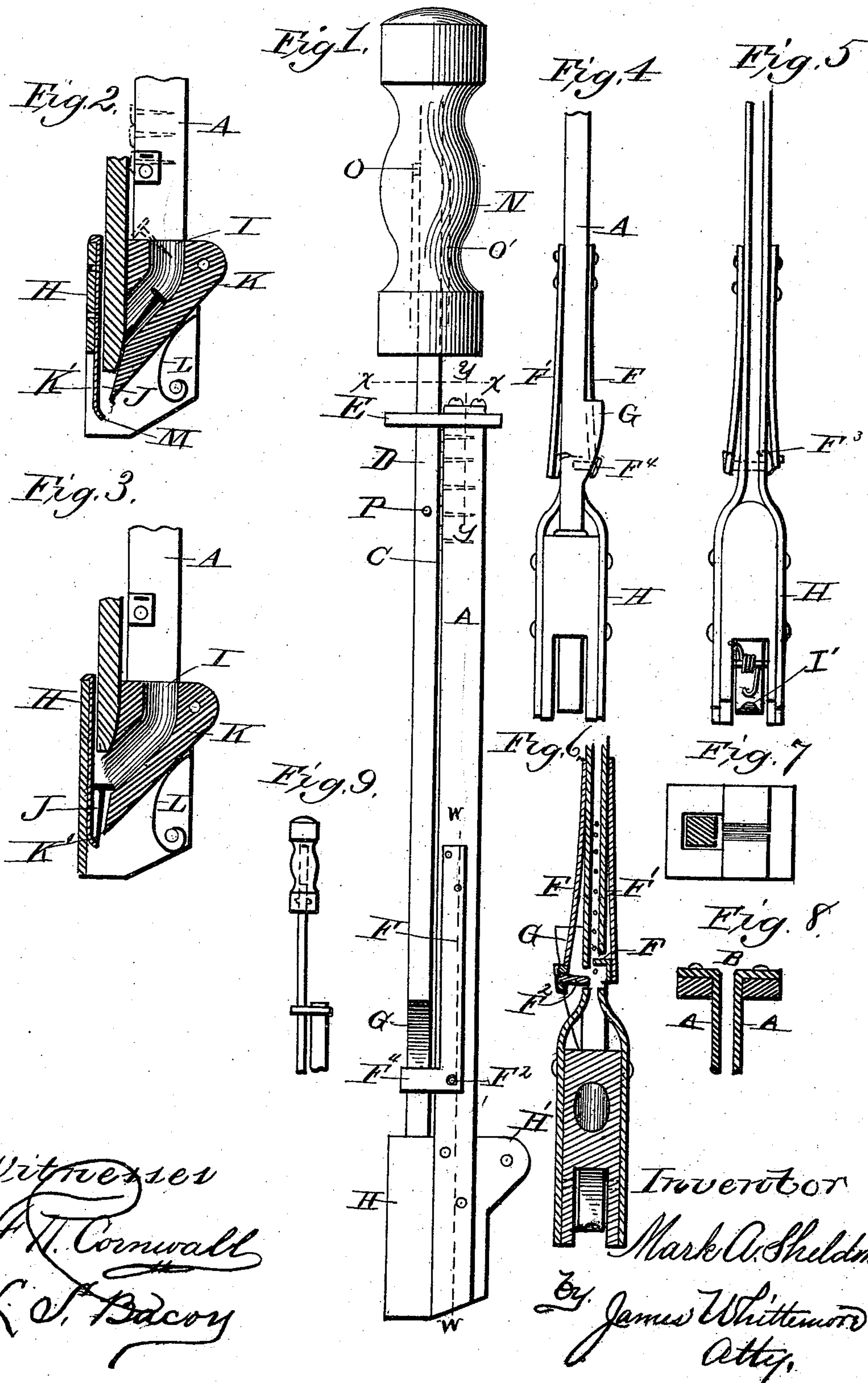


(No Model.)

M. A. SHELDON.
TACK DRIVING TOOL.

No. 438,865.

Patented Oct. 21, 1890.



Witnesses
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UNITED STATES PATENT OFFICE.

MARK A. SHELDON, OF DETROIT, MICHIGAN.

TACK-DRIVING TOOL.

SPECIFICATION forming part of Letters Patent No. 438,865, dated October 21, 1890.

Application filed December 31, 1889. Serial No. 335,515. (No model.)

To all whom it may concern:

Be it known that I, MARK A. SHELDON, a citizen of the United States, residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Tack-Driving Tools, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to new and useful improvements in tack-driving tools; and the invention consists in the peculiar construction of the frame forming the guides for the tacks to be fed to the driving-hammer; also, in the peculiar construction, arrangement, and combination of the various parts, all as more fully hereinafter described.

In the drawings which form a part of this specification, Figure 1 is an elevation. Figs. 2 and 3 are sections in planes to Fig. 1, and showing the device as in operation. Figs. 4 and 5 are end elevations. Fig. 6 is a cross-section on line *ww* in Fig. 1. Fig. 7 is a horizontal plan on line *xx*, Fig. 1. Fig. 8 is a cross-section on line *yy*. Fig. 9 is a diagram showing the operation of the hammer.

A A are two parallel bars forming a guide, between which the tacks are inserted in regular order through the aperture B at the top, with the heads engaging into the vertical slot C, formed between the bars A and the plunger-rod D, which can be vertically reciprocated in suitable guides E. These guides preferably form the means for securing the bars A in position at their upper ends.

To the sides of the bars A, near the lower ends thereof, are secured two springs F F', the former carrying the stop or pin F², which normally projects into the path of the tacks between the bars A and prevents them from sliding down any farther, while the other spring carries a stop F³, which is normally out of the path of the tacks, but is thrown into the path of the tacks when the other stop F² is withdrawn by the action of the wedge G on the plunger-bar, which wedge is adapted to act upon the arm F⁴ of the spring F when the plunger-bar is in its lowered position, as shown in Fig. 2, thereby withdrawing the stop F² and projecting the stop F³ into the space between the bars, the vertical distance between the two stops being such as to allow the lowest tack to fall, as shown in Fig. 6.

Below these stops the bars A are spread apart, forming an enlargement of the slot C, and have secured between them the device for up-
ending the tacks released by the stops to bring them into proper position to be driven. To this end a box H is secured between the bars A, provided with a shoulder H', arranged in the path of the guide or slot C, so that the head of the falling tack, after it is released by the stop F², will strike this shoulder, thereby causing it to assume an inclined position and falling into the aperture I, which is inclined toward the point. It will be seen that the head of the tack strikes the abutment, and the point will be naturally inclined downward in its passage through the aperture I. This aperture leads toward the plunger-bar, which is guided at its lower end through a suitable aperture in the box H beside the aperture I. As soon as the plunger-rod is lifted the tack will fall into the pocket J underneath the plunger-bar.

K is an inclined spring-bearing forming the bottom of the aperture I and cut away at I' to form the pocket J. This bearing K is hinged at its upper ends in suitable bearings in the box H, and its lower end is held in contact with the yielding wall K' on the other side of the box, which wall is preferably formed by a spring-plate secured in the box H, as shown in Fig. 2. The spring L acts to hold the bearing K normally in this position, with its head in the path of the plunger-bar, with its point resting on an inclined elbow or shoulder M of the spring-plate K', and held from displacement by the inclined bearing K.

The plunger-bar is adapted to enter its lower end the pocket J, and preferably consists of a single vertical bearing extending in its guides beside the bars A, having at its upper end the hammer N. This hammer is made in the form of a handle of heavy material, and can be drawn up until a pin O, which is secured through the plunger D and engages into a slot in the handle, strikes at the lower end of the slot, and thereby carries the plunger-bar up with it until a stop P on the latter strikes the guide-bearing E. At this point the hammer is raised to its highest position, and by forcing it down with a sudden movement it will acquire considerable momentum before it carries the plunger-bar down with it and delivers a blow upon the

head of the tack which is in the pocket J. If the tack is not entirely driven by the first blow, the plunger-bar D remaining stationary upon the head of the tack, the hammer may be
 5 lifted the length of the slot O' in the hammer and repeated blows struck upon the plunger-bar, thereby driving the tack. It is evident that this motion of the hammer upon the plunger-bar, as it does not move the plunger-
 10 bar itself except slightly downward when the blow is struck, will not actuate the tack-feeding mechanism.

The inner face of the cut-away portion I' of the inclined bearing K is preferably concave on its inner face to act in combination with the shape of the pocket J, which, it will be seen by the drawings, is wedge-shaped to center the tack, so that it will be driven straight. This is effected by the yielding action of the bearing K and the lip or shoulder M, which is also made slightly yielding, insuring a perfectly perpendicular path for the tack.

The nail-feed is operated by the wedge G on the bar D, which, as it descends, when the blow is given strikes the arm F⁴ of the spring F, and thereby withdraws the stop F², while at the same time the stop F³ is carried inward by the tension of the spring F', said springs
 25 being of different tension. The pin F², bearing against the spring F', holds the stop F³ normally out of the path of the tack until the stop F² is withdrawn, as above described. This allows the lowest tack to drop into the
 30 tack-holder, as before described, and the tack will fall into the pocket to be acted upon by the plunger-bar in the manner heretofore set forth.

It will be seen by reference to Fig. 9 that
 40 the plunger-rod moves in its vertical bearing opposite the end of the slot in the frame, the vertical bars of the frame, together with the plunger-rod, forming a T-shaped slot in which the tacks may freely slide. Any clog-
 45 ging of the tacks in this slot is prevented by the motion of the plunger-rod across their heads, and, while I do not desire to limit myself to this peculiar construction of frame in which the plunger-rod forms the bearing for
 50 the head of the tack, yet I consider it as the best construction for my tool.

The lower end of the plunger-rod I cut away on both sides, forming a wedge shape at the lower end, so that it may more readily enter
 55 the wedge-shaped pocket J in driving the tack. It is evident that the springs F F', acting reciprocally as they do, may be connected together, if desired, to obtain a more positive motion.

60 What I claim is—

1. In a tack-driving-tool, a frame consisting of two bars rigidly held apart and parallel with each other, forming a space between, and a plunger slidingly secured to the frame
 65 in front of said space and parallel to said bars to form an abutment for the heads of the tacks, substantially as described.

2. In a tack-driving tool, a frame consisting of vertical bars separated to form a guideway, having an open front and top for the in-
 70 sersion and reception of tacks, a reciprocating plunger parallel with the bars and working in front of said way to form an abutment for the heads and retaining-wall for the tacks, and reciprocating stops on the bars arranged
 75 to project into the way and operated by the plunger for feeding the tacks, substantially as described.

3. In a tack-driving tool, the combination, with the parallel bars forming a guideway
 80 and the plunger, of a spring-stop on the bars projecting into the guideway, a wedge on the plunger arranged to contact with the stop to force it out, and a stop opposite to and nor-
 85 mally held out of the guideway by the said other stop, substantially as described.

4. In a tack-driving tool, the combination of the frame having a vertical guideway formed therein, the reciprocally-operating
 90 stops having springs of different tension at the lower end of said guideway, the upending chamber below said stops, the shoulder H' in line with the head of the tacks, and the pivoted inclined chute I, substantially as de-
 95 scribed.

5. In a tack-driving tool, the combination, with the frame having a guide-slot formed therein, of the reciprocally-operating stops at
 100 the lower end thereof, the upending chamber below said stops, the shoulder H', the inclined chute I, the inclined spring-bearing K, and the yielding wall K', substantially as de-
 105 scribed.

6. In a tack-driving tool, the combination, with the feed mechanism and the vertically-
 105 reciprocating plunger, of the wedge-shaped pocket J, formed below said plunger by the yielding bearing K, and the spring-plate K', having the shoulder M, substantially as de-
 110 scribed.

7. In a tack-driving tool, the combination, with the feed mechanism, substantially as de-
 115 scribed, of the upending chamber, the inclined chute I, formed between the shoulder H and the inclined spring-bearing K, the cut-away portion I', the pocket J, the spring-plate K', the shoulder M, and the plunger-rod provided at its lower end with the inclined sides, sub-
 120 stantially as described.

8. In a tack-driving tool, the combination,
 120 with a frame having a guide-slot formed therein, the vertical reciprocating plunger-rod having the wedge G formed thereon, the spring F, carrying the stop F² and the arm F⁴, and the spring F', carrying the stop F³,
 125 substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses, this 26th day of December, 1889.

MARK A. SHELDON.

Witnesses:

M. B. O'DOHERTY,
 P. M. HULBERT.