of the latch and the arms 114 locks the toggles in pressure applying position, with the sole pressed against the shoe bottom in the relation previously determined by the setting of the sole gages. The operator then releases the air treadle 106, closing the inlet valve, opening the exhaust port 108, and permitting the spring 112 to pull the pistons 76 and 92 into their normal position. The operator then depresses the clutch treadle 238 thereby causing the wheel to be rotated 1/12 of a revolution and moving the next succeeding pressure applying unit into the loading station at the top of the machine.

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

1. A machine for applying pressure to shoe bottoms comprising a rotary spider carrying a plurality of supports and opposed pressing pads, a pair of toggles for effecting relative movement between a support and its opposed pressing pad, and fluid pressure means for straightening said toggles thereby to apply pressure against the bottom of a shoe on said support.

2. A machine for applying pressure to shoe bottoms comprising a rotary spider carrying a plurality of supports and opposed pressing pads, toggles supporting the ends of each pad, and means for straightening the toggles to move the pad toward its opposed support and apply pressure against the bottom of a shoe on said support.

3. A machine for applying pressure to shoe bottoms comprising a rotary spider carrying a plurality of supports and opposed pressing pads, toggles for effecting relative movement between one of said supports and its opposed pressing pad, linkage constructed and arranged to apply pressure at the knees of said toggles, and fluid pressure means for operating said linkage thereby to apply pressure against the bottom of a shoe on said support.

4. A machine for applying pressure to shoe bottoms comprising a rotary spider carrying a plurality of supports and opposed pressing pads, a pair of toggles for effecting relative movement between a support and its opposed pressing pad, fluid pressure means for straightening said toggle thereby to apply pressure against the bottom of a shoe on said support, and means for locking said pad and support in pressure applying position.

5. A machine for applying pressure to shoe bottoms comprising a rotary spider carrying a plurality of supports and opposed pressing pads, a pair of toggles for effecting relative movement between a support and its opposed pressing pad, fluid pressure means for straightening said toggles thereby to apply pressure against the bottom of a shoe on said support, and a latch for holding said toggles in pressure applying position.

6. A machine for applying pressure to shoe bottoms comprising a rotary spider carrying a plurality of pressure applying units, each of said units including a support, an opposed pressing pad, and a pair of toggles for effecting relative movement between said support and its opposed pressing pad, and fluid pressure means for straightening said toggles thereby to apply pressure against the bottom of a shoe on said support.

7. A machine for applying pressure to shoe bottoms comprising a rotary spider carrying a plurality of pressure applying units, each of said units including a support, an opposed pressing pad, and a pair of toggles for effecting relative movement between said support and its opposed pressing pad, fluid pressure means located at the loading position of the machine and constructed and arranged to straighten said toggles thereby to apply pressure against the bottom of a shoe on said support, and means for moving successive units into loading position.

8. A machine for applying pressure to shoe bottoms comprising a rotary spider carrying a plurality of pressure applying units, each of said units including a support, an opposed pressing pad, and a pair of toggles for effecting relative movement between said support and its opposed pressing pad, fluid pressure means for straightening said toggles thereby to apply pressure against the bottom of a shoe on said support, and means for moving successive units into position to be operated upon by said fluid pressure means.

9. A machine for applying pressure to shoe bottoms comprising a rotary spider carrying a plurality of pressure applying units, each of said units including a support, an opposed pressing pad, and a pair of toggles for effecting relative movement between said support and its opposed pressing pad, fluid pressure means for straightening said toggles thereby to apply pressure against the bottom of a shoe on said support, and means for locking said toggles in pressure applying position.

10. A machine for applying pressure to shoe bottoms comprising a wheel arranged for rotation about a horizontal axis, a plurality of sole pads on said wheel, a plurality of supports cooperating with said pads, a pair of toggles for effecting relative movement between a pad and its cooperating support thereby to apply pressure to the bottom of a shoe on said support, means for straightening said toggles, means for rotating said wheel, and a stationary cam surface constructed and arranged to break said toggles as the pad and support held in pressure applying position thereby are moving into loading position.

11. A machine for applying pressure to shoe bottoms comprising a wheel arranged for rotation on a horizontal axis, a plurality of sole pads on said wheel, a plurality of supports cooperating with said pads, a pair of toggles for effecting relative movement between a pad and its cooperating support, fluid pressure means for straightening said toggles to apply pressure to the bottom of a shoe on said support, means for moving successive sole pads and cooperating supports into loading position, and automatic means for breaking said toggles as the pad and support held in pressure applying position thereby are moving into loading position.

12. In a machine for applying pressure to shoe bottoms, a rotary spider carrying a plurality of pressure applying units, each comprising a support, a pad, a pair of toggles for effecting relative movement between said pad and said support and a latch for locking said toggles in position to cause said pad and support to apply pressure to a shoe on said support, fluid pressure means for straightening said toggles, means for rotating said spider, and automatic means for

releasing said latch toward the end of one revolution of said spider.

13. In a machine for applying pressure to shoe bottoms, pressure applying members comprising a shoe support and a sole pad, a pair of toggles connected to the ends of one of said members and constructed and arranged to effect relative movement between said support and said pad, and fluid pressure means for straightening said toggles thereby to apply pressure to the bottom of a shoe on said support.

14. In a machine for applying pressure to shoe bottoms, a shoe support, a sole pad, toggles located at each end of said pad and constructed and arranged to move said pad toward said support, and fluid pressure means for simultaneously straightening said toggles thereby to apply pressure to the bottom of a shoe on said support.

15. In a machine for applying pressure to shoe bottoms, a spider arranged for rotation about a horizontal axis, a plurality of pads arranged about the periphery of the spider with their longitudinal axes parallel to said axis, a plurality of arms on said spider, and a plurality of members on which a shoe may be mounted, said members being pivoted in said arms for swinging movement only about axes substantially parallel to the axis of said spider whereby shoes may be mounted bottom up on said members and the members turned to present the shoes bottom down to the pads.

16. In a machine for applying pressure to shoe bottoms, a spider having a plurality of arms and arranged for rotation about a horizontal axis, a plurality of shoe supports pivoted in said arms for swinging movement between a pressure applying position in which the shoe is right side up and an inoperative position in which the shoe is bottom up, said swinging movement taking place about axes parallel to the axis of the spider, means for applying pressure to the bottom of a shoe on said support, and automatic means for causing said support to swing into inoperative position when pressure is released.

17. In a machine for applying pressure to shoe bottoms, a rotatable wheel, a plurality of arms on said wheel, a plurality of sole pads carried on said wheel, a plurality of shoe supports pivoted on said arms about axes substantially parallel to the axis of said wheel for swinging movement between pressure applying and inoperative positions, springs constructed and arranged to urge said supports toward their inoperative positions, means for locking said supports in pressure applying positions, and automatic means operated by the release of pressure on each of said supports in turn to release said locking means.

18. In a machine for applying pressure to shoe bottoms, a sole pad, a shoe support pivoted about an axis substantially parallel to the longitudinal dimension of a shoe on the support for swinging movement between pressure applying and inoperative positions, a spring constructed and arranged to urge said support toward inoperative position, means for locking said support in pressure applying position, and automatic means operated by the release of pressure on a shoe on said support to release said locking means.

19. In a machine for applying pressure to shoe bottoms, a sole pad, a shoe support mounted for swinging movement about an axis above said pad and extending in directions longitudinally of a shoe on said support, means for effecting relative movement between said pad and said support to apply pressure to a shoe presented right side up on the latter, and means set in operation by the movement of separation of said pad and support for swinging said support through 180 degrees about its axis to present the shoe bottom side up.

20. In a machine for applying pressure to shoe bottoms, a sole pad, means for locating a sole in predetermined position on said pad, a shoe support swingable into and out of a predetermined operative position relative to said sole locating means, and a latch pin for locking said support against further swinging movement when moved into a predetermined position relative to said pad.

21. In a machine for applying pressure to shoe bottoms, an arm, a shoe support pivoted in said arm for swinging movement about an axis extending in directions longitudinally of a shoe on said support from a position in which the shoe is bottom up to a position in which the shoe is bottom down, a sole pad, latch means for locking said support against further swinging movement when moved into a predetermined relation to said pad in which the shoe bottom faces the pad, means for positioning a sole on said pad, and means for effecting relative movement between said pad and said support thereby to attach said sole to a shoe on said support.

22. In a machine for applying pressure to shoe bottoms, a shoe support mounted for swinging movement about an axis extending longitudinally of a shoe on said support, a sole pad, a toe gage on said pad arranged to locate the toe end of a sole, a heel pin on said pad adapted to enter a hole in the heel end of a sole, means for latching said support in predetermined relation to said sole locating means, and means for moving said pad with a sole thereon toward said shoe support thereby to press said sole against the bottom of a shoe on said support.

23. In a machine for applying pressure to shoe bottoms, a sole pad, a last support including a toe rest and a heel pin, said support being mounted to swing into and out of operative position about an axis extending in directions longitudinally of a lasted shoe on said support, and means for effecting relative movement between said pad and said support thereby to apply pressure to the bottom of a shoe on the support.

24. In a machine for applying pressure to shoe bottoms, a rotary spider carrying a plurality of supports and opposed pressing pads, said supports having extensible portions constructed and arranged to cause said supports to fit tightly into shoes thereon and said supports being mounted in said spider to swing into and out of operative position about an axis extending in directions longitudinally of a shoe on said support, and means for effecting relative movement between said pad and said support thereby to apply pressure to the bottom of a shoe on said support.

25. In a machine for applying pressure to shoe bottoms, a sole pad, a shoe support mounted to swing into and out of operative position about an axis extending in directions longitudinally of a shoe on said support, said support having an extensible portion whereby the support may be caused to fit tightly within said shoe and to locate said shoe exactly thereon, means for accurately locating a sole on said pad, and means for effecting relative movement between said pad and said support thereby to bring together said shoe and sole in exact registration with one another.

PINCUS BRAUNER.