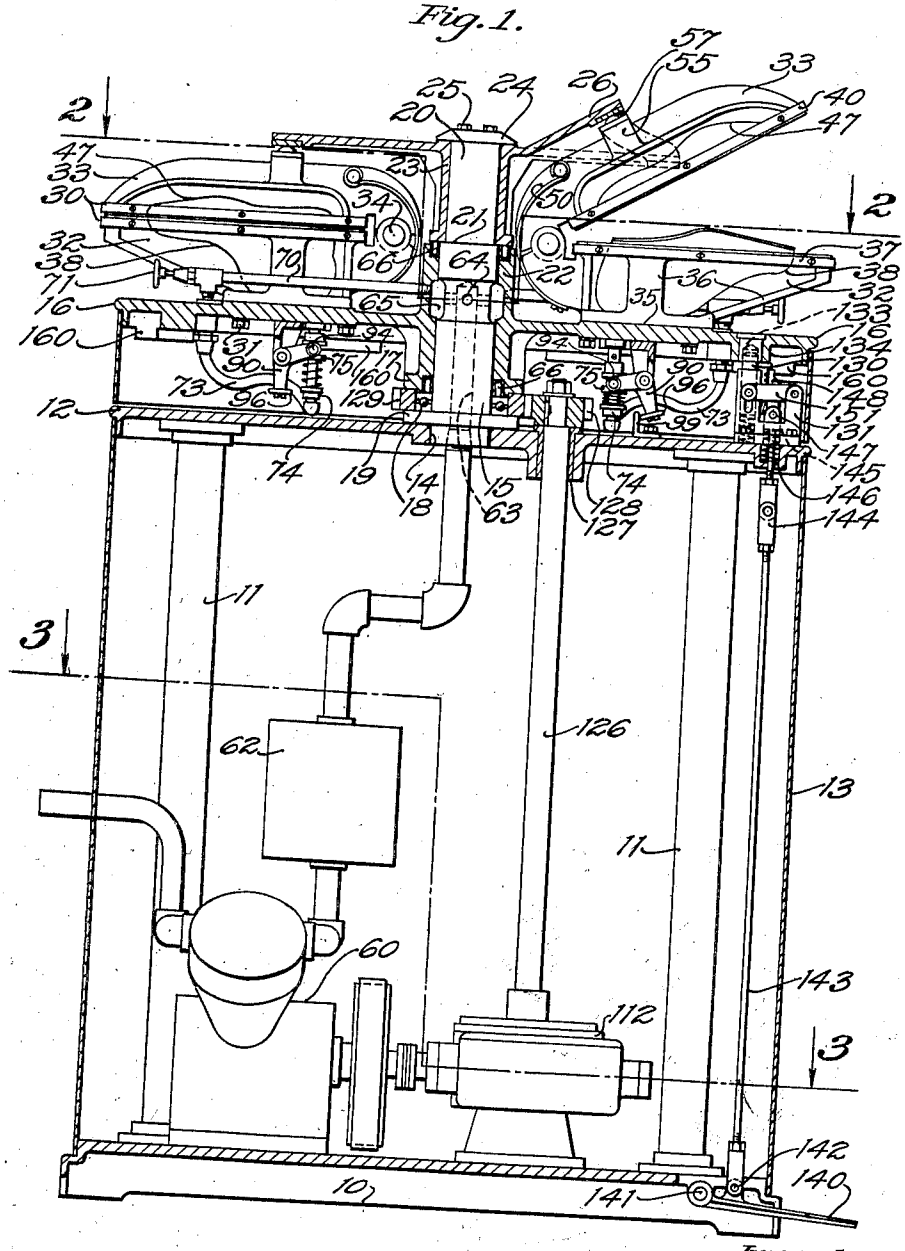
April 20, 1943. K. W. MACDONALD 2,317,151

SHOE PRESSING MACHINE

Filed Jan. 31, 1942 3 Sheets-Sheet 1

Fig. 1.



Inventor
Kenneth W. Macdonald
by John F. Smith
Attorney

April 20, 1943. K. W. MACDONALD 2,317,151

SHOE PRESSING MACHINE

Filed Jan. 31, 1942 3 Sheets-Sheet 2

Fig. 2.

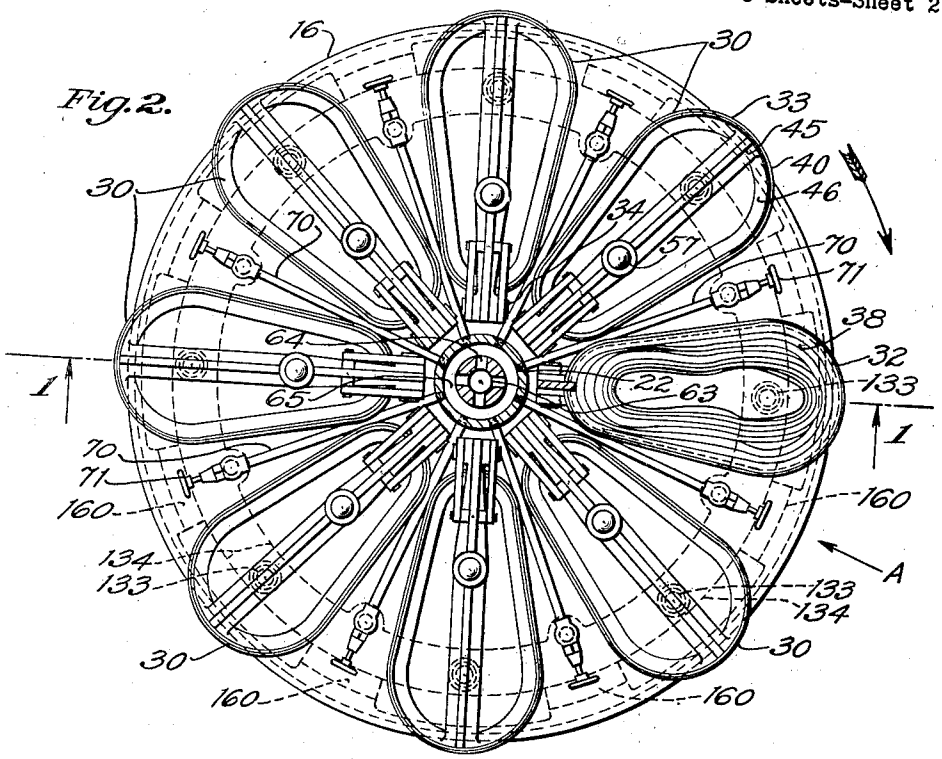
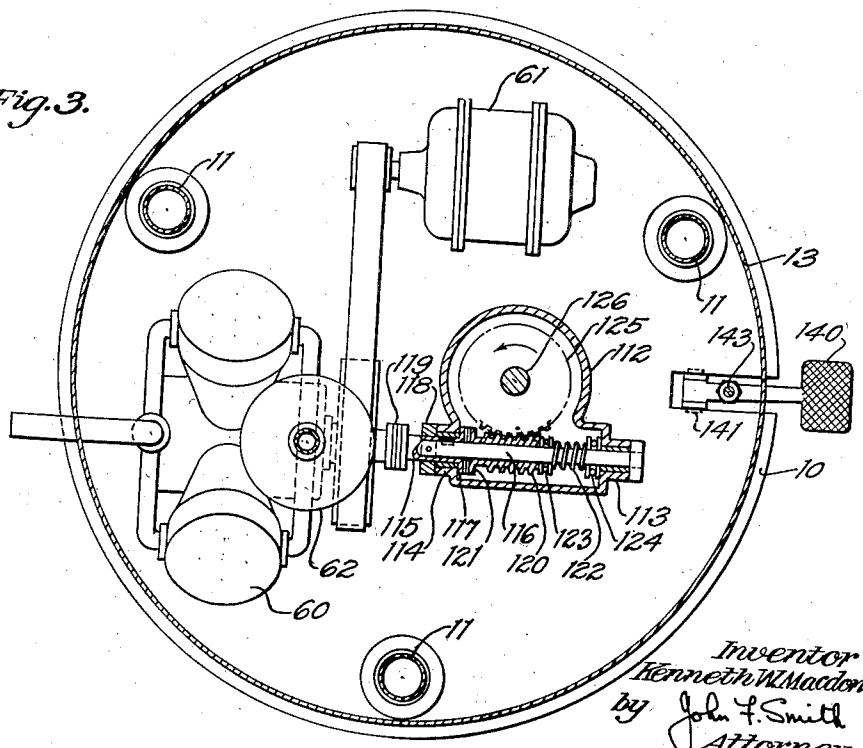


Fig. 3.



Inventor
Kenneth W. Macdonald
by John F. Smith
Attorney

April 20, 1943

K. W. MACDONALD

2,317,151

SHOE PRESSING MACHINE

Filed Jan. 31, 1942

3 Sheets-Sheet 3

Fig. 4.

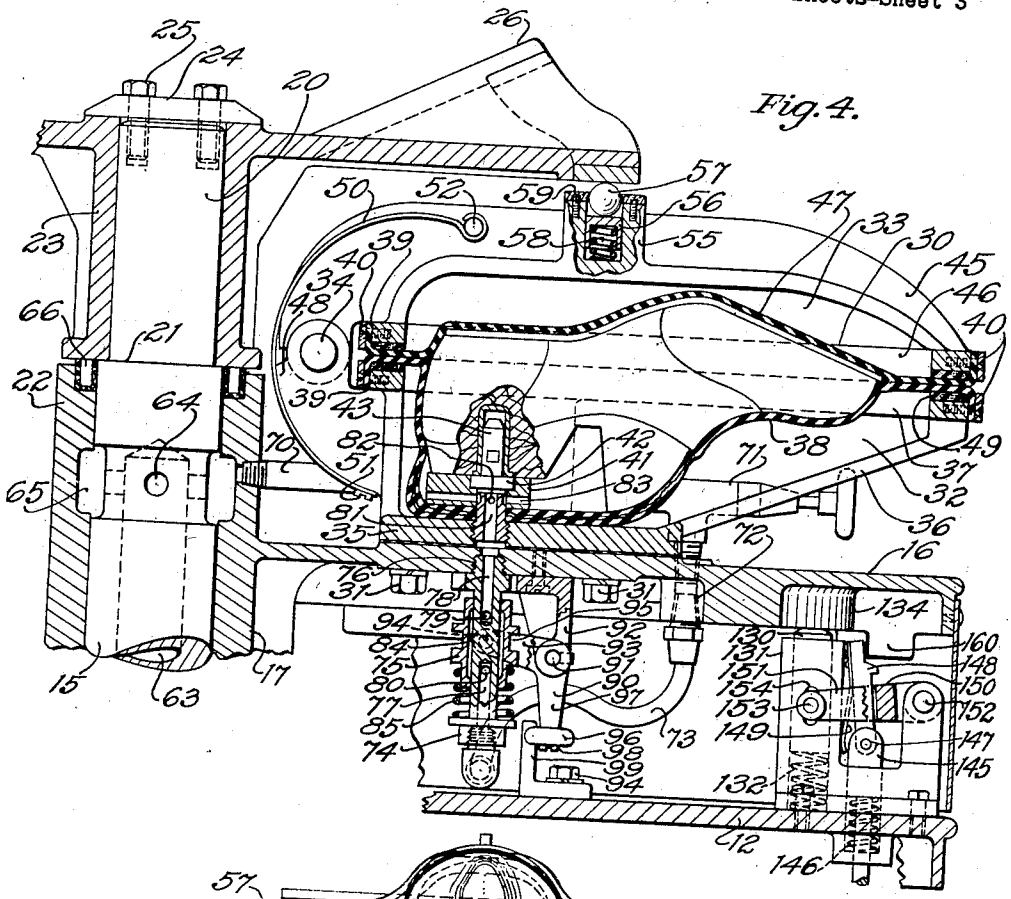


Fig. 5.

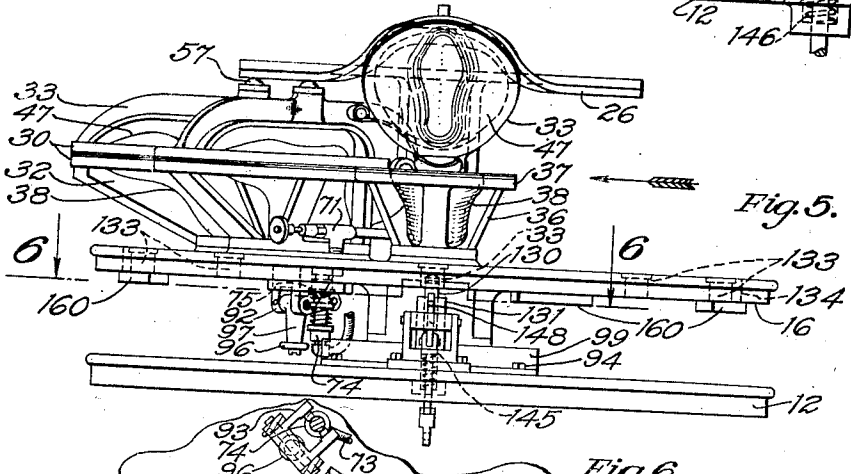
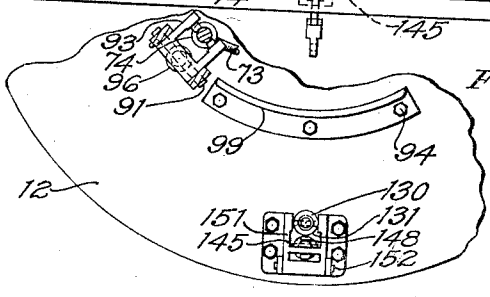


Fig. 6.



Inventor
Kenneth W. Macdonald
by John F. Smith
Attorney

Patented Apr. 20, 1943

2,317,151

UNITED STATES PATENT OFFICE

2,317,151

SHOE PRESSING MACHINE

Kenneth W. Macdonald, Watertown, Mass., assignor to Compo Shoe Machinery Corporation, Boston, Mass., a corporation of Delaware

Application January 31, 1942, Serial No. 429,060

8 Claims. (Cl. 12—37)

This invention relates to apparatus for use in the manufacture of footwear, and more particularly to a machine that is generally useful in any operation requiring pressure to be applied to a shoe bottom such as insole molding to a last bottom or form, temporary sole attaching prior to stitching, outsole leveling, shank conforming, and channel laying. It is specifically intended for permanently cement attaching soles to lasted shoe bottoms regardless of the type of shoe construction.

In the cementing of soles to shoes, it is general practice to rough or scour the marginal edge of the flesh side of the sole and also the overlasted margin of the upper. These roughed surfaces are then coated with cement which is allowed to dry and thereafter a softener is applied to the roughened surface of the sole and/or upper and the two members are brought together and placed in a sole attaching press where a pressure ranging from 50 to 100 pounds per square inch is applied to press the sole to the shoe.

Such high sole attaching pressures are destructive to the sole engaging or pressing pads which are generally inflated with a fluid and the pads become compacted and hard so that they do not conform to the variations in the shoe bottom, and the tendency is then to resort to still higher pressures, resulting in a short life of the pad and even damage to the shoe lasts at the toe and heel portions which are engaged by the pressure applying or pressure resisting abutments of the press.

It has been determined that these high pressures are not required and that leather surfaces may properly be bonded by an adhesive with only the slightest pressure if the surfaces are brought into intimate contact.

A general object of this invention is to provide improved sole attaching apparatus for adhesively attaching soles to shoes at considerably reduced attaching pressures and which is simple in construction yet rapid, efficient and economical to operate.

A particular object of the invention is to provide a sole attaching machine having presses with extremely flexible pressing pads which will easily conform to the variations in shoes and which are adapted for pneumatic operation at atmospheric pressure, thus greatly reducing wear and tear and resulting in considerable saving over previous machines having pressure pads operating at pressures of several atmospheres.

Another object of the invention is to provide a sole attaching machine having a series of vacuum operated presses mounted on a rotatable carrier and a single driving motor for operating the vacuum producing means and to rotate the carrier.

A further object of the invention is to provide a sole attaching machine having presses arranged to hold a lasted shoe and its positioned outsole in a last spindle within a flexible and distortable chamber and having suitable devices for automatically exhausting air from the chamber to cause the atmosphere to distort the chamber and press the sides and top of the chamber into contact with the sole and shoe.

A still further object of the invention is to provide a sole attaching machine having a series of presses mounted on an endless carrier, and having suitable driving, stopping, and other mechanisms to present each press in turn at the loading station with its sole engaging pad remote from the shoe pressing position to allow easy unloading and loading of a shoe.

Other objects of the invention will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises the features of construction, combination of elements, and arrangement of parts which will be exemplified in the construction hereinafter set forth and the scope of the invention will be indicated in the claims.

The machine illustrated preferably comprises a table arranged to rotate about a vertical axis in the form of a stationary column secured to the base of the machine. Mounted on the table in a radial arrangement are a series of presses. Each press comprises a base portion or shoe receiving box for holding a lasted shoe in an inverted position and is provided with a flexible pad which surrounds the shoe. A form of lid or cover which carries a flexible sole engaging diaphragm is hinged to the base portion of the press and when the cover is closed the shoe is completely encased within a flexible and distortable chamber. Situated above the presses but not rotatable therewith is a cam ring arranged to close the covers of the presses as they are moved away from the operating station and to keep same closed during a considerable portion of their travel, and then to allow the covers to open as the presses again approach the operating station.

Located in the base of the machine is a vacuum pump which is connected to the central column about which the carrier rotates, and each press is equipped with a conduit connecting with the

central column and a type of sleeve valve so that air may be exhausted from each press by movement of the valve sleeve which is accomplished automatically as the press leaves the operating station. As the press again approaches the operating station, the valve is again actuated by a stationary cam to disconnect the press from the vacuum pump and open same to the atmosphere. A simple drive hereinafter described is provided for rotating the table and indexing its motion step by step in order to bring each press successively into position at the loading station.

For a fuller understanding of the nature and objects of the invention reference should be had to the following detailed description taken in connection with the accompanying drawings, in which:

Fig. 1 is a sectional side elevation of a sole attaching machine embodying features of the invention taken substantially along lines 1—1 of Fig. 2;

Fig. 2 is a sectional plan view taken substantially along lines 2—2 of Fig. 1, the direction the presses rotate being indicated by an arrow;

Fig. 3 is a sectional plan view taken substantially along lines 3—3 of Fig. 1;

Fig. 4 is a fragmentary sectional side elevation on an enlarged scale showing a press after it has left the loading station and in the position indicated "A" on Fig. 2;

Fig. 5 is a fragmentary front elevation of the machine as viewed from the loading station; and

Fig. 6 is a fragmentary sectional plan view of the machine taken along lines 6—6 of Fig. 5, looking in the direction of the arrows.

Referring to the drawings, the machine comprises a circular base 10 having secured to its upper side and extending vertically therefrom a series of supporting columns 11 to the upper ends of which is secured a circular upper frame casting 12. Thus the base 10 and frame casting 12 are secured together and form a rigid circular machine frame, and a suitable sheet metal casing 13 is provided to fully enclose same.

A bore 14 is located in the center of the frame 12 and a vertically extending bearing column 15 which serves as an axis for a horizontally rotatable carrier in the form of a table or turret 16 is securely pressed into the bore. To allow the carrier to be freely rotatable about the bearing column 15, a boss 17 extending from the underside of the carrier is adapted to rest on a suitable ball bearing 18 positioned on a flange 19 which is integral with the bearing column 15. To keep the carrier from vertical displacement, the bearing column 15 has a reduced diameter 20 which provides a shoulder 21 slightly above the face of the hub 22 extending from the upper side of the carrier 16 and a plate cam 26 having an extended boss 23 fits over the upper end 20 of the bearing 15 and is clamped to the shoulder 21 by a cap 24 secured to the top of bearing 15 by screws 25.

Resting on the turret table 16 and extending radially from the center thereof are a series of shoe presses 30 secured in correctly spaced position by screws 31. Each shoe press comprises a lower member or shoe receiving box 32 and an upper or cover member 33 which is hinged to the lower member at 34. The lower member consists of a base 35 supporting by webs 36 a somewhat oval-shaped flange 37 having a flat upper face to which is secured a strip 49 of sponge rubber or the like. Disposed within the pocket formed by the webs 36 and the flange 37 is a flexible bag-like diaphragm 38 of rubber or other suitable material which may be molded to conform in a general way to the shape of a lasted shoe. The marginal edge of this diaphragm conforms to the contour of the flange 37 and has a depending rim 39 which is secured to the peripheral edge of the flange by a clamp strip 40 held to the flange by screws. The diaphragm 38 is preferably thickened as it approaches the exposed portion of a last which together with a shoe is adapted to be placed in an inverted position in the lower portion of the press as best shown in Fig. 4. Means for supporting the last comprises a block 41 having a counterbore to receive the clamping flange 42 of a last jack-pin 43, the lower end of which passes through a hole in the diaphragm and is screw-threaded into a hole passing entirely through the base 35.

The upper or cover member 33 comprises a swinging arm 45 carrying a flange 46 having a flexible diaphragm or sole pressing pad 47 secured to it in the same manner used to secure the lower diaphragm, thus a box-like enclosure is provided for a lasted shoe having a hinged cover which, when closed, compresses the sponge rubber strips and forces the marginal edges of the upper and lower diaphragm together to form an air-tight enclosure.

Opening and closing of the cover 33 is accomplished automatically as the carrier 16 is rotated to bring the presses into an operating or loading position, these movement of the cover being controlled by the stationary cam plate 26 which is provided with a rise, the highest point of which is at the operating or loading station where the carrier is stopped by mechanism hereinafter described. Each press cover is given a bias towards the open position by a leaf spring 50 which is secured at its lower end by a screw 51 to an arm 48 of the lower press member 32 and is anchored at its upper end to a pin 52 inserted in the side of the arm 45 of the cover 33. In order to ensure that the cover 33 will be tightly closed, a pressure device located on the arm 45 of the cover is arranged to react against the cam plate. This pressure device consists of a boss 55 having a bore in which slides a plunger 56 on top of which is a ball 57, a compression spring 58 serving to press the plunger and ball upwards against a retaining plate 59 held by screws to the face of the boss 55.

The presses are arranged for pneumatic operation at atmospheric pressure and to this end provisions are made to automatically evacuate the air from each press after it has been loaded and the cover closed in order that the atmosphere can press the lower flexible diaphragm into contact with the sides of a shoe and into the welt crease if such a type shoe is being processed, and to press the upper pad or diaphragm against the sole of the shoe. Evacuation of the presses is accomplished by means of a vacuum pump 60 secured to the base 10 and adapted to be driven continuously during operation of the machine by an electric motor 61. The suction part of this vacuum pump is piped to a reservoir 62 and thence to a bore 63 in the bearing 15 which is provided with ports 64 leading to a distributor chamber 65 formed by recesses cut into the bearing 15 and the bore of the carrier hub 22. To prevent constant leakage of the atmosphere into the distributor chamber 65, the upper and lower hubs of the carrier are counterbored to receive sealing rings

66 which fit snugly over the bearing 15 and also seat against the face of the cam boss 23 and the face of the ball bearing 18, thus allowing the carrier to be rotated without any appreciable leakage. Each press is connected to the distributor chamber 65 by means of a conduit 70 threaded into the carrier hub 22, and which is connected at its other end to a shut-off valve 71 having communication to a threaded bore 72 in the carrier table 16. These shut-off valves allow any press to be removed from the carrier without affecting operation of the remaining presses. The threaded bore 72 extends entirely through the table and a second conduit 73 leads from the same to stationary core 74 of a cylindrical slide valve 75. The core 74 is screw-threaded at its upper end into a hole 76 in the carrier table 16 which alines with the last jack-pin 43 of the press located directly above and is provided with bores 77 and 78 terminating so as to form a dividing wall either side of which are ports 79 and 80 leading from their respective bores to the periphery of the core. The upper bore 78 communicates with a bore 81 provided in the center of the lower portion of the last jack-pin 43 having ports 82 leading to a hole 83 in the block 41, and when the slide valve 75 which is provided with an interior chamber 84 is held in the upper position by a compression spring 85, as shown in Fig. 4, communication is afforded between the ports 79 and 80, providing a continuous conduit between the distributor chamber 65 and the interior of the press, thus allowing the atmosphere to be evacuated therefrom by the pump 60.

Automatic means for operating the slide valves 75 as the carrier 16 is rotated comprises, providing each valve with a bell crank lever 90 pivoted at 91 to a bracket 92 secured to the underside of the turrent table, the horizontal arm 93 of the bell crank lever being forked to straddle the valve 75 and fitted with studs 94 to engage in an annular groove 95 provided in the valve body. A roll 96 is secured to the end face of the vertical arm 97 of the bell crank lever by a stud 98, and as the carrier is rotated to bring a press into the loading station, the roll 96 contacts a stationary cam 99 secured to the frame 12 by screws 94, thus rotating the bell crank counter-clockwise and moving the valve 75 downwards against the bias of the spring 85. This downward movement of the valve 75 exposes the ports 79 and allows the atmosphere to enter the enclosure formed by the press diaphragms 38 and 47, thus balancing the internal and external pressures, and relieving pressure applied to the shoe and sole in the press.

A preferred mechanism for rotating and indexing the carrier to present each press in turn at the loading station is shown in Figs. 1, 3, and 4, and comprises a gear housing 112 secured to the base 10 and having spaced horizontal bores passing through the hubs 113 and 114. A friction clutch sleeve 115, having a central bore in which is keyed one end of a shaft 116 is journalled in the hub 114 and is confined laterally between the faces of the hub by the rear face of a friction disc 117 turned integral with the sleeve and a collar 118 pinned to the sleeve and also to the shaft 116.

A flexible coupling 119 connects the sleeve 115 to the crank shaft of the vacuum pump 60 which is driven constantly during operation of the machine by the electric motor 61, thus the sleeve 115, and the shaft 116 having its opposite end journalled in the hub 113, are constantly rotated. Mounted so as to be freely rotatable on the shaft 116 is a worm gear 120 having an integral friction disc 121, and a compression spring 122 mounted on the shaft 116 between ball thrust bearings 124 and 123 urges the worm gear friction disc 121 into engagement with the driving sleeve friction disc 117, thus effecting a driving relation to rotate the worm.

A gear 125 arranged for rotation on a vertical axis meshes with the worm 120 and drives a shaft 126 journalled at its upper end in a bearing 127 provided in the frame member 12, the shaft passing entirely through the frame and a pinion 128 is keyed thereto which meshes with a ring gear 129 secured to the hub 17 of the carrier by screws (not shown). As long as the vacuum pump 60 is in operation and the carrier is not restrained from rotating, the worm 120 due to its frictional engagement with the driving sleeve 115 rotates the gear 125 and shaft 126 causing the pinion 128 to rotate the ring gear 129 and the carrier 16. However, when the carrier is restrained from rotation by the indexing device later described, the gear 125 is held in a stationary position, and the worm 120 being rotated by frictional engagement with the driver sleeve advances along the shaft 116 due to the helix angle of its thread, compresses the spring 122 and disengages itself from its frictional engagement with the driver sleeve 115.

An indexing detent which serves to restrain rotation of the carrier and lock each press in turn at the loading station is provided in the form of a pin 130 slidably mounted in a vertical bore in a bracket 131 secured to the upper frame member 12. This pin is given an upward bias by the spring 132 interposed between upper frame member 12 and the bottom face of the pin, so that its upper portion is adapted successively to enter each of a series of holes 133 located in a circular track 134 beneath the carrier table and spaced to aline each press at the loading station.

Means for withdrawing the pin 130 to allow the carrier to rotate comprises a foot pedal 140 pivoted at 141 to the base 10 and having hinged thereto by a clevis pin 142 a rod 143 which is in turn joined at its upper end by a clevis 144 to a plunger 145 slidably mounted in a bore 146 in the bracket 131 and the table 12. This plunger 145 is given an upward bias by a spring 146 and pivoted at 147 to its upper end is a latch 148 having secured thereto a leaf spring 149 which engages against the side of the plunger 145 to give the latch a bias toward engaging position with the dog 150 of a lever 151 pivoted at 152 to the bracket 131. The lever 151 is forked at the end opposite to its pivot 152 to straddle the portion of the bracket supporting the pin 130 and is connected to the latter by a pin 153 which passes through elongated slots 154 cut in the bracket.

Considering the carrier at rest with a press at the loading station as shown in Fig. 1, a lasted shoe and outsole assembly is placed in the lower portion of the press with the jack-pin hole located over the pin 43, and the foot pedal 140 is depressed, which causes the latch 148 to engage the dog 150. Further depression of the pedal withdraws the pin 130 from its engagement with the carrier table. Releasing the pin 130 from the table allows the spring 122 to push the worm 120 back into driving relation with the sleeve 115 and the carrier starts to rotate, causing cam 26 to close the press cover, and thereafter allowing the roll 96 to leave the stationary

cam 99 and the valve spring 85 to move the valve 75 to its upmost position, thereby evacuating the press.

Stoppage of the next press at the loading station is assured even if the operator continues to depress the pedal 140. This is accomplished by a series of cams 160 located on the underside of the carrier which contact the latch 148 and cause it to disengage the dog 150, thus releasing the pin 130 which then rides against the face of the circular track under pressure of the spring 132 and is ready to register with the next hole.

The presses are continuously evacuated as they are carried out of the loading station. However, as a press again nears the station to be unloaded, the valve 75 is moved to the cut-off position by the cam 99 allowing the atmosphere to enter and subsequently allowing the press cover to open under the bias of the spring 50 by virtue of the rise in cam 26.

Since certain changes may be made in carrying out the above process without departing from the scope of the invention, it is intended that all matter contained in the above description shall be interpreted as illustrative and not in a limiting sense.

It is also to be understood that the following claims are intended to cover all of the generic and specific features of the invention herein described, and all statements of the scope of the invention which, as a matter of language, might be said to fall therebetween.

Having described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a shoe pressing machine, the combination comprising a rotatable carrier having a plurality of shoe pressing devices thereon each comprising a shoe receiving box having a last supporting member and a cover hinged thereto, a flexible shoe upper receiving diaphragm attached to said member, a flexible sole engaging diaphragm attached to said cover, said diaphragms contacting around a shoe placed therebetween and forming a flexible shoe enclosing pad when said cover is closed, vacuum producing means common to all of said pressing devices, conduits connecting each of said pads to said vacuum producing means, a valve in each of said conduits movable to positions connecting its associated pad with said vacuum producing means or to the atmosphere, means for driving said carrier to present each pressing device in turn at an operating station, manually controllable means for allowing said driving means to become operative, means for causing said driving means to become inoperative when a pressing device reaches said operating station, means operable by movement of said carrier for closing the covers of said pressing devices as they move away from said operating station, means operable by movement of said carrier for subsequently moving said valves to connect their associated pads with said vacuum pump, means operable by movement of the carrier for returning said valves to disconnect the pads in said pressing devices from said vacuum pump and to connect them to the atmosphere as they again approach said operating station, and means operable by movement of the carrier for opening said pressing device covers.

2. In a shoe pressing machine, the combination comprising a rotatable carrier having a plurality of shoe pressing devices thereon each comprising a shoe receiving box having a cover hinged thereto, vacuum producing means common to all of said pressing devices, conduits connecting each of said pressing devices to said vacuum producing means, a valve in each of said conduits movable to positions connecting its associated pressing device with said vacuum producing means or to the atmosphere, means for driving said carrier to present each pressing device in turn at an operating station, manually controllable means for allowing said driving means to become operative, means for automatically causing said driving means to become inoperative when a pressing device reaches said operating station, means dependent upon rotation of said carrier for closing the covers of said pressing devices as they move away from said operating station, means normally biasing said valves for connecting their associated pressing devices with said vacuum pump, an annular cam segment at said station, cams on said valves for contacting said segment, means including said segment and said cams for returning said valves to disconnect said pressing devices from said vacuum pump and to connect same to the atmosphere as they again approach said operating station, and means for then opening said pressing device covers.

3. In a shoe pressing machine, the combination comprising, a frame supporting a central bearing column, a table rotatable about said bearing column having secured thereto a plurality of shoe pressing devices each comprising a shoe receiving box having a hinged cover carrying a flexible sole-engaging diaphragm, an annular cam ring extending centrally around said column, said ring having a rise at the operating station of said machine, cam engaging members carried on said covers, in contact with said ring, a vacuum pump connected to a chamber formed in said central bearing column, conduits connecting each of said pressing devices to said chamber, a valve in each of said conduits movable to positions connecting its associated device with said vacuum pump or to the atmosphere, means for driving said table to present each pressing device in turn at said operating station, manually controllable means for allowing said driving means to become operative, means for causing said driving means to become inoperative to drive said table when a pressing device reaches said operating station, means biasing said covers towards open positions, means including said ring and said engaging members for closing the covers of said pressing devices as they move away from said operating station, means for moving said valves to connect their associated devices with said vacuum pump after their covers close, means for disconnecting said devices from said vacuum pump and for connecting same to the atmosphere as they approach said operating station, and means including said ring and said engaging members for thereafter allowing said pressing device covers to open through the movement of said engaging members into said rise and the operation of said biasing means.

4. In a shoe pressing machine, the combination comprising, a frame supporting a central bearing column, a table rotatable about said bearing column having secured thereto a plurality of shoe pressing devices each comprising a shoe receiving box having a hinged cover carrying a flexible sole engaging diaphragm, an annular cam ring extending centrally around said column, said ring having a rise at the operating station of said machine, cam engaging mem-

bers carried on said covers, in contact with said ring, a vacuum pump connected to a chamber formed in said central bearing column, conduits connecting each of said pressing devices to said chamber, a valve in each of said conduits movable to positions connecting its associated device with said vacuum pump or to the atmosphere, means for driving said table to present each pressing device in turn at said operating station, manually controllable means for allowing said driving means to become operative to drive said table, means for making said driving means inoperative when a pressing device reaches said operating station, means biasing said covers towards open position, means including said ring and said engaging members for closing the covers of said pressing devices as they move away from said operating station, means normally biased for moving said valves for connecting their associated devices with said vacuum pump after their covers close, an annular cam segment at said station, cams on said valves for contacting said segment, means including said segment and said cams for disconnecting said devices from said vacuum pump and for connecting same to the atmosphere as they approach said operating station, and means including said ring and said engaging members for thereafter allowing said pressing device covers to open through the movement of said engaging members into said rise and the operation of said biasing means.

5. A shoe pressing machine comprising a rotatable carrier, a plurality of shoe receiving boxes mounted on said carrier, each of said boxes including a last supporting member and a cover therefor, a flexible shoe upper receiving diaphragm attached to said member, a flexible sole engaging diaphragm attached to said cover, said diaphragms contacting around a shoe placed therebetween and forming a flexible shoe enclosing pad when said cover is closed, means for rotating said carrier for presenting each of said boxes in succession to an operating station, means operable by the rotation of said carrier immediately following the departure of each of said boxes from said station for closing its cover upon its associated member, vacuum producing means, conduits connecting the interior of each of said pads with said producing means, a valve in each of said conduits adjustable to connect its associated pad to said producing means or to atmosphere, means operable by the rotation of said carrier immediately following the closure of a cover upon its associated member for adjusting the valve associated therewith for connecting the pad associated therewith to said producing means, means operable by the movement of said carrier preceding the approach of each of said boxes again to said station, for adjusting its associated valve to disconnect its associated pad from said producing means and to connect same to atmosphere, and means then operable by the movement of said carrier for opening the cover of the box containing the last mentioned pad.

6. A shoe pressing machine comprising a frame supporting a central bearing column, a table rotatable about said column, a plurality of shoe receiving boxes mounted upon said table, each of said boxes including a last supporting member, and a cover therefor, a flexible shoe upper receiving diaphragm attached to said member, a flexible sole engaging diaphragm attached to said cover, said diaphragms contacting around a shoe placed therebetween and forming a flexible shoe enclosing pad when said cover is closed, means for rotating said table for presenting said boxes in succession to an operating station, means operable by the rotation of said table immediately following the departure of said boxes from said station for closing said covers, vacuum producing means, conduits connecting the interiors of said pads with said producing means, means including two way valves in said conduits for connecting said pads to said producing means or to the atmosphere, means biased for normally adjusting said valves for connection to said producing means, a circular cam segment at said station, cams on said valves for contacting said segment when said boxes are adjacent said station, means including said segment and said cams for over-riding said biasing means and for disconnecting said pads from said vacuum producing means and for connecting said pads to the atmosphere when said boxes are at said station, and means for thereafter opening said covers.

7. A shoe pressing machine comprising a frame supporting a central bearing column, a table rotatable about said column, a plurality of shoe receiving boxes mounted upon said table, each of said boxes including a last supporting member and a cover therefor, a flexible shoe upper receiving diaphragm attached to said member, a flexible sole engaging diaphragm attached to said cover, said diaphragm contacting around a shoe placed therebetween and forming a flexible shoe enclosing pad when said cover is closed, means for rotating said table for presenting said boxes in succession to an operating station, an annular cam ring extending centrally around said column, said ring having a rise at said station, cam engaging members carried on said covers, in contact with said ring, means biasing said covers towards open positions, means including said ring and said cams operable by the rotation of said table immediately following the departure of said boxes from said station for closing said covers, vacuum producing means, conduits connecting the interiors of said pads with said producing means, means including two way valves in said conduits for connecting said pads to said producing means or to the atmosphere, means operable by the rotation of said table for adjusting said valves when said boxes have departed from said station for connecting said pads to said producing means and for disconnecting same from the atmosphere and when said boxes are at said station for disconnecting said pads from said producing means and for connecting same to the atmosphere, and means including said cam engaging members, said rise in said ring and said biasing means for opening said covers when said boxes are at said station.

8. A shoe pressing machine comprising a frame supporting a central bearing column, a table rotatable about said column, a plurality of shoe receiving boxes mounted upon said table, each of said boxes including a last supporting member, and a cover therefor, a flexible shoe upper receiving diaphragm attached to said member, a flexible sole engaging diaphragm attached to said cover, said diaphragms contacting around a shoe placed therebetween and forming a flexible shoe enclosing pad when said cover is closed, means for rotating said table for presenting said boxes in succession to an operating station, an annular cam ring extending centrally around said column, said ring having a rise at said station, cam engaging members carried on said covers, in contact with said ring, means biasing said covers

towards open positions, means including said ring and said cams operable by the rotation of said table immediately following the departure of said boxes from said station for closing said covers, vacuum producing means, conduits connecting the interiors of said pads with said producing means, means including two way valves in said conduits for connecting said pads to said producing means or to the atmosphere, biasing means for normally adjusting said valves for connection to said producing means, a circular cam segment at said station, cams on said valves for contacting said segment when said boxes are adjacent said station, means including said segment and said cams for over-riding said last mentioned biasing means and for disconnecting said pads from said vacuum producing means and for connecting said pads to the atmosphere when said boxes are at said station, and means including said cam engaging members, said rise in said ring and said first mentioned biasing means for opening said covers when said boxes are at said station.

KENNETH W. MACDONALD.