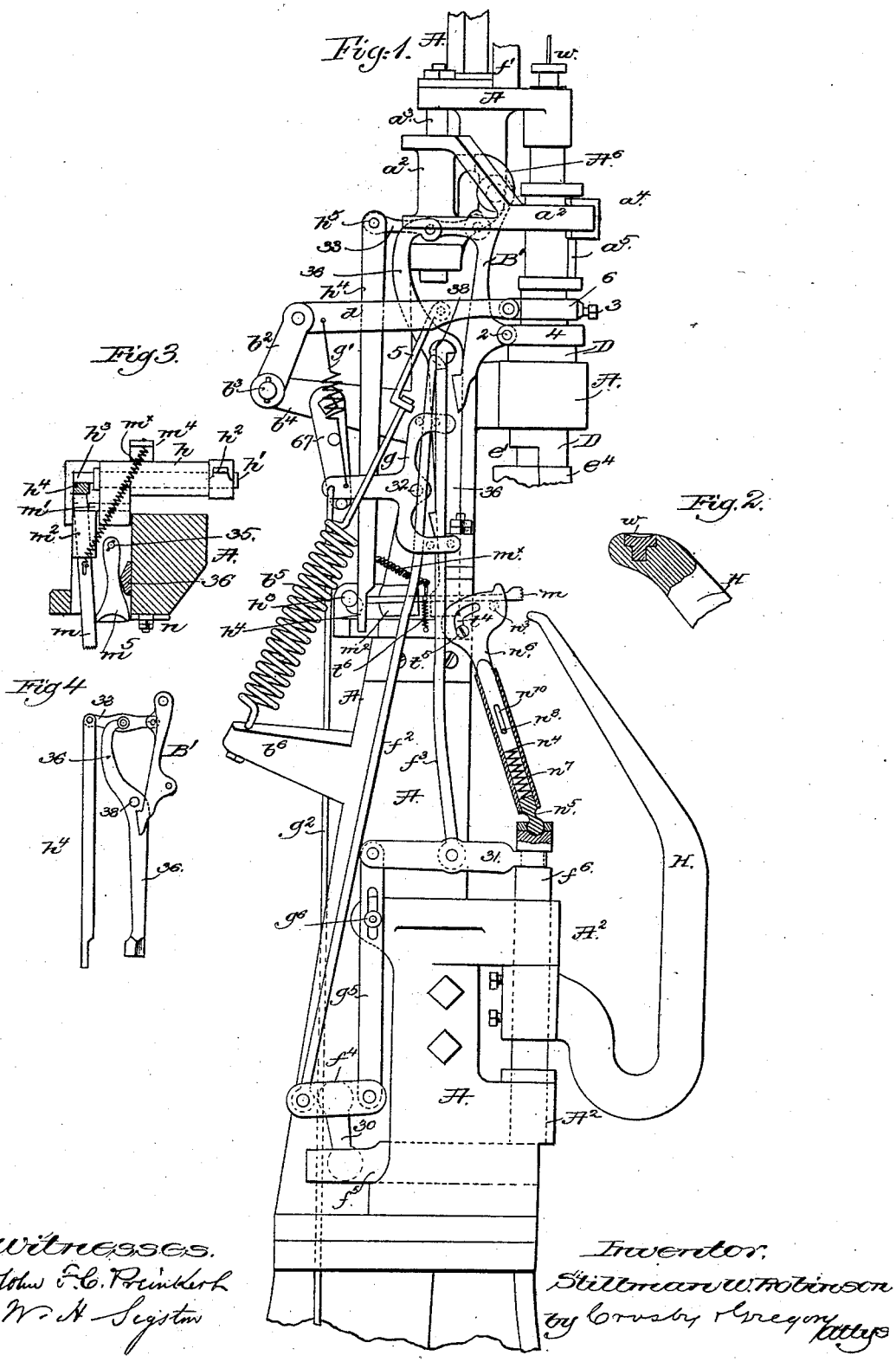
(No Model.)

S. W. ROBINSON.

MACHINE FOR UNITING SOLES TO UPPERS OF BOOTS OR SHOES.

No. 346,127. Patented July 27, 1886.



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UNITED STATES PATENT OFFICE.

STILLMAN W. ROBINSON, OF COLUMBUS, OHIO.

MACHINE FOR UNITING SOLES TO UPPERS OF BOOTS OR SHOES.

SPECIFICATION forming part of Letters Patent No. 346,127, dated July 27, 1886.

Application filed January 12, 1885. Serial No. 152,570. (No model.)

To all whom it may concern:

Be it known that I, STILLMAN W. ROBINSON, of Columbus, in the county of Franklin, State of Ohio, have invented an Improvement in Machines to Unite Soles to Uppers, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

This invention is an improvement on the class of machines represented in United States Patent No. 297,718, granted to me April 29, 1884, and has for its object to automatically lift and lower the horn; and, also, to insure the rising and falling of the feed-dog in unison with the horn, so that the feed-dog placed in contact with the edge of the sole of the boot or shoe applied to the horn while lowered will be raised with the horn, and be held in correct working position with relation to the edge of the sole when the horn is raised and the feed-dog is to be moved to feed the boot or shoe on the horn.

Figure 1 in side elevation represents a sufficient portion of a machine for uniting soles to uppers to illustrate my present invention; Fig. 2, a detail of the tip of the horn, and Figs. 3 and 4 details of the mechanism for moving the feed-dog.

In the drawings, A is the frame-work, and D a uniformly-reciprocating working-head, which derives its movement from a pitman, B′, actuated as in my application, Serial No. 145,387, filed October 13, 1884, to which reference may be had. The horn H, attached by set-screws to a center bolt, f^6, sliding in bearings A^2, is provided at its upper end with an annular groove which receives the forked end of the lifting-lever 31, having its fulcrum on a pin at the upper end of a link, g^5, which is slotted to receive a pin, g^6, that guides the link as it is reciprocated, and also permits the link to turn on the pin as a fulcrum. The link g^5 is pivoted at its lower end to an arm of a lever, f^4, herein shown as a three-armed lever, the lower arm, 30, of the said lever entering a notch or slot in the horn-supporting locking-slide f^5, the latter, when pushed forward under the center bolt, f^6, of the horn, as in Fig. 1, locking the horn in elevated position while the end of the fastener or wire is being driven through the boot or shoe and against the horn. The lever 31 has connected with it a lifting-rod, f^3, provided at its upper end with a hook, the said rod being extended upward between two guide-pins projected laterally from the side of one of the arms of a rod-controller, g, pivoted at 32 on the frame-work, and connected by a link, g^2, which at its lower end will be attached, as in my said application, to a suitable treadle, whereby the rod-controller may be turned by the foot of the operator to place the hook of the rod f^3 in the line of the hook at the end of the rising pitman B′, to effect the lifting of the horn and the placing of the sole of the boot or shoe thereon against the lower end of the presser or nose of the driving mechanism, where it is retained and the horn kept in elevated position so long as the operator keeps his foot upon the treadle, which he does until the sole and upper are united and the shoe is to be removed. A spring, g', connected with the said controller and with the frame-work normally, acting to move the controller so as to place the hook of the rod f^2 in position to be engaged by the hook of the rising pitman B′, to effect the withdrawal of the slide f^5 and permit the horn to fall.

Fig. 1 shows the horn as lifted into its highest position and the working-head as descending, the hook of the pitman B′ having been moved down from engagement with the hook of the rod f^3, which was acted upon to lift the horn. The hook of the rod f^3 is left in the position, Fig. 1, so long as the operator retains his foot on the treadle, and during such time the hook of the rod f^2 is kept from engagement with the moving pitman B′. When the operator removes his foot from the treadle, the rod-controller, acted upon by the spring g', throws the hook at the upper end of the rod f^2 into the line of movement of the hook of the pitman B′, so that the said pitman in its next ascent engages the hook of the rod f^2 and effects the lowering of the horn for the removal of the shoe. The feed-dog m is free to slide backward and forward in the pivoted guide m^2, having its pivot at m' in the bearing

h, and the rear end of the feed-dog is kept back in the said guide by a spring, m^4. (Shown in Fig. 3.) The rear end of the feed-dog is acted upon by the end of a cam-rod, h^4, projected from the lever 33, which has its fulcrum on the lever 36, the lever 33 deriving its movement from the pitman B′, the wedge-bar h^4 acting to force the toothed end of the feed-dog against the edge of the sole. The bearing h has extended through it a rock-shaft, h', provided at one end with a hand-lever, h^2, and at its other end with an eccentric pin or projection, h^3, which serves as a back-stop for the wedge-bar h^4, the rotation of the said shaft h' enabling the position of the eccectric pin to be changed, so as to let the cam-rod and feed-dog move backward for a greater or less distance from the tip of the horn.

In the slot of the frame-work, in which the feed-dog is made to vibrate horizontally, I have pivoted, at 35, an L-shaped dog, m^5, the rear side of which is acted upon to effect the feeding movement of the feed-dog by the beveled lower end of the lever 36 before referred to, which is pivoted at 38 on the frame-work, the said lever deriving its movement of vibration from the lever 33 connected with the pitman B′.

The mechanism herein described for raising and lowering the horn, and for moving the feed-dog out and in and laterally to move the boot or shoe on the horn is substantially the same as in my application, Serial No. 145,387, filed October 13, 1884, to which reference may be had. The inner end of the feed-dog is, it will be understood, held in a guide which may oscillate to permit the outer end of the feed-dog to rise and fall with the horn, I having found such movement of the feed-dog desirable to enble the end of the feed-dog to be always retained at the same level with relation to the tip of the horn in all its movements.

To insure the proper position of the outer end of the feed-dog m and keep its outer end at the same level with relation to the horn, I have provided a pin or projection, n^3, which comes against the feed-dog near its outer end, the said projection rising and falling in unison with the horn. The pin or projection n^3 is herein shown as extended from a rod connected directly with the bolt f^6 by means of a ball-joint. This rod is composed, as herein shown, of a tube, n^4, in which is made fast a foot-piece, n^5, and a head, n^6, having a stem fitted to slide in the tube, where the end of the stem meets a spiral spring, n^7, a pin, n^8, held by the tube being extended through the slot n^{10} in the stem. The head has a curved slot, t^4, which receives through it a pin, t^5, connected with a fixed part of the frame-work, and the pin n^3, on which the feed-dog rests, is projected from the rear side of the said head, a spiral spring, t^6, keeping the feed-dog down on the said pin; but it is obvious that the feed-dog could be raised and lowered equally well were the pin n^3 placed above the feed-dog, and the spiral spring t^6 were made to lift the feed-dog rather than to pull it down. The slot t^4 in the head is of such shape as to move the rod backward and forward, and enable the head to act as a guard for the end of the feed-dog and prevent the edge of the sole from passing under the feed-dog, the spring n^7 permitting the necessary vertical movement required to enable the feed-dog, which always works close to the presser, to rise and fall to adapt itself to the thickness of the leather. The horn at its upper end is provided with a removable anvil, w, which is dropped into a recess in the horn, the top of the anvil being concaved to permit the end of the wire to be headed at the inner side of the inner sole.

I claim—

1. The reciprocating pitman B′, provided with a hook, and the horn combined with the trip-rod f^2, slide f^5, and intermediate connecting mechanism, substantially as described, to release the horn, as set forth.

2. The reciprocating pitman B′, provided with a hook, and the horn and the lifting-rod combined with the lever 31 to lift the horn, substantially as described.

3. The reciprocating pitman B′, provided with a hook or projection, and the trip-rod and lifting-rod, and means, substantially as described, intermediate or between the said rods and horn to effect the release and the ascent of the horn, combined with a rod-controller to operate as set forth.

4. The rod-controller, the treadle to move it, the horn, the rods f^2 and f^3, the horn-locking slide f^5, and means, substantially as described, to connect the said rods operatively with the said slide and horn, combined with the reciprocating pitman provided with a hook or projection to engage the said rods and operate the horn, substantially as described.

5. The horn, its pivot-pin f^6, the lever 31, link g^5, lever f^4, and locking-slide f^5, combined with the rod f^3 and latch, to first lift the horn to place the boot or shoe thereon against the presser, and to thereafter operate the slide to lock the horn in elevated position, substantially as described.

6. The rising and falling horn combined with the feed-dog m and its pivoted guide, to permit the front end of the feed-dog to be placed opposite the edge of the sole of the boot or shoe on the horn, and to rise as the horn and the boot or shoe are lifted, substantially as described.

7. The feed-bar m, the lever 33, and means to move it, combined with the lever 36, and the cam-rod h^4 to control the movements of the feed-bar, substantially as described.

8. The combination, with the rising and falling horn, and the feed-dog, and the pivoted guide in which it moves, of a rod to operatively connect the feed-dog and horn, whereby the acting end of the feed-dog may be raised and lowered in unison with the horn, to thereby enable the feed-dog to be always in position

opposite the edge of the sole of the boot or shoe to be moved on the horn, substantially as described.

9. In a machine to unite soles to uppers, a feed-dog and a vertically sliding horn, combined with a rod located between the horn and feed-dog, and adapted to maintain the acting end of the feed-dog opposite the level of the tip of the horn, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

STILLMAN W. ROBINSON.

Witnesses:
CHAS. E. BURR,
W. T. MCCLURE.