No. 670,403. Patented Mar. 19, 1901.

A. HEBERT.

LASTING HAMMER.

(Application filed Apr. 4, 1900. Renewed Jan. 9, 1901.)

(No Model.) 2 Sheets—Sheet 1.

Fig. 3.

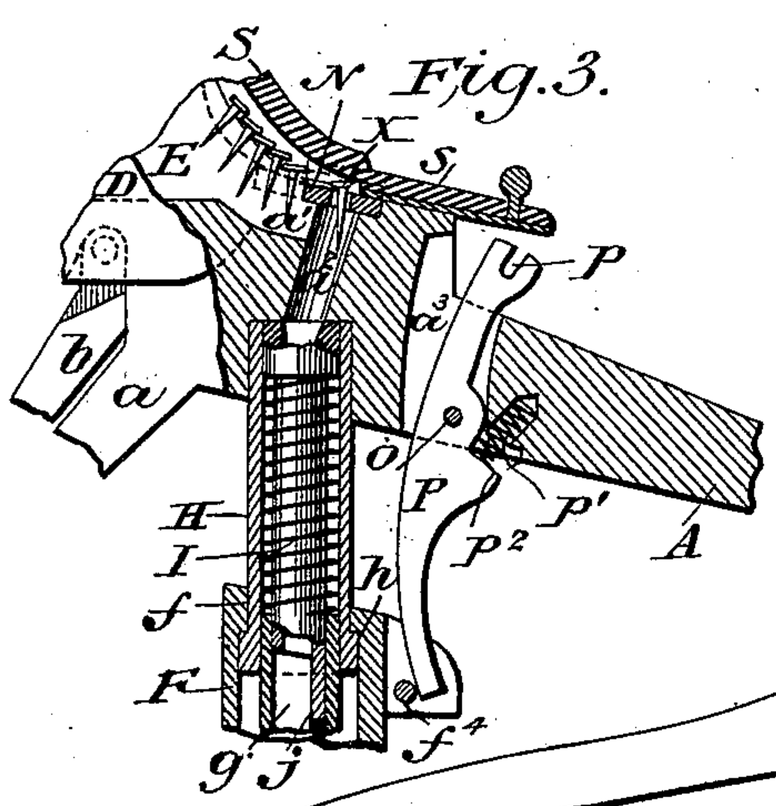
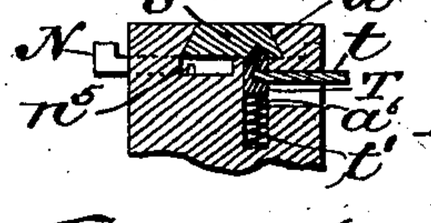


Fig. 1.

Fig. 2.

Fig. 22.

Fig. 21.



Witnesses:

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his attorney.

No. 670,403. Patented Mar. 19, 1901.

A. HEBERT.

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(No Model.) 2 Sheets—Sheet 2.

Fig. 4.

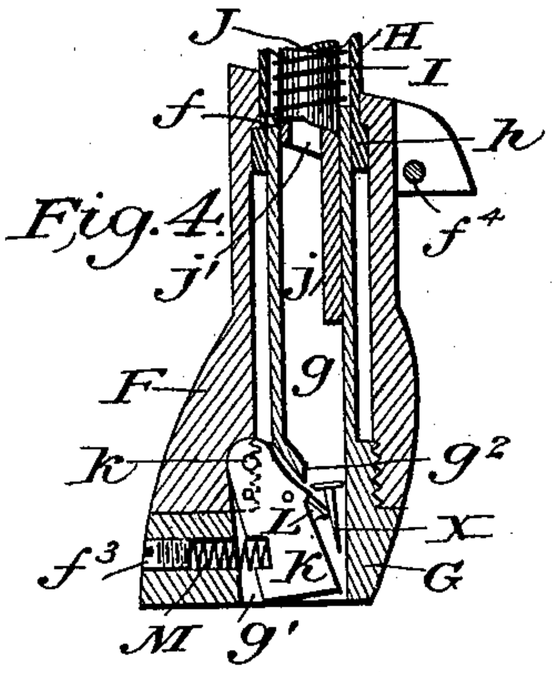

Fig. 5.

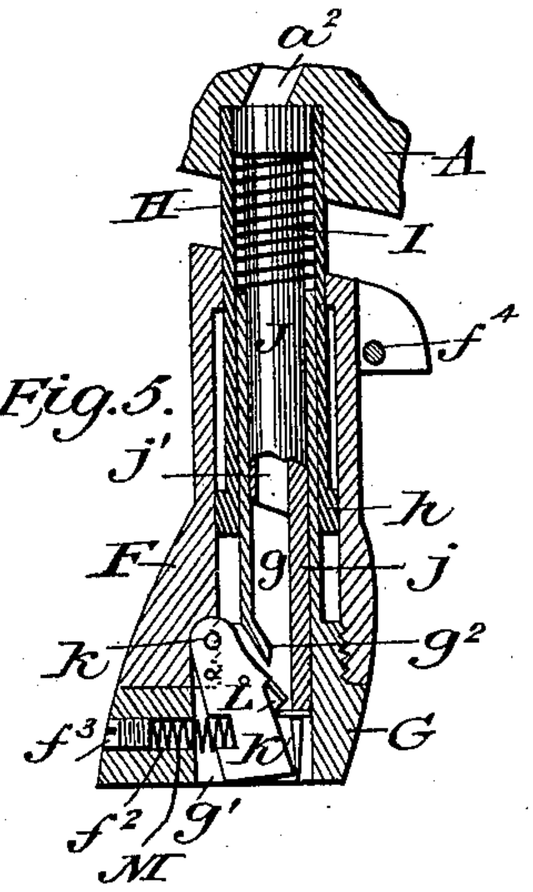

Fig. 6.

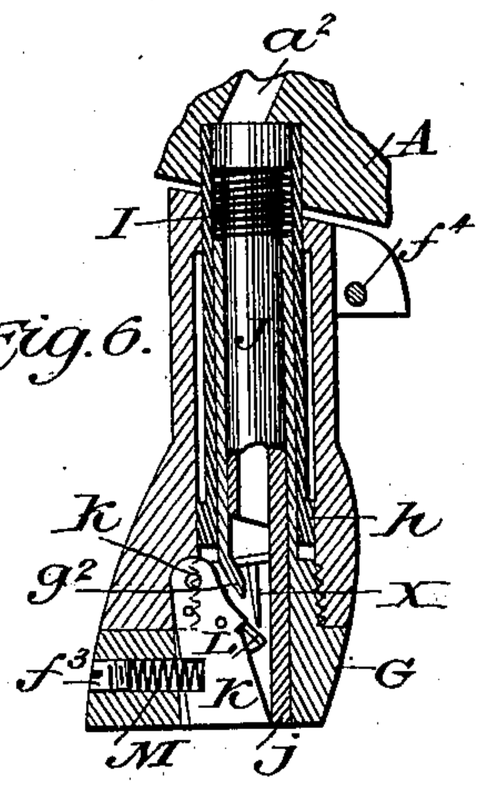

Fig. 8.

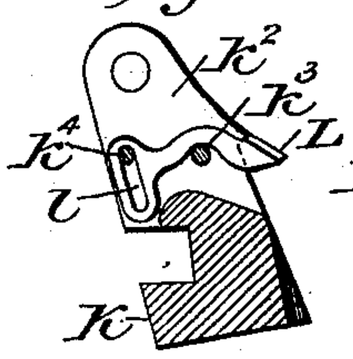

Fig. 9.

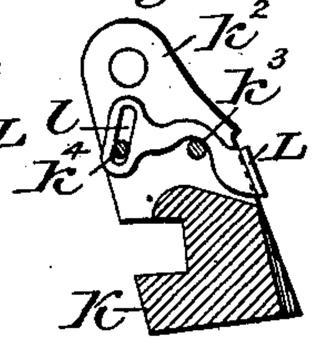

Fig. 7.

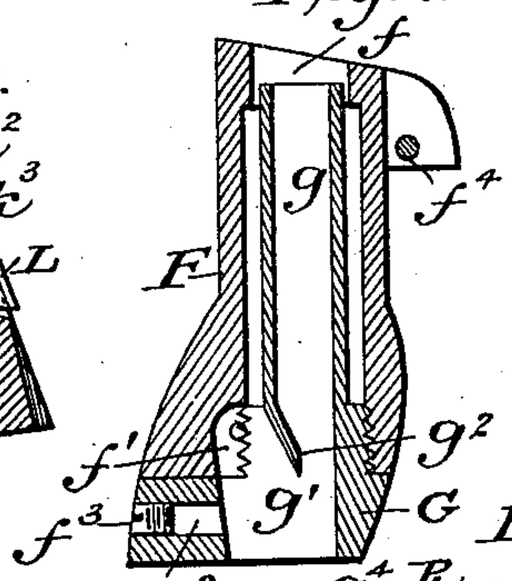

Fig. 10.

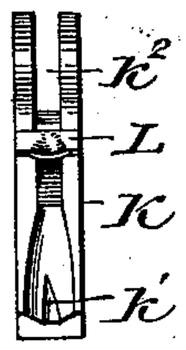

Fig. 11.

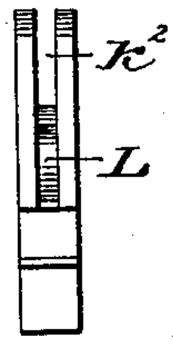

Fig. 12.

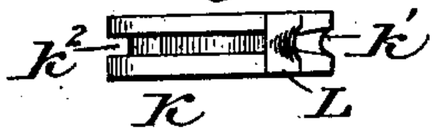

Fig. 13.

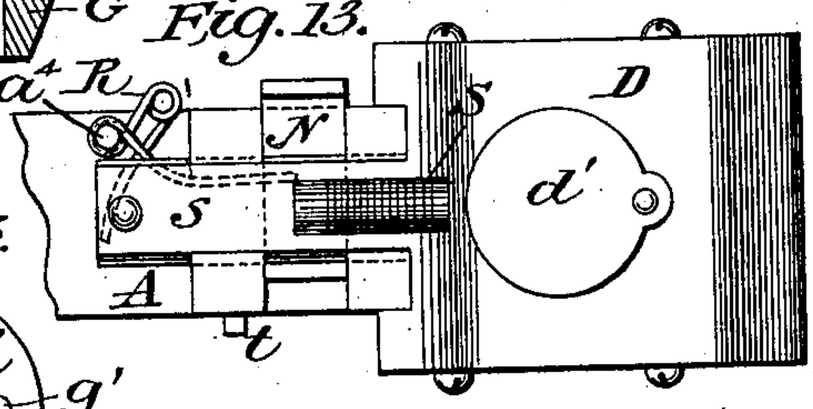

Fig. 15.

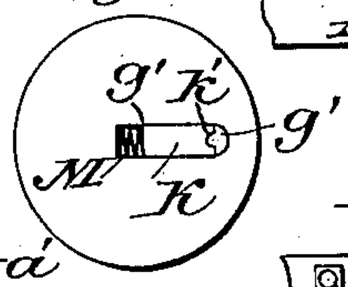

Fig. 16.

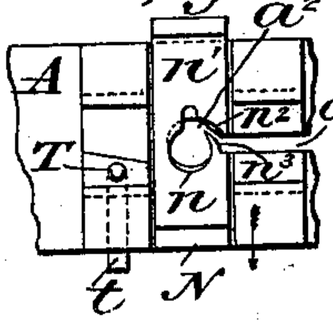

Fig. 17.

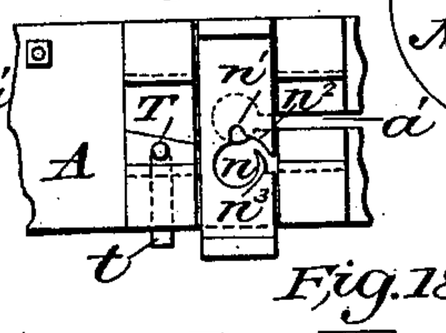

Fig. 14.

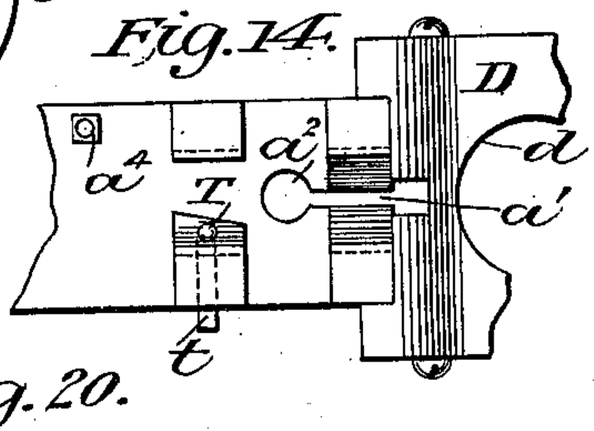

Fig. 18.

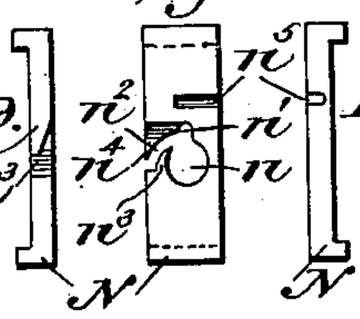

Fig. 19.

Fig. 20.

Witnesses:

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Inventor:

Arsene Hebert

By J. B. Thurston

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UNITED STATES PATENT OFFICE.

ARSENE HEBERT, OF MANCHESTER, NEW HAMPSHIRE, ASSIGNOR TO THE EUREKA SHOE COMPANY, OF SAME PLACE.

LASTING-HAMMER.

SPECIFICATION forming part of Letters Patent No. 670,403, dated March 19, 1901.

Application filed April 4, 1900. Renewed January 9, 1901. Serial No. 42,659. (No model.)

To all whom it may concern:

Be it known that I, ARSENE HEBERT, residing at Manchester, in the county of Hillsboro and State of New Hampshire, have invented certain new and useful Improvements in Lasting-Hammers; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to magazine tack-hammers, and especially to mechanism for the proper conveyance of tacks from a contiguous magazine to a position underneath a striker or plunger; and it consists of improved details of construction making it possible for a single tack to be deposited with certainty and regularity under a plunger and to be retained in such position until said plunger is brought down upon it, as will be fully set forth in the following specification and claims and clearly illustrated in the drawings accompanying and forming a part of the same, of which—

Figure 1 is a broken elevation showing one side of my improved tool complete. Fig. 2 is a broken elevation showing the reverse side of the same. Fig. 3 is a broken longitudinal sectional view showing some details of construction. Fig. 4 is a detailed vertical section of my improved hollow hammer, showing a tack within it and in the act of being dropped to a position to be struck by the plunger. Fig. 5 is a similar view showing a tack which has reached its limit of gravity movement with the plunger following closely upon it. Fig. 6 is a similar view showing the plunger in the position it has assumed after having forced the tack out of the hollow hammer. Fig. 7 is a detached vertical section of the hollow hammer. Fig. 8 is an enlarged vertical section of a spring-actuated stop-block containing my improved trip-lever, the latter being seen in its normal position. Fig. 9 is a similar view showing the trip-lever in the position to which it is forced by the passage of a tack. Figs. 10 and 11 are elevations, respectively, of the front and back edge of said spring-actuated stop-block. Fig. 12 is a plan view of the same. Fig. 13 is a broken plan view showing that end of my improved tool which carries the tack-magazine and also the connecting mechanism. Fig. 14 is a similar view with the operative mechanism removed. Fig. 15 is an inverted plan view of the hammer, showing my improved spring-actuated stop-block for partially closing the tack-outlet. Fig. 16 is a plan of that portion of my tool shown in Fig. 14, and having my improved tack-separator in position to receive a tack. Fig. 17 is a similar view showing the tack-separator after having moved to a position to close the tack-race. Fig. 18 is an inverted plan view of my improved tack-separator, Figs. 19 and 20 being reverse edge views of the same. Fig. 21 is a cross-section showing a detail. Fig. 22 is a cross-section of the tack-magazine, showing the tack-collector which starts the tacks down the raceway.

Similar reference-letters designate corresponding parts throughout the various views.

Although my improved hammer might be readily adapted for use as such and entirely independent of a pair of pliers, still as a shoe-lasting tool it is far more useful when applied to a pair of pliers, and those shown in the present drawings are very similar to those illustrated in my United States Patent No. 620,650, dated March 7, 1899; but the vital points of the tack-driving mechanism are changed and improved in very important details, as will be hereinafter shown.

Referring to the drawings, A denotes the stationary member of my improved tool, which has a jaw *a*.

B is the movable member. *b* is a movable jaw pivoted to the stationary member A, and C is a bar which is pivotally connected at b' to said movable member B and at b^2 to said movable jaw *b*, thus making the said jaw *b* and part B move in unison.

A tack-magazine D is secured to the part A forward of the jaws *a b* and has an opening *d* at its top, provided with a swiveled cover *d'*. The tacks X are conducted from said magazine to the hollow hammer by means of a race-way, consisting of a pair of vertical plates E, having sufficient space between them to receive the tacks, the heads of which rest upon the curved tops of said plates, and flaring extensions *e e* are formed at the upper

edge and at one end of said plates, extending thence at an angle to the adjacent sides of the magazine for a portion of its length, as seen in Figs. 1 and 22. The movement of the hammer while in the hand of an operator collects the tacks upon the inclined extensions *e e* and feeds them point first into said raceway E, whence they pass down and into a groove *a'* in the part A for delivery to the hammer. The groove *a'* is not wide enough to admit the head of a tack, but it leads to an opening or tack-passage a^2, through which the tacks may drop into the hollow hammer.

The hollow hammer is composed of two parts F and G, a portion of the latter fitting within and threaded or otherwise rigidly secured to the former, as seen best in Fig. 7. The bore of the part F is slightly contracted at its top, thus forming the shoulder *f*, and through this reduced diameter is inserted a tube or shell H, the lower end of which is enlarged, as at *h*, to fit the bore of the part F, and the upper end of said tube H should be rigidly attached to the part A of the tool at a point to connect with the tack-passage a^2, as seen in Figs. 3, 5, and 6. The part G has a hollow cylindrical housing *g*, adapted to fit within the tube H and to bear upward against a helical spring I, mounted within said tube H and surrounding the hollow tack-conductor J, the latter fitting the interior of the part *g* and being rigidly secured at its top to said tube H in any convenient manner.

Projecting from one side of the bottom of the conductor J is a plunger *j*, which forces a tack into a last when an operator strikes a last with a hammer.

The opening *j'* of the tack-conductor J is substantially cylindrical, and likewise is the opening in the part *g* as far down as might be reached by the limited movement of the conductor J, where said opening terminates in an elongated opening *g'*, through one end of which the plunger *j* passes. The other portion of said opening *g'* accommodates the spring-actuated nose-stop, which consists of a block substantially of the form shown and pivotally attached near its top to the hammer by means of a pin *k*, which may enter the hammer at a point to also pass through or cut into the part G, as shown in the drawings, thus preventing any rotary movement of the part G within the part F, which is recessed, as at *f'*, to receive a portion of said nose-stop K.

It will be observed that the opening *g'* is at one side of the tack-passage in the housing *g*. This offset in the lower portion of the housing enables a tack to rest at one side of the opening *g'*, while the plunger fills that portion of the said opening not occupied by the spring-actuated nose-stop and prevents the passage of the tack to the nose of the hammer. The said spring-actuated nose-stop K is recessed vertically, as at *k'*, in that edge which is adjacent to the plunger *j*, and its upper portion is recessed, as at k^2, to receive a back-stop, consisting of a trip-lever L, which, taken in connection with my improved tack-separator, to be hereinafter described, form the important features of this invention. By the aid of this back-stop L the placing of each tack and holding the same in a position to be driven by the plunger *j* is made positive and certain. This feature of my invention is best shown in Figs. 8 and 9, which are enlarged for their better illustration. In Fig. 8 the trip-lever is shown in its normal position; but it must be closed down against the block or nose-stop K, as seen in Fig. 9, before the head of a tack can pass it. The weight and momentum of a tack is sufficient to accomplish this, and the moment a tack has passed it the trip-lever or back-stop automatically returns to its normal position, and at such time the point of a tack will protrude slightly below the hammer, with its head resting underneath said back-stop, ready to be struck by the plunger, as seen in Fig. 5. In Fig. 4 a tack is shown as if in a position to fall upon the back-stop, and continuing its descent the tack will assume the position seen in Fig. 5 even before the plunger has commenced its downward movement, the back-stop thus preventing the tack from chasing up and down within the passage *j'* of the conductor J and retaining it in proper position for the descent of said plunger, which causes the head of a tack X to move the nose-stop K sufficiently to permit the tack to pass into a last, said nose-stop being automatically returned to its normal position by means of the spring M, housed in the threaded perforation f^2, where it is retained by a screw f^3.

The back-stop L is necessarily of delicate construction, but readily and perfectly meets every requirement. It rests and is partially balanced upon a pin k^3, while its inner end is made capable of a limited vertical movement by reason of its elongated opening *l*, through which is passed the pin k^4.

The spring-actuated block K constitutes the nose-stop of the tool and prevents the escape of a tack outward except under the compelling stroke of the plunger, which drives the tack and moves the nose-stop K to one side. The trip-lever L constitutes a back-stop for the tack and prevents its accidental retirement into the channels of the tool. The nose-stop K and back-stop L have between them a space equal substantially to one tack length and together retain the tack in proper position for driving. The tack tends to retire into the channels of the tool whenever the workman reverses the movement of the tool in striking a blow, the inertia of the tack causing it to leave the nose-stop, or whenever the workman lays the tool down, causing it to tip sidewise or even completely over. Under these the trip-lever or back-stop L operates to keep the tack in position for driving. The back-stop, therefore, is so mounted in the nose of the tool that the same movement which tends to jerk a tack away from the nose-stop

also causes the back-stop to jump out into the tack-passage over the head of the tack. The loose mounting of the trip-lever accomplishes this result.

There were defects in my invention as disclosed in my former patent before mentioned; but they are entirely cured by my improved construction. For instance, the motion of a hammer in the hand of an operator was liable to displace a tack before it had been struck by the plunger, and hence the passage, which was intended for but one tack, would sometimes become choked up with tacks and cause a delay while clearing them out. The separator at the top of the hammer was also liable at times to give very poor satisfaction, as it would let more than one tack into the tack-passage in the hammer, for the reason that no means was provided whereby said separator could hold a tack and prevent it from dropping prematurely into the hollow hammer; but in the present invention the separator or feeder is adapted to carry and retain the body of a tack while it moves from the mouth of the curved passage n^2 through the same and through the slot or longitudinal passage n'. No upward or downward movement of the hammer, however rapid or jerky it may be, (as when in the hand of an operator,) will cause said tack to be dislodged. Hence neither the tack-conductor nor tack-passage in the hammer can become choked with tacks.

The main difficulty in constructing a hand magazine tacking-tool lies in overcoming the results of the swinging motion up and down, which must be imparted to a hand-hammer of any description between the blows to be struck, this fact alone making it more difficult to construct a perfectly operative hammer of this character than a power-machine for feeding and driving tacks, the tacks in such a machine not being constantly thrown around, the hammer or driver moving independently no such feeder or separator as I have devised and illustrated in the present drawings being required.

In lasting a shoe the operator stretches or draws the leather where it should be by aid of the pliers and then holds it there with his fingers while he drives a tack, and sometimes the tack requires to be stuck so close to his fingers that in striking a good blow with my improved hammer (which would drive a tack clear in without a second blow) he would be liable to strike his fingers. Hence it is desirable to stick a tack under such circumstances only part way in or sufficiently to permit the operator to remove his fingers, when the tack could be driven home without endangering his fingers. This can be done when using my improved hammer by reason of a peculiarity of its construction, which will be shortly explained; but it could not be done when using a hammer made in accordance with my former patent without a second tack being necessarily driven at the same time.

Figs. 16, 17, 18, 19, and 20 clearly illustrate my improved tack separator and feeder N, which is so constructed relative to the tack-passage a^2 that it will receive and separate a single tack from those which may be in the raceway and groove a' and carry the same into the tack-passage a^2, as follows: The feeder N has a perforation n, which is large enough to admit the head of a tack, and in one edge of this perforation is formed a slot n', running in the direction of the length of said feeder, and said slot is connected with one edge of the feeder by a curved passage n^2, leading from a point close to the mouth of said slot to a point opposite, or thereabout, to the center of said perforation, so that the mouth of said curved passage may register with the passage a'. Thus by reference to Fig. 16 it will be seen that a curved neck n^3 is formed by the inner wall of the curved passage n^2, which presents an obstruction to the entrance of a tack, which when resting against said obstruction is still within the groove a'; but by the quick movement of said feeder in the direction of the arrow (seen in Fig. 16) the tack is separated from the others by the horn n^4 and is forced through said passage n^2, lodging in the end of the slot n', and by the return movement of the feeder, by reason of its contact with the side of the vertical passage a^2, said tack falls into the perforation n of the feeder, whence it drops through the passage a^2 and conductor J, lodging in the cylinder g in the position seen in Fig. 6. It may be here mentioned that the moment said tack has dropped through said perforation n of the feeder N another tack has lodged in the edge of said feeder against the curved neck n^3.

By reference to Fig. 6 it will be seen that the lower end or outlet of the cylinder g is so reduced, as at g^2, that a tack cannot pass thence and lodge against the trip-lever L until the plunger j has risen above the head of said tack.

The feeder N is moved in one direction by the upward motion of the hammer and in the other or opposite direction by the downward motion of said hammer in the following manner: The levers P Q are fulcrumed side by side within an opening a^3, formed in the part A, upon a pin O, the lever P extending clear through said opening and having in its top a slot p, the lower end of both levers P Q forming side contact with a pin f^4, which is passed through two ears formed upon the upper part of the part F of the hammer, the lower portions of the levers resting between said ears, each of said levers being held normally in contact with said pin f^4 by suitable springs, respectively p' q', disposed within recesses formed in the part A and operating expansively against shoulders, respectively p^2 q^2, of said levers, and a suitable spring R is formed and mounted at a^4 in a manner to connect the lever P with said feeder N, one end of said spring resting in the slot p of the lever and

the other resting in the groove n^5, formed in the bottom of said feeder, this spring R being shown in Figs. 1, 2, and 13. The spring connection between the lever P and separator-slide N is quick-acting and useful in preventing any clogging of the separator, when, instead of being strained or broken by the violent blow imparted from the hammer-head, the tack-feeding parts remain stationary, the movement of the lever P being taken up by the spring R.

The lever Q is provided with two notches q q^3, adapted to engage the pin f^4 of the hammer and from which it may be released by the finger of an operator. The spring I, acting upon the top of the cylindrical projection g, keeps the hammer normally extended, while the notch q of the lever Q by engagement with the pin f^4 of the hammer will maintain the same in an elevated position, so that it may be used as an ordinary hammer, and the notch q^3 is of use only under the circumstances before mentioned—viz., when it is desired to stick a tack just far enough into a last to hold the leather while an operator may get his fingers out of the way, so that he may strike a heavy blow and drive a tack home without depositing a second tack, and a tack may be thus struck where desired by striking a light blow with the hammer or by pressing the hammer on the work until the said notch q^3 engages the pin f^4, as preferred.

S is a curved cap for that portion of the tack-race E which extends outside the magazine D, and said cap S is rigidly connected to a plate s, fitting a dovetailed groove a^5, formed in the part A, said plate s also serving to hold the feeder N in proper position, and in case it should be necessary to remove said cap S quickly the plate s is provided in its under surface with a slight indenture, which engages the projecting end of a spring-catch consisting of the stud T, resting within a perforation a^6 and containing a spring t', said stud being pressed down for disengagement from said plate s by means of an arm t, passed through an opening in one side of the part A, in which opening said arm has a limited vertical movement, as seen in Figs. 1 and 21.

Having described my improvements, what I claim is—

1. In a hand magazine tacking-tool, a hollow telescoping hammer, a spring-actuated lever operated abnormally by the movement of said hammer, a tack-raceway, a reciprocal tack separator and feeder adapted to simultaneously receive and deliver a tack, a suitable connection between said lever and separator, and means for preventing the dislodgment of a tack during its passage from the point of reception to the point of delivery within said separator.

2. In a hand magazine tacking-tool, a hollow telescoping hammer spring-actuated in one direction, a spring-actuated lever operated abnormally by the movement of said hammer, a tack-raceway, a reciprocal tack separator and feeder having a curved tack-passage extending from one side of said feeder to a longitudinal passage in the center thereof, said longitudinal passage terminating in a perforation through which a tack may drop, a suitable connection between said lever and separator, and means for preventing a tack from leaving said feeder while passing through its curved and longitudinal passages.

3. In a hand magazine tacking-tool, a hollow telescoping hammer, a spring-actuated lever operated abnormally by the movement of said hammer, a tack-raceway, a reciprocal tack-separator and feeder adapted to move to and fro in front of the tack-raceway and to receive a tack at one edge while simultaneously discharging one through a perforation in its center, a suitable connection between said lever and separator, a cap for said raceway terminating in a plate covering the separator, and means for preventing the return of a tack to the raceway by any movement of said tool in the hand of an operator.

4. A tool of the character described having a hollow hammer for the reception of tacks, a suitable plunger therein, a spring-actuated stop-block at the bottom of said hammer adapted to be moved by and for the passage of said plunger and a tack, and an automatic trip-lever for maintaining a tack in the line of said plunger.

5. In a tool of the character described, a telescoping hammer spring-actuated in one direction and having perforated ears located near its top, a pin rigidly fastened in said perforations, and a spring-actuated trigger or lever provided with two notches for engaging said pin and sustaining said hammer at different elevations, substantially for the purpose set forth.

6. In a tool of the character described, a telescoping hammer spring-actuated in one direction, a spring-actuated trigger or lever provided with two notches, and means on the hammer with which either notch of the lever will engage, whereby said hammer may be sustained at different elevations.

7. A tool of the character described having a tack-magazine attached thereto, a raceway leading therefrom to a tack-conductor, said conductor and a plunger or tack-driver attached to one side thereof, a hollow hammer spring-actuated in one direction, a cylindrical housing within the hammer through which said tack conductor and driver moves and having an offset in its lower portion for preventing the delivery of a tack while the driver is down, a spring-actuated nose-stop pivoted in the lower part of said hammer, and a back-stop within said nose-stop, all substantially for the purpose set forth.

8. In a hand magazine tacking-tool, a hollow telescoping hammer through which the tacks pass to the work, means within said hammer for preventing the upward movement of a tack after having reached the bottom thereof, a tack-raceway, a spring-actuated le-

ver operated abnormally by the movement of said hammer, a reciprocal tack separator and feeder, a suitable connection between said lever and feeder for operating the latter, and means for preventing a tack from leaving said separator except downward into said hammer.

9. The combination in a hand magazine tack-hammer of a plunger, a hollow hammer-head having a channel for the reception of tacks, a spring-actuated stop at the nose of the hammer-head adapted to be moved by and for the passage of the plunger, and a back-stop loosely hung at one side of and movable across the tack-channel in said hammer-head, space in the tack-channel sufficient for a tack being provided between the back-stop and the nose-stop.

10. In a hand magazine tack-hammer, the combination of a hollow hammer-head having a tack-passage therein, a plunger within the hammer-head, a spring-controlled stop in the nose of the hammer-head normally closing the tack-passage, said nose-stop adapted to yield to the tack-driving stroke of the plunger, and a back-stop above the nose-stop located substantially one tack length from said nose-stop, said back-stop being loosely mounted so as to yield to the downward movement of a tack on its way to the nose-stop.

In testimony whereof I affix my signature in presence of two witnesses.

ARSENE HEBERT.

Witnesses:
J. B. THURSTON,
D. A. TAGGART.