D. C. DONOVAN & A. PERRI.

MACHINE FOR PASTING AND INSERTING SOCK LININGS OF SHOES.

APPLICATION FILED JULY 31, 1912.

1,235,191.

Patented July 31, 1917.

4 SHEETS—SHEET 1.

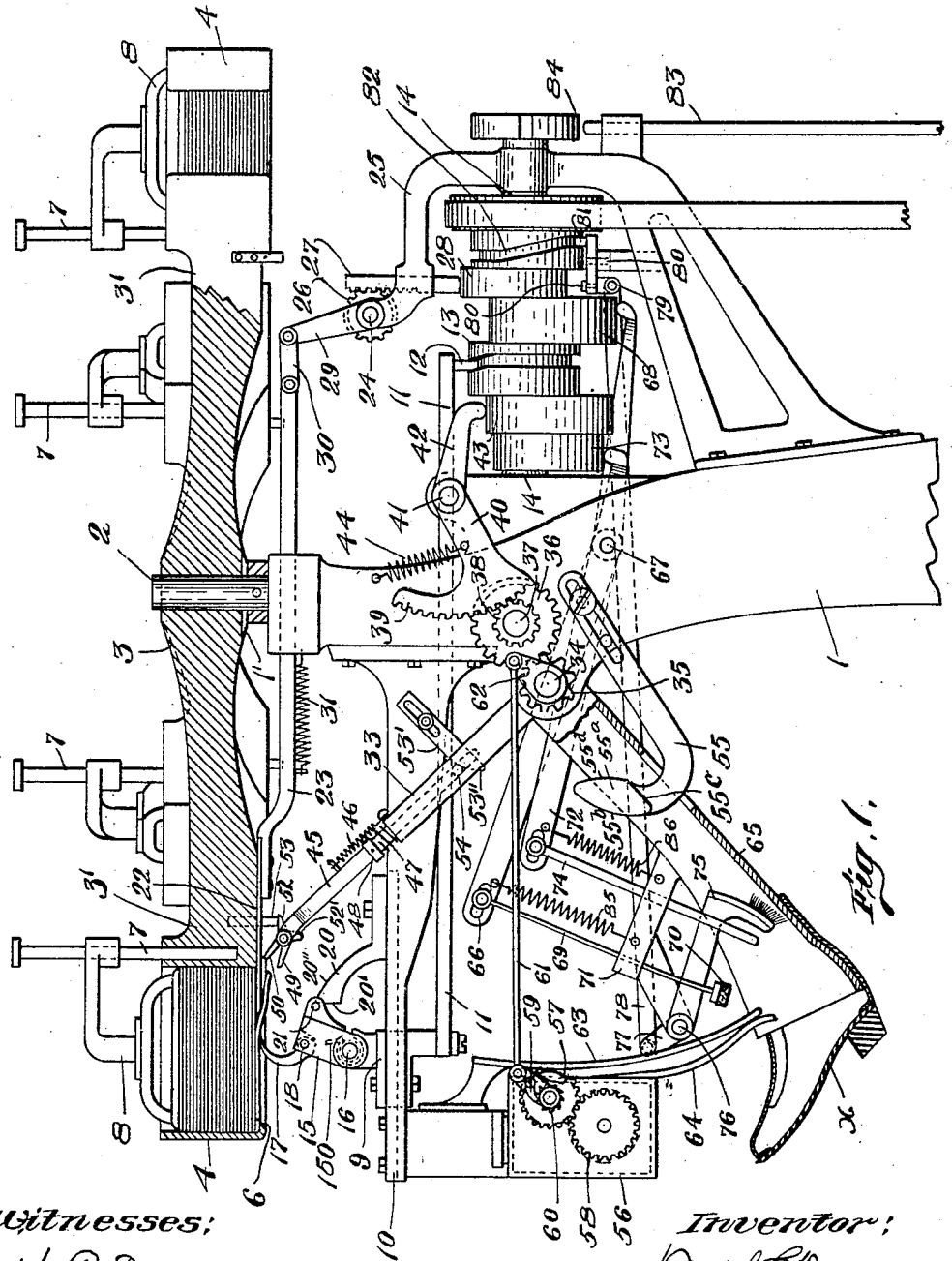


Fig. 1.

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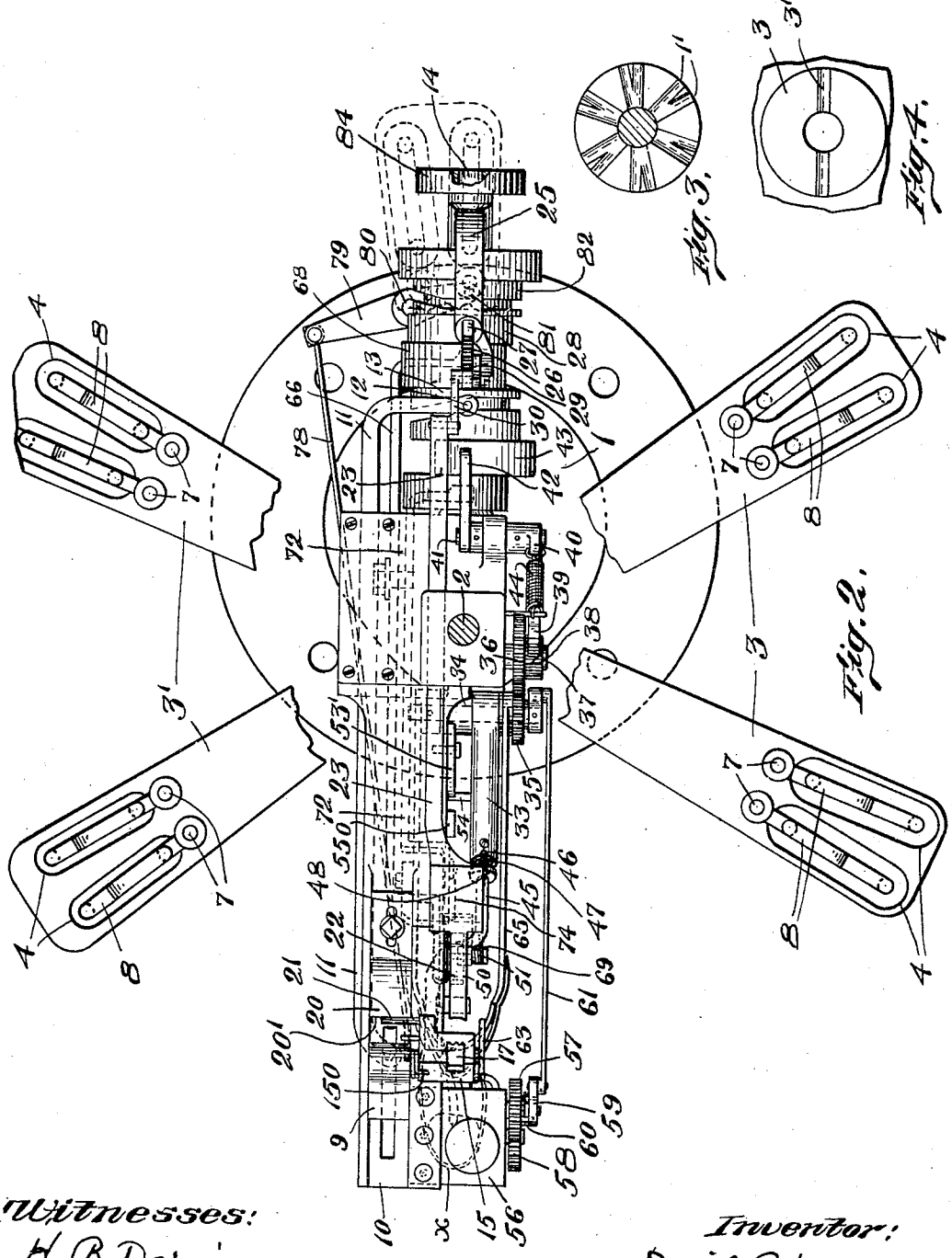


Fig. 2.

Fig. 3.

Fig. 4.

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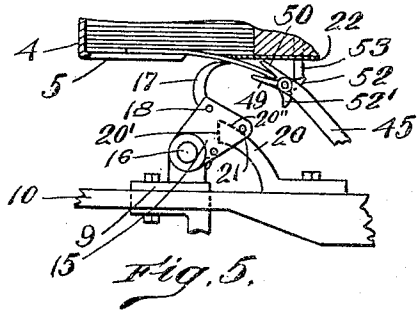


Fig. 5.

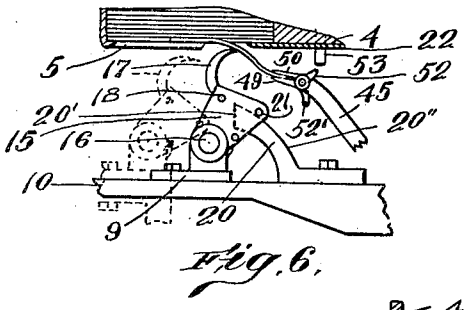


Fig. 6.

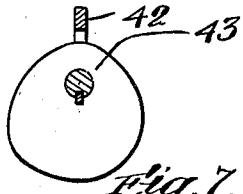


Fig. 7.

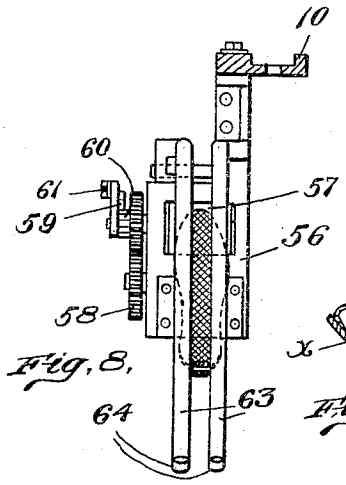


Fig. 8.

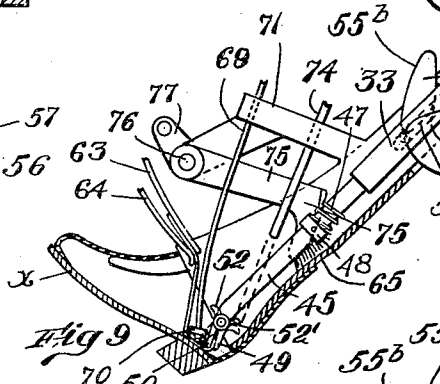


Fig 9

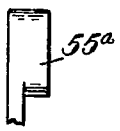


Fig. 10

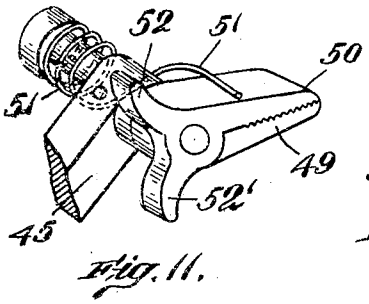


Fig. 11.

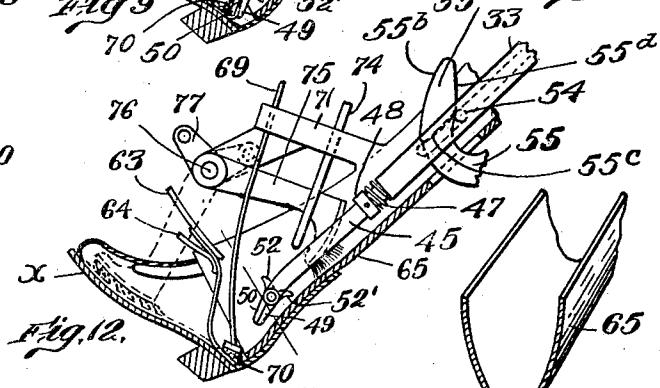


Fig. 12.

Fig. 13.

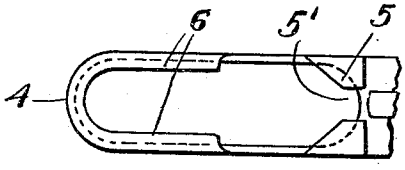


Fig. 14.

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MACHINE FOR PASTING AND INSERTING SOCK LININGS OF SHOES.

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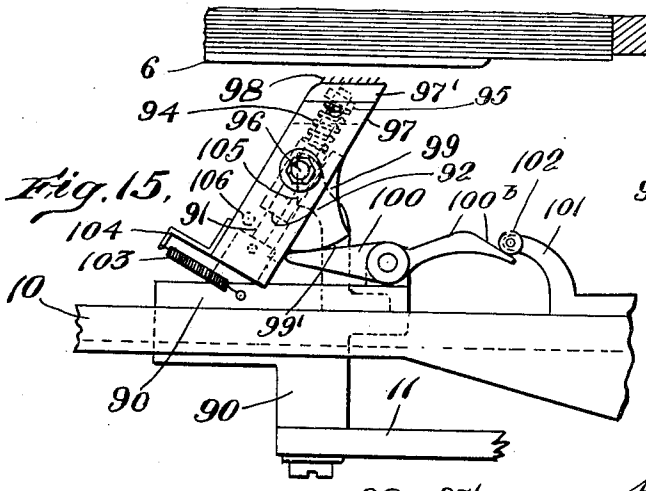


Fig. 15.

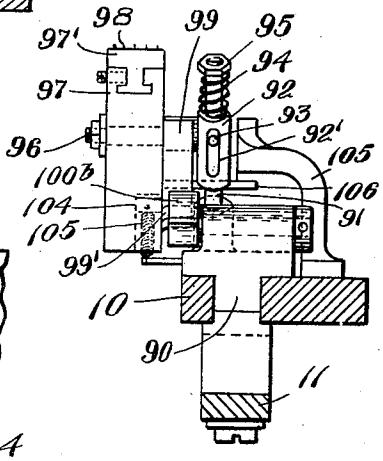


Fig. 18.

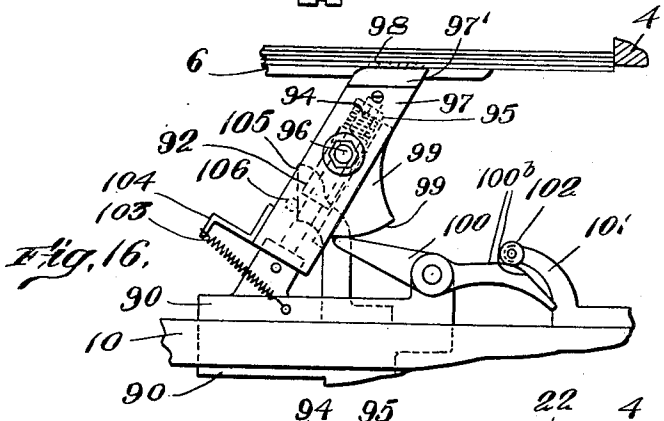


Fig. 16.

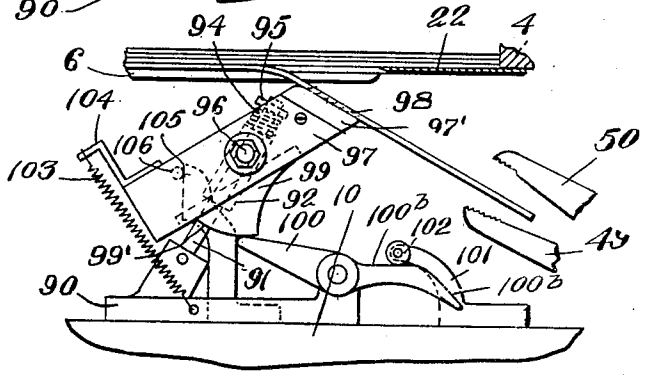


Fig. 17.

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UNITED STATES PATENT OFFICE.

DANIEL C. DONOVAN, OF HAVERHILL, AND ANGELO PERRI, OF GROVELAND, MASSACHUSETTS, ASSIGNORS TO UNITED SHOE MACHINERY COMPANY, OF PATERSON, NEW JERSEY, A CORPORATION OF NEW JERSEY.

MACHINE FOR PASTING AND INSERTING SOCK-LININGS OF SHOES.

1,235,191. Specification of Letters Patent. Patented July 31, 1917.

Application filed July 31, 1912. Serial No. 712,452.

To all whom it may concern:

Be it known that we, DANIEL C. DONOVAN and ANGELO PERRI, citizens of the United States, and residing, respectively, at Haverhill and Groveland, in the county of Essex and State of Massachusetts, have invented an Improvement in Machines for Pasting and Inserting Sock-Linings of Shoes, of which the following is a specification.

This invention relates to a machine for mechanically inserting the sole linings or sock linings of shoes, and is herein illustrated in connection with a machine which is adapted to remove a sole lining from a stack of linings which have previously been died out, apply paste to its bottom side, and then insert it in a shoe, which is held in position in the machine and press it down into the bottom of the shoe.

We accomplish these objects by the means shown in the accompanying drawing, in which,

Figure 1 is a side elevation, partly in section, of a machine made according to our invention.

Fig. 2 is a plan view thereof.

Figs. 3 and 4 are detail views of the turret centering and holding means.

Figs. 5 and 6 are detailed views showing the operation of the apparatus for removing the lining from the bottom of a stack.

Fig. 7 is a detail view of the gripper arm operating cam.

Fig. 8 is a detail view of the pasting apparatus.

Figs. 9 and 12 are detailed views, partly in section, of the lining inserting mechanism, showing the parts in different positions.

Fig. 10 is a detailed front view of one of the cam fingers.

Fig. 11 is a detail view of the gripper jaws.

Fig. 13 is a detail sectional view of the jack or shoe support,

Fig. 14 is a detail bottom view of the lining holder.

Figs. 15, 16 and 17 are side elevations of a modified form of picker device, which we preferably employ, and,

Fig. 18 is an end view thereof.

The machine comprises a main frame or post 1 having a vertical shaft 2 on its upper end, on which a turret is mounted to rotate about a vertical axis, said turret comprising a hub 3 having a series of arms 3′ which radiate therefrom, the particular number to be employed depending on circumstances. As it is necessary that the turret be employed only when held in certain predetermined positions, suitable means are provided which permit rotation thereof but which automatically hold the turret in these positions only. Said means are shown in Figs. 1, 3 and 4, as comprising a regular series of concave recesses 1′ on the frame and a diametrically extending correspondingly rounded projection 3″ on the hub which is adapted to enter any one of said recesses, the turret moving vertically as the projection passes from one recess to another. Each arm is provided at its end with a pair of lining holders 4, arranged side by side, one of each pair being for rights and the other for lefts, and, as said holders are all similar, a description of one will suffice.

Each holder comprises a receptacle formed to receive a stack of linings of a certain size and shape, it being understood that holders of different shapes will be employed according, to some extent, to the shape of lining which is used. In practice the inner or heel ends of the several holders are all located at the same distance from the center, so that the distances to the toe ends from the center are varied according to variations in length.

Inwardly projecting supporting flanges 5 are provided at each side of the heel end of each holder adjacent the bottom thereof, providing an intervening slot 5′, as shown in Fig. 14, and supporting flanges 6 are provided at opposite sides of the toe end and at the same level as flanges 5. A follower 8 is mounted to move vertically on a rod 7 mounted in the arm which supports it, so that said linings are pressed down evenly and held firmly against the bottom flanges 5 and 6.

A carrier 9 is slidably mounted upon a bracket 10 secured to the base 1, said carrier having a link 11 connected thereto, at one end, the opposite end of said link being provided with a pin 12 which engages a groove in a cam 13 mounted on the main shaft 14 of the machine, the intermediate portion of the link being guided to reciprocate in the base

1. With this arrangement, when the shaft 14 is rotated the carrier 9 will be caused to reciprocate, one complete reciprocation being made for each rotation of the main shaft.

A holder 15 is pivotally mounted on the carrier 9 by means of the pivot 16 and a spring 150 is arranged to engage said holder normally to hold it in the dotted line position of Fig. 6. A picker or hook 17 is mounted at 18 on the holder 15, said picker being shown in curved or hook form. A bracket 20, is mounted on the bracket 10, and a pin 21 on the carrier 15 is arranged in position to engage a face 20′, on the front end of bracket 20, when the carrier 9 is moved toward it.

A separating finger 22 is mounted on the end of a rod 23, the latter being mounted to reciprocate in the upper end of the base 1. Said rod is adapted to be reciprocated by means of a shaft 24, mounted on a bracket 25, secured on the frame, said shaft having a gear 26 thereon which is engaged by a rack 27, mounted to reciprocate vertically in the bracket 25, and bearing at its lower end upon a cam 28, held on the main shaft. An arm 29 is mounted on the shaft 24 and is connected by a link 30 to the rod 23. A spring 31 is connected to the base and to the rod 23, and acts to cause return movement of the connected parts and thus to hold the rack 27 in engagement with the cam 28. With this arrangement finger 22 is caused to make one complete reciprocation on each rotation of the main shaft 14.

A gripper arm 33 is mounted on a shaft 34 journaled in the frame 1, said shaft having a gear 35 thereon which is arranged in mesh with a gear 36, on a stud 37, having a gear 38 thereon, arranged in mesh with a segmental rack 39, formed on the end of an arm 40 pivoted on a shaft 41, an arm 42 being secured to the shaft 41 and being arranged to bear on a cam 43 supported on the main shaft. A spring 44 is connected to the arm 40 and to the base and acts to cause return movement of the connected parts when actuated and thus constantly to hold the arm 42 in engagement with the cam 43, so that, on each complete rotation of the main shaft, the arm 33 will be caused to make a complete oscillation.

An arm extension 45 is mounted to reciprocate in the arm 33, a spring 46 being arranged therebetween and acting to draw said extension inwardly, when permitted, and a spring 47 is interposed between the end of the arm 33 and a collar 48 on the extension 45. A pair of gripper-jaws 49 and 50 are mounted on the end of the extension 45, the jaw 49 being fixed with relation thereto and the jaw 50 being pivoted, and a spring 51 is arranged to engage said jaws and constantly tends to close the same, (see Fig. 11). A pair of fingers 52, 52′ are formed integrally with the upper jaw 50, and the uppermost finger 52, is arranged to engage any one of a series of pins 53, one of which is fixed on each arm in the rear of each holder, so as to open said jaws when said arm 33 is in its highest position.

A cam-finger 53′ is adjustably mounted on the bracket 10, and is provided with a cam-face 53″ arranged to engage a pin 54 in the extension 45 adjacent its inner end, said pin extending through a slot in the arm 33 and said finger acting to engage said pin, to move the extension 45 outwardly, under certain conditions, as it will be hereafter explained.

A finger 55 is mounted on the frame and is provided with a laterally projecting head 55^a at its end, said head having cam faces 55^b, 55^c and 55^d on its front, under and rear sides, respectively, as shown in Figs. 1, 9, 10 and 12.

A receptacle 56 containing a suitable adhesive, as glue or paste, is supported on the front end of bracket 10 and a glue-roll 57 is mounted therein and is geared to a cement-supplying roll 58, which is arranged to rotate in the adhesive, and to apply cement to the roll 57. Means for driving said rolls 57 and 58 intermittently are provided, said means preferably comprising a pawl 59 which engages a ratchet 60 pivoted on the shaft of roll 57, said pawl being connected to a link 61, which is in turn connected to a crank arm 62 mounted on the shaft 34, so that each time said shaft 34 is oscillated said roll will be driven forward to a sufficient extent to provide a work-engaging surface which has been freshly supplied with adhesive. A pair of supporting plates 63 are vertically arranged approximately in an arc having the axis of the shaft 34 as its center, said plates being arranged at a distance apart sufficient to permit the gripper-jaws 49 and 50 to pass therebetween, as shown in Fig. 8. Said plates 63 extend in close proximity to the roll 57, but out of contact therewith, as shown in Fig. 1, so that when a lining is drawn between the adjacent surface of said roll and said plates, as hereafter described, a coating of adhesive will be applied to one side of the lining. Said roll is held far enough from the plates to avoid danger of cement being applied thereto, so that cement would be applied to the opposite side of the lining, as it is drawn therebetween.

A shield 64 is mounted on the receptacle 56 directly beneath the roll 57 and is arranged to extend downwardly in close proximity to the lower ends of the plates 63, at the outer side thereof.

A jack or shoe holder 65 is provided, which is in the form of an elongated trough open at one side and at its lower end and is

rigidly mounted on the frame at its upper end, so that it extends obliquely downwardly and forwardly, the lower end portion being shaped in the form of a counter and adapted to enter the heel portion of a shoe when the shoe in unlaced or unbuttoned.

A lever 66 is mounted on pivot 67 in the frame and one end thereof is arranged to engage the under side of a cam 68, mounted on the main shaft, and the opposite end of said lever has a flexible rod 69 loosely pivoted thereto, said rod having a foot, in the form of a pad 70, on the end thereof, and being mounted to slide in a bracket 71 secured to one side of the jack 65. A spring 85 is connected to the front end of lever 66 and to bracket 71 and acts to advance or lower said lever when permitted to do so by said cam 68.

A lever 72 is also mounted on the pivot 67 and is arranged to engage, at one end, a cam 73 mounted on the main shaft, and a push-rod 74 is loosely pivoted to the opposite end of said shaft, and extends through an aperture in the bracket 71, in which said rod is adapted to reciprocate. A spring 86 is connected to said lever 72 and to said bracket 71, to hold the lever against the cam 73 in all positions thereof.

An arm 75 is mounted on a pivot shaft 76, loosely held in the bracket 71, and means are provided to oscillate said arm, which comprises an arm 77 connected to said shaft 76, to which a link 78 is connected at one end, the opposite end being pivoted to one end of a lever 79, pivoted at 80, on the bracket 25, the opposite end of said lever 79 being provided with a pin 81 arranged to extend into the path of a cam 82, on the main shaft, said path being formed to cause said lever 79 to oscillate in the time desired, as hereinafter described.

In using the machine a shoe, as x, into which the sole lining is to be inserted, is placed on the end of the jack 65, toe up, as shown in Fig. 1, the shoe bottom being thus entirely exposed. The turret is rotated, so that the particular holder having the linings therein which corresponds to the size and shape required for the shoe which has been placed on the jack, is swung into position directly over the carrier 9, and held in this position by the projections 1′, and recess 3″.

Any suitable and well-known means is provided, whereby the main shaft is caused to make a single rotation and then stop, said means being too well known to require illustration. A stop rod 83 which engages a disk 84 on the main shaft, having a single tooth, is illustrated to indicate parts performing this function.

The various parts are timed to operate as follows during this rotation of the shaft.

The cam 13 acts to draw forward the carrier 9 from the dotted line position of Fig. 6, and as soon as said carrier is advanced slightly, the pin 21 on the holder 15, will engage the face 20′ of the bracket 20, and cause said holder 15 to be thrown upwardly so that the end portion of the picker 17 will bear against the bottom lining in the holder, in a nearly tangential direction, the point of the picker being directed upwardly to a slight extent. As soon as the picker is pressed against the lining, the pin 21 passes from the upper end of the face 20′ onto the upper side 20″ of the bracket 20, permitting the spring 150 to swing the holder 15, and with it the picker 17 forwardly, so that, when the lining is of textile material, its sharp end will pass between some of the threads thereof, without passing entirely through it, so as to engage the one above it. The upper side 20″ of the bracket is downwardly inclined from its end and the pin 21 will be held thereagainst, by the spring 150, so that the holder 15 will be swung forwardly and downwardly, causing the end of the picker to move obliquely away from the holder and drawing the lining, which it has engaged, downwardly out of engagement with the supports 6 and forwardly, the lining being bent longitudinally to some extent, as it is drawn through the bottom opening.

The parts are timed and so arranged that the gripper jaws 49 and 50 will be in a position adjacent the holder, when this movement occurs, so that the picker will place the end of the lining which it has disengaged, directly between said jaws. At the time this occurs, the cam 43 operates through the intervening mechanism to swing the arm 33 downwardly, so that the arm 52 is moved out of engagement with the pin 53, permitting the spring to close the jaws firmly upon the lining. As the lowering movement of the jaws is continued, the lining is drawn completely from the holder, and carried downwardly.

At the time the lining is being withdrawn by the picker, finger 22 is advanced between the lining which is removed and the next lining in the stack, so that the stack will be effectively supported thereby, while the withdrawing operation is taking place. During the remainder of the operation, hereafter described, the finger 22 is returned to its initial position.

The plates 63 are so arranged that as the jaws 49 and 50 are swung downwardly, they will pass between said plates, and said jaws will be retracted slightly by spring 46, being permitted to do so by cam finger 53′, so that the ends of said jaws will be approximately flush with the front sides of said plates. As the lining is held at one end by said jaws, it will be drawn down between said plates and the roll 57, and there-

fore over the surface of said roll, as indicated in the dotted position of Fig. 8, and a coating of cement will be applied to the side thereof next the roll.

The motion of the gripper is continued downwardly, until the lining has been drawn over roll 57 through its entire length, and then it is drawn over the surface of plate 64 and down into the shoe, as indicated in Fig. 9, said plate 64 preventing the cement on the lining from being applied to the shoe upper. As the jaws pass into the shoe, the pin 54 will engage the cam face 55^b, which will cause the extension 45 to be moved outwardly, so that the end of the lining will be pressed against the bottom of the shoe at the heel. At the same time the lever 66 will be swung down at its front end, so that the foot 70 on the rod 69 will be pushed down against the lining, while held by the jaws, as shown in Fig. 9, so as to press the sole portion of the lining firmly against the bottom of the shoe, closely adjacent thereto. As this action takes place, the lever 72 is swung down, moving the push-rod 74 downwardly until it engages the finger 52′, causing the jaw 50 to be swung away from jaw 49, so that they become disengaged from the lining. The rod 74 is immediately withdrawn, and, at the same time the pin 54 on the extension 45 passes beyond the lower end of face 55^b and about the lower end thereof, so that the spring 46 is permitted to draw back the jaws, as indicated in Fig. 12. This causes the pin 54 to pass up along the face 55^c, to the rear face 55^d, and when it reaches this point the arm 33 is swung upwardly, so that said pin passes along the face 55^d. The springs 46 and 47 operate in opposite directions and are balanced when the spring 46 has raised the extension 45 far enough to carry the pin 54 to the upper end of face 55^c, and then, as the arm 33 is swung upward, the extension 45 will be forced inwardly still farther causing the spring 47 to be compressed until pin 54 passes out of engagement with the face 55^d and then said spring is liberated, moving out the extension 45 until the springs are again balanced, and the pin 54 is in a position to permit it to pass at the front side of said head 55^a on the next operation. The upward movement is continued until the parts are returned to their initial position, the pin 54 engaging the finger 53′ during the last part of the movement and pushing the extension outwardly and the finger 52 engaging the pin 53 at the end of the movement to open the jaws.

When the jaws have been moved out of engagement with the lining and while the latter is firmly held against the heel part of the bottom of the shoe by the foot 70, the link 78 is drawn back and the arm 75 is advanced from the full line position to the dotted position of Fig. 12, and the fore-part will be swept or pushed forward and laid flat on the shoe bottom and pressed thereon, so that it will adhere closely thereto. The arm 75 is then swung rearwardly to its initial position.

During this operation the operator holds the shoe up against the end of the jack 65, so that the shoe is held yieldingly in position by the operator who may permit it to yield from the action of the arm 75, if necessary, and, at the end of the forward movement of said arm the shoe will be moved away from the jack, so that the arm 75 will not disturb the lining when it makes its return movement.

When it is desired to insert a lining in a different shoe, the turret is turned, so that the holder containing the corresponding lining is in position over the apparatus for removing and transferring the lining.

While the picker device hereinbefore described is suitable for sole linings of textile material, it is not suitable for various forms of sole lining which are commonly employed and which are not of textile material. These materials comprise leather, and an imitation leather, which is usually paper, and sometimes coated on its under side with a felting material. When used in connection with these latter materials, we preferably employ the form of picker device shown in Figs. 15 to 18, the construction of which may be described as follows:—

A carrier 90, which is similar to the carrier 9, is mounted to reciprocate on the bracket 10 in the manner already described. A post 91 is mounted in the carrier 90 in an oblique position with relation to the path of the carrier, said post being inclined rearwardly in the direction of the heel end of the holder 4, which is constructed as already described. A sleeve 92 is slidably mounted on the post 91 and a slot 92′ is provided in said sleeve through which a guide-pin 93 on the post projects to hold said sleeve from turning. A spring 94 is arranged on post 91 between the upper end of the sleeve 92 and a nut 95, said spring tending to press the sleeve downwardly. A pivot 96 is mounted to extend horizontally from one side of the sleeve 92, and a picker finger 97 is mounted to swing on said pivot in the central, vertical, longitudinal plane of the lining holder. Said finger has a head 97′, removably mounted on the end thereof, and having a flat face from which project a series of short needles 98, which are preferably slightly less in length than the thickness of the lining in connection with which they are to be used.

A lug 99 having a curved face 99′ on its under side is provided on the finger 97 at one side thereof, and a lifting lever 100 is

pivotally mounted on the carrier 90 so that one end thereof bears against said face 99'. A bracket 101 is mounted on the bracket 10 and is provided with a roller 102 in its end, which is adapted to engage the opposite end of the lever 100, from that which engages the lug 99, two engaging faces 100b being provided thereon at an angle to each other. A spring 103 is connected to the lower end of the finger 97 through a bracket 104 and also to the carrier 90, and normally acts to hold said finger against the end of the lever 100, as shown in Figs. 15 and 16. A bracket 105 is mounted on the carrier 90 at the opposite side of the post 91 from the pivot 96, and is arranged to engage a horizontally projecting pin 106 mounted in the finger 97, at a distance below the pivot 96.

The operation of this form of picker device is as follows:—

As soon as the carrier 90 is advanced, in the manner already described, the roller 102, bearing on the face 101, will cause the front end of the lever 100 to be lifted, so that the finger 97 will be lifted, and the sleeve 92 will be caused to slide up on the post 91, and guide the movement of said finger. This operation continues until the needles, or projections 98, pass through the opening in the bottom of the holder and have engaged the lowermost lining in the stack and entered the same for a short distance. When this occurs, the roller 102 will have passed upon the face 100b, so that there will be no further tendency to lift the finger, and the roll will merely run on the face 100b during the remaining portion of the operation. As soon as the projections have penetrated the finger sufficiently, the pin 106 will engage the bracket 105, and cause the finger 97 to be swung forwardly and downwardly upon the pivot 96, so that the lowermost lining will be slid rearward and downward and placed in the jaws 49 and 50 as already described, and as indicated in Fig. 17.

The springs 94 and 103 will return the several parts to their initial positions upon the return movement of the carrier.

In the illustrative embodiment of the invention there has been shown a machine having mechanism for feeding a lining piece to a support, mechanism for applying cement to said piece and mechanism for applying the cemented piece to the inner side of the sole of a shoe. Inasmuch, however, as these operations have hitherto been carried out separately and for the most part by hand, it should be understood not only that these mechanisms or their equivalents might be employed singly to advantage but that certain combinations of them may be used without using them all.

I claim:—

1. A machine for inserting sole linings in shoes, comprising a shoe-support, a holder for supporting a stack of linings having an opening in its bottom, engaging means movable to withdraw the lowermost lining in the stack through said opening, and transferring means to receive the lining from said engaging means and to place it in a shoe held by said support.

2. A machine for inserting sole-linings in shoes, comprising a holder, a cementing-device, a shoe-support and means to remove the linings successively from said holder, to carry them into contact with said cementing device and thereafter to place them in a shoe on said support.

3. A machine for inserting sole linings in shoes, comprising a shoe-support, a holder constructed to receive a stack of linings therein and having an opening in its under side, delivering-means to remove the lowermost lining in said stack and draw it through said opening, a cementing-device and means to receive the lining from said delivering means and conduct it successively into engagement with said cementing device and into a shoe held on said support.

4. A machine for inserting sole linings in shoes, comprising a shoe-support, a rotary turret having a series of holders thereon, each arranged to hold a stack of linings therein, means to remove said linings successively from the bottom of said holders, when the turret is held in predetermined positions, and means to place the linings, as they are removed, in a shoe held by said support.

5. A machine for inserting sole linings in shoes, comprising a shoe support, a holder for supporting a stack of linings and having an opening in its bottom, a picker device and a gripper device, means to move said picker device to remove the lowermost lining from said opening and to deliver it to said gripper device, and means to move said gripper device to conduct the lining into a shoe held on said support.

6. A machine for inserting sole linings in shoes, comprising a shoe-support, a holder for supporting a stack of linings and having an opening in its bottom, a removing device for conducting the lowermost linings successively from said holder through said opening, a gripper device, means to hold said gripper device in open position to receive the linings from said removing device, and means to close said gripper device and to move it to carry the lining to a shoe held by said support.

7. In a machine for inserting sole linings in shoes, comprising a holder for supporting a stack of linings and having an opening in its bottom, means to engage the lowermost lining in the stack and to draw it through said opening, a separating finger, and means to move said finger beneath the stack when the lowermost lining has been

partly removed, thereby to support the stack during the remaining portion of the withdrawing operation.

8. A machine for the purpose described, comprising a gripper device, a cementing device having a cement carrying face, a pair of supporting devices having engaging faces arranged adjacent said cement carrying face, means to deliver a sole lining to said gripper device when in a receiving position, and means to move said gripper device between said engaging faces to draw the lining over said cement carrying face, while it is held thereagainst by said supporting faces, and thereafter to conduct the lining to a delivering position.

9. A machine for the purpose described, comprising a counter-shaped shoe-support open at its front side and at its end and adapted to receive a shoe thereon, a gripper device for engaging the heel end of a sole lining, and means to move said gripper device to carry the lining into said support adjacent its end.

10. A machine for the purpose described comprising a counter-shaped shoe-support open at its front side and at its end and adapted to receive a shoe thereon, an arm having a gripper device thereon adapted to engage the heel end of a sole lining, and means to swing said arm into said support to carry said gripper device adjacent the open end thereof.

11. A machine for the purpose described, comprising a support for the heel end of a shoe arranged to expose the bottom thereof while held thereby, a gripper device, means to deliver the heel end of a sole lining thereto, means to move said gripper device into the heel end of a shoe while held by said support, means to push the fore-part of the lining into the shoe, and means to release said gripper device from the lining.

12. A machine for the purpose described, comprising a support for the heel end of a shoe arranged to expose the bottom thereof while held thereby, a gripper device, means to deliver the heel end of a sole lining thereto, means to move said gripper device into the heel part of the shoe while held by said support, means to press the lining against the shoe bottom, means to release said gripper device from the lining, and means to push the fore-part of the lining into the fore-part of the shoe while the heel part of the lining is thus held.

13. A machine for the purpose described, comprising a support for the heel end of a shoe arranged to expose the bottom thereof while held thereby, a gripper device to engage the heel end of a cemented sole lining, means to move said gripper device into the heel end of the shoe held by said support to place the heel portion of the lining in position therein and a shield extending outwardly from within the shoe to prevent the cemented surface of the lining from engaging the shoe upper.

14. A machine for the purpose described, comprising a support for the heel end of a shoe arranged to expose the bottom thereof while held thereby, a gripper device to engage the heel end of a cemented sole lining, an arm on which said gripper device is mounted, means to move said arm longitudinally into the shoe held on said support to carry said gripper device into proximity to the sole of the shoe at its heel end, and a shield supported in front of said shoe support and arranged to extend into the shoe opening from the front side to prevent the cemented surface of the lining from engaging the shoe upper.

15. A machine for the purpose described, comprising a support for the heel end of a shoe arranged to expose the bottom thereof while held thereby, a cementing device having a cement carrying face, a gripper device for engaging one end of a sole lining, means to move said device to draw the lining over said face while thus held and thereafter to move it into the heel end of a shoe held on said support, and a shield extending from the shoe opening at the front side thereof to prevent the cemented surface of the lining coming in contact with the shoe upper as the lining is drawn therein.

16. A machine for the purpose described, comprising a support for the heel end of a shoe arranged to expose the bottom thereof while held thereby, an arm having a gripper device on the end thereof, said gripper device being constructed to hold a sole lining by its heel end, means to swing said arm toward the heel portion of the shoe and to move it longitudinally inwardly to the bottom thereof, means to press the lining against the shoe bottom while held by the gripper device, and means to move the arm longitudinally outward to withdraw the gripper from the shoe.

17. A machine for inserting sole linings in shoes, comprising a shoe-support, a holder for supporting a stack of linings, and means for removing one lining from the stack and transferring it to the inside of a shoe held upon said support.

18. A machine for handling shaped linings for shoes, having, in combination, a hollow receiver upon which the shoe is placed, an applying member for forcing a lining to the sole of said shoe, and means for delivering a lining between said member and sole preparatory to the laying operation.

19. A machine of the class described having, in combination, mechanism for applying a shaped lining-piece to a shoe, mecha-

nism for feeding such a lining piece to said applying mechanism, and means for actuating said mechanisms.

20. A machine of the class described, having, in combination, a support over the end of which a shoe may be presented to receive a shaped lining-piece, means for feeding said shaped piece relatively to said support into position to contact with the inside of the bottom of a shoe placed on said support, and means for coating said shaped piece with an adhesive substance prior to its application to the inside of said shoe.

21. A machine of the class described having, in combination, a support for a shoe, mechanism for applying a shaped lining piece to the shoe so supported, and mechanism for feeding such lining pieces successively to said applying mechanism.

22. A machine of the class described having, in combination, a holder for a stack of lining pieces, a hollow support for a shoe, means for introducing into said support a lining piece, and means for pressing said piece into place in the interior of said shoe.

23. A machine of the class described, having, in combination, a holder for a stack of linings, a support for a shoe, and means for transferring said linings one by one from said stack to said support.

24. A machine of the class described, having, in combination, a holder for a stack of linings, a support for a shoe, means for transferring said linings one by one from said stack to said support, and means for applying cement to said linings.

25. A machine of the class described, having, in combination, a holder for a stack of linings, and means for removing said linings one by one from said stack and presenting them in position to be applied to the inside of the sole of a shoe.

26. A machine of the class described, having, in combination, a holder for a stack of linings, means for removing said linings one by one from said stack and presenting them in position to be applied to the inside of the sole of a shoe, and means for applying cement to said linings.

27. A machine of the class described, having, in combination, a holder for a stack of linings, and treadle operated means for removing said linings one by one from said stack and presenting them in position to be applied to the inside of the sole of a shoe.

28. A machine of the class described, having, in combination, a holder for a stack of linings, treadle operated means for removing said linings one by one from said stack and presenting them in position to be applied to the inside of the sole of a shoe, and means for applying cement to said linings.

29. A machine of the class described, having, in combination, a holder for a stack of linings, a picker for loosening one of said linings from said stack, a member for receiving said loosened lining and transferring it to a position in which the operator may hold a shoe against it, and means for applying cement to said lining during the transfer.

30. A machine of the class described, having, in combination, a holder for a stack of linings, said holder being provided with a passageway in its lower end, a support for a shoe, and means for transferring the bottom lining to said support.

31. A machine of the class described, having, in combination, a holder for a stack of linings, said holder being provided with a passageway in its lower end, a support for a shoe, means for transferring the bottom lining to said support, and means for applying cement to said lining.

32. A machine of the class described, having, in combination, a holder for a stack of linings, a picker for loosening the lowermost lining, a member for receiving said loosened lining and transferring it to a position in which the operator may hold a shoe against it, and means for applying cement to said lining during the transfer.

33. In a machine of the class described, the combination of a support over which shoes are adapted to be positioned for receiving a sole lining, means for feeding sole linings relatively to said support in such manner that each lining is positioned for contact with the face of a shoe sole, and means for applying an adhesive to said sole linings.

34. In a machine of the class described, the combination of supporting means for a shoe, means for feeding sole linings relatively to said supporting means in such manner that said linings are positioned for contact with the shoe soles, and means for coating said sole linings prior to the application of the latter to the inside of a shoe adapted to be positioned against said supporting means.

In testimony whereof, we have signed our names to this specification, in the presence of two subscribing witnesses.

DANIEL C. DONOVAN.
ANGELO PERRI.

Witnesses:
L. H. HARRIMAN,
DELIA J. FITZPATRICK.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."