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2,409,643

SHOE MACHINE

Original Filed Dec. 20, 1944 2 Sheets-Sheet 1

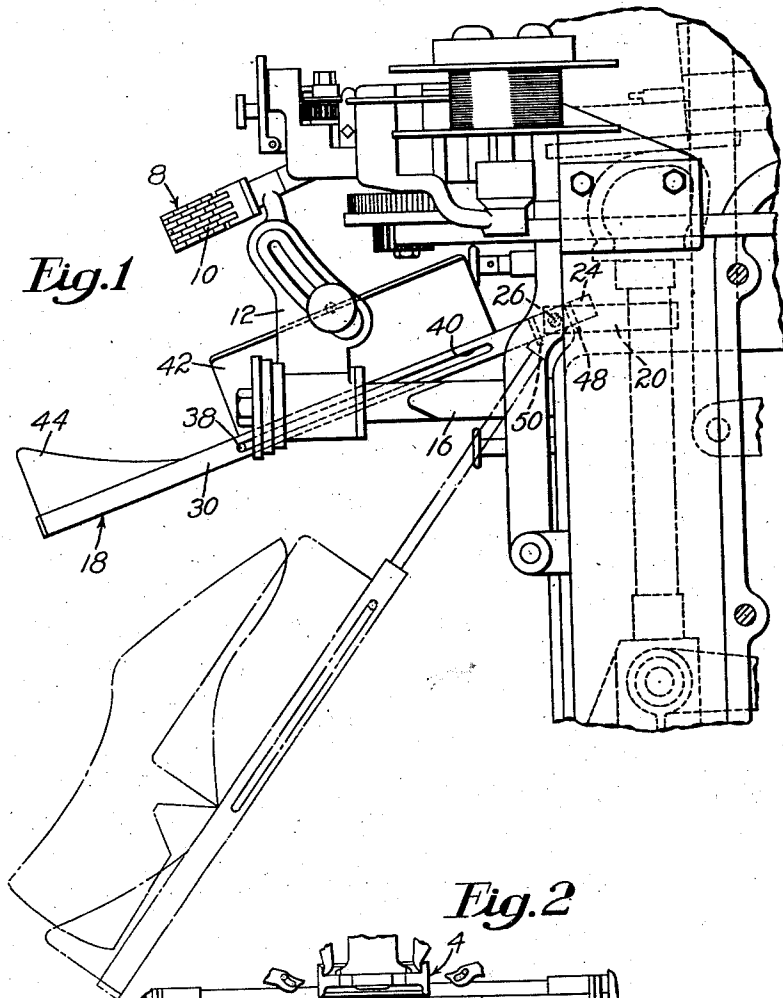


Fig. 1

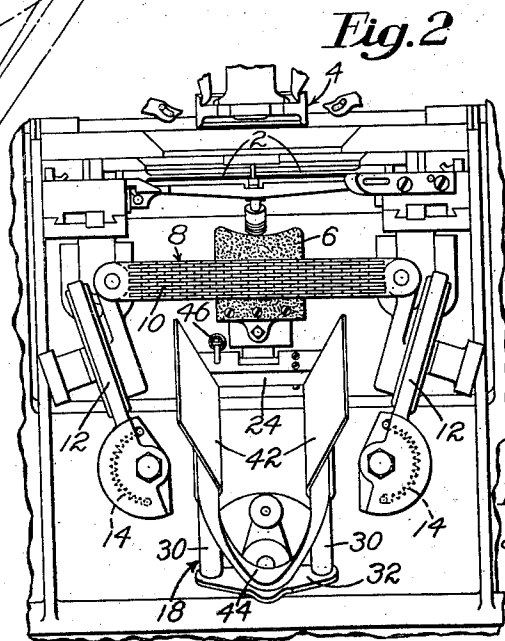


Fig. 2

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Fig. 3

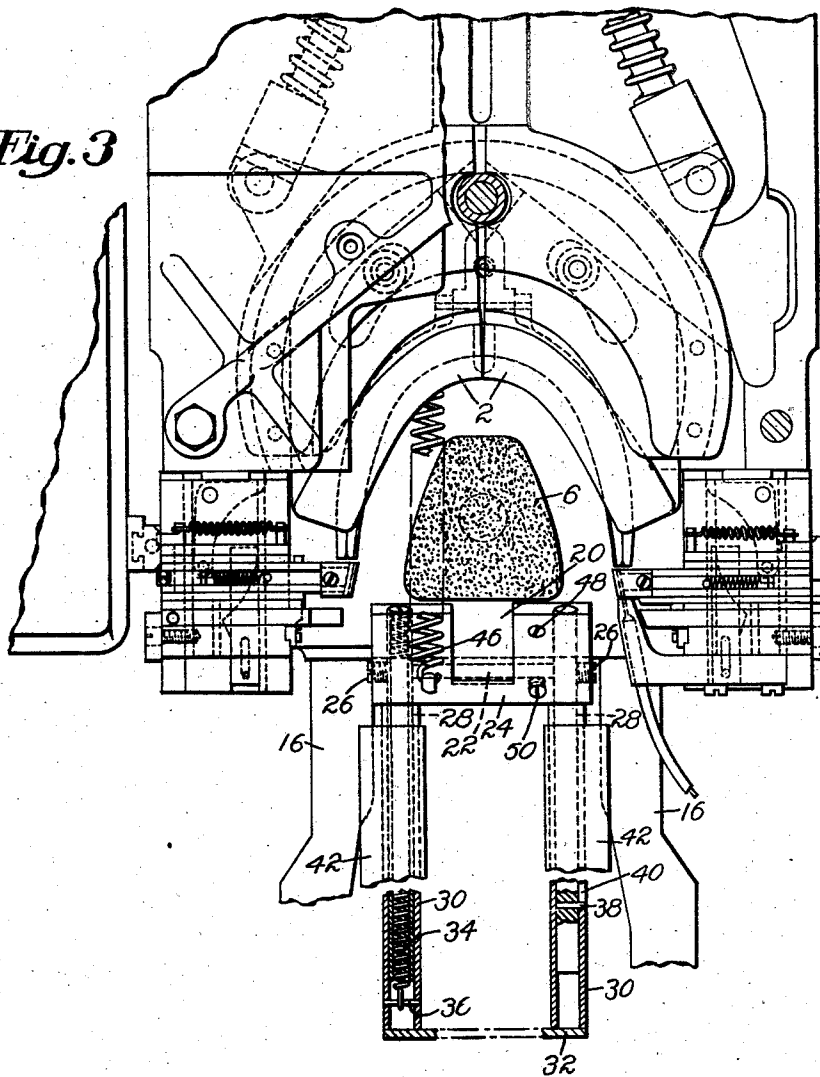
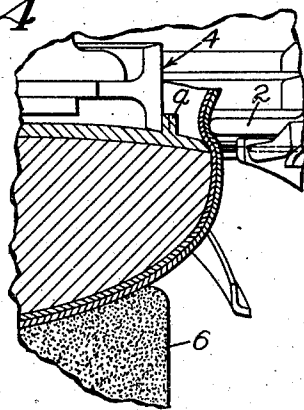


Fig. 4



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UNITED STATES PATENT OFFICE

2,409,643

SHOE MACHINE

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Original application December 20, 1944, Serial
No. 568,964. Divided and this application Au-
gust 10, 1945, Serial No. 610,112

8 Claims. (Cl. 12-1)

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This invention relates to shoe machines, the present application being a division of a copending application for Letters Patent for improvements in Machines for use in the manufacture of shoes, Serial No. 568,964, filed on December 20, 1944. The machine shown in that copending application, in which the present invention is herein illustrated as embodied, is a power-operated machine having means for clamping and holding a shoe bottom upward and means for lasting its toe-end portion in the course of a cycle of automatic operations of the machine. It is to be understood, however, that the invention is not thus limited in its applicability.

In the operation of the above-mentioned machine the shoe is released by the clamping means near the end of the cycle in such manner as to permit it to fall if it is not supported by the operator at that time. In order to make it unnecessary for the operator to support the shoe when it is thus released, so that he may have another shoe in his hands ready to present to the machine as soon as the cycle of operations is completed, the invention provides novel means for receiving the shoe without injury thereto when it falls. In the construction shown a shoe receiver underlies the heel-end portion of the shoe while the shoe is being operated on and after receiving the shoe is swung downwardly by the weight of the shoe thereon. The receiver then supports the shoe in a longitudinally inclined position until it is removed by the operator after he has presented another shoe to the machine. Further to insure that the shoe thus supported will not interfere with the presentation of the next shoe to the machine, a portion of the receiver is also rectilinearly movable downwardly with the shoe in a direction lengthwise of the shoe. It will be evident that the use of this receiver permits the interval between successive operating cycles of the machine to be shortened and thus permits a substantial increase in the output of the machine.

The invention will now be more particularly described with reference to the accompanying drawings and thereafter pointed out in the claims.

In the drawings,

Fig. 1 is a view in right-hand side elevation of a portion of the machine in which the invention is shown as embodied, the shoe receiver being shown by full lines in its shoe-receiving position and by broken lines in its final shoe-supporting position;

Fig. 2 shows the shoe receiver and other parts

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of the machine in front elevation on a smaller scale;

Fig. 3 is a plan view of the shoe receiver and other parts, with portions of the receiver broken away; and

Fig. 4 is a view of a portion of the machine in front elevation, illustrating how the shoe, shown in section, is clamped and held during the operation of the machine.

As more fully disclosed in the copending application of which this application is a division, the machine in which the invention is herein shown as embodied is provided with toe-lasting means including wipers 2 which wipe the marginal portion of the toe end of the upper of a welt shoe inwardly over the feather of the insole and against a lip *a* (Fig. 4) on the insole. To position the shoe bottom upward in proper relation to the wipers and to other portions of the lasting means there is provided a shoe-positioning device 4 constructed substantially as disclosed in Letters Patent No. 2,388,367, granted on November 6, 1945, on an application of mine, this device being so formed as to engage the bottom face of the toe end of the insole adjacent to its lip *a* and also to engage the inner face of the lip at the end and the sides of the toe. The shoe is positioned as determined by this device when it is presented to the machine by the operator, and shortly after the starting of the cycle of power operations of the machine it is clamped against the shoe-positioning device by a toe rest 6 which is moved upwardly into clamping position, as illustrated in Fig. 4. To assist also in controlling the shoe there is provided a heel rest 8 which includes a flexible band 10 connected at its opposite ends to arms 12 which are mounted to swing inwardly toward each other against the resistance of springs 14 about rods 16. By movements of these rods the heel rest is carried rearwardly into engagement with the heel-end face of the shoe and is thereafter moved forwardly away from the shoe near the end of the cycle. Also near the end of the cycle the toe rest 6 is moved downwardly to release the shoe, thus permitting it to fall unless it is supported by the operator.

To increase the output of the machine by making it unnecessary for the operator thus to support the shoe and to dispose of it before presenting another shoe to the machine, there is provided a shoe receiver 18 arranged to underlie the heel-end portion of the shoe while the shoe is being operated on and on which the shoe falls when the toe rest is moved downwardly to re-

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lease it. Secured on the frame of the machine near the toe rest is a plate 20 having therein a pin 22 on which is pivotally mounted another plate 24. Secured to the plate 24 by setscrews 26 in alinement with the pin 22 are two rods 28 extending forwardly and downwardly therefrom, and telescopically mounted on these rods to slide thereon are tubular members 30 connected together at their front ends by a plate 32. Mounted within one of the rods 28, which is hollow, is a tension spring 34 connected at its rear end to the plate 24 and at its front end to a pin 36 in the corresponding tubular member 30. By the spring 34, therefore, the two members 30 are held normally in rearwardly retracted positions determined by engagement of a pin 38 mounted in the other rod 28 with the corresponding member 30 at the front end of a slot 40 in this member. Fast on the tubular members 30 are wings 42 which diverge from each other to receive a shoe between them, and also fast thereon is a stirrup-shaped member 44 arranged to embrace the heel end of the shoe. Connected to a pin on the top of the plate 24 is a spring 46 which tends to swing this plate about the pin 22 in the direction to raise the shoe-supporting members carried by the plate and holds them initially in the upraised positions in which they are shown in full lines in Fig. 1, the limit of the movement of the members in this direction being determined by engagement of a screw 48 in the plate 24 with a portion of the frame of the machine. When the shoe is released by the toe rest and the heel rest it falls into the pocket provided by the wings 42 and the stirrup member 44, and the weight of the shoe causes the shoe receiver to swing downwardly against the resistance of the spring 46 to an inclined position determined by engagement of another screw 50 in the plate 24 with the frame. The weight of the shoe also causes the tubular members 30 to slide forwardly and downwardly with the shoe against the resistance of the spring 34. If the weight of the shoe is great enough this movement of the members 30 will continue until stopped by the pin 38 at the rear end of the slot 40. The shoe will thus assume a longitudinally inclined position such as indicated by broken lines in Fig. 1, where it is well out of the way of the next shoe when the latter is presented to the machine. The operator will have the next shoe in his hands ready to present it as soon as the machine completes its cycle, and after presenting it and again starting the machine he will remove from the shoe receiver the shoe already operated upon, whereupon the shoe receiver will return to its initial position between the rods 16 which support the heel rest and but little below the heel-end portion of the shoe being operated upon.

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

1. In a shoe machine, the combination with means for operating on a shoe presented to the machine by the operator, and means for holding the shoe while it is thus operated on and for thereafter releasing it in such manner as to permit it to fall, of a shoe receiver arranged to underlie a portion of the shoe while it is thus operated on and to receive the shoe when it falls, said shoe receiver being movable by the weight of the shoe from its shoe-receiving position to a different position in which it supports the shoe until removed therefrom by the operator after he has presented another shoe to the machine.

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2. In a shoe machine, the combination with means for operating on a shoe presented to the machine by the operator, and means for holding the shoe while it is thus operated on and for thereafter releasing it in such manner as to permit it to fall, of a shoe receiver arranged to underlie a portion of the shoe while it is thus operated on and to receive the shoe when it falls, said shoe receiver being mounted for downward swinging movement by the weight of the shoe from its shoe-receiving position to a different position in which it supports the shoe until removed therefrom by the operator after he has presented another shoe to the machine, a spring against the resistance of which the receiver is thus movable, and means for limiting its downward movement.

3. In a shoe machine, the combination with means for operating on a shoe presented to the machine bottom upward by the operator, and means for holding the shoe while it is thus operated on and for thereafter releasing it in such manner as to permit it to fall, of a shoe receiver arranged to receive the shoe when it falls and to support it still bottom upward until it is removed therefrom by the operator after he has presented another shoe to the machine, said shoe receiver being mounted for downward swinging movement by the weight of the shoe from its shoe-receiving position to a different inclined position.

4. In a shoe machine, the combination with means for operating on a shoe presented to the machine by the operator, and means for holding the shoe while it is thus operated on and for thereafter releasing it in such manner as to permit it to fall, of a shoe receiver arranged to receive the shoe when it falls and to support the shoe in a longitudinally inclined position until removed therefrom by the operator after he has presented another shoe to the machine, a portion of said shoe receiver being movable with the shoe in a direction lengthwise of the shoe relatively to other portions thereof by the weight of the shoe thereon.

5. In a shoe machine, the combination with means for operating on a shoe presented to the machine by the operator, and means for holding the shoe while it is thus operated on and for thereafter releasing it in such manner as to permit it to fall, of a shoe receiver arranged to receive the shoe when it falls and to support the shoe in a longitudinally inclined position until removed therefrom by the operator after he has presented another shoe to the machine, said shoe receiver being mounted for downward swinging movement by the weight of the shoe from its shoe-receiving position to a different position and including a portion also rectilinearly movable with the shoe in a direction lengthwise of the shoe relatively to other portions thereof.

6. In a shoe machine, the combination with means for operating on a shoe, and means for holding the shoe while it is thus operated on and for thereafter releasing it in such manner as to permit it to fall, of a shoe receiver arranged to underlie a portion of the shoe while it is thus operated on and to receive the shoe when it falls, said shoe receiver being yieldingly movable downwardly by the weight of the shoe thereon.

7. In a shoe machine, the combination with means for operating on a shoe presented to the machine bottom upward by the operator, and means for holding the shoe while it is thus operated on and for thereafter releasing it in such manner as to permit it to fall, of a shoe receiver in position to underlie the heel-end portion of

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the shoe while it is thus operated on and to receive the shoe when it falls, said shoe receiver being so formed and arranged as to support the shoe bottom upward in a longitudinally inclined position out of the way of the next shoe presented to the machine. 5

8. In a shoe machine, the combination with means for operating on a shoe positioned bottom upward, and means for holding the shoe while it is thus operated on and for thereafter releasing it in such manner as to permit it to fall, of a 10

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shoe receiver in position to underlie the heel-end portion of the shoe while it is thus operated on and to receive the shoe when it falls, said shoe receiver having portions diverging from each other at the sides of the shoe to receive and support the shoe bottom upward between them in a longitudinally inclined position and another portion for engaging the heel-end face of the shoe to assist in supporting it in that position.

CHARLES A. ROBINSON.