

March 29, 1949.

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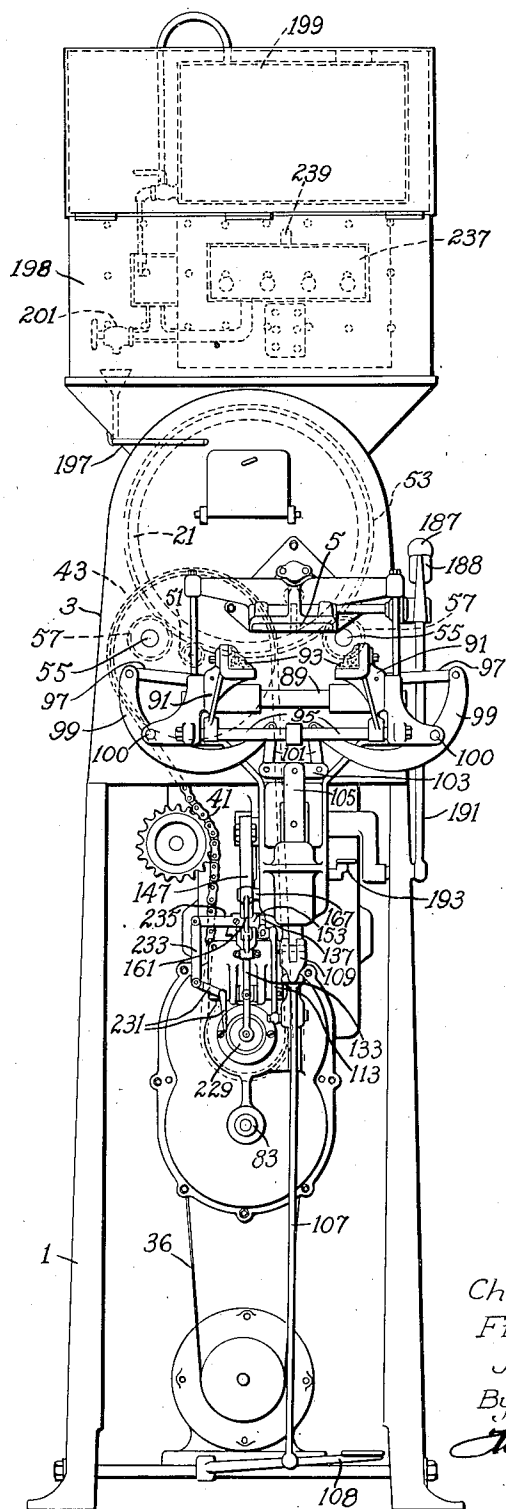
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SHOE BOTTOM FILLING MACHINE

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10 Sheets-Sheet 1

Fig. 1

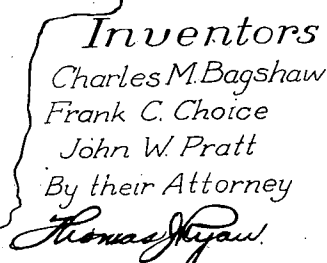


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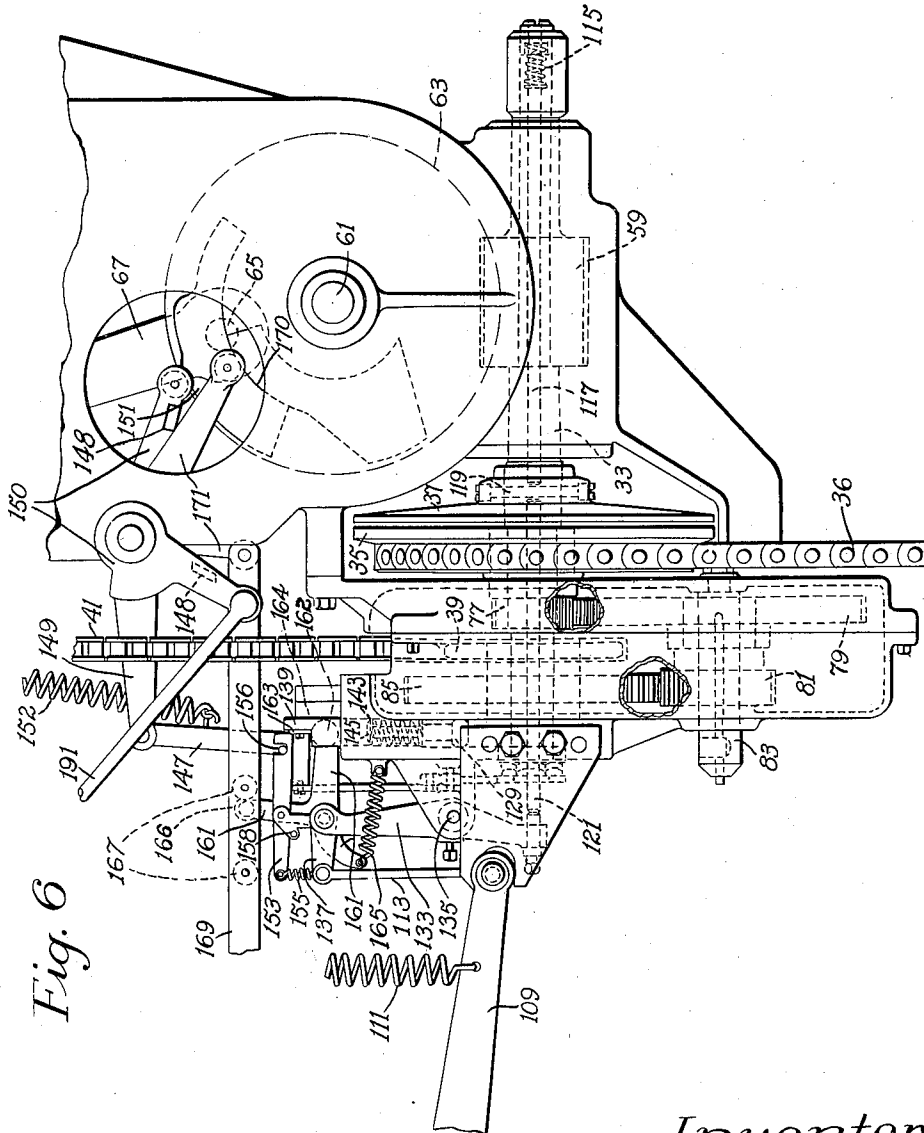


Fig. 6

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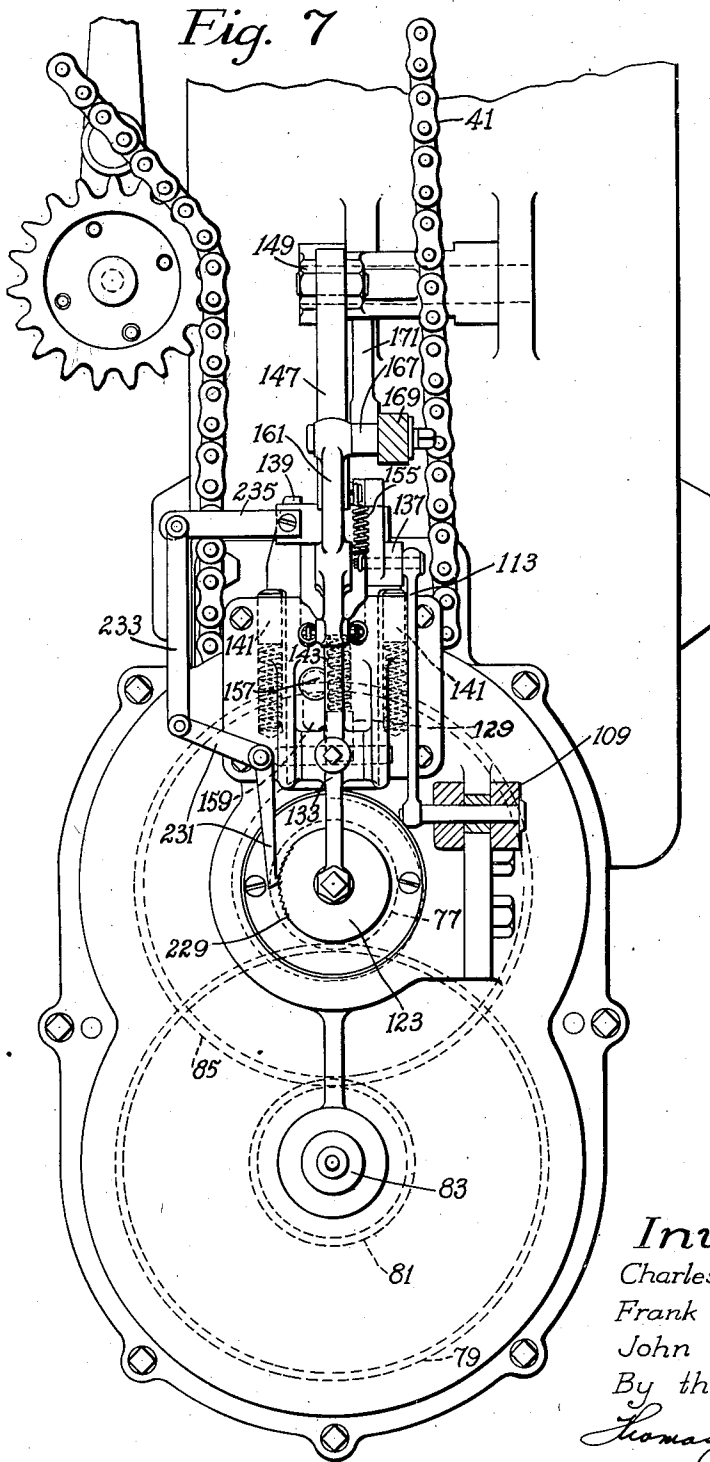
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Fig. 8

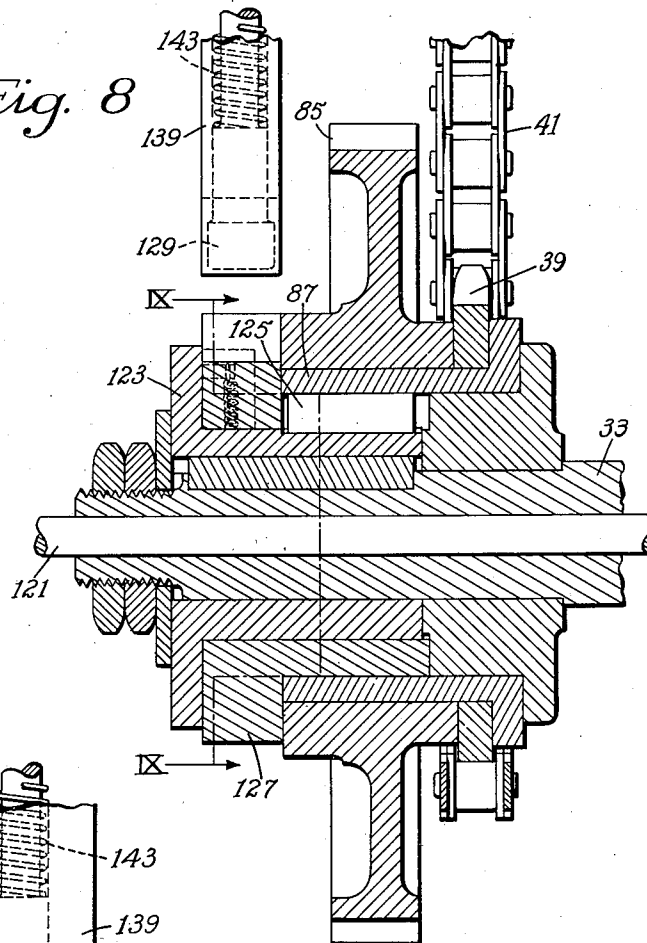
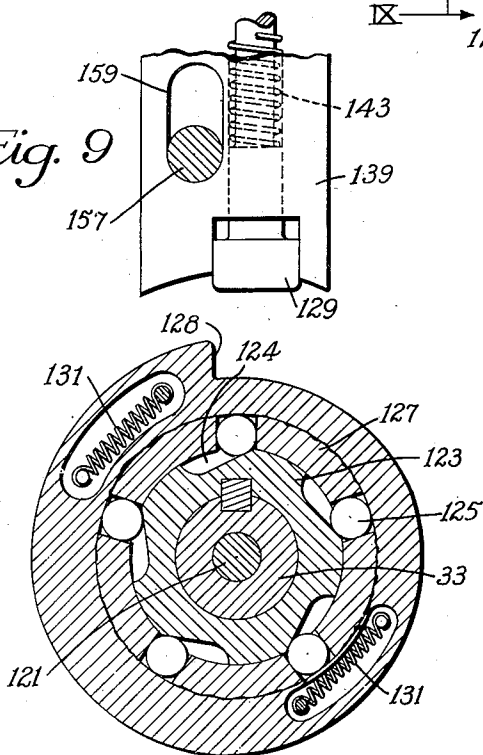


Fig. 9



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Fig. 11

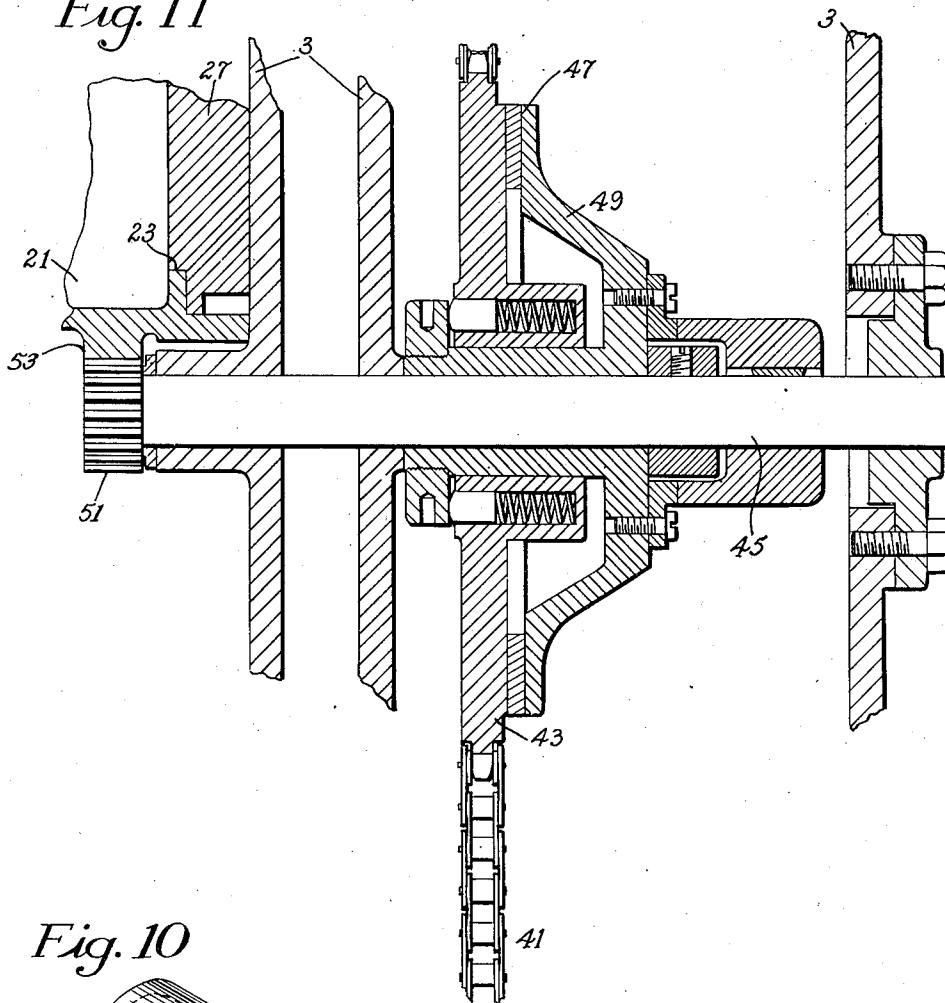
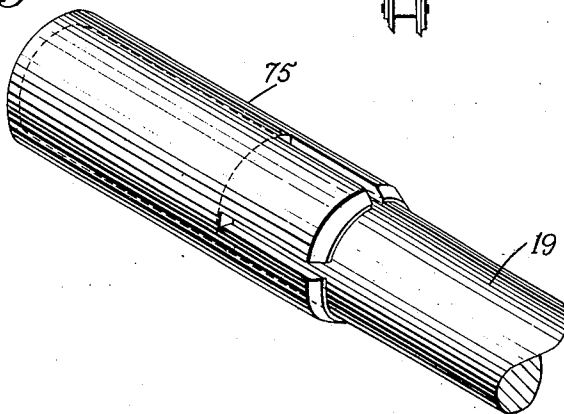


Fig. 10



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Fig. 15

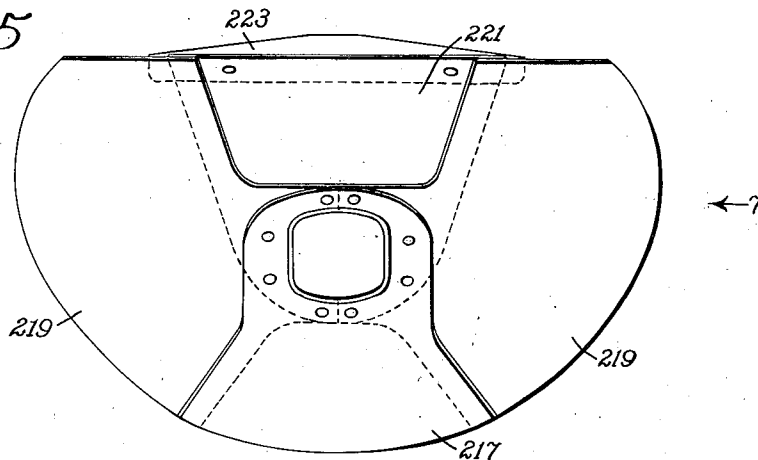


Fig. 13

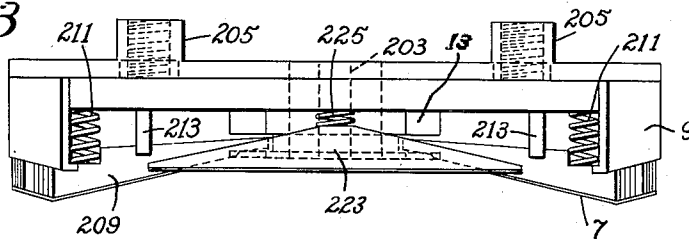


Fig. 14

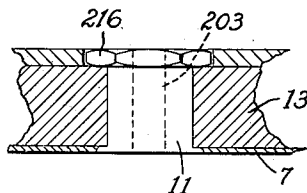
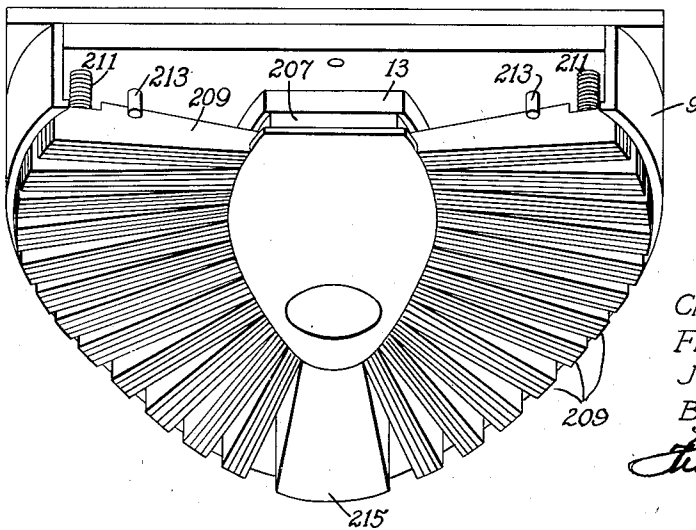


Fig. 12

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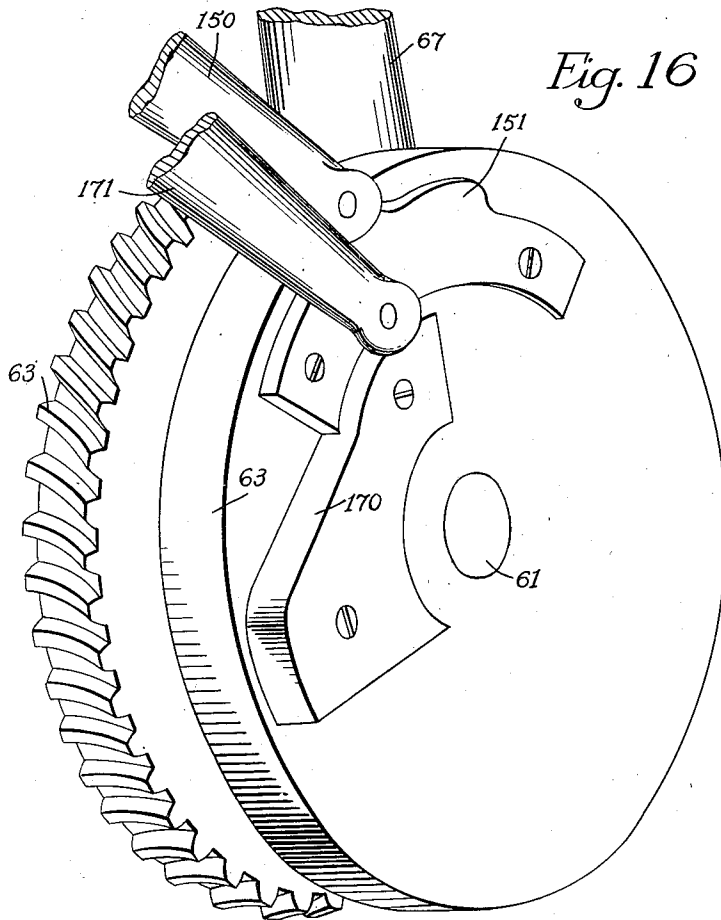


Fig. 16

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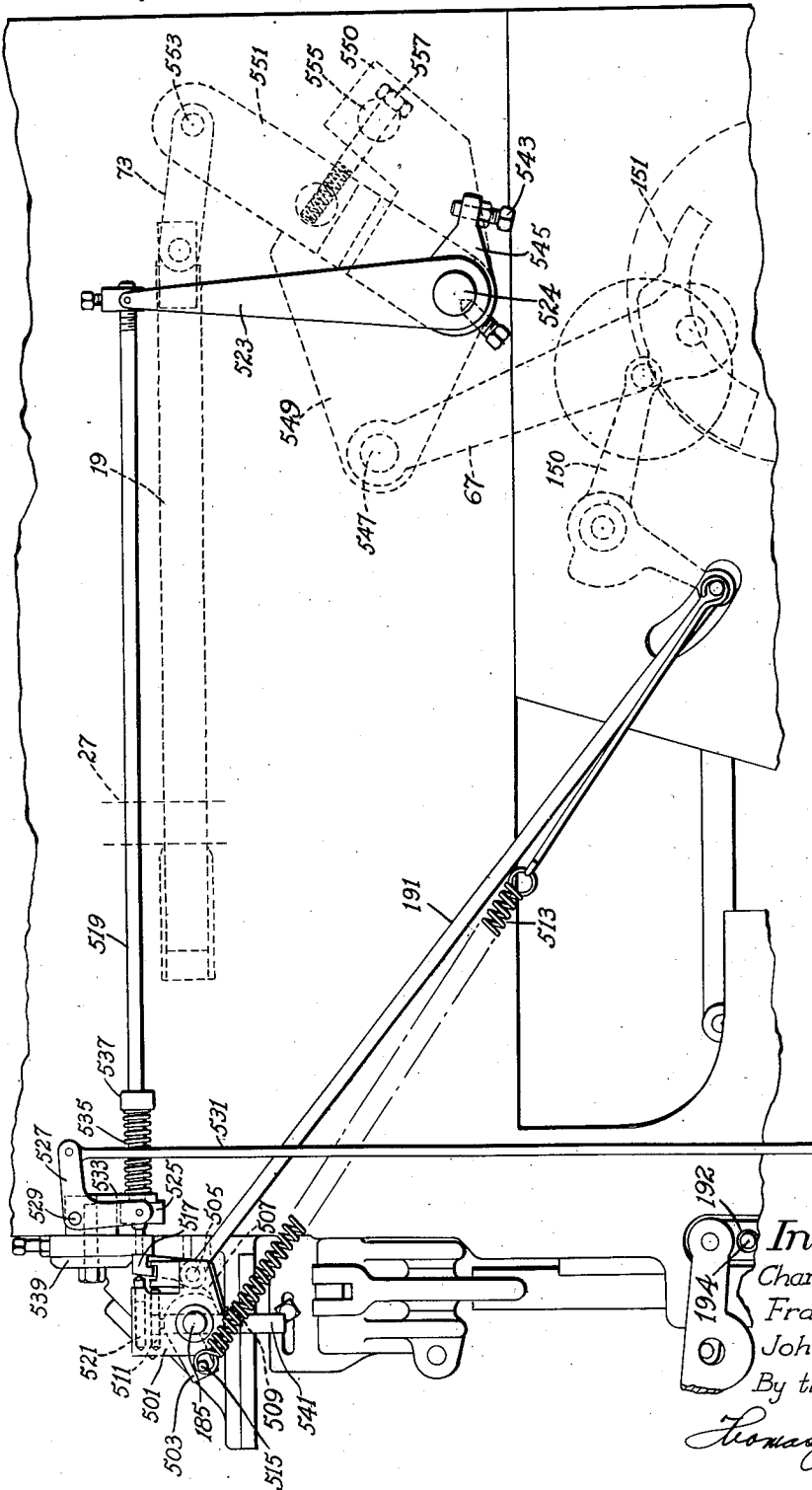


Fig. 17

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UNITED STATES PATENT OFFICE

2,465,417

SHOE BOTTOM FILLING MACHINE

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Application May 9, 1947, Serial No. 746,926
In Great Britain June 6, 1946

45 Claims. (Cl. 12—79.6)

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This invention relates to improvements in machines for filling shoe bottom cavities.

In most shoe manufacturing processes after the upper has been lasted over an insole there is a cavity bounded by the inner edge of the overlasted upper. In order that the outsole, when applied to the bottom of a shoe, may fit flush against the shoe bottom, it is a usual practice to fill the cavity with bottom filling material composed of a mixture of granulated cork and a bitumin or resin binder which is plasticized by heat and which hardens when cooled. In United States Letters Patent No. 2,279,440, granted April 14, 1942, on application of W. N. Bray et al., there is disclosed a simple type of machine which constitutes an appreciable advance over machines previously made for this purpose but this machine is operated entirely by manual effort so that the output is limited to the strength and endurance of the operator.

Among the various objects of the present invention are the provision of a novel and convenient machine for applying filling material to the cavities of shoes of varying sizes and for causing the material to spread, to the desired depth, throughout the whole of the area of each cavity without the exercise of substantial manual effort in so doing. Another closely related object is to provide a novel and convenient power operated arrangement whereby a suitable quantity of filling material may be taken from a supply mass thereof, applied to a shoe bottom cavity, and caused to spread thereover in a single operation.

A further one of the various objects of the invention is to provide a power operated machine which shall be capable of applying filling material to a shoe bottom cavity at a low rate well suited to facilitate its flow into all portions of the cavity and which in spite of such fact, shall be capable of performing a complete bottom-filling operation in a speedy manner allowing a high output of work to be obtained from the machine. Still other objects are to provide novel bottom filling extruding means of an intermittently acting nature and a novel arrangement for cutting off filling material from the extruding means to a shoe bottom cavity when the cavity has received a sufficiency of said material.

In one of its aspects a machine embodying the features of the present invention is provided with a member engaging the marginal portion of a shoe bottom around the cavity to be filled to hold the material within the cavity while an extruding pressure is being exerted, a container

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for a supply mass of filling material, and reciprocatory feeding means for transferring the material from the supply to the cavity in which an adequate amount of material in excess of that required to fill the cavity of the shoe is separated from the mass within the supply container for use by the feeding means during each operation of the machine in filling a shoe, thus preventing irregularities in the distribution of filling material within the shoe cavity and promoting uniformity in the filling operation. The illustrated form of this feature consists of a cylinder communicating with the bottom engaging member, with which the separating device cooperates. As an effective construction for this purpose the cylinder receives a plunger to provide the extruding pressure and the material separated by said device is disposed in the path of the plunger to enable it to be carried into the cylinder during the compressing stroke thereof. In the preferred embodiment of this feature, the separating device comprises a sleeve arranged in alignment with the cylinder entered by the plunger and as it enters the cylinder the amount of material contained in the sleeve is carried into the cylinder. An advantageous construction embodying the separating sleeve, as will be described hereinafter, has the plunger arranged to act within the supply container for the filling material and the sleeve surrounding the plunger is in frictional engagement therewith for movement toward the cylinder opening during the compressing stroke of the plunger. To insure positioning an adequate bulk of the material in the supply container within the path of the compressing plunger during the feeding stroke thereof, according to these features of the invention, the container for the supply is equipped with agitating means so that during the retracting stroke of the plunger from the cylinder the material in the supply mass will quickly fill the space vacated by the plunger in preparation for a new operation.

A further feature of the invention which enables accurate control of the filling operation, consists in the provision of means for preventing extrusion of material into the cavity after it is filled, while the pressure against the material exerted by the plunger is continued so that the machine can complete its cycle of operation uniformly regardless of the capacity of the cavity.

These and other features of the invention consist in the devices, combinations and arrangements of parts including novel and improved means for changing the speed at which the plunger

er reciprocates to reduce the time in which the machine may complete its cycle of operation and an effective and inexpensive construction for a shoe engaging matrix capable of use with a wide range of sizes and shapes of shoes, as hereinafter described and claimed which together with the advantages obtained thereby will be readily apparent from the following detailed specification, taken in connection with the accompanying drawings illustrating two embodiments thereof, in which

Fig. 1 is a view in front elevation of a machine embodying the features of the present invention;

Fig. 2 is a view in side elevation partly broken away and in section looking from the right side of the machine illustrated in Fig. 1;

Fig. 2a is a detail view on a somewhat enlarged scale of the clamp pad locking pawls and rack employed in the machine;

Fig. 3 is a view in vertical section on an enlarged scale taken through the matrix box, the filling valve and extruding cylinder of the machine illustrating the operation on a shoe;

Fig. 4 is a view in front elevation partly broken away and in section of the matrix box showing its relation to a shoe being filled;

Fig. 5 is an enlarged scale sectional view in front elevation of the agitating drum and supporting means;

Fig. 6 is a view in side elevation of a portion of the driving mechanism and controls for the machine;

Fig. 7 is a view in front elevation on an enlarged scale of the mechanism shown in Fig. 6;

Fig. 8 is a sectional detail view of a roll clutch employed in the driving mechanism illustrated on a further enlarged scale;

Fig. 9 is a section of the roll clutch taken along the line IX—IX of Fig. 8;

Fig. 10 is a detail perspective view of the filling plunger and pickup sleeve employed in the machine;

Fig. 11 is a sectional detail view of an overload clutch employed for driving the agitating drum of the machine;

Fig. 12 is a detail perspective view, looking from below the matrix box with the shoe engaging diaphragm removed therefrom;

Fig. 13 is a view in front elevation of the matrix box with the shoe engaging diaphragm in place;

Fig. 14 is a sectional view of a portion of the matrix box illustrating the manner in which the shoe engaging diaphragm is secured in place;

Fig. 15 is a detail perspective view of the shoe engaging diaphragm looking toward the front edge and from the underside;

Fig. 16 is a detail perspective view of the driving and cam disks on the crank shaft of the machine; and

Fig. 17 is a view in right-hand side elevation of a modified mechanism for actuating the control valve and for imparting a variable stroke to the extruding plunger.

The illustrative machine consists of a frame having a vertical column 1 supporting a head casting 3 at the upper end thereof. At the forward side of the head casting, and substantially centrally thereof, is positioned a shoe-bottom-engaging matrix in the form of a box 5 presenting an outline which, as seen in plan 1, corresponds to the outline of the forepart of an exceptionally wide shoe, the matrix being adapted to fit closely against the top edge of the insole lip of a welted shoe 2 around the toe and along the sides of the shoe to a position at the heel side

of the ball-line. The construction of the matrix will be described more fully hereinafter and in general the insole-lip-engaging portion thereof comprises a thin flexible metal diaphragm 7 (see Figs. 3, 4, 13 and 15), of sufficient resilience and supported in such a manner, as will allow it to accommodate itself to the varying curvatures presented by the top edges of insole lips on different sizes and styles of shoes thrust against it. The diaphragm thus forms a closure wall for the cavity provided in the central part of the shoe bottom by the upstanding insole lip which runs around the margin of the shoe bottom to hold filling material extruded into the cavity between the outer face of the insole and the underface of the diaphragm, which cavity is substantially equal in depth to the height of the insole lip. Where, however, the heel end of the diaphragm extends across the space between the opposite side portions of the insole lip in the waist or shank of the shoe, free access between the cavity in the shoe bottom and the atmosphere is provided.

The diaphragm is shown in Figs. 3 and 15 and forms the lower wall of a shallow metal box 9 corresponding in shape to the diaphragm and fixedly mounted in the machine so as to lie approximately in a horizontal plane with its toe end pointing away from the operator and in a position conveniently accessible to him. Near its toe portion, the upper wall of the shallow box has a short vertical tube 11 (Fig. 14) threaded into it and a head on the lower end of this tube overlaps the flexible diaphragm and clamps the central portion thereof against a metal backing plate 13 lying between it and the upper wall of the matrix box. The bore in the tube 11 provides a means of applying bottom filling material to the central portion of the cavity in a shoe bottom from above the matrix box in a manner more fully described hereinafter.

In order to allow bottom filling material to reach the cavity in the shoe bottom from a source of supply, the tube 11 is arranged to communicate with a duct 15 (Fig. 3) extending horizontally from the upper end of the tube and communicating with the forward end of a horizontal cylinder 17 an inch and an eighth in diameter and four and a half inches in length. For feeding bottom filling material into the cylinder and extruding it under pressure into the shoe cavity through the matrix box, the machine is provided with a power reciprocated plunger 19 which lies in alignment with the cylinder and carries with it in a single stroke more than sufficient material to fill a shoe bottom cavity. The plunger in its extreme rearward position provides a gap of approximately five and a half inches between the open end of the cylinder and the plunger (see Fig. 2). In so arranging the plunger and cylinder the plunger, as it advances toward the cylinder, carries with it a sufficient amount of bottom filling material.

With a view to ensuring that an adequate bulk of filling material will be positioned in the path of the plunger before the latter enters the cylinder, the supply of material is agitated within a rotary supply drum 21 located behind the cylinder and the plunger moves across inside the drum near the lowermost portion thereof. The drum is rotated in a counterclockwise direction as seen from the front of the machine, about a horizontal axis and comprises a rim twelve and a half inches in diameter and seven inches in width supported on step surfaces 23 (Figs. 2 and 11) on

the outer edges of a pair of fixed end plates 25 and 27, constituting end walls for the drum. The forward end plate 25 has an opening for the plunger in line with the cylinder and the rearward end plate or wall 27 has a corresponding opening. The plunger is thus able to pass completely across the drum before entering the cylinder. The rear wall 27 of the drum also has a second opening 29 formed in its upper portion, through which bottom filling may flow downwardly into the supply drum from a hopper hereinafter described.

With a view to assisting the agitating action produced by rotation of the drum 21 to reduce the filling material to a consistent fluent state and to ensure that the vacancy made in the material by the advance of the plunger across the drum will be filled with other material of the mass as the plunger is withdrawn rearwardly, a baffle composed of a curved sheet metal plate 31 (see Fig. 5) extends across the drum and is secured between the stationary walls 25 and 27. This baffle plate has a curved portion extending upwardly along the interior of the drum from a position to the right of the cylinder leaving a gap of about half an inch between it and the interior surface of the drum 21. From the upper end of the baffle portion, the plate is turned downwardly again on a curvature which brings its lower end above the opening of the cylinder 17 and from this lower end the plate is bent to the right to join the lower end of the upwardly extending portion. The lower portion of the baffle plate thus provides a pocket which is V-shaped. Thus rotation of the drum carries the filling material into the wider end of the pocket and crowds it into the vacancy in the path of the plunger, a surplus amount of material being caused continually to emerge from the apex of the pocket, and around the upwardly extending portion of the plate. When the material reaches the upper end of the plate, it falls and is delivered in front of the open mouth of the cylinder. The vacancy left by the plunger therefore is rapidly filled after the plunger is retracted from the cylinder 17. Thus assurance is afforded that sufficient material will be available in front of the plunger when it makes its next advancing movement.

Mechanism for actuating the plunger into and out of the cylinder 17 and for rotating the drum includes a horizontal main driving shaft 33 (see Figs. 2 and 6) supported in the machine frame below the head casting 2. The main shaft has a friction disc 35 rotatably mounted on it which is engaged by a belt 36 driven from an electric motor. A second friction disc 37 is mounted to rotate with the rearward end of the main shaft but is slidable along the shaft into engagement with the driving disc 35 to rotate the shaft at high speed. A sprocket wheel 39 (see Figs. 6 and 8) is driven by gearing hereinafter described from the friction disc 35 so as to rotate with it at a lower speed and a chain 41 passing upwardly around this sprocket wheel runs over a larger sprocket wheel 43 (Fig. 5) rotatably mounted on the rear end of a shaft 45 beneath the drum. The sprocket 43 has a friction face 47 (see Fig. 11) on it and is slidably mounted on the hub of a friction disc 49 keyed to the shaft. The sprocket 43 is urged yieldingly into engagement with the friction disc and provides a friction drive for the shaft which will allow the latter to remain stationary if excessive resistance is experienced. The shaft 45 has a small pinion 51 secured to it

which meshes with rack teeth 53 formed around the periphery of the drum 21 and, by this means, the drum is maintained in constant rotation as long as the electric motor is in operation. To support the drum additionally to that afforded by the end walls 25 and 27 on which it rests, a pair of horizontally extending rods 55 (Figs. 1 and 5) are fixed in the machine frame below the left and right of the drum at either side, looking at the machine from the front, and each rod has rotatable on it a pinion 57 engaging the rack teeth 53 on the drum.

The main shaft 33 has a worm 59 on its rear end which meshes with worm teeth on the periphery of one of a pair of spaced discs 63 mounted on spaced coaxial portions of a crank shaft 61 above the main shaft, one of which portions forms the wheel for the worm 59. The discs 63, and therefore the two portions of the shaft, are connected for rotation together by a crank pin 65 (Fig. 6) carrying the lower end of a pitman link 67, the upper end of which is pivotally connected to one arm of plunger operating members comprising a bell crank 69 (Fig. 2) pivotally mounted on a fixed pin 71. The bell crank lever 69 has an upwardly extending arm which through a link 73 is pivotally connected to the rear end of the plunger 19.

To ensure that the plunger shall carry an adequate amount of filling material in excess of that required to fill the bottom cavity of the largest shoe upon which the machine is intended to operate, according to an important feature of the present invention, the plunger has a "pick-up" sleeve 75 for collecting filling material before it as it advances across the drum toward the cylinder, and for separating automatically the material collected from the mass in the drum. This pick-up sleeve comprises a thin metal tube of an internal diameter to fit the plunger inside the drum, and its rearward portion is split (see Fig. 10) to provide a plurality of resilient fingers by which the sleeve is held frictionally on the plunger. The arrangement is such that, when the plunger occupies its most rearward position, its forward end will be covered by the sleeve and the rear edge of the sleeve will be in contact with the rear wall 27 of the drum in alinement with the opening into the cylinder 17. Ample space is therefore provided between the forward end of the sleeve and the forward wall 25 of the drum for filling material to collect as it is carried forward by the rotation of the drum. On advancing movement of the plunger across the drum, the sleeve forces its way through the mass of filling material and separates from the mass in the container an amount in excess of that required to fill the cavity in the bottom of a shoe of the largest size. During continued movement of the plunger, toward the cylinder 17 as the forward edge of the sleeve 75 engages the rear surface of the forward wall 25 of the drum at the opening of the cylinder, the sleeve is stopped but the plunger continues to advance, moving through the sleeve to discharge the filling material picked up by the latter into the cylinder.

To prevent the plunger from unduly compressing the filling material and to enable the material to be extruded through the matrix box 5 into the shoe bottom cavity at a rate which will produce sufficient pressure in the material so that it will find its way readily into all portions of the cavity, it is desirable in carrying out the objects of the invention, to cause the plunger to advance relatively slowly during the extruding action. It

is also desirable that the other movements of the plunger which precede and follow the extruding action shall take place at a faster speed in order to reduce the time taken by the machine in completing a full cycle of operations. It is further desirable to have the shoe held more closely against the matrix box while the extruding action is in progress than is necessary at other times. For these reasons particularly, the illustrative machine is provided with two-speed power driven mechanism operating from the main shaft and shoe supporting means of a kind to be described.

The power driving mechanism consists of the friction disc 35 and a small pinion 77 (see Fig. 6) formed integrally therewith. This pinion meshes with a large integral gear 79 which is connected to a pinion 81 rotatable on a fixed rod 82 below the main shaft, engaging a final gear 85 (Fig. 8) also rotatable on the main shaft. The gear 85 has pinned to it the driving member 87 of a roller clutch (see Figs. 8 and 9) encircling the forward end of the main shaft and providing a means whereby the main shaft 33 may be rotated at one tenth the speed of the friction disc on the shaft. All the gearing just referred to and the drum revolve continuously as long as the electric motor is in operation without rotating the main shaft, and consequently no movement of the plunger takes place from its inoperative rearward position until the main shaft becomes clutched to the friction driving disc 35.

Clutching of the friction driving disc 35 to the main shaft takes place (a) at times through a direct connection from the friction disc to the main shaft 33 and (b) at other times through the reduction gearing and the roller clutch just referred to. The initial clutching of the disc 35 to the main shaft is effected through actuation by the operator of the shoe supporting means while clamping a shoe. Secured in fixed portions of the head casting 3 just beyond the opposite sides of the matrix box is a transversely extending horizontal rod 89 (Fig. 1). Slidably mounted on the rod for movement toward and away from each other are a pair of small brackets 91. Each of these brackets has a rubber shoe clamping pad 93 seated in a pocket formed at its upper end. As seen from the front of the machine, these pads present inclined inner faces which act, when the brackets 91 are moved inwardly along the rod 89 to press a shoe upwardly against the matrix box. The brackets 91 extend downwardly below their supporting rod 89 and their lower ends are slotted to embrace fixed pins 95 extending parallel to the supporting rod 89 thus preventing the brackets from rotating about that rod without restricting their ability to slide.

For enabling the pads on the brackets 91 to be moved against and away from a shoe for removal from the machine, each bracket has pivoted to its outer side a laterally extending link 97 (Fig. 1). These links are also pivoted to the upper ends of a pair of curved levers 99 pivoted below said links on fixed pins 100. The levers turn inwardly, below the pins 100 to an approximately horizontal position directly below the matrix board 5 and are there connected to the upper ends of a pair of depending links 101. The lower ends of these links are connected to the opposite ends of a short horizontal link 103 which is pivoted at its mid portion on the upper end of a vertically movable bar 105. Vertical movement of this bar will therefore cause the rubber pads

to move toward or away from shoe clamping position. Vertical movement of the bar is effected by a treadle rod 107 the upper end of which is pivotally connected to the mid-point of a lever 109 (see Figs. 1 and 2) which is pivoted at 110 near its forward end, to the lower end of the bar 105 and is upheld at its rearward portion by a relatively strong spring 111. The rearward end of the lever 109 is connected to a member of a clutch control, to be described, the arrangement being such that depression of a treadle 108 connected to the lower end of the treadle rod 107 first causes the shoe clamping pads 93 to move against a shoe and then, when firm contact with the shoe is obtained to resist further clamping movement. The lever 109 then swings downwardly about its pivot 110 to actuate the clutch control member and start the machine.

The main shaft is arranged to be driven either by direct drive from the friction disc 35 or through a roller clutch and means are provided, in the illustrative machine, for determining which of these driving devices is to be effective at a particular time. To urge the sliding disc 37 forwardly into driven engagement with the driving disc 35 a spring 115 at the rearward end of the main shaft 33 (Fig. 6) thrusts forwardly on a rod 117 in the main shaft, which rod engages a pin 119 fast in the hub of the sliding disc 37 and passes through a slot in the main shaft. The disc 37 is, however, held inoperative when the machine is at rest by means of a second sliding rod 121 in the main shaft at its front end abutting the pin 119 in the disc. The sliding disc and pin therefore lie between adjacent ends of a pair of coaxial rods which slide forwardly and rearwardly to bring about engagement or disengagement of the driven disc with the driving disc.

The roller clutch is situated at the forward end of the main shaft 33 (see Figs. 6, 8 and 9) and is of a conventional type. It comprises a driven member 123 rigidly secured to the shaft and provided with a series of peripheral wedge-shaped recesses 124 formed around it to receive rollers 125. These rollers are controlled by a cage 127 surrounding the driven member 123 and having slots within which the rollers are housed. The cage is formed with a rim having an abutment 128 arranged to be engaged by the control member, indicated at 129. Closely enclosing the rollers is a cylindrical driving member 87 so arranged that when the control member 129 is withdrawn from the abutment on the rim of the cage, the cage is rotated by springs 131 to move the rollers along the wedge-shaped recesses in the member 123 forcing them against the inner face of the driving member, thus causing the driven member and the main shaft to rotate. When the roller clutch is to be disengaged, the control member re-engages the abutment on the cage. When the control member engages the abutment on the cage, further rotation of the cage is prevented, rendering the clutch inoperative.

In order to cause the friction and roller clutches to become operative at the desired times, the illustrative machine has mounted above the front end of the shaft 33 a friction clutch controlling lever 133 (Figs. 6 and 7) which actuates the coaxial rod 121. The lever 133 is pivotally mounted on a fixed pin 135 above the rod and the upper end of the lever is bifurcated and is actuated when the treadle 108 is depressed. On the upper end of the lever 133 is pivoted a bell crank lever 137 (Fig. 6) arranged, on rocking move-

ment about its pivot in one direction, to allow movement of the control member 129 for the roller clutch away from the abutment on the cage so that the roller clutch takes up the drive and also simultaneously to cause the lever 133 supporting it to rock in a clockwise direction. The spring 115 behind the sliding disc 37 then moves the latter into operative engagement with the driving disc 35.

Referring to Figs. 6 to 9, inclusive, the control member 129 for the roller clutch is slidably mounted in a vertically movable slide 139 located above the rim of the cage member 127. The slide 139 is normally urged upwardly away from the cage 127 by a pair of spring pressed plungers 141 (Fig. 7). The slide houses within its lower end the control member 129 having a head urged downwardly by a spring 143 encircling its stem, a nut 145 pinned to the stem engaging an internal shoulder within the slide 139 for limiting the downward movement of the control member.

Pivoted to swing above the slide 139 is a depending latch-link 147 (Fig. 6) which at its lower end is provided with a shoulder engaging a co-operating shoulder on a horizontal cross bar attached to the slide to hold the latter in a lowered position with the control member 129 lying against the abutment 128 of the cage when the machine is at rest. The latch-link 147 is pivoted at its upper end to a lever 149 operated by engagement with a double-armed cam lever 150 actuated by a cam 151 secured to one of the discs 63 on the crank shaft 61. When the latch-link 147 is moved and held in a downward position by the lever 149 the roller clutch is held inoperative and the machine is maintained at rest.

To withdraw the shoulder on the latch-link 147 from the above the cross bar 163 on the slide 139 which controls the roller clutch, the rear end of the treadle actuated lever 109 has connected to it through a vertical link 113, a forwardly extending arm of bell crank lever 137. An upwardly extending arm of the bell crank lever 137 has pivoted to it midway of its length a horizontal latch-link controlling lever 153. This lever has a notch formed in the upper edge at its rearward end and between its forward end and the forward arm of the lever 137 is stretched a spring 155. The spring 155 urges the notched end of the latch-link controlling lever 153 against a pin 156 projecting laterally from the lower end of the latch-link 147. When the rear end of the treadle actuated lever 109 is depressed after the shoe clamping pads 93 have closed upon a shoe, the bell crank lever 137 will be rocked sufficiently in a counter-clockwise direction, as viewed in Fig. 6, to disengage the latch-link 147 from the cross bar on the slide 139. The slide 139 thereupon is released and rises under the action of its spring-pressed plungers 141 a short distance until a fixed pin 157 in the frame (Fig. 9) meets the lower end of a vertical slot 159 in the slide. The cage of the roller clutch is thus released to the action of its springs 131 to cause the main shaft to be rotated by the low speed gear. When it is desirable for the machine to run at a relatively high speed, for instance at 30 R. P. M., through a direct drive from the driving friction disc 37, upward movement of the slide 139 causes the disc 37 to be coupled directly to said shaft at substantially the same time as the roller clutch becomes operative; the roller clutch then serving as an over-running clutch.

In order to cause the friction disc 37 to drive the shaft 33, the upper end of the clutch con-

trolling lever 133 carries on the same pivot with the roller clutch operating bell crank lever 137 a three-arm lever 161 (Fig. 6). One arm of this three-arm lever 161 extends rearwardly and carries a roll 162 projecting beneath the cross bar 163 on the clutch controlling slide 139. This roll remains constantly in engagement with a vertical guiding face 164 on a fixed part of the machine directly behind it. The three-arm lever 161 also has an arm extending forwardly to which is connected one end of a spring 165 attached at its other end to the machine frame, acting to draw the lever 161 and the upper end of the clutch controlling lever 133 rearwardly. The third arm of the lever 161 extends upwardly and carries a roll 166 lying between two pins 167 spaced apart along a link 168 hereinafter referred to which acts to apply an inward thrust to the shoe engaging pads. With this arrangement, as the slide 139 moves upwardly the roll 162 follows it, tracking meanwhile along the vertical face 164 behind it. This action produces an angular movement in the three-arm lever 161 to allow the upper end of the friction clutch controlling lever 133 to move rearwardly somewhat under the force of the spring 165. The lower end of the lever 133 therefore moves forwardly and the spring 115 immediately urges the disc 37 against the driving disc 35, starting the main shaft 33 at high speed. The plunger 19 and pick-up sleeve 75 therefore move forwardly across the drum relatively quickly. The drive of the main shaft 33 is transferred to the slowly moving roller clutch when the pick-up sleeve 75 contacts the cylinder opening in the forward wall of the drum 21 before the plunger 19 starts to discharge the filling material from the sleeve into the cylinder 17 and thence into the matrix.

To provide more positive support for the shoe against displacement from the matrix box when the plunger 19 starts to force material from the cylinder 17, the link 169 is pivotally connected to a depending arm of a lever 171 (Fig. 6) actuated in part by a cam 179 secured to one of the discs on the crank shaft 61. The cam lever 150 has lugs 148 formed thereon which engage lever 171 and also rock this lever at certain times in the operation of the machine. The forward end of the link 169 is pivoted to the upper end of a toggle link 173 (see Fig. 2) the lower end of which is pivoted on a pin 174 fast in the machine frame. The upper end of toggle link 173 is pivoted to a second toggle link 175, the two occupying a broken relation when the machine is at rest, as shown in Fig. 2. The upper end of the link 175 is pivoted to the rear end of a pawl-carrying lever 177 fulcrumed on a fixed pivot pin 178. The forward end of the lever 177 carries a pin 180 on which a pair of substantially vertical pawls 179 are mounted one beside the other. These pawls have a pair of staggered teeth (Fig. 2a) at the forward side of their lower ends, below their pivot, and have long upwardly extending tails. A vertical rack 181 is secured to the rear side of the bar 185 which actuates the shoe clamping pads and this rack lies immediately in front of the pawls which latter are urged to engage the teeth on the rack by tension springs 183.

To impart downward movement to the shoe pad operating pawls 179 and consequently additional clamping movements of the pads 93, the lever 171 is arranged to draw the link 169 connected to it rearwardly of the machine when the plunger 19 is acting to push the bottom filling material out of the pick-up sleeve and into the

cylinder 17. Such rearward movement of the link 169 straightens the toggle links 173, 175 connected to the pawl-carrying lever 177 and, by thus thrusting upwardly on the rear end of that lever, pushes the pawls downwardly and moves the rack-bar downwardly accompanied by a further inward movement of the shoe-engaging pads 93. The pads are then retained in their further inward positions by the straightened toggle links 173, 175.

The rearward movement of the link 169 also presses the forward pin 167 against the roll 166 on the lever 161 near the end of the rearward movement of said link. The completion of the rearward movement of the link 169 therefore rocks the three-arm lever 161 in a clockwise direction, as shown in Fig. 2 and, since the roll 166 on that lever rides against the vertical face behind it, the lever moves bodily forward a short distance. By reason of this forward movement the upper arm of the friction clutch controlling lever 133 on which the three-arm lever 161 is mounted also moves forwardly and its lower arm moves rearwardly. The rearward movement of the lower arm of the lever 133 causes it to push the rod 121 in the main shaft and thus to press the driven friction disc 37 out of engagement with the rotating disc 35.

The slide 139 controlling the roller clutch, however, remains in its raised position so that when the discs 35, 37 are disengaged the main shaft is driven at low speed. The crank shaft then rotates at approximately three revolutions per minute. The plunger 19 accordingly forces filling material through the cylinder 17 and matrix and into the cavity in the shoe bottom at a sufficiently low speed to avoid appreciable compression of the material, thus avoiding undesirable expansion of the material after the cavity has been filled.

The amount of filling material forced into the cylinder 17 on each stroke of the plunger 19 being in excess of that required to fill the largest cavity likely to be met, there will be more material than is required for filling cavities in small shoes. Since, however, the space between the matrix diaphragm 7 and the bottom of a shoe clamped against it is not closed at the heel end of the cavity, the operator may readily see when surplus material is extruded. To prevent extrusion of material into a shoe after its cavity is filled, and while the extrusion pressure is continued by the plunger 19 a two-way valve manual 185 (see Figs. 2 and 3) is provided above the matrix box 9. The valve is located in the duct 15 leading from the cylinder 17 and has a handle 187 with a curved pad 188. The valve 185 has a passage cut in it, which on rotation of the valve, forms two ways, one of which is arranged to admit passage of filling material from the duct 15 to the matrix box 9 and the other to admit the excess material from the duct 15 to another duct 189 leading back to the supply drum so that excess material bypasses the matrix and is returned to the drum. The operator rotates the valve when the cavity in the shoe bottom is filled, the operation on the shoe then being completed.

After each filling operation is completed, the following additional operations occur:

- (a) The clamping pads release the shoe for removal from the machine,
- (b) The clutch controlling parts are set to cut off rotation of the main shaft when the cycle has been completed, and
- (c) The friction clutch re-engages to complete the advancing movement of and to retract the

plunger at high speed enabling rapid return of the machine to its initial condition. To these ends the valve 185 has an arm 190 (Fig. 2) which is connected by a link 191 to the lever 150. The lever 150 is operatively connected to lever 171 through lugs 148 and is actuated by its cam 151 to reset the valve 185 to open position at the end of the operation of the machine.

The cam 170 which operates the lever 171 and the cam 151 which operates the lever 150 are face cams, of relatively small peripheral extent, and the cam levers 171 and 150 actuated thereby are arranged to remain frictionally in any position to which they are moved by their cams. It will be recalled that the shoe-engaging pads are held in firm clamping engagement with the shoe by the toggle links 173, 175.

The connection between the manual valve 185 and lever 150, and thence through lugs 148 with lever 171 is so arranged that when the valve cuts off further entry of filling material into the matrix box, the lever 171 is rocked in a direction to move the toggle links out of alignment and the pawls 179 are raised until the pressure of the pads against the shoe is relieved. As link 169 moves forwardly, the rearward pin 167 engages the roll 166 on the lever 161, rocking this lever counter-clockwise and the clutch controlling lever 133 clockwise so that the disc 37 moves into engagement with the rotating disc 35.

The cam lever 150 has portions projecting above and below the lever 149 allowing limited relative rocking movement between the two levers. When the cam lever 150 is rocked by manual operation of the valve 185 the lever 149 also is rocked in a direction to re-position the lower end of the latch-link 147, a spring 152 acting to swing the link over the slide 139. The roller clutch is thrown out of action on further rocking movement of the cam lever 150 as the cam 151 engages it during completion of a full rotation. The final downward movement of the slide 139 will bear downwardly on the rear arm of the lever 161 and restore it to a position occupied when the machine is at rest, causing the upper end of the clutch controlling lever 133 to separate the discs 35, 37 on the main shaft. Repositioning the latch-link 147 above the slide 139 is not prevented by the notched lever 153 since it rocks idly, if necessary, during the return movement of the latch-link 147 above the slide. Ordinarily, the operator will remove his foot from the starting treadle 108 prior to this stage in the machine cycle and the notched lever 153 will usually be ready to move with the latch-link 147. It will thus be noted that manual rotation of the valve 185 will not only cut off the flow of filling material through the matrix and open communication between the cylinder and drum but will also release the shoe for removal from the machine, causing also the completion of the advancing and withdrawing movement of the plunger to its initial retracted position at high speed. As the crank shaft 61 completes a rotation, the descent of the slide 139 under the thrust of the latch-link 147 will render both the friction clutch and the roller clutch inoperative so that the machine comes to rest with the parts, except for the valve 185 in their original positions. As the machine comes to rest, the cam lever 150 to which the valve 185 is connected is finally rocked to rotate the valve to reopen communication between the matrix box 5 and the cylinder 17, thus allowing the advancing plunger 19 again to ex-

trude filling material into the matrix box as a new filling operation is started.

Withdrawal of the pawls 179 from engagement with the rack bar 181 is caused by manual closing movement of the valve 195 which movement raises the pawls to a more elevated position from that in which they originally engaged the rack bar, and means is provided to swing the pawls away from the rack bar and to hold them thereafter in withdrawn positions. For this purpose the lower ends of the pawls have below their pivot 180 a relatively large hole 192 (Fig. 2). Freely mounted on the pivot 180 is a bell crank lever 193 having an arm supporting a pin 194 which enters loosely within the holes 192 in the pawls. Lever 193 has an arm which carries a hand pad at its forward end. Just rearwardly of the hand pad the lever 193 has a relatively large hole through which passes a pin 196 of smaller diameter than the hole. The pin 196 is fixed to a projection portion of the head casting 3. When the machine is at rest, the bell crank lever 193 is held by its weight against the rear sides of the holes 192 in the pawls. When the pawls are raised to their more elevated position at the end of a bottom filling operation and the bell crank lever 193 moves upwardly with them, the pin 196 passing through the forward arm of the lever comes into engagement with the bottom of its hole and on the continued rising of the pawls 179 the bell crank lever 193 is rocked about its pivot in a counterclockwise direction as viewed in Fig. 2 moving the pawl teeth rearwardly out of engagement with the rack 181. Simultaneously, the tails of the pawls above their pivot are cammed upwardly and forwardly by the latch in the form of a finger 195 pivoted at 196 behind the tails of the pawls 179. The forward end of the finger 195 normally rests on the upper edge of the rack 181 but when the pawls 179 are elevated and rocked in the manner just referred to, their tails first lift the finger and then travel forwardly along its underside. Just as the pawls finish this rocking movement their tails pass in front of a shoulder on the underside of the finger 195 which holds the pawls positively against reengagement with rack 181. During the final rotational movement of the main shaft 33 before coming to rest, the cam-actuated link 169 is moved rearwardly slightly by the cam 170 to lower the pawls 179 to an inoperative position and, in so doing, the pawls allow the forward end of finger 195 to engage the top of the rack 181 which is then in its highest raised position. The pawls then move further downward sufficiently to withdraw their tails from the finger 195 and their teeth are pressed into engagement with the rack 181 by the springs 193.

It will be understood that if a shoe should have been improperly clamped by the pads 93 the operator may depress the bell crank lever 193 manually and thus disengage the pawls 179 from the rack 181 to free the shoe.

To keep the filling drum 21 supplied with filling material, the opening 29 in the drum is disposed opposite the lower end of a hopper 198 provided behind the drum. The hopper 198 includes a series of relatively narrow vertical compartments arranged side by side across its width of box-like shape closed at the upper and rear sides, the front having a door to allow blocks of solid, thermoplastic material to be inserted into one or more of the vertical compartments. Each compartment being open at its underside allows the filling material upon softening to flow down-

wardly into the hopper. In order to soften the filler block to enable flowing and spreading evenly over the cavity in a shoe bottom without, at the same time, reducing it to an undesirably fluid condition the magazine has a heater including electric heating cartridges and a water bath is situated below the drum, the heating effect being controlled as required. The hopper also is jacketed to allow hot vapor from the water bath to circulate around it.

Filling material suitable for the purpose intended consists mainly of a mixture of granulated cork and bituminous or resinous binder. Continuous agitation of such material by the rotating drum not only assists in feeding the material in front of the plunger and its pick-up sleeve but also assists in breaking large lumps of the material. The addition of a limited amount of hot water to the material being constantly agitated within the drum assists in the even flowing of the plastic mass during extrusion and in the reduction of any stiffness or lumpiness.

To introduce hot water to the material the illustrative machine is provided with a drip-feed outlet comprising a pipe 197 entering the drum. The pipe is fed with hot water from a tank 199 through a control valve 201 on to the material in the lower part of the drum. The water becomes thoroughly admixed with the heated material and becomes evenly dispersed, partly as vapor, assisting in disintegrating any lumps present.

The matrix box 5 (see Figs. 3, 4 and 12 to 15 inclusive) comprises the diaphragm 7 and the metal tube 11 which clamps the diaphragm 7 in place against the backing plate 13 and provides a duct 203 through the matrix box, the diaphragm being about 5½ inches in width and six inches in length. The upper wall of the box 5 has upstanding, internally threaded bosses 205 thereon to receive studs for securing it to the machine frame with the diaphragm in a generally horizontal plane pointing rearwardly. Rigidly secured to the central portion of the upper wall of the box is the metal backing plate 13 for the diaphragm. This backing plate is similar in outline to the matrix box but is smaller in width by one and a half inches and in length by four and a half inches, its heel end of the plate approaching closer to the heel end of the box than its toe end. The backing plate is one third of an inch thick with a groove 207 running around its periphery, an overhanging edge being formed by the lower edge of the groove. Within the groove 207 are loosely held the inner ends of a series of radiating individually movable spring fingers 209. These fingers each comprise a thin wedge-shaped plate which presents an inclined lower surface, the sloping edges of the fingers at the opposite sides of the box cooperating with the flat lower surface of the backing plate to form a concavity complementary to the shoe bottom. The outer ends of the fingers 209 have short ears (see Fig. 3) extending into a shoulder 210 within the rim forming the box 9. Between the upper edges of the fingers and the lower inside face of the box are a number of springs 211 enabling the fingers 209 to yield under the upthrust of a shoe, the fingers rocking about the points of contact with the groove 207. The fingers 209 are preferably arranged in sets of four, those of each set lying side by side in contacting relation with each other and being retained together by guide pins 213 projecting downwardly from the upper wall of the box, there being a single spring for each set situated in a recess therein. There are twelve sets

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of fingers along each side of the box with the outer ends of the two sets near the toe end of the shoe spaced more than an inch apart, making only a small angle with each other. The outer ends of the most heelward pair of the finger sets extend substantially perpendicularly to the sides of a shoe. A single finger 215 (Fig. 12) of similar construction to the fingers 209 but three quarters of an inch wide at its outer side tapering to about a third of that width is provided in the gap between the pair of the finger sets at the toe end of the matrix. It will be understood that the spring fingers 209 will yield individually as the forepart of a shoe is thrust against them and will accommodate themselves to the curvature along the shoe.

The spring fingers 209 and 215 form a support for the diaphragm 7 which is secured in the matrix box solely by the enlarged head of the tube 11. The upper end of the tube is threaded to receive a nut 216 (see Fig. 14) which when tightened clamps the diaphragm to the central portion of the backing plate.

The diaphragm consists of four overlapping plates 217, 219 and 221, shown in Fig. 15 of very thin resilient steel, which have a size and outline similar to that of the matrix box. The plate 217 is adapted to engage the toe portion of a shoe and is of V shape the inner end of the plate surrounding the fluid conducting tube 11. Two other plates 219 overlap the sides of the toe plate and present a somewhat V-shaped gap between them. This gap is covered by the fourth plate 221 also surrounding the tube 11 and overlapping the adjacent side plates. The overlapping portions of the plates are riveted to each other, thus presenting a unitary diaphragm, the various portions of which may tilt and yield relatively to each other. There are, of course, no spring fingers above the central portion of the diaphragm and, in order to provide adequate support for the fourth plate 221 this plate has a metal bar 223 secured to its upper face of its heelward margin. This bar extends across the matrix box just beyond the heel end of the plate 221 and a spring 225 (see Fig. 3) is compressed between it and the upper wall of the box, the upper edge of the bar 223 tapering downwardly toward its ends. Above the matrix box is an electric cartridge 227 housed in a portion of the machine frame to maintain the box and the cylinder in a heated condition.

The procedure followed in setting the machine in operation consists in first starting the driving motor and closing the electric heating circuits. The valve 181 is opened to allow drip feed of water into the drum. After the drum has rotated and the machine heated for a sufficient period of time to ensure that the material in the drum has reached a smooth fluent condition free from unbroken lumps, the operator presents a shoe to the central portion of the diaphragm. The shoe is held in firm contact with the diaphragm while the starting treadle of the machine is depressed. Depression of the treadle first causes the shoe-clamping pads 93 to be moved inwardly against the shoe forcing it upwardly against the diaphragm 7. The diaphragm then yields against the pressure of the top of the insole lip all round the forepart and just beyond the ball of the shoe. Continued depression of the treadle starts the machine at relatively high speed through the friction clutch 35, 37. The plunger 19 advances taking the pick-up sleeve 75 with it. The sleeve forces its way through the filling material and becomes filled therewith, the forward edge of

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the sleeve eventually coming into contact with the edge of the cylinder opening. The plunger continues to advance and to discharge the filling material measured by the pick-up sleeve into the cylinder. At this time the pads 93 are urged more firmly against the shoe and the drive for the plunger is transferred to the low speed roller clutch. The plunger then moves slowly along the cylinder extruding the filling material through the matrix box 5 into the shoe cavity.

As the filling material fills the shoe cavity, it first enters the toe end of the cavity and thereafter flows toward the heel until the whole cavity is filled. When the material commences to flow out the heel end the operator knows that the filling operation is completed and he rotates the valve 185. Rotation of the valve opens communication between the cylinder and drum and re-couples the crank shaft 31 to the friction clutch 35, 37 so that the remaining operations take place at high speed. Rotation of the valve 185 also releases the grip of the pads 93 on the shoe. Upon completion of a full rotation of crank shaft 61, the friction clutch 35, 37 and then the roller clutch are disengaged and the machine comes to rest. As the operator withdraws the shoe from the machine, he will hold it in fairly firm engagement with the diaphragm, causing it to iron the filling material on the shoe bottom thus evening any small irregularities in the surface of the filling material.

To prevent reverse movement of the driven member 123 in the roller clutch the main shaft 33 has fast on it a ratchet disc 229, shown in Fig. 7, and a pivoted pawl 231 mounted on the machine frame is connected by a link 233 to a laterally projecting arm 235 on the slide 139. The arrangement is such that when the slide 139 moves downwardly far enough to cause the member 129 to engage the abutment 128 on the roller clutch the pawl 231 will swing into engagement with disc 229 and will positively prevent the shaft from suddenly rotating in the reverse direction.

Conveniently the hopper 198 for initially receiving the blocks of solid thermoplastic filling material may have an electrically heated water bath 237 secured to its rear wall fed with water from a tank 199 through a conventional drip feed arrangement. A tube 239 (Figs. 1 and 2) leads from the upper side of the water bath 237 through the rear wall of the hopper 198 and into a vertical space 241 formed between said rear wall and a partition 242 secured in the hopper just in front of the rear wall proper. The partition 242 has a series of holes in it through which steam generated by the water bath may percolate into the space in the magazine occupied by the filling material. With a small sized shoe the cavity therein may be completely filled before the cam 179 has disengaged the cam lever 171 so that it is impossible to operate the extruding valve to terminate the extruding operation.

To enable this valve to be operated before the cam 179 disengages its lever 171 a modified form of construction is provided more particularly illustrated in Fig. 17. This modified construction includes the connection between the valve and the lever 171 in which a block 501 is rotatably mounted on the valve. Between bifurcated portions of this block is received a valve controlling member 503 secured to the valve. Pivoted to the block 501 at 505 is a pawl 507 which lies rearwardly of the member 503 and is arranged to engage a shoulder 509 on said member. The member 503 is urged into engagement with the shoul-

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der 509 by means of a spring-pressed plunger 511 which is received in the block 501 and engages an upwardly extending tail portion of the pawl 507. Pivotally mounted on the block 501, also at 505, is the link 191, connected at its lower end to the cam operated lever 150. This link has connected to its lower end a tension spring 513 the upper end of which is connected to a stud 515 on the member 503. Also pivoted at 505 on the block 501 is a lever 517, the upper arm of which has a tooth received between bifurcations on the tail of the pawl 507. A rearward surface of the lever 517 is urged into engagement with a horizontal rod 519 by means of a spring-pressed plunger 521 received in the block 501. The rearward end of the rod 519 is pivotally connected to an upwardly extending arm 523 which is rotatable on the outer end of a shaft 524 which replaces pin 71 previously referred to and which carries a plunger operating member rocked by the pitman 67, as in the form of construction illustrated in Fig. 2. Secured on the forward end of the rod 519 is a block 525 pivotally connected to a depending arm of a bell crank lever 527 pivoted at 529 to the machine frame. A rearwardly extending arm of this lever is pivotally connected to an upper end of a treadle-actuated rod 531. The rod 519 is normally urged rearwardly into a position determined by engagement of the block 525 with a lug 533 on the machine frame which supports the forward end of the rod 519. To urge the rod 519 rearwardly its forward end is surrounded by a spring 525 compressed between the lug 533 and a collar 537 secured to the rod 519. When the valve 185 is in a position to allow bottom filling material to be extruded into a shoe cavity, the parts just described are in positions shown in Figure 17, an upper surface of the lever 517 abutting against an under surface of a block 539 secured to the machine frame. During the operation of the machine on a shoe, when the operator wishes to cut off the flow of bottom filling material from the shoe cavity, he depresses the treadle rod 531, thus rocking the bell crank lever 527 in a clockwise direction as seen in Figure 17. This moves rod 519 forwardly to push the upper end of lever 517 out of engagement with the block 539 and to rock the pawl 507 in a counter-clockwise direction as seen in Figure 17, unlatching the valve controlling member 503. The valve controlling member then being disconnected from the rod 519 swings under the influence of the spring 513, stopping the flow of material. Movement of the valve in a counter-clockwise direction is limited by engagement of a pin 541, secured in the member 503, with a fixed portion of the machine frame. When this occurs the spring 513 is still under tension and, when the cam 170 rides clear of the cam roll on lever 171 to free the lever 150, so that the spring 513 acts to swing the cam lever 171 in a counter-clockwise direction thus moving the link 191 to swing the block 501, pawl 507 and lever 517 counterclockwise about the axis of the valve 185 until the spring controlled plunger 511 urges the pawl into relatching engagement with the shoulder 509 in the valve-controlling member 503.

When the cam operated lever 150 is eventually swung counterclockwise to reopen the valve, the link 191 first rotates the block 501 and valve operating member 503 as a single unit in a clockwise direction until the upper end of lever 517 rides under the block 539. The valve is then held in its position to supply bottom filling material to a shoe bottom cavity.

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In order to ensure that the valve 185 is turned to its off position and the high speed clutch 35, 37 engaged when the reciprocating plunger 19 reaches its most forward position, even if the operator does not operate the valve manually, the arm 523 is engaged by a set screw 543 carried in a short lever 545 secured to the shaft 524. Just as the plunger is reaching its most forward position the arm 523 is rocked and the rod 519 moved forwardly to operate the valve 185 automatically to stop the flow of filling material. The consequent counterclockwise rotation of cam lever 150 causes the friction clutch to be engaged and the shoe clamping means to release the shoe. The machine then completes its operative cycle at high speed.

In order to provide means for adjusting the effective stroke of the reciprocating plunger and hence of the amount of material picked up and delivered to a shoe bottom cavity by the sleeve 75, the plunger operating member comprising the bell crank lever 69 is replaced by lost-motion connecting means, including the pitman 67 lying between forwardly projecting portions of two parallel plates 549, pivoted to the pitman 67 by means of a pin 547. These plates are spaced apart widthwise of the machine (one being shown in Figure 17) and are rotatably mounted on the shaft 524. Secured to the shaft 524 is an arm 551 connected at its upper end by a pin 553 to the link 73 which, in turn, is connected to the plunger 19. The plates 549 have portions 550 lying rearwardly of the arm 551 and these portions are provided with a connecting pin 555 passing through a bore in which is freely received a stem portion of an adjustable bolt 557. The bolt is threaded into a trunnion on the arm 551. The portions 550 of the plates 549 form abutments which engage the arm 551 at an instant determined by the setting of the bolt 557. During counterclockwise movement of the plates 549 by the crank operated link 67, the arm 551 swings to move the plunger 19 forwardly. During subsequent clockwise swinging of the plates 549 the plunger remains stationary until the head of the bolt 557 contacts with the pin 555.

The nature and scope of the invention having been indicated and particular embodiments having been described, what is claimed is:

1. A machine for applying and spreading filling material within the cavity along the bottom of a shoe having a member for engaging the marginal portion of the shoe bottom around the cavity to be filled to hold the material within the cavity while an extruding pressure is being exerted, a container for a supply mass of filling material and reciprocatory feeding means for transferring the material from the supply into said cavity, in combination with a device acting to separate from the mass within the container for use in the feeding means an amount of material in excess of that required to fill the cavity in the shoe.

2. A machine for applying and spreading filling material within the cavity along the bottom of a shoe having a member for engaging the marginal portion of the shoe bottom around the cavity to be filled to hold the material within the cavity while an extruding pressure is being exerted, and a container for a supply mass of filling material, in combination with extruding means including a cylinder communicating with the bottom engaging member, a plunger in the cylinder and a device associated with the cylinder for separating an amount of material from the mass within the container in excess of that required to fill the cavity of the shoe.

3. A machine for applying and spreading filling material within the cavity along the bottom of a shoe having a member for engaging the marginal portion of the shoe bottom around the cavity to be filled to hold the material within the cavity while an extruding pressure is being exerted, and a container for a supply mass of filling material, in combination with an extruding plunger, a cylinder within which the plunger reciprocates, communicating with the bottom engaging member to transfer the material from the supply container to the cavity in the shoe and a device for separating an amount of material from the mass within the container in excess of that required to fill the cavity in the shoe and for disposing it in the path of the plunger.

4. A machine for applying and spreading filling material within the cavity along the bottom of a shoe having a member for engaging the marginal portion of the shoe bottom around the cavity to be filled to hold the material within the cavity while an extruding pressure is being exerted, and a container for a supply mass of filling material, in combination with an extruding plunger, a cylinder within which the plunger reciprocates, communicating with the bottom engaging member to transfer the material from the supply container to the cavity in the shoe and a sleeve in alignment with the cylinder arranged to separate an amount of material from the mass within the supply container in excess of that required to fill the cavity of the shoe.

5. A machine for applying and spreading filling material within the cavity along the bottom of a shoe having a member for engaging the marginal portion of the shoe bottom around the cavity to be filled to hold the material within the cavity while an extruding pressure is being exerted, and a container for a supply mass of filling material, in combination with a plunger acting within the supply container, a cylinder opening into the supply container for the plunger and communicating with the bottom engaging member, mechanism for actuating the plunger toward and from the opening of the cylinder in the supply container and a sleeve surrounding the plunger in frictional engagement therewith for movement with the plunger to separate an amount of material between the sleeve and the opening in the cylinder from the mass within the supply container in excess of that required to fill the cavity of the shoe.

6. A machine for applying and spreading filling material within the cavity along the bottom of a shoe having a member for engaging the marginal portion of the shoe bottom around the cavity to be filled to hold the material within the cavity while an extruding pressure is being exerted, a container for a supply mass of filling material and a reciprocating plunger acting at the lowermost portion of the container for feeding material from the supply into said cavity, in combination with means for supporting the container for rotation to enable the mass of material in the path of the plunger to be agitated during the feeding stroke thereof.

7. A machine for applying and spreading filling material within the cavity along the bottom of a shoe having a member for engaging the marginal portion of the shoe bottom around the cavity to be filled to hold the material within the cavity while an extruding pressure is being exerted, a container for a supply mass of filling material and a reciprocating plunger acting at the lowermost portion of the container for feeding material from

the supply into said cavity, in combination with means for supporting the container for rotation to enable the mass of material in the path of the plunger to be agitated during the feeding stroke thereof, a cylinder communicating with the supply container for receiving the plunger, and a sleeve through which the plunger moves to discharge into the cylinder a predetermined amount of filling material separated from the mass by the sleeve as the plunger advances.

8. A machine for applying and spreading filling material within the cavity along the bottom of a shoe having a member for engaging the marginal portion of the shoe bottom around the cavity to be filled to hold the material within the cavity while an extruding pressure is being exerted, a container for a supply mass of filling material and a reciprocating plunger acting at the lowermost portion of the container for feeding material from the supply into said cavity, in combination with means for supporting the container for rotation to enable the mass of material in the path of the plunger to be agitated during the feeding stroke thereof, a cylinder communicating with the supply container for receiving the plunger, a sleeve through which the plunger moves to discharge into the cylinder a predetermined amount of filling material separated from the mass by the sleeve as the plunger advances, and a baffle in the supply container for crowding the material into the path of the plunger as the container is rotated.

9. A machine for applying and spreading filling material within the cavity along the bottom of a shoe, having a matrix against which the marginal portion of said shoe bottom is pressed to hold the material within the cavity while an extruding pressure is being exerted, a container for a supply mass of filling material, and power-operated means acting with a single stroke to feed filling material from said container to the shoe cavity under an extruding pressure, in combination with means under the control of the operator for terminating extrusion of the material into the shoe cavity while the power-operated feeding means continues its stroke.

10. A machine for applying and spreading filling material within the cavity along the bottom of a shoe, having a matrix against which the marginal portion of said shoe bottom is pressed to hold the material within the cavity while an extruding pressure is being exerted, a container for a supply mass of filling material, and power-operated means for feeding filling material from said container to the shoe cavity under an extruding pressure, in combination with means for preventing extrusion of the material into the shoe cavity while the pressure is continued, and a duct connected to the extrusion preventing means for returning the excess material to the supply container.

11. A machine for applying and spreading filling material within the cavity along the bottom of a shoe, having a matrix against which the marginal portion of said shoe bottom is pressed to hold the material within the cavity while an extruding pressure is being exerted, a container for a supply mass of filling material, and power-operated means for feeding filling material from said container to the shoe cavity under an extruding pressure, in combination with a two-way valve for cutting off the filling material from the shoe cavity while the extruding pressure is continued and for returning the excess material to the supply container.

12. A machine for applying and spreading filling material within the cavity along the bottom of a shoe, having a matrix against which the marginal portion of the shoe bottom is pressed to hold the material within the cavity while an extruding pressure is being exerted, a container for a supply mass of filling material, a plunger for feeding filling material from the container to the shoe cavity under extruding pressure and power-operated mechanism for actuating the plunger, in combination with means for cutting off the filling material from the shoe cavity while the extruding pressure is continued by the plunger, and speed changing means in the power-operated mechanism for increasing the speed of the plunger when the cutting off means is actuated.

13. A machine for applying and spreading filling material within the cavity along the bottom of a shoe, having a matrix against which the marginal portion of said shoe bottom is pressed to hold the material within the cavity while an extruding pressure is being exerted, a container for a supply mass of filling material, a plunger acting within the supply container to feed filling material into the shoe cavity under an extruding pressure and power-operated mechanism for actuating the plunger through feeding and retracting strokes, in combination with speed changing means in the power-operated mechanism for actuating the plunger at a relatively low speed during its feeding stroke and at a higher speed during its retracting stroke.

14. A machine for applying and spreading filling material within the cavity along the bottom of a shoe, having a matrix against which the marginal portion of said shoe bottom is pressed to hold the material within the cavity while an extruding pressure is being exerted, a container for a supply mass of filling material, a plunger acting within the supply container to feed filling material into the shoe cavity under an extruding pressure and power-operated mechanism for actuating the plunger through feeding and retracting strokes, in combination with speed changing means in the power-operated mechanism for actuating the plunger at a relatively low speed during its feeding stroke and at a higher speed during its retracting stroke, a valve for cutting off the filling material from the shoe cavity while the extruding pressure is continued by the plunger and connections between the valve and the speed changing means for causing the plunger to be actuated during its feeding stroke after the filling material has been cut off at the same speed as during its retracting stroke.

15. A machine for applying and spreading filling material within the cavity along the bottom of a shoe, having a matrix against which the marginal portion of said shoe bottom is pressed to hold the material within the cavity while an extruding pressure is being exerted, a container for a supply mass of filling material, a plunger acting within the supply container to feed filling material into the shoe cavity under an extruding pressure and power-operated mechanism for actuating the plunger through feeding and retracting strokes, in combination with speed changing means in the power-operated mechanism for actuating the plunger at a relatively low speed during its feeding stroke and at a higher speed during its retracting stroke, a treadle for starting the operation of the machine upon a shoe, and connections between the treadle and the speed changing means for causing the machine to be operated at

said higher speed when the machine is first started.

16. A machine for applying and spreading filling material within the cavity along the bottom of a shoe, having a matrix against which the marginal portion of said shoe bottom is pressed to hold the material within the cavity while an extruding pressure is being exerted, a container for a supply mass of filling material, a plunger acting within the supply container to feed filling material into the shoe cavity under an extruding pressure and power-operated mechanism for actuating the plunger through feeding and retracting strokes, in combination with speed changing means in the power-operated mechanism for actuating the plunger at a relatively low speed during its feeding stroke and at a higher speed during its retracting stroke, a treadle for starting the operation of the machine upon a shoe, connections between the treadle and the speed changing means for causing the machine to be operated at said higher speed when the machine is first started, and a cam driven by the power-operated mechanism for reducing the speed of the plunger as an extruding pressure is built up in the filling material.

17. A machine for applying and spreading filling material within the cavity along the bottom of a shoe, having a matrix against which the marginal portion of said shoe bottom is pressed to hold the material within the cavity while an extruding pressure is being exerted, a container for a supply mass of filling material, a plunger acting within the supply container to feed filling material into the shoe cavity under an extruding pressure and power-operated mechanism for actuating the plunger through feeding and retracting strokes, in combination with speed changing means in the power-operated mechanism for actuating the plunger at a relatively low speed during its feeding stroke and at a higher speed during its retracting stroke, a treadle for starting the machine in operation upon a shoe at a relatively high speed, shoe clamping pads for pressing the shoe against the matrix whenever the starting treadle is depressed, a cam driven by the power-operated mechanism for reducing the speed of the plunger, and manual means for cutting off the flow of filling material into a shoe cavity and for releasing the shoe from the clamping pads.

18. A machine for applying thermoplastic filling material to the cavity along the bottom of a shoe, having a member for engaging the marginal portion of the shoe bottom around the cavity to be filled to hold the material within the cavity while an extruding pressure is being exerted, a container for a supply mass of filling material and feeding means for transferring the material from the supply container into said cavity, in combination with means for rendering the material in the supply container of sufficiently fluent consistency to be extruded into the shoe cavity, including a supply of liquid having an outlet entering the container, a heater for the liquid and mechanism for agitating the filling material in the container in the presence of the heated liquid.

19. A machine for applying thermoplastic filling material to the cavity along the bottom of a shoe, having a member for engaging the marginal portion of the shoe bottom around the cavity to be filled to hold the material within the cavity while an extruding pressure is being exerted, a container for a supply mass of filling material, feeding means for transferring the ma-

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terial from the supply container into said cavity, a hopper for replenishing the supply container, in combination with a heater for the hopper, and means for introducing a liquid into the supply container to render the material in a sufficiently fluent condition to be extruded into the shoe cavity.

20. A machine for applying filling material to the cavity along the bottom of a shoe having means for feeding filling material into the shoe cavity, in combination with a matrix box having a flexible diaphragm for engaging the marginal portion of the shoe bottom around the cavity to be filled to hold the material within the cavity while an extruding pressure is being exerted on the material, and a series of radiating individually movable spring pressed fingers forming a support for the diaphragm.

21. A machine for applying filling material to the cavity along the bottom of a shoe having means for feeding filling material into the shoe cavity, in combination with a matrix box having a flexible diaphragm for engaging the marginal portion of the shoe bottom around the cavity to be filled to hold the material within the cavity while an extruding pressure is being exerted on the material, and a plurality of sets of individually movable spring pressed fingers, each finger of which is arranged in contacting relation with another in a set for supporting the diaphragm.

22. A machine for applying filling material to the cavity along the bottom of a shoe having means for feeding filling material into the shoe cavity, in combination with a matrix box having a flexible diaphragm for engaging the marginal portion of the shoe bottom around the cavity to be filled to hold the material within the cavity while an extruding pressure is being exerted on the material, a plurality of sets of individually movable spring pressed fingers, each finger of which is arranged in contacting relation with another in a set for supporting the diaphragm, and guide pins for retaining the fingers in each set together.

23. A machine for applying filling material to the cavity along the bottom of a shoe having means for feeding filling material into the shoe cavity in combination with a matrix box having a flexible diaphragm for engaging the marginal portion of the shoe bottom around the cavity to be filled to hold the material within the cavity while an extruding pressure is being exerted on the material, a plurality of sets of individually movable spring pressed fingers, and a grooved backing plate located centrally of the matrix box, within the groove of which plate the fingers are mounted for rocking movement to support the diaphragm against the thrust of the shoe.

24. A machine for applying filling material to the cavity along the bottom of a shoe having means for feeding filling material into the shoe cavity in combination with a matrix box having a flexible diaphragm for engaging the marginal portion of the shoe bottom around the cavity to be filled to hold the material within the cavity while an extruding pressure is being exerted on the material, a plurality of sets of individually movable fingers, each finger of which is arranged in contacting relation with another in a set for supporting the diaphragm, and a single spring for each set of fingers to form a yielding support for the diaphragm.

25. A machine for applying and spreading filling material within the cavity along the bottom of a shoe, having a matrix against which the

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marginal portion of said shoe bottom is pressed to hold the material within the cavity while an extruding pressure is being exerted, a container for a supply mass of filling material, a plunger acting within the supply container to feed filling material into the shoe cavity under an extruding pressure and power-operated mechanism for actuating the plunger through feeding and retracting strokes, in combination with speed changing means in the power-operated mechanism for actuating the plunger at a relatively low speed during its feeding stroke and at a higher speed during its retracting stroke, a treadle for starting the operation of the machine upon a shoe, connections between the treadle and the speed changing means for causing the machine to be operated at said higher speed when the machine is first started, a cam driven by the power-operated mechanism for reducing the speed of the plunger as an extruding pressure is built up in the filling material, a valve for cutting off the flow of filling material to the shoe cavity while the extruding pressure is continued, connections between the valve and the speed changing means for increasing the speed of the plunger during its continued feeding stroke, and a latch for disconnecting the valve from said connections.

26. A machine for applying and spreading filling material within the cavity along the bottom of a shoe, having a matrix against which the marginal portion of said shoe bottom is pressed to hold the material within the cavity while an extruding pressure is being exerted, a container for a supply mass of filling material, a plunger acting within the supply container to feed filling material into the shoe cavity under an extruding pressure and power-operated mechanism for actuating the plunger through feeding and retracting strokes, in combination with speed changing means in the power-operated mechanism for actuating the plunger at a relatively low speed during its feeding stroke and at a higher speed during its retracting stroke, a treadle for starting the operation of the machine upon a shoe, connections between the treadle and the speed changing means for causing the machine to be operated at said higher speed when the machine is first started, a cam driven by the power-operated mechanism for reducing the speed of the plunger as an extruding pressure is built up in the filling material, a valve for cutting off the flow of filling material to the shoe cavity while the extruding pressure is continued, connections between the valve and the speed changing means for increasing the speed of the plunger during its continued feeding stroke, a latch for disconnecting the valve from said connections, and automatic means for actuating the valve to cut off the filling material from the shoe cavity when the plunger reaches the limit of its feeding stroke.

27. A machine for applying and spreading filling material within the cavity along the bottom of a shoe having a member for engaging the marginal portion of the shoe bottom around the cavity to be filled to hold the material within the cavity while an extruding pressure is being exerted, shoe clamping pads for pressing a shoe against the shoe engaging member, a plunger for feeding filling material into the shoe cavity under an extruding pressure and two-speed power driven mechanism for actuating the plunger during its extruding stroke, in combination with a valve for cutting off the material extruded by the plun-

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ger and simultaneously for shifting the two speed mechanism from low speed to high speed.

28. A machine for applying and spreading filling material within the cavity along the bottom of a shoe, having a matrix against which the marginal portion of said shoe bottom is pressed to hold the material within the cavity while an extruding pressure is being exerted, a container for a supply mass of filling material, a plunger acting within the supply container to feed filling material into the shoe cavity under an extruding pressure and power-operated mechanism for actuating the plunger through feeding and retracting strokes, in combination with speed changing means in the power-operated mechanism for actuating the plunger at a relatively low speed during its feeding stroke and at a higher speed during its retracting stroke comprising friction and roller clutches, of which the friction clutch drives the plunger at high speed and the roller clutch drives the plunger at low speed and serves as an over-running clutch when the plunger is driven at high speed.

29. A machine for applying and spreading filling material within the cavity along the bottom of a shoe, having a matrix against which the marginal portion of said shoe bottom is pressed to hold the material within the cavity while an extruding pressure is being exerted, a container for a supply mass of filling material, a plunger acting within the supply container to feed filling material into the shoe cavity under an extruding pressure, power-operated mechanism for actuating the plunger through feeding and retracting strokes, in combination with speed changing means in the power-operated mechanism for actuating the plunger at a relatively low speed during its feeding stroke and at a higher speed during its retracting stroke, a treadle for starting the machine in operation upon a shoe, and shoe clamping pads for pressing the shoe against the matrix whenever the starting treadle is depressed, in combination with connections actuated by the power-operated mechanism for increasing the pressure of the clamping pads on the shoe during the extruding action of the plunger.

30. A machine for applying and spreading filling material within the cavity along the bottom of a shoe having a matrix against which the marginal portion of said shoe bottom is pressed to hold the matrix within the cavity while an extruding pressure is being exerted, a plunger for feeding filling material into said cavity under an extruding pressure, and power-operated mechanism for actuating the plunger, in combination with means for adjusting the effective stroke of the plunger to cause it to feed more or less material during the operation of the machine.

31. A machine for applying and spreading filling material within the cavity along the bottom of a shoe having a matrix against which the marginal portion of said shoe bottom is pressed to hold the matrix within the cavity while an extruding pressure is being exerted, a plunger for feeding filling material into said cavity under an extruding pressure, and power operated mechanism for actuating the plunger including a crank and pitman connected to the plunger, in combination with an adjustable lost motion connection between the pitman and the plunger to regulate the feeding stroke of the plunger.

32. A machine for applying and spreading filling material within the cavity along the bottom of a shoe, having a matrix against which the marginal portion of said shoe bottom is pressed to

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hold the material within the cavity while an extruding pressure is being exerted, a container for a supply mass of filling material, and power-operated means for feeding filling material from said container to the shoe cavity under an extruding pressure, in combination with a valve acting when closed to cut off the filling material from the shoe cavity, and starting and stopping mechanism for bringing the machine to rest after a shoe cavity has been filled and for opening the valve when the machine is restarted.

33. A machine for applying filling material to the cavity along the bottom of a shoe, having means for feeding filling material into the shoe cavity, in combination with a matrix box having a flexible diaphragm engaging the marginal portion of a shoe bottom within the cavity to be filled to hold the material within the cavity while extruding pressure is being exerted on the material, and a backing plate to the central portion of which the diaphragm is clamped with the edges of the diaphragm arranged to engage yieldingly with the shoe bottom.

34. A machine for applying and spreading filling material within the cavity along the bottom of a shoe, having a member for engaging the marginal portion of the shoe bottom around the cavity to be filled to hold the material within the cavity while an extruding pressure is being exerted and a container for receiving a mass of filling material sufficient to fill a plurality of shoe bottom cavities, in combination with a cylinder and an extruding plunger arranged to move with a single stroke across said container and into the cylinder to separate from the mass of filling material therein at least sufficient for a shoe bottom cavity.

35. A machine for applying and spreading filling material within the cavity along the bottom of a shoe, having a member for engaging the marginal portion of the shoe bottom around the cavity to be filled to hold the material within the cavity while an extruding pressure is being exerted and a container for receiving a mass of filling material sufficient to fill a plurality of shoe bottom cavities, in combination with a cylinder, an extruding plunger arranged to move with a single stroke across said container and into the cylinder to separate from the mass of filling material therein at least sufficient for a shoe bottom cavity, and mechanism for actuating the plunger at relatively slow speed while extruding material into the shoe cavity and at a higher speed at other times during its movements.

36. A machine for applying and spreading filling material within the cavity along the bottom of a shoe, having a matrix against which the marginal portion of said shoe bottom is pressed to hold the material within the cavity while an extruding pressure is being exerted, a container for a supply mass of filling material, a plunger acting within the supply container to feed filling material into the shoe cavity under an extruding pressure and power-operated mechanism for actuating the plunger through feeding and retracting strokes, in combination with speed changing means in the power-operated mechanism for actuating the plunger at a relatively low speed during its feeding stroke and at a higher speed during its retracting stroke, a treadle for starting the machine in operation upon a shoe at a relatively high speed, shoe clamping pads for pressing the shoe against the matrix whenever the starting treadle is depressed, a cam driven by the power-operated mechanism for reducing the speed of

the plunger, and a second cam driven by the power-operated mechanism for causing the machine to be brought to rest.

37. A machine for applying and spreading filling material within the cavity along the bottom of a shoe, having a matrix against which the marginal portion of said shoe bottom is pressed to hold the material within the cavity while an extruding pressure is being exerted, a container for a supply mass of filling material, a plunger acting within the supply container to feed filling material into the shoe cavity under an extruding pressure and power-operated mechanism for actuating the plunger through feeding and retracting strokes, in combination with a treadle for starting the machine in operation upon a shoe, shoe clamping means for pressing the shoe against the matrix whenever the starting treadle is depressed and manual means for cutting off the flow of filling material into a shoe cavity and for releasing the shoe from the clamping means.

38. A machine for applying and spreading filling material within the cavity along the bottom of a shoe, having a matrix against which the marginal portion of said shoe bottom is pressed to hold the material within the cavity while an extruding pressure is being exerted, a container for a supply mass of filling material, a plunger acting within the supply container to feed filling material into the shoe cavity under an extruding pressure and power-operated mechanism for actuating the plunger through feeding and retracting strokes, in combination with a treadle for starting the machine in operation upon a shoe, shoe clamping means for pressing the shoe against the matrix whenever the starting treadle is depressed, and a lever actuated by the power-operated mechanism for applying additional pressure against the shoe through the clamping means.

39. A machine for applying and spreading filling material within the cavity along the bottom of a shoe, having a matrix against which the marginal portion of said shoe bottom is pressed to hold the material within the cavity while an extruding pressure is being exerted, a container for a supply mass of filling material, a plunger acting within the supply container to feed filling material into the shoe cavity under an extruding pressure and power-operated mechanism for actuating the plunger through feeding and retracting strokes, in combination with a treadle for starting the machine in operation upon a shoe, shoe clamping means for pressing the shoe against the matrix whenever the starting treadle is depressed, manual means for cutting off the flow of filling material into a shoe cavity and for releasing the shoe from the clamping means, a lever actuated by the power-operated mechanism for applying additional pressure against the shoe through the clamping means, a cam for actuating the lever before the filling material is fed into the shoe cavity by the plunger and manual means for cutting off the flow of filling material into the shoe cavity and for releasing the shoe from the clamping means.

40. A machine for applying and spreading filling material within the cavity along the bottom of a shoe, having a member against which the marginal portion of said shoe bottom is pressed to hold the material within the cavity while an extruding pressure is being exerted, shoe clamping means, power-operated mechanism for applying an extruding pressure to the filling material, in combination with a treadle for starting

the machine in operation upon a shoe and for actuating the clamping means to press the shoe against the shoe engaging means with a relatively light pressure, connections actuated by the power-operated mechanism for increasing the pressure of the clamping means against the shoe before an extruding pressure is applied to the filling material, and means for locking the clamping means and for releasing the pressure of the clamping means on the shoe when the application of pressure to the filling material is terminated.

41. A machine for applying and spreading filling material within the cavity along the bottom of a shoe, having a member for engaging the marginal portion of a shoe bottom around the cavity to be filled, a cylindrical container for a supply mass of filling material, a reciprocating plunger acting at the lowermost portion of the container for separating material from the supply and feeding it into said cavity and means for actuating the plunger arranged to withdraw it bodily from the container at one end of its stroke, in combination with means for rotating the container while the plunger is withdrawn to bring a solid portion of the material within the supply mass into the path of the plunger during its separating and feeding stroke.

42. A machine for applying and spreading filling material within the cavity along the bottom of a shoe, having a member for engaging the marginal portion of a shoe bottom around the cavity to be filled, a cylindrical container for a supply mass of filling material, a reciprocating plunger acting at the lowermost portion of the container for separating material from the supply and feeding it into said cavity and means for actuating the plunger arranged to withdraw it bodily from the container at one end of its stroke, in combination with means for rotating the container while the plunger is withdrawn to bring a solid portion of the material within the supply mass into the path of the plunger during its separating and feeding stroke, and a baffle within the container to crowd the filling material carried by the container firmly into the plunger path.

43. A machine for applying and spreading filling material within the cavity along the bottom of a shoe, having a member for engaging the marginal portion of the shoe bottom around the cavity to be filled to hold the material within the cavity while an extruding pressure is being exerted and a container for a supply mass of filling material, in combination with an extruding plunger arranged for reciprocatory movement across the container, a cylinder connected with the bottom engaging member at one side of the container into which the plunger is actuated to transfer material from the supply container to the cylinder and press the material into the shoe cavity and a sleeve frictionally engaging the plunger to separate material between the sleeve and the opening in the cylinder from the mass within the supply container sufficient in amount to fill the cavity of the shoe to enable the plunger to press the material out of the sleeve and into the cylinder ahead of the plunger.

44. A machine for applying and spreading filling material within the cavity along the bottom of a shoe, having a matrix against which the marginal portion of said shoe bottom is pressed to hold the material within the cavity while an extruding pressure is being exerted, a container for a supply mass of filling material, a plunger acting to feed filling material from the container

into the shoe cavity under an extruding pressure, and a two-speed power operated mechanism for actuating the plunger through feeding and retracting strokes, in combination with means for changing the speed of the two-speed mechanism before the feeding stroke of the plunger takes place to cause the plunger to move at a relatively low speed and after the plunger has completed its feeding stroke to move at a higher speed and manual means for changing the speed of the power operated mechanism from low speed to high speed at the will of the operator.

45. A machine for applying and spreading filling material within the cavity along the bottom of a shoe, having a matrix against which the marginal portion of said shoe bottom is pressed to hold the material within the cavity while an extruding pressure is being exerted, a container for a supply mass of filling material, a plunger acting within the supply container to feed filling material into the shoe cavity under an extruding pressure and power-operated mechanism for

actuating the plunger through feeding and retracting strokes, in combination with connections including a latch for holding the power-operated mechanism inoperative, a treadle for releasing the latch, manual means for repositioning the latch, and a cam acting through the connections when the latch is repositioned to bring the machine to rest.

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