No. 654,840. Patented July 31, 1900.

A. F. PRESTON.

TACK DRIVING MACHINE.

(Application filed Dec. 11, 1897.)

(No Model.) 2 Sheets—Sheet 1.

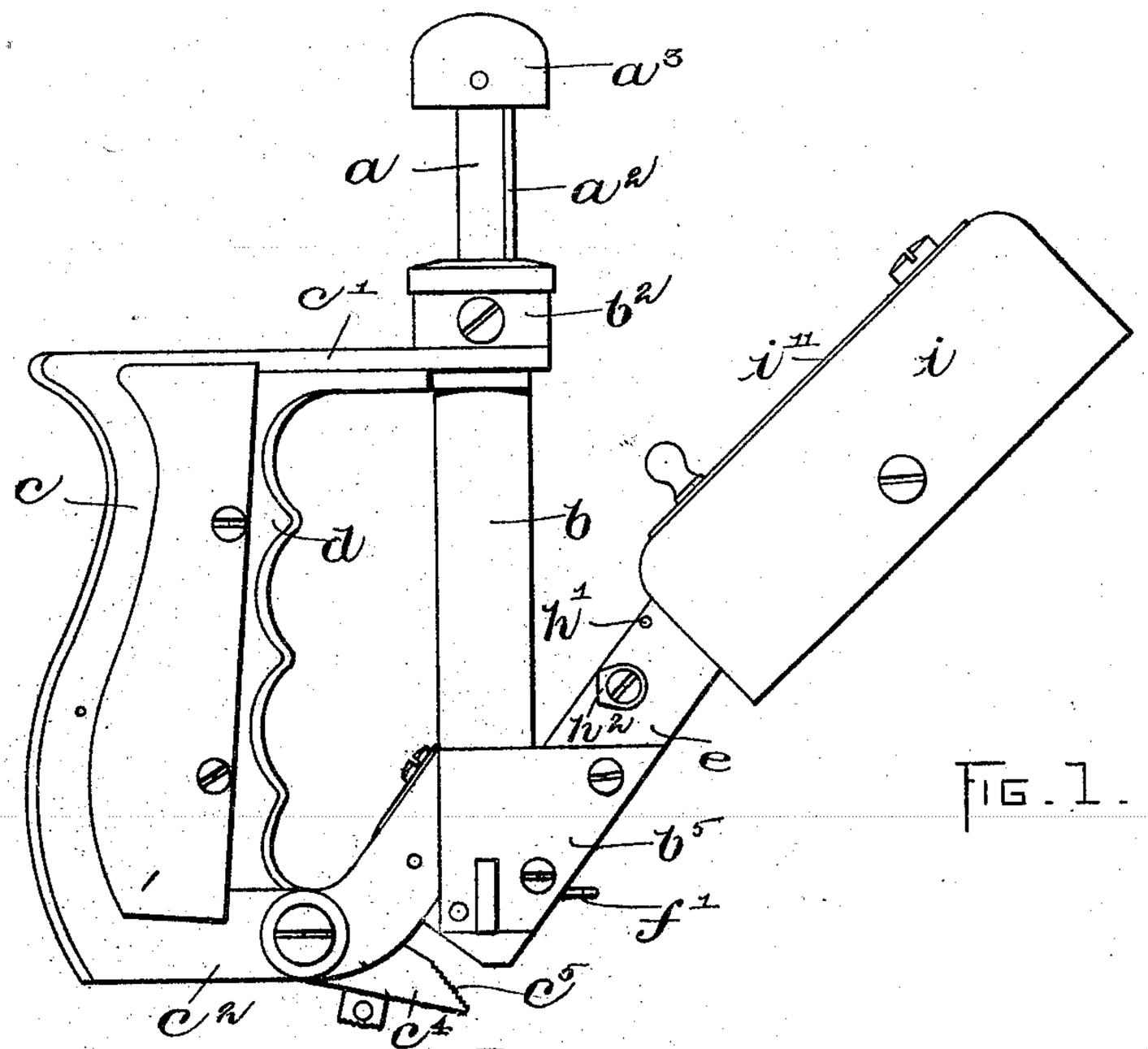

FIG. 1.

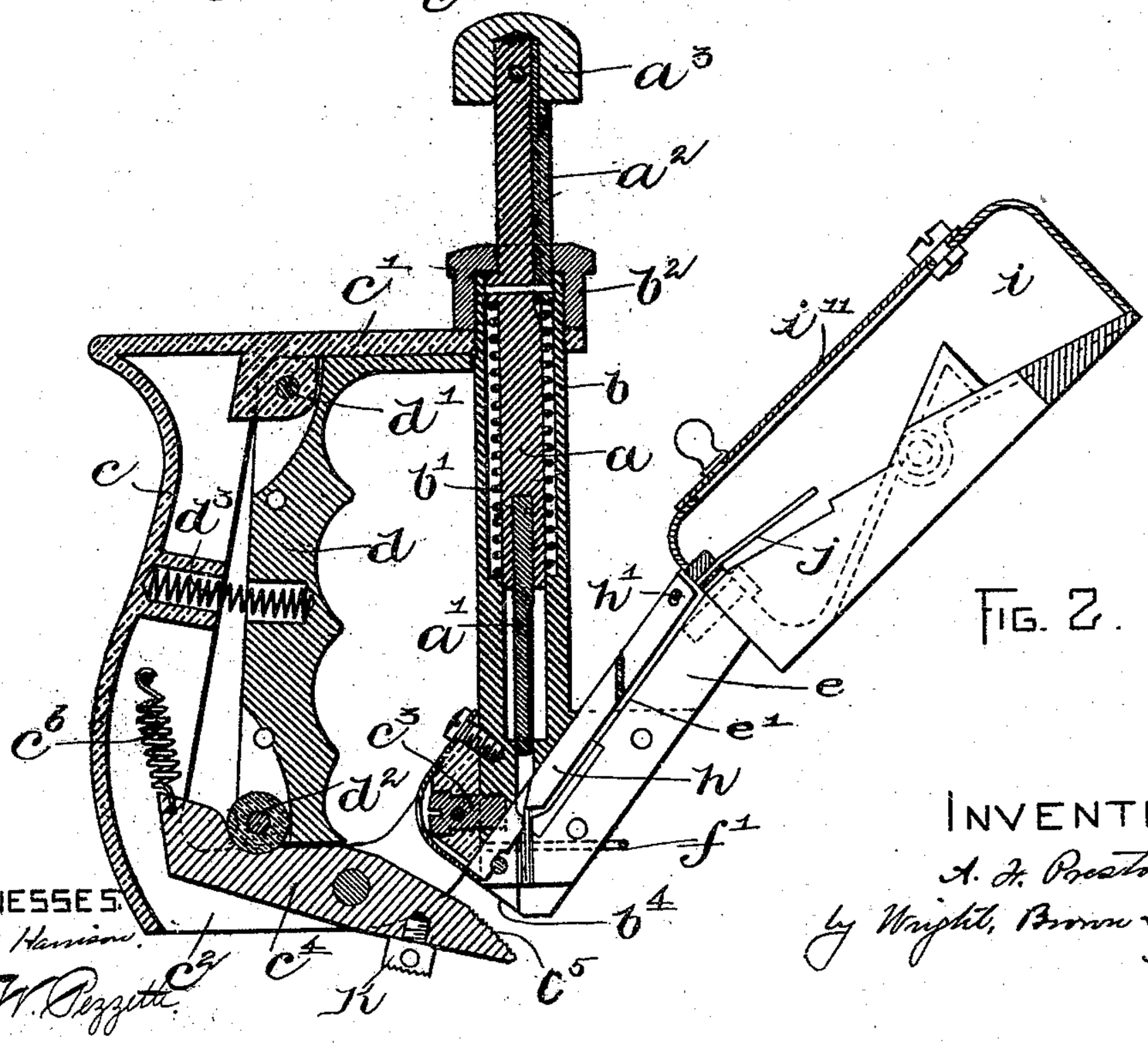

FIG. 2.

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FIG. 3.

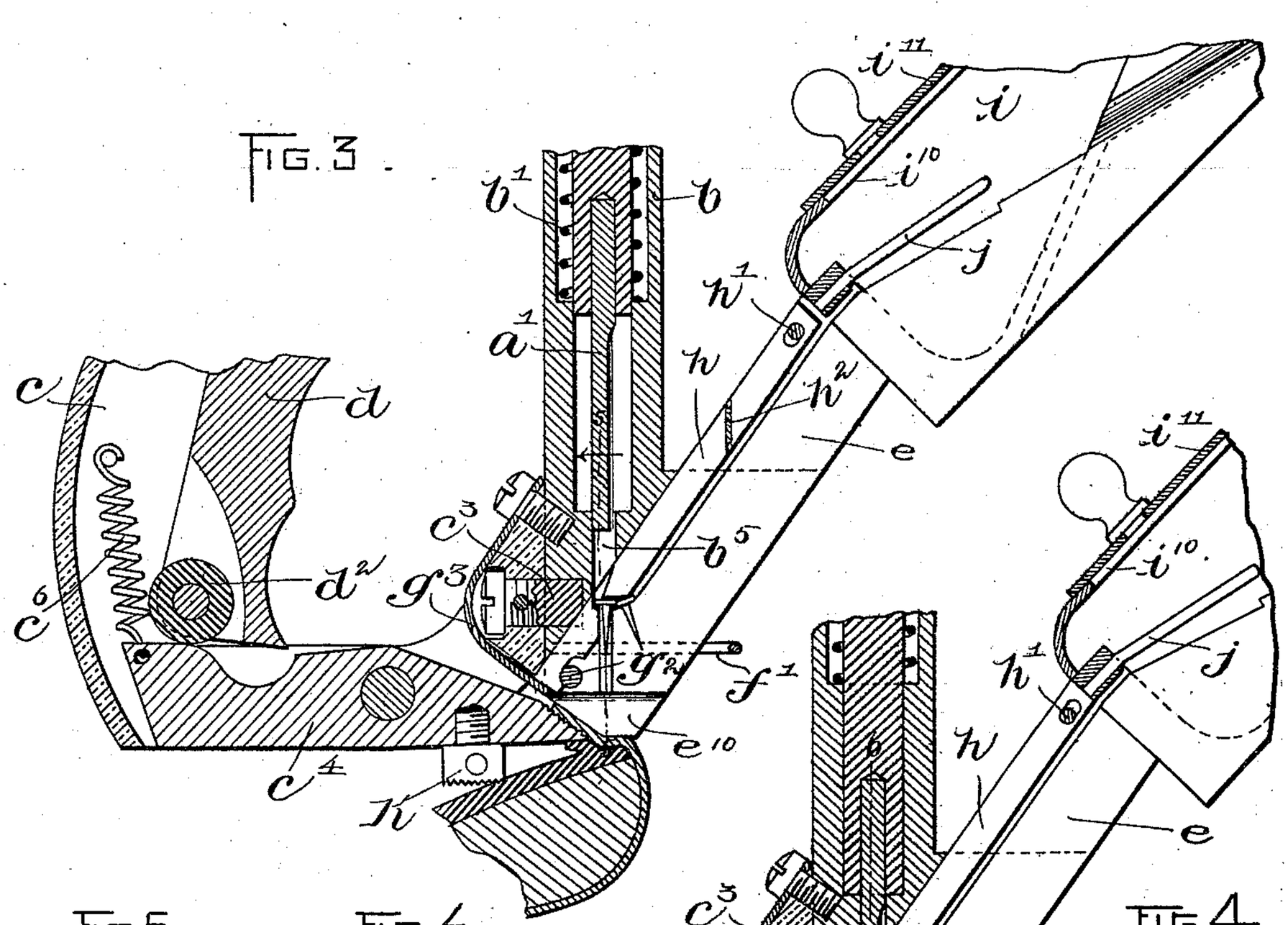

FIG. 4.

FIG. 5.

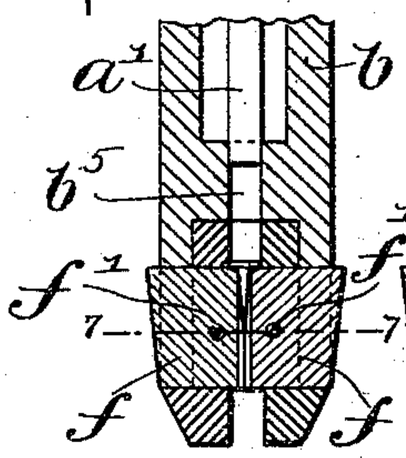

FIG. 6.

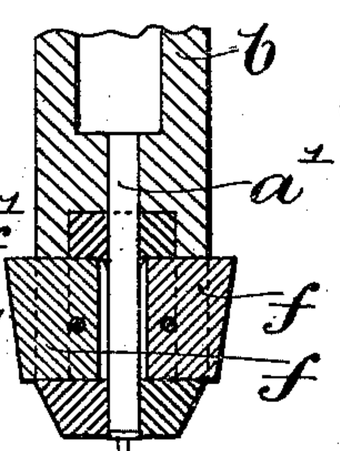

FIG. 7.

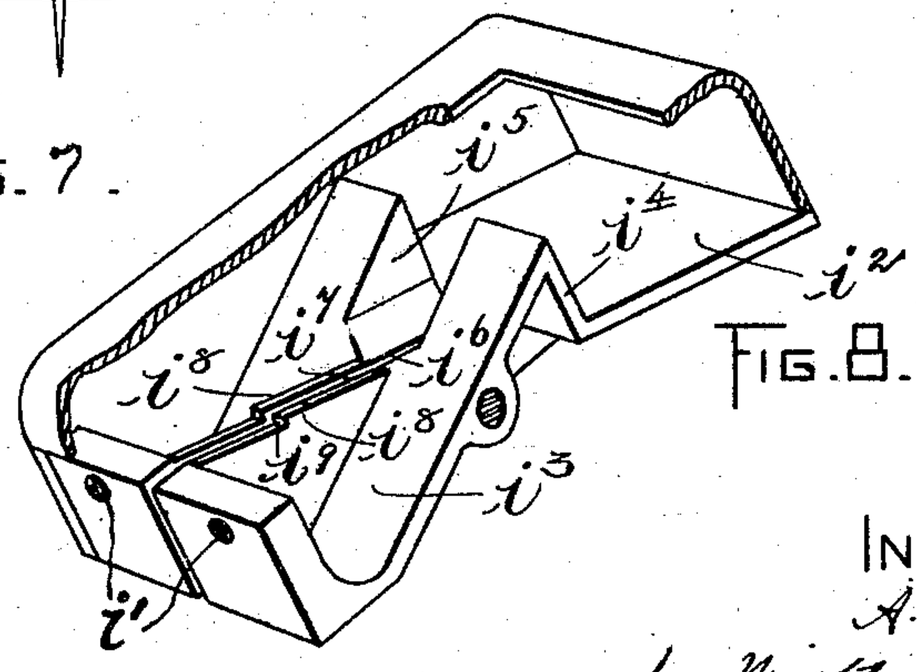

FIG. 8.

WITNESSES:
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UNITED STATES PATENT OFFICE.

ALBERT F. PRESTON, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE BUSELL LASTING MACHINE COMPANY, OF SAME PLACE.

TACK-DRIVING MACHINE.

SPECIFICATION forming part of Letters Patent No. 654,840, dated July 31, 1900.

Application filed December 11, 1897. Serial No. 661,573. (No model.)

To all whom it may concern:

Be it known that I, ALBERT F. PRESTON, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Tack-Driving Machines, of which the following is a specification.

This invention has relation to "tackers" or tack-driving machines by means of which tacks may be driven into boots or shoes for securing the uppers to the soles thereof.

One of the principal objects of the invention is to provide a reservoir or delivery-box to be employed in connection with a hand-operated machine by means of which a steady and uniform feed of tacks to the action of the driver may be maintained without any appreciable effort on the part of the operator.

Another object of the invention is to provide against a tack being driven at the wrong angle into the work and also to permit of its being discharged freely when presented improperly to the action of the driver, while at the same time the escape of a properly-presented tack is prevented.

To attain these objects the invention may be embodied in a machine which possesses certain features of construction and arrangement of parts, such as illustrated upon the drawings and described in the following specification.

Similar letters of reference indicate like parts or features wherever they occur.

Of the drawings, Figure 1 represents in side elevation a machine embodying the invention. Fig. 2 represents a vertical section through the same. Fig. 3 represents a section with the parts enlarged. In this figure the tack is in position to be driven into the work. Fig. 4 represents a similar section with the driver depressed after having driven a tack into the work. Figs. 5 and 6 represent sections on the lines 5 5 and 6 6, respectively, of Figs. 3 and 4. Fig. 7 represents a cross-section on the line 7 7 of Fig. 5. Fig. 8 represents in perspective the tack-reservoir or delivery-box with a portion of the sides broken away.

On the drawings, a indicates the driver-bar, having fixed in its lower end the driver a' and being adapted to reciprocate in the tubular casing b. A spring b', bearing against a shoulder in the interior of the casing and against an annular flange on the driver-bar, holds the driver normally in a raised or inoperative position, with the said shoulder against a ferrule b^2, screwed upon the upper open end of the casing and through which the driver-bar projects. A key or spline a^2 is inserted in a groove in the driver-bar and slides in an aperture in the ferrules to prevent the said bar from twisting or rotating, whereby the driver, which is crescent-shaped in cross-section, (not shown,) is always maintained in proper relation to the tacks as they are presented one by one thereto. A knob a^3 is pinned upon the upper end of the driver-bar to afford a bearing-surface for the hand of the operator or the mallet with which he strikes it a blow to drive a tack into the work.

A handle c, having the upper bar c' encircling the tubular casing below the ferrule b^2 and the lower bar c^2 secured to the lower end of the casing by a screw c^3, is employed for the purpose of holding the casing at the proper angle to the work, and in a slot in the said bar c^2 is fulcrumed a lever c^4, which is beveled and serrated at its free end c^5 to coact with the beveled end b^4 of the casing and form the movable jaw of a pair of pincers for grasping the edge of the upper and drawing it taut over the last before a tack is driven into it. The movable jaw is normally held away from the stationary jaw by a spiral spring c^6, but is locked thereagainst by a lever d, pivoted at d' to a lug in the handle and having a roller d^2, rolling upon a cam-track on the said lever c^4. A spring d^3 holds the lever d in its inoperative position, from which it may be easily drawn by the fingers of the hand grasping the handle c.

The lower end of the casing b below the throat b^5 is provided with two slots at right angles to each other for a purpose to be described, and secured between the wings b^{51} projecting therefrom, is the chute or raceway which conducts the tacks to the action of the driver. The said chute or raceway consists of two parallel inclined bars e, separated sufficiently to receive a line of tacks between them, with their heads resting upon the shoulders e' thereof. At the lower end the

shoulders of the bars are curved to present the tacks one by one to the driver, with their median lines in alinement with its median line.

Arranged in those slots in the lower end of the casing which are transverse to the raceway are the separable guide-blocks $f\,f$, held together by the U spring f', having its ends passed into grooves $f^2\,f^2$ in the ends of the chute-bars e. The upper edges of the guide blocks or members of the yielding guides are flush with the lower end of the chute, so that the shank of the lowermost tack in the raceway passes between the blocks and the head thereof rests upon the upper edges of the blocks, as shown in Figs. 3 and 5. When the driver descends, it engages the tack and forces it between the members of the yielding guide to the work, the said members separating to permit its passage and guiding it properly in its descent. A yielding stop g is placed in the lower end of the casing between the side bars of the chute or raceway and is recessed to form a shoulder g', flush with the top edges of the members f of the yielding guide. It is placed in front of the passage-way in the chute or raceway and slides in the lines thereof, being supported and limited in its movement by a pin or rivet g^2. A bent leaf-spring g^3, secured to the end of the bar c^2 of the handle, holds the stop in its normal position, with the shoulder g^2 projecting into the path of the driver, so that the tack will be supported and prevented from sliding from the raceway through the members of the yielding guide. When the driver engages the tack, the stop is slid bodily in the lines of the chute out of the way of the tack and the driver, its different positions being portrayed in Figs. 3 and 4, respectively.

A bar h is arranged over the line of tacks in the chute and is provided in its outer end with a slot to receive a pin h', passed through the parallel side bars of said chute, whereby it may slide in the lines of the chute toward and from the driver, its lower end being beveled and held in the path of the driver by a bent leaf-spring h^2, secured to the outside of the chute and passed through an aperture in the latter into a groove or slot in the said bar h. This bar is over the heads of all the tacks in the raceway and normally engages the tack in the yielding guide; but when the driver is depressed it is thrust backward and downward and engages the next tack to hold it against movement until the driver returns.

The oblong reservoir or tack-box i, from which the tacks are delivered to the raceway, is secured to the side bars of the latter by screws (shown in dotted lines in Fig. 2) passed through apertures $i'\,i'$ in the end of the reservoir, and its bottom or floor is divided into two portions, the outer portion i^2 sloping toward the end of the raceway and the other portion i^3 sloping outwardly at an angle thereto. The said lower portion terminates in a wall i^4, which extends nearly to the top of the box, said wall dividing said box into two compartments, the tacks passing from the outer compartment to the inner compartment through an aperture i^5 in said wall, which converges, as shown in Fig. 8, to guide the shanks of the tacks into the groove or way i^6, which is connected to the raceway by the groove i^7, formed by the ribs $i^8\,i^8$, extending up from the bottom i^3. A shoulder or stop i^9 is formed in the upper edge of each rib to prevent the tacks from sliding backwardly, said upper edges of the ribs being flush with the surface of the bottom i^3 of the box. The top of the box is formed with an aperture i^{10}, closed by a pivoted door i^{11} and through which tacks are introduced into the compartments therein. As the tool is used the tacks pass from the outer compartment through the aperture i^5 and are guided to the grooves $i^6\,i^7$, those tacks which do not properly present themselves falling on either side of the ribs onto the upwardly and rearwardly inclined bottom i^3. When the overflow-compartments on either side of the ribs are full, the tool is inclined to cause the tacks to slide into the outer compartment. Thus it will be seen that when the operator uses the tool the tacks will flow easily from the tack box or reservoir into the raceway, the latter, as well as the box, being inclined at all times to aid the flow of the tacks. A pin j projects outwardly and upwardly over the groove i^7 to hold the tacks therein, being secured in the end of the box, as shown in Figs. 2, 3, and 4.

In using the tool the operator, holding the handle in his hand, grasps the edge of the upper between the jaws and draws it over the last, using the rough-headed screw k, resting on the sole, as a fulcrum. Then with his other hand or a mallet the driver is depressed, and engaging a tack drives it between the members of the yielding guide into the work. Occasionally he tilts his hand to cause the loose tacks to flow back into the outer compartment in the tack-reservoir, as described.

It will be noticed on examining Figs. 4 and 5 that the slot e^{10} between the side bars of the chute at the lower end thereof is wide enough to permit the tool to be drawn away from the work horizontally or in lines parallel thereto, even if the tacks be driven partially into the work, as shown in Fig. 5. Hence if by any chance a tack should be improperly presented to the action of the driver it will be discharged through the slot without injuring or clogging the tool, although as a matter of fact the yielding stop coacting with the members of the yielding guard conducts the tack properly to the work. If the stop be omitted and a tack rest at an inclination with its head on the upper edges of the guide members, the driver is liable to strike it first on one side of the head and eject it from the throat sidewise; but when the stop is present this "spitting" or ejecting of the tacks is prevented. It will also be observed that the cas-

ing and the guideway for the tacks extend below the slots in which the separable guide members or blocks move, and therefore there is no tendency to disturb the position of the lower end of the tool or machine on the work by the lateral movements of the said blocks.

Having thus explained the nature of the invention and described a way of constructing and using the same, though without attempting to set forth all of the forms in which it may be made or all of the modes of its use, I declare that what I claim is—

1. A tack-driving machine, comprising a driver, a casing having a guideway for the reciprocations of said driver and having slots, separable guide members between which the tacks may be forced one at a time by the driver, said guide members being mounted yieldingly in said slots, a chute or raceway for supplying tacks to the guide members, a yielding stop *g* having a shoulder *g'* flush with the top edges of the guide members, and a spring g^3 normally holding the shoulder in the path of the driver.

2. A tack-driving machine, comprising a driver, a chute or raceway for supplying tacks to the action of the driver, a bar over the line of tacks in the raceway and movable longitudinally toward and from the driver, said bar having a beveled end projecting in the path of the driver, whereby said bar is arranged to alternately engage the tack to be directly acted on by the driver and the tack next thereto.

3. A tack box or reservoir for delivering tacks to the raceway of a tack-driving machine, divided into two compartments having bottoms sloping upward from the ends to the center of the box, said compartments being connected by an aperture, and there being a groove leading from the outer compartment to the raceway.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 9th day of December, A. D. 1897.

ALBERT F. PRESTON.

Witnesses:
A. D. HARRISON,
P. W. PEZZETTI.