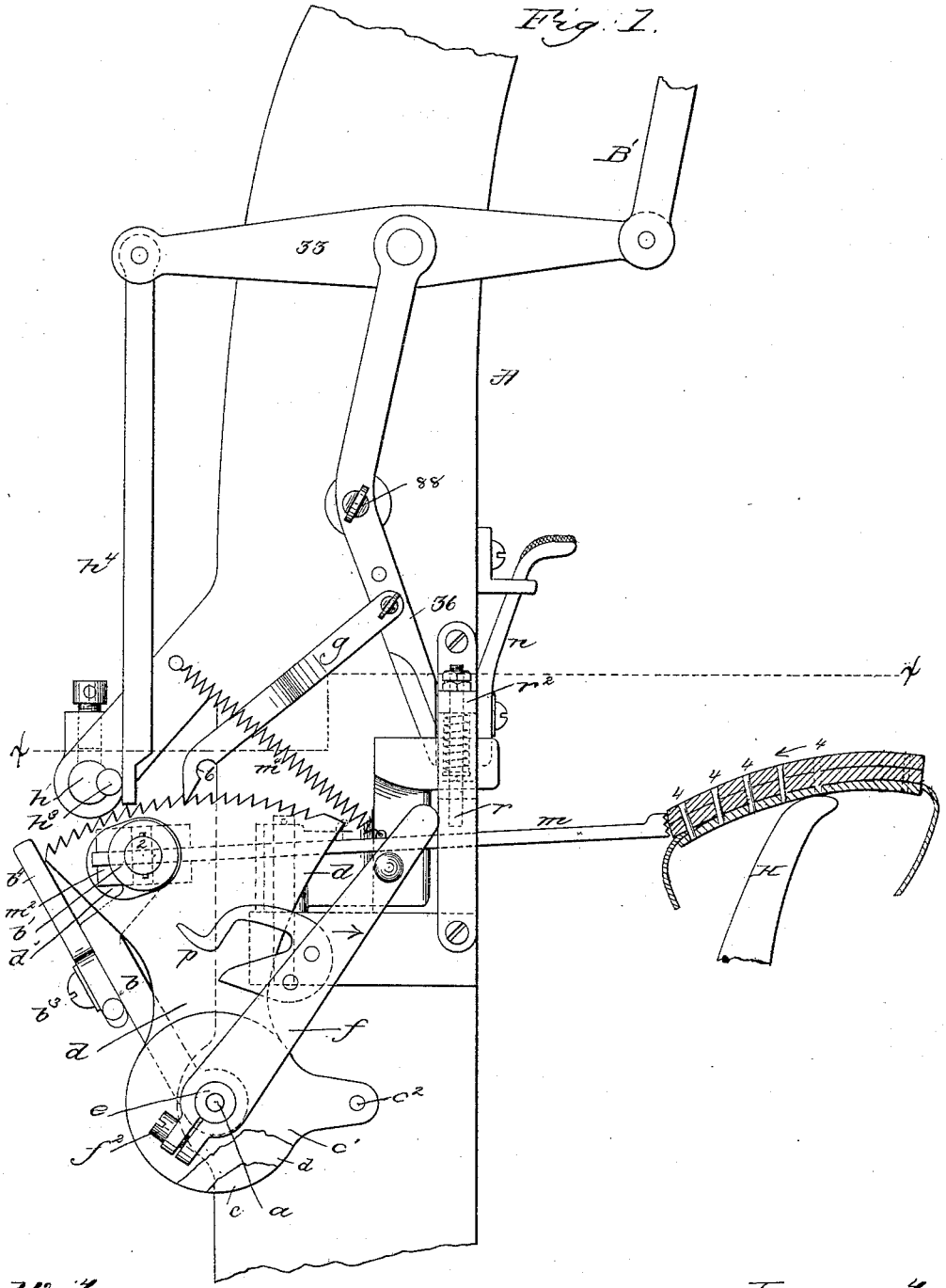
(No Model.) 2 Sheets—Sheet 1.

S. W. ROBINSON.

MACHINE FOR UNITING SOLES TO UPPERS.

No. 346,129. Patented July 27, 1886.

Fig. 1.



Witnesses
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(No Model.) 2 Sheets—Sheet 2.

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Fig. 2.

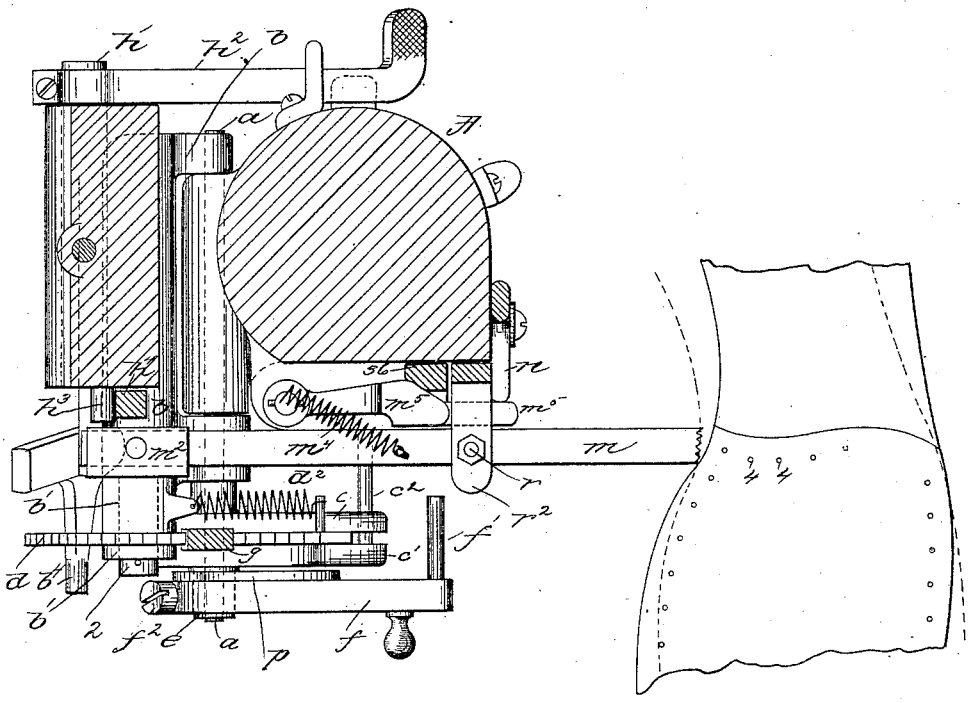
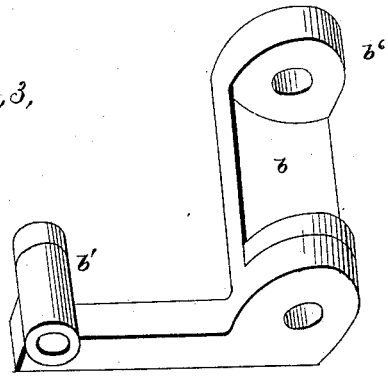


Fig. 3.



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UNITED STATES PATENT OFFICE.

STILLMAN W. ROBINSON, OF COLUMBUS, OHIO.

MACHINE FOR UNITING SOLES TO UPPERS.

SPECIFICATION forming part of Letters Patent No. 346,129, dated July 27, 1886.

Application filed April 18, 1885. Serial No. 162,661. (No model.)

To all whom it may concern:

Be it known that I, STILLMAN W. ROBINSON, of Columbus, 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 has for its object to provide means whereby the boot or shoe being fed over the horn may be moved transversely thereon in the direction of the width of the boot or shoe sole, to enable a row of fasteners to be inserted across the end of a tap-sole.

My invention is herein shown as embodied upon a machine of my own invention, a machine, substantially as shown in my application, Serial No. 145,387, filed October 13, 1884, to which reference may be had.

My invention consists, essentially, in the combination, with a horn to support a boot or shoe, of a feed-dog having a longitudinal or step-by-step movement with relation to the tip of the horn and acting against the edge of the sole, whereby the boot or shoe on the horn may be moved thereon under the nose or the end of the fastening material in such direction as to enable a row of fasteners to be inserted across the sole from side to side, as will be described.

Figure 1 in side elevation represents a part of the left-hand side of a machine for uniting soles to uppers, with my improvements added. Fig. 2 is a section taken below the line x x, and Fig. 3 in perspective shows the arm b removed from the machine to more clearly represent its hub and ears.

The column A, horn H, lever h^2, rod h', having the eccentric-pin h^3, the wedge-bar h^4, the lever 36, the cam-block m^5, the feed-dog m, and the lever 33, are substantially as in my said application No. 145,387, wherein the like parts are designated by like letters. The pitman (herein marked B') is a prolongation of the pitman B' represented in my said application, and when the feed-dog is being used to feed the shoe longitudinally, or in the direction of its length over the horn, the wedge-bar h^4 and cam-lever impart to the said dog the necessary four motions, the parts at such time occupying substantially the position Fig. 1. In Figs. 1 and 2 the wedge-bar and lever are rendered inoperative by change of position of the parts, and the feed-dog is arranged to have only a longitudinal movement. The stud a receives on it loosely, next the column A, ears b^6, extended from the hub of an arm, b, then one half, c, of a friction device, which rests against a shoulder on the stud, then the hub of the ratchet-plate d, then the other half of the friction device, the latter having a pin, c^2, which enters the half to insure their movement together, then the nut e, which latter is screwed upon a threaded part of the said stud a. The arm or handle f, provided at its upper end with a pawl lifting and holding pin, f', is split at its lower end and clamped by a set-screw, f^2, to the nut e. Movement of the lever f in the direction of the arrow thereon, Fig. 1, turns the nut e in the direction to cause the friction-clamps or devices to grasp the ratchet-plate, so that it will remain where left by its actuating-pawl g. The rear end of the feed-dog m enters a transverse groove in a swivel-block, m^2, having a journal or pin, 2, which enters a bearing, b', at the upper end of the arm b, the said bearing being prolonged to enter a slightly-elongated slot, d', in the ratchet-plate d, so that the movement of the ratchet-plate d by the pawl g causes the said plate to carry the arm b and the swivel-block m^2 with it, and the block, through a pin, m^3, connecting it loosely with the feed-dog, moves the latter longitudinally step by step, as needed, permitting the operator holding the shoe in his hand to push the said shoe laterally across the horn and keep its edge against the serrated end of the feed-dog, the steps of the longitudinal movement of the said dog being equal to the distance desired between the fasteners 4, some of which are shown as having been driven into the sole across the end of the tap-sole, the shoe moving, it is understood, in the direction of the arrow thereon. The arm f and the ratchet-plate d are connected by means of a strong spring d^2, which normally acts to keep the extension of the bearing b' in that end of the slot d' of the ratchet-plate toward the horn, as shown in Fig. 1, and as the operator pushes the shoe back against the front end of the feed-dog,

preparatory to placing the shoe in position for another fastening, this spring is overcome and the extension of the bearing is forced back to the opposite end of the slot d', and arriving in such position the ratchet-plate forms a temporary stop at or just before the insertion of each fastener, and when the nose thereafter rises from the work the pawl g becomes operative to positively hold and leave it in position to again serve in moving the ratchet-plate for a stop, it being left in such position with relation to the tip of the horn as to insure the insertion of the next fastener at the proper distance from the one last driven. The spring d^2 also acts to always keep the serrated end of the feed-dog against the stock during various changes of the position of the shoe incident to the cross-feeding movement. The pawl g, connected with the lever 36, moves the ratchet-plate d step by step and for a distance equal to one or more teeth, according to the distance desired between adjacent fasteners. The arm b has pivoted on it at b^3 a latch, b^4, of elbow-shape. Assuming the row of fasteners across the sole to have been driven, and it being desired to apply to the horn a shoe to be nailed about its sole in usual way, the operator will turn the lever f far enough to place its pin f' against the cam-shaped lower edge of the pawl g, thereby disengaging said pawl from the ratchet-plate, and also turn the nut clamped by the lever to release the friction-plates from the ratchet-plate. In this condition of the parts the operator will effect a longitudinal forward movement of the feed-dog m by pulling the same by hand, or otherwise, which will also turn forward the arm b and the ratchet-plate d, and by the time the pivoted latch b^4 reaches a position in front of the lower cam-shaped end of the wedge-bar h the lower short arm of the latch comes into position between the jaws of the cam-yoke p, attached to the lever or handle f, previously partially turned back, as before described, to lift the pawl g. The feed-dog having been carried forward nearly to the tip of the horn the lever f will be further turned backward, and during its movement the cam-yoke p will cause the latch b^4 to be turned on its pivot b^3, and the upper arm of the latch will be moved into position in front of the wedge-bar h^4, and the said lever f will be turned far enough to place the pin f' in the notch 6 of the pawl g. In the last-described condition of the parts the wedge-bar h^4 and the lever 36 will actuate the feed-dog and give to it the four motions provided for in my said application, and at the same time the pawl g, engaging the pin of the lever f, will cause the same to be vibrated back and forth for a short distance about its fulcrum; but this movement is so slight as not to do any harm or affect the regular feeding movement of the feed-dog.

The ratchet-plate d, at one end of the slot d' therein, forms what I shall denominate as a "lateral stop" for the feed-dog and operation just prior to inserting each fastener, the said stop being herein made movable intermittingly by the pawl acting on the ratchet-teeth of the said plate after each fastener is inserted, to thus place the stop in a new position to serve as a stop to indicate the proper place for the shoe on the horn to correctly receive the next fastener, and so on in succession.

To prevent the front end of the feed-dog m from being lifted too high by the spring m^4, I have arranged above the said feed-dog an adjustable spring-held stop, r, the shank of which is guided in the bracket r^2.

I claim—

1. In a machine for uniting soles to uppers, a horn and a feed-dog to act against the edge of the boot or shoe, combined with a laterally intermittingly movable stop to control the position of the feed-dog and of the shoe as the latter, resting on the horn, is moved to receive fasteners across the sole, substantially as described.

2. In a machine for uniting soles to uppers, a horn, a feed-dog to act against the edge of the sole of the boot or shoe to be nailed across its sole, combined with a laterally-movable stop, and with means, substantially as described, to actuate the said stop intermittingly.

3. The combination, with the horn and feed-dog, of the stop r, to control the extent of vertical movement of the said feed-dog, 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:
G. W. GREGORY,
W. H. SIGSTON.