(No Model.) 2 Sheets—Sheet 1.

E. L. TAFT & H. M. RICH.

HAND NAILING IMPLEMENT.

No. 329,686. Patented Nov. 3, 1885.

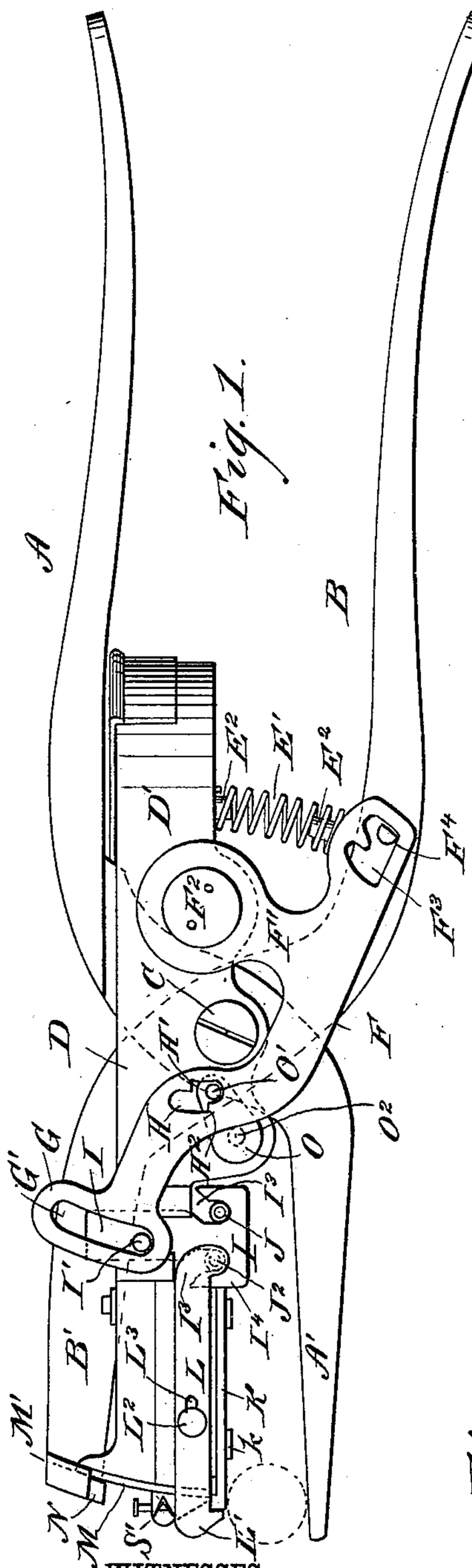

Fig. 1.

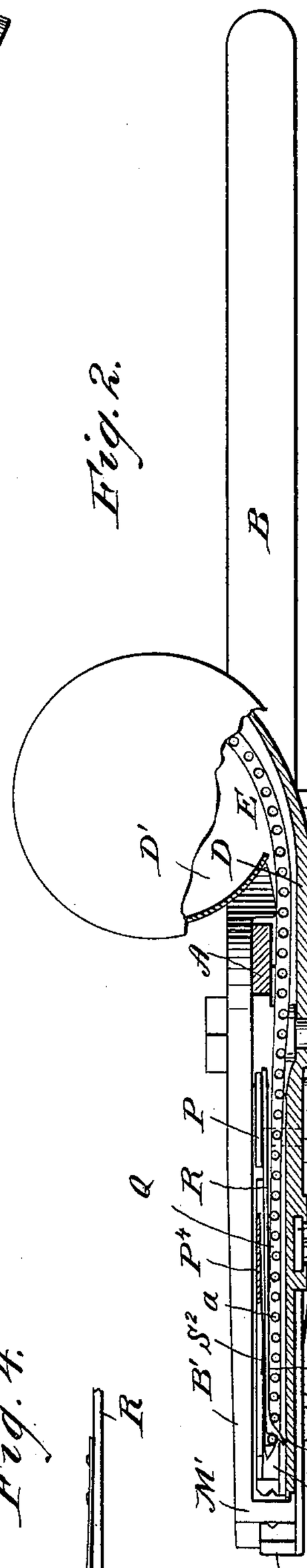

Fig. 2.

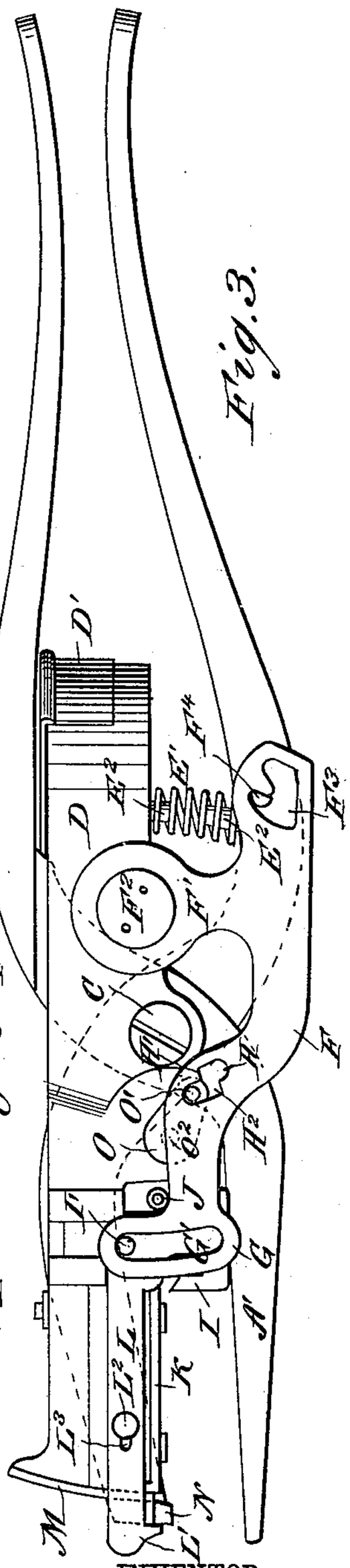

Fig. 3.

Fig. 4.

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Fig. 5.

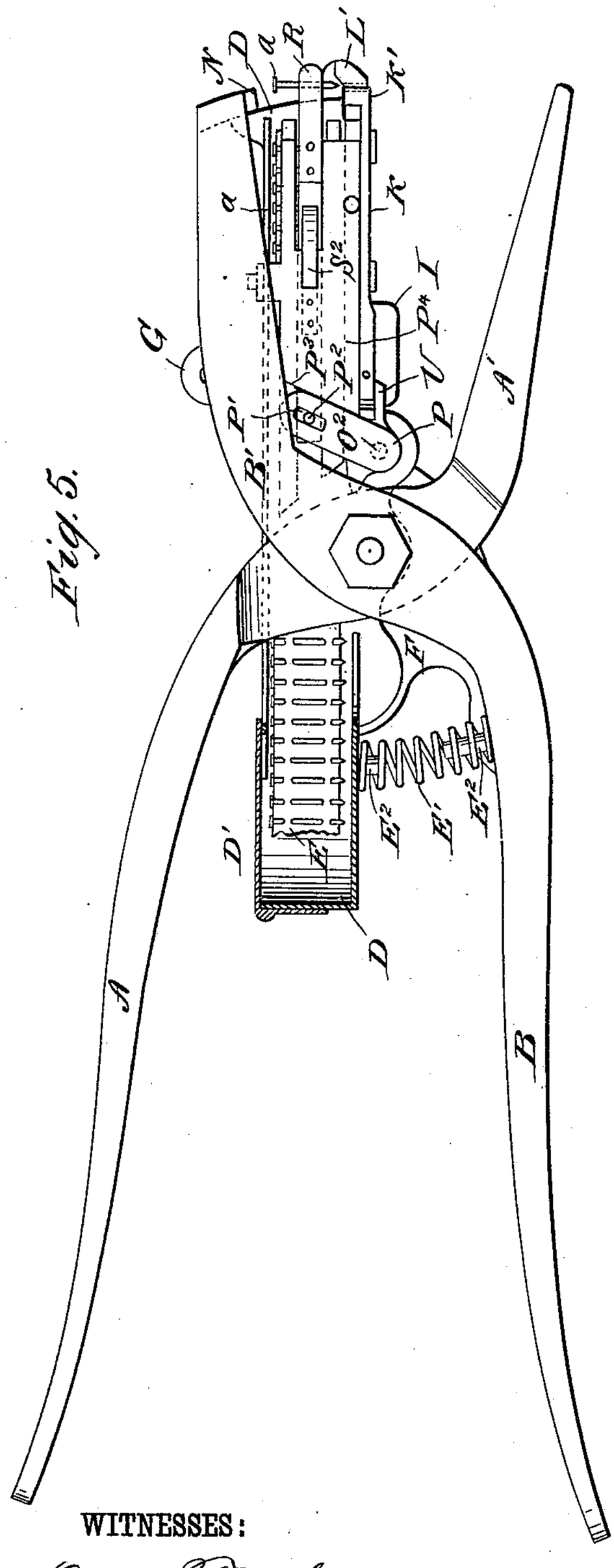


Fig. 6.

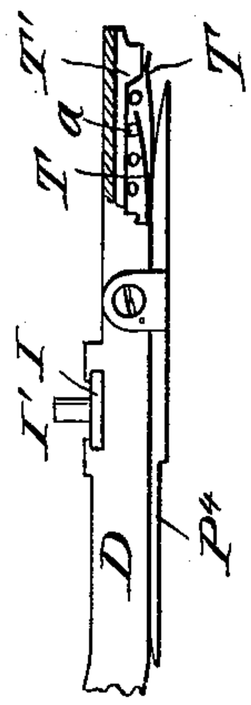


Fig. 8.

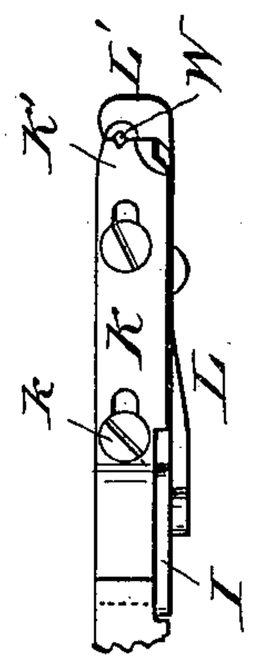
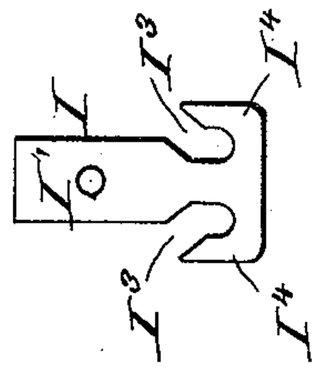


Fig. 7.



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UNITED STATES PATENT OFFICE.

EDWARD LOVELL TAFT, OF GARDNER, AND HENRY M. RICH, OF ATHOL, MASSACHUSETTS.

HAND NAILING IMPLEMENT.

SPECIFICATION forming part of Letters Patent No. 329,686, dated November 3, 1885.

Application filed June 4, 1885. Serial No. 167,686. (No model.)

To all whom it may concern:

Be it known that we, EDWARD L. TAFT, of Gardner, in the county of Worcester and State of Massachusetts, and HENRY M. RICH, of Athol, in the county of Worcester and State of Massachusetts, have invented a new and Improved Automatic Nailer, of which the following is a full, clear, and exact description.

The object of our invention is to provide a new and improved device for forcing nails through sticks or rods—such as rattan, reed, &c.

The invention consists in the construction of parts and details, as will be fully set forth hereinafter, and pointed out in the claims.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 is a side view of our improved nailer before the nail is driven. Fig. 2 is a plan view of the same, parts being broken out and others in section. Fig. 3 is a side view of the same after the nail has been driven. Fig. 4 is a plan view of the feeding device. Fig. 5 is a side view of our improved nailer, the jaws being spread to receive the rod. Fig. 6 is a plan view of the feeder and devices for carrying the nails. Fig. 7 is a side view of the sliding cam-piece. Fig. 8 is a bottom view of the nail-holding sockets.

Two levers, A and B, are pivoted together, and are provided with the jaws A′ and B′. On the pivot C is loosely mounted a bar, D, in such a manner that it can turn independently of either lever A or B. At the rear end of bar D, between the levers A B, a box, D′, for receiving the paper of nails E, is formed, which box has a suitable cover. A spring, E′, is held between the bottom of the box D′ and the lever B, pins E^2 projecting from the inner edge of the lever B and the bottom of the box D′ into the ends of the spiral spring E′. A lever, F, provided with a lug, F′, is pivoted to the side of the bar D, behind the pivot C, by means of a pivot, F^2, passed through the lug F′ into the bar D, so that the said lever F can turn on the pivot F^2. The lever F is provided at its rear end with an irregular U-shaped recess, F^3, into which a pin, F^4, projects from the outer side of the lever B. Near the middle the lever F is curved upward, and on its front end it is provided with the transverse piece G, in which a slightly-curved slot, G′, is formed, and at the bend the lever F is provided with an irregular L-shaped slot, H, having the two opposite shoulders H′ and H on opposite sides. In the outer surface of the bar D a cam-piece, I, is mounted to slide transversely to the width of said cam-piece I—that is, in the direction from one jaw to the other—which cam-piece I is shown on an enlarged scale in Fig. 7. A pin, I′, projects from the piece I through the slot G′ in the end of the lever F. On the lower end of the piece I a notch, I^3, is formed in each side edge, and forms an upwardly-projecting prong, I^4, at the lower end of each side edge of the piece I. A pin, J, carrying a roller, projects into the rear recess, I^3, of the cam-piece I, which pin is formed on the outer edge of a bar, K, held by pins or screws *k* to slide on the bottom edge of the bar D, and provided at its end with a half-socket, K′, for receiving the nail. The said bar K is provided with longitudinal slots, through which the screws *k* pass that hold it on the under side of the bar D. A bar, L, is held to slide on the outer side of the bar D by a screw, L^2, passed through a longitudinal slot, L^3, in the said bar L, and on the outer end of the said bar L a half-socket, L′, is formed, which fits against the half-socket K′, formed on the end of the bar K. A pin, J^2, on the inner end of the bar L, passes into the notch I^3 in the front edge of the cam-piece I. The front edge of the bar D has a curved rabbeted edge, M, which passes into a grooved lug or hook, M′, formed on the end of the jaw B′, the end of which jaw is provided with a projection or hammer-head, N, that drives the nails. The bottom socket-piece, L′, has its inner edge beveled, as shown in dotted lines in Fig. 1, so that when the hammer-head N strikes the said bevel it can force the said socket outward, as will be fully set forth hereinafter. Into the L-shaped slot H a pin, O′, projects from a crank, O, pivoted in a suitable recess in the outer side of the bar D, which crank O is on one end of a short shaft, O^2, passed through the bar D, and provided on the other end with

a crank, P, provided on its swinging end with a longitudinal slot, P′, into which a pin, P^2, passes. The said crank P slides in the recess P^3 in a plate, P^4, forming the covering of a longitudinal cavity or recess, Q, in the inner surface of the bar D. The above-mentioned pin P^2 is connected with the sliding feed-bar R, having a pointed head or prong, R′, formed on its free end, which head is provided with a shoulder, R^2, in its inner edge. The outer edge of the head R′ is inclined outward slightly. A spring-catch, S, provided with a hook-head, S′, which is forked as is shown in Fig. 4, is secured to the inner surface of the feed-bar R a short distance from the free end of the same. A spring, S^2, is secured on the plate P^4 and rests on the outer surface of the feed-bar R. Springs T, secured on the inner surface of the plate P^4, rest against the nails *a* on the nail-tape E in the cavity or recess Q in the bar D. A shoulder, T′, is formed in the inner side of the bar D at the front edge. The inner end of the bar K rests upon and is guided by a clip, U, formed on the bar D. The nail-holding sockets K′ and L′ are provided in their bottom edges with very small notches, forming an aperture, W, through which the nails can pass, as is shown in Fig. 8.

The operation is as follows: The jaws A′ B′ are separated, and the stick or rod through which the nail is to be driven is passed between the jaws, as is shown in dotted lines in Fig. 1, the nail being held between the feeding-bar R and the hook S′ on the end of the spring S on the said bar, the nail resting against the shoulder R^2 at the end of the feeding-bar. The point of the nail is directly over the aperture W, between the two half-sockets L′ and K′. The handle-levers A B are pressed together, and the hammer-head N on the jaw B′ is pressed on the head of the nail, whereby the nail is pressed downward. By pressing down the jaws the L-shaped slot H, acting on the pin O′, swings down the crank O, whereby the crank P is swung toward the rear of the device and pulls back the feeding-bar R. By this time a nail has been forced down, so that it can be held by jaws L′ K′. By pressing the handles together still farther the nail is forced into the wood, and by the time the head N passes down into the socket in which the nail is held the upper end of the slot G′ strikes the pin I′ and forces down the cam-piece I, so as to permit the head N to act on the bevel of the sockets, to force the bar L toward the front of the instrument, and the sliding bar K, on the bottom of bar D, is moved toward the rear. The levers are then pressed together until the nail has been driven entirely into the stick. When the handles A B are released, they are separated by the spring E′. the pin F^4 strikes the end of the slot F^3, and swings up the front end of the lever F, causing the bottom of the slot G′ to strike the pin I′, whereby the cam-plate I is pulled up, and the cam projections I^4, acting on the pin J^2 and the pin J, pull the bar L toward the rear and force the bar K forward, whereby the two socket-sections are brought in contact ready for a fresh nail. At the same time the bottom of the slot H, acting on the pin O′, swings up the crank O, whereby the crank P is swung down, and the slot P′, acting on the pin P^2, forces forward—that is, toward the front end of the instrument—the feed bar R, the hook-prong of which catches on one of the nails held on the nail-tape E and draws the entire tape forward, the nail being held, as above specified, by the hook of the feeding-bar and the hook S′ of the spring S. The springs T hold the tape from moving out too far, and the feeder-bar is projected beyond the end of the tape, whereby the nail held by the feeding-bar is separated from the tape, and the paper adhering to the said nail is torn off. The spring S^2 presses the feeding-bar against the tape. When the nail has been driven, the above-described operation is completed.

The device can be made in different sizes, according to the size of the nails to be driven.

Having thus fully described our invention, we claim as new and desire to secure by Letters Patent—

1. A pair of nail or pin driving pliers provided with an automatic nail-feeding device, substantially as described, which is operated automatically by the opening and closing movements of the pliers, one of the jaws or levers of the pliers only serving to drive the nail, and the other serving only as a rest against the rod or article through which the nail or pin is to be driven, as herein shown and described.

2. The combination, with a pair of nail or pin driving pliers, of a bar held on the same adjacent to one of the jaws or levers, and of a nail-feeding device, substantially as described, on said bar, operated automatically by the opening and closing of the pliers, as herein shown and described.

3. The combination, with a pair of nail or pin driving pliers, of a bar held on the jaws or levers of the same, a nail-feeding device, substantially as described, on said bar, and a lever for operating the nail-feeding device automatically from only one of the handle-levers of the pliers by the opening and closing movements of the handle-levers, as herein shown and described.

4. The combination, with a pair of pliers, of a bar held between the jaws to permit one jaw to pass by said bar, and a nail-feeding device held on said bar, substantially as herein shown and described.

5. The combination, with a pair of pliers, of a bar held on the same between the jaws to permit one jaw to pass by said bar, said jaw being provided at its outer end with a lug resting on the end of the bar, and of a nail-feeding device held on said bar, substantially as herein shown and described.

6. The combination, with a pair of pliers, of a bar held between the jaws, a nail-feeding device on the bar, and a nail-receptacle on the

rear end of the bar, substantially as herein shown and described.

7. The combination, with a pair of pliers, of a bar held on the same, a nail-feeding and a nail-holding device on the bar, a cam-plate on the bar for operating the nail-feeding device, and a lever pivoted on the bar and actuating the cam-piece, which lever is operated from one of the handle-levers of the pliers, substantially as herein shown and described.

8. The combination, with a pair of pliers, of a bar held on the same, two sliding bars on the above-mentioned bar, a cam for moving the sliding bars toward and from each other, a sliding nail-feeding bar, and a lever pivoted on the bar held on the pliers, which lever operates the sliding bars and the nail-feeding bar, and in turn is operated from one of the handle-levers, substantially as herein shown and described.

9. The combination, with a pair of pliers, of a bar held on the same, a sliding nail-feeding bar on the above-mentioned bar, a shaft pivoted in the said bar and having two cranks, one of which is connected with the sliding nail-feeding bar, and the other with a lever operated from one of the handle-levers, substantially as herein shown and described.

10. The combination, with a pair of pliers, of a bar held between the jaws, a sliding nail-feeding bar in said bar, a spring on the nail-feeding bar, and mechanism for operating the sliding nail-feeding bar from one of the handle-levers, substantially as herein shown and described.

11. The combination, with a pair of pliers, of a bar on the same, the sliding nail-feeding bar R on the above-mentioned bar, having a prong, R′, and shoulder R^2, a spring, S, secured on the nail-feeding bar and having a hook head, S′, and of the mechanism for operating the nail-feeding bar from one of the handle-levers, substantially as herein shown and described.

12. The combination, with a pair of pliers, of a bar held on the same, a sliding nail-feeding bar, R, having a prong, R′, the end of which is forked, and which prong is provided with a shoulder, R^2, the spring S, secured on the bar R, and having a head, S′, and of a lever for operating the nail-feeding bar from one of the handle-levers of the pliers, substantially as herein shown and described.

13. The combination, with a pair of pliers, of a bar held between the jaws, a sliding cam-plate having notches in the opposite sides at the bottom, and sliding bars on the above-mentioned bar held between the jaws, which sliding bars are provided at their inner ends with pins passed into cam-notches of the cam-plate, and a lever for operating the cam-plate from one of the handle-levers of the pliers, substantially as herein shown and described.

14. The combination, with a pair of pliers, of the bar D, held on the same, the sliding bar L, having the half-socket L′ on its end, the sliding bar K, having the half-socket K′ on its end, and a cam-plate and lever for operating the said sliding bars from one of the handle-bars of the pliers, substantially as herein shown and described.

15. The combination, with a pair of pliers having two jaws, one of which is provided on its bottom edge with a head, of the bar D, held on the pliers, the sliding nail-holding bars K L, a cam-plate for operating said bars, a sliding nail-feeding bar, and the lever F, for operating the nail-holding and the nail-feeding bars, substantially as herein shown and described.

16. The combination, with a pair of pliers, of a bar held on the same, a sliding nail feeding bar on the above-mentioned bar, springs for pressing a nail-tape against the feeding-bar, and mechanism for operating the nail-feeding bar from one of the handle-levers of the pliers, substantially as herein shown and described.

17. The combination, with a pair of pliers, of a bar held on the same between the jaws, a sliding nail-feeding bar on the above-mentioned bar, and a spring for pressing the nail-feeding bar against a tape of nails passed over the above-mentioned bar secured to the pliers, substantially as herein shown and described.

18. The combination, with a pair of pliers, of the bar D, the sliding nail-holding bars K L, the cam-plate I, the sliding nail-feeding bar R, the crank P, for operating the same, the crank O on the same shaft with the crank P, the pin O′, and the lever F, pivoted on the bar D and having a slot, through which a pin on the cam-plate I can pass, and a slot through which the pin on the end of the crank O passes, substantially as herein shown and described.

19. The combination, with a pair of pliers, of the bar D, nail-holding and nail-feeding mechanism on the said bar, and a lever, F, provided with a projection, F′, pivoted on the bar D, which lever F serves to operate the nail-holding and nail-feeding devices, and a pin projecting from one handle-lever into a slot in the lower end of the lever F, substantially as herein shown and described.

20. The combination, with a pair of pliers, of the bar D, nail-feeding and nail holding devices on the same, a lever for operating the said devices from one of the handle-levers, and the spring E′, interposed between one of the handle-levers and a tape-box formed on the inner end of the bar D, substantially as herein shown and described.

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HENRY M. RICH.

Witnesses:
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JULIAN P. DUNN.