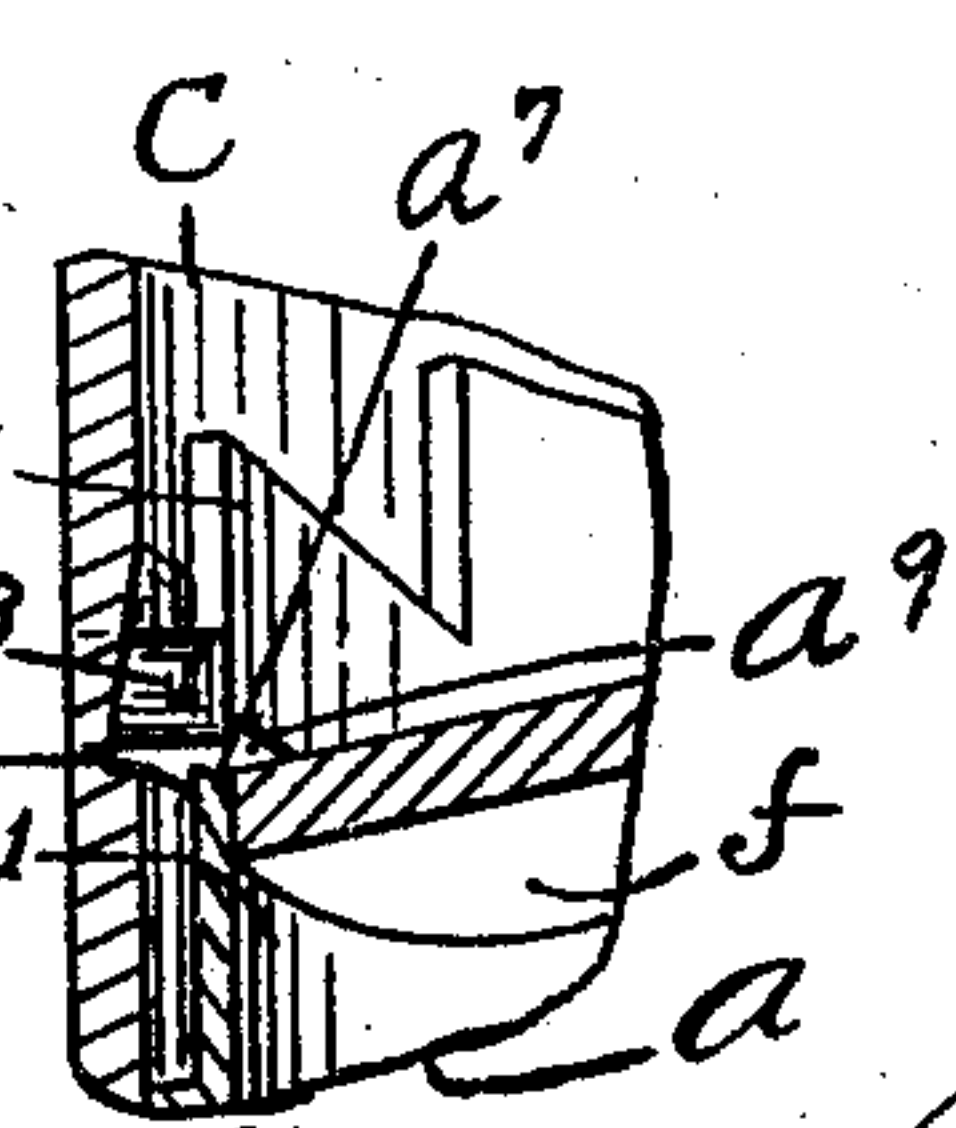
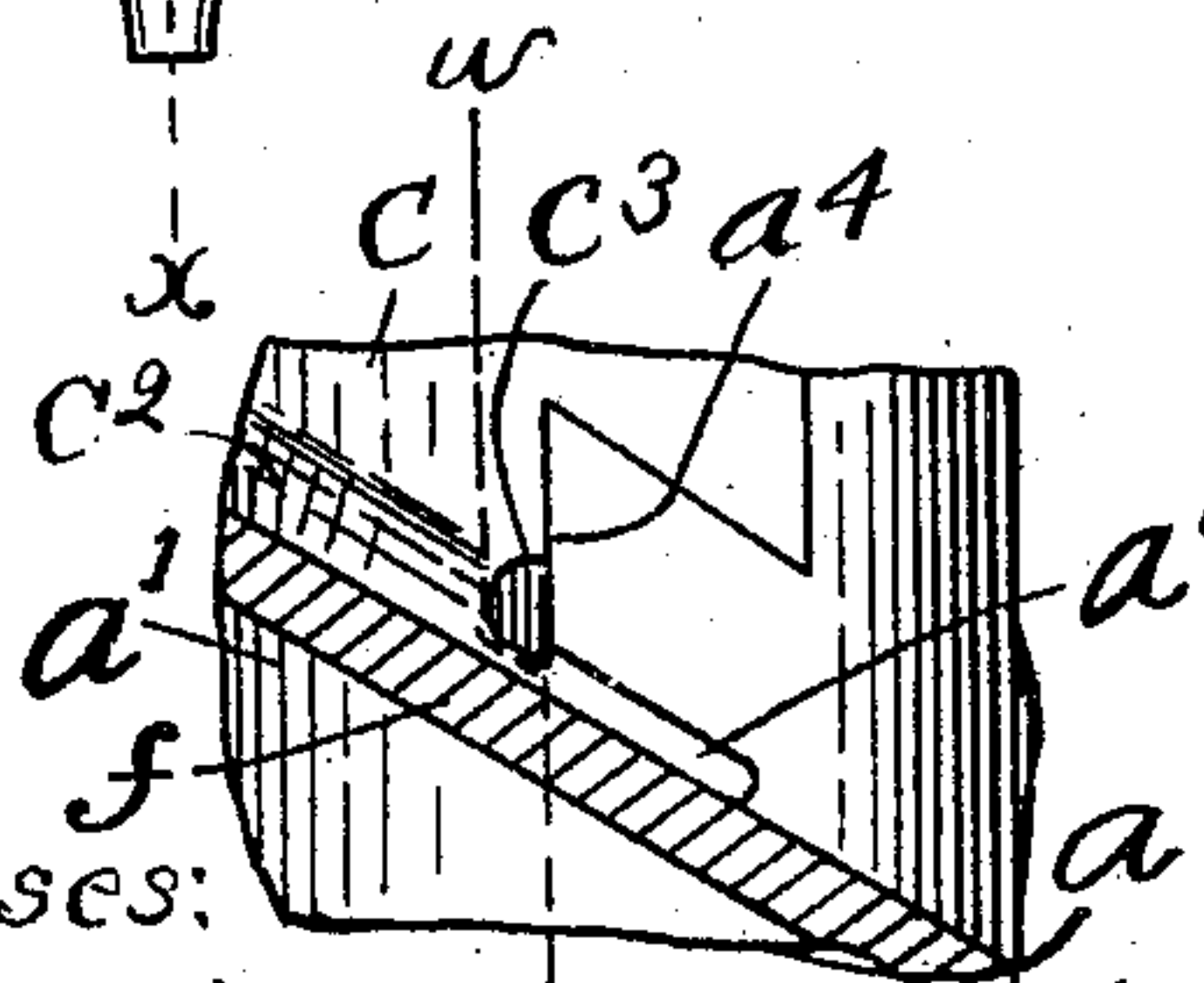
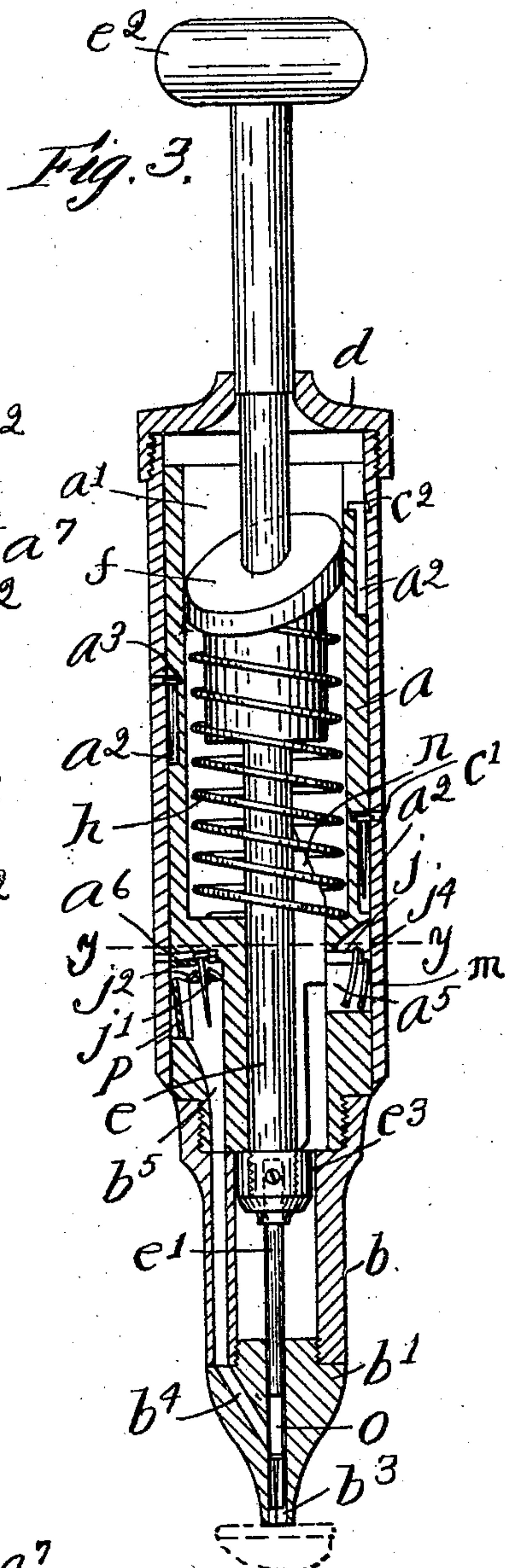
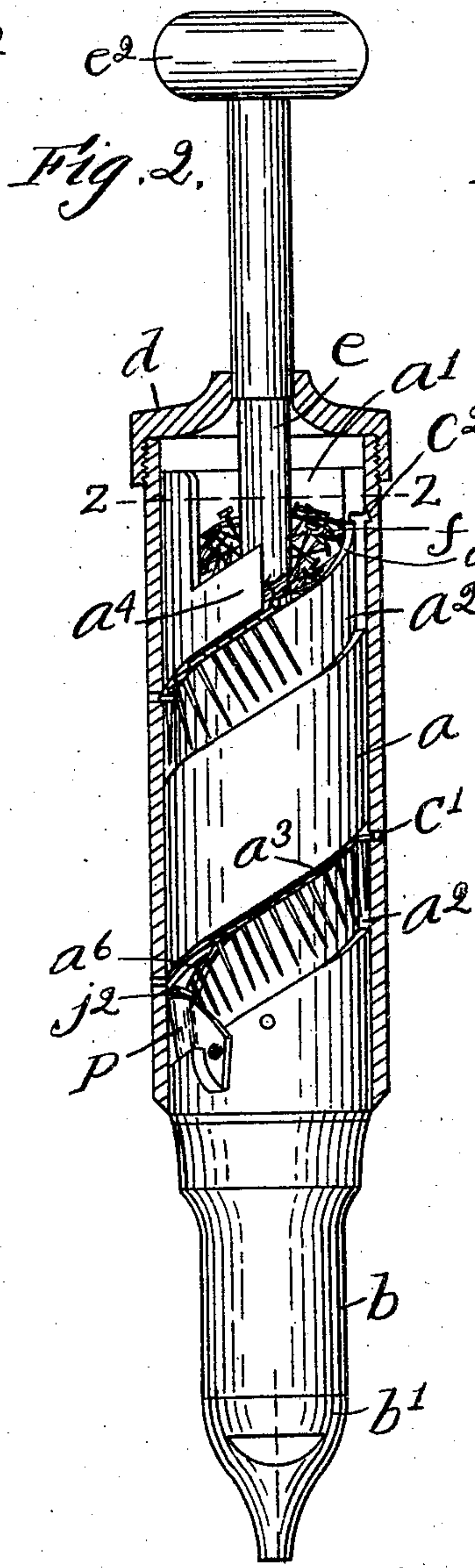
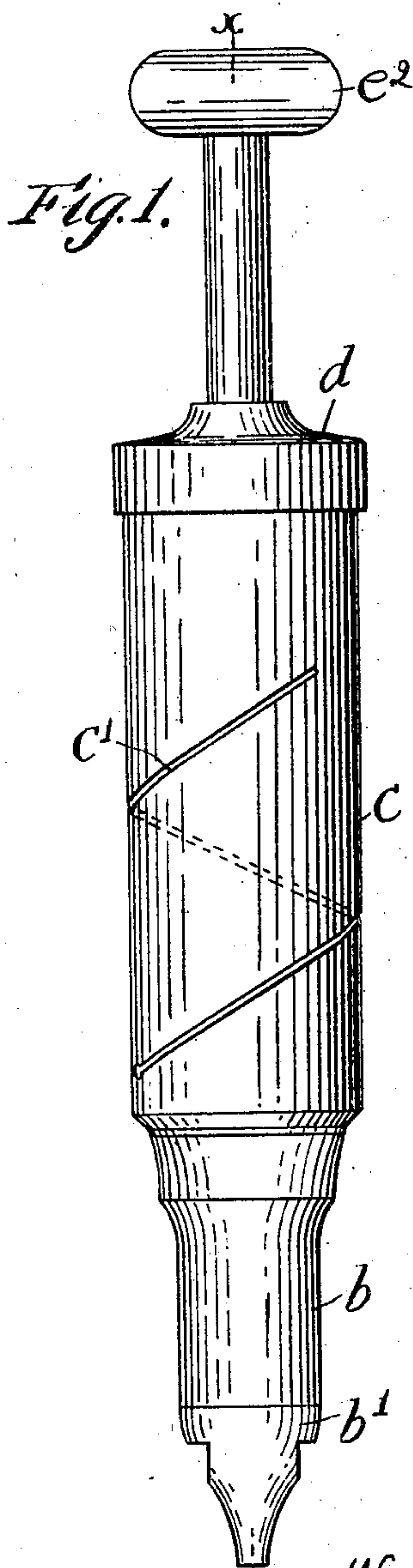


A. HEBERT.  
TACKING TOOL.  
APPLICATION FILED DEC. 7, 1903

2 SHEETS—SHEET 1.



Witnesses:

H. B. Davis.

Maud M. Piper

Fig. 11.

Fig. 12.

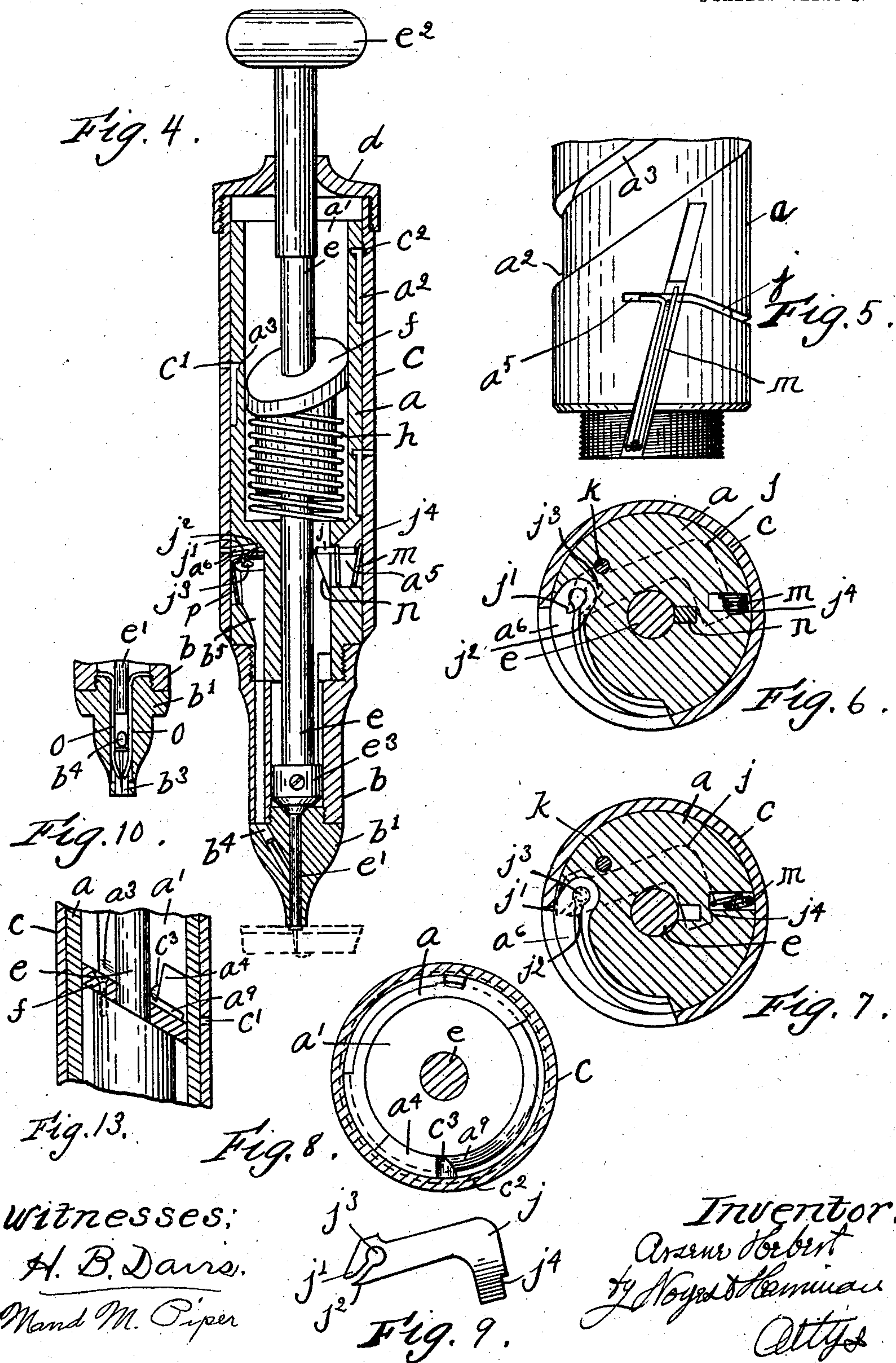
Inventor:

A. Hebert.  
By Noyes Hamman  
Atty

A. HEBERT.  
TACKING TOOL.

APPLICATION FILED DEC. 7, 1903

2 SHEETS—SHEET 2.





# UNITED STATES PATENT OFFICE.

ARSENE HEBERT, OF BOSTON, MASSACHUSETTS, ASSIGNOR, BY MESNE ASSIGNMENTS, TO FRED E. PARMLY, OF NEW YORK, N. Y.

## TACKING-TOOL.

No. 795,912.

Specification of Letters Patent.

Patented Aug. 1, 1905.

Application filed December 7, 1903. Serial No. 184,012.

*To all whom it may concern:*

Be it known that I, ARSENE HEBERT, of Boston, county of Suffolk, State of Massachusetts, have invented an Improvement in Tacking-Tools, of which the following description, in connection with the accompanying drawings, is a specification, like characters on the drawings representing like parts.

This invention relates to that class of hand tacking tools or implements which are especially designed to be used in connection with lasting-machines which fold in the edge of the upper and hold it in place, the tool being used to secure the folded-in portions while held by the machine. In devices of this character the discharge end of the tool is pressed against the work when the tack is driven, and the tool is not moved in such a way as to throw the tacks which are in the magazine into the raceway. It is necessary, therefore, either to provide some means for automatically conducting the tacks into the raceway or to have the raceway filled from some outside source. The latter method is inconvenient and occasions loss of time, and so far as I am aware the devices which automatically lift or conduct the tacks into the raceway and which have been found to be the most practical are those in which the tack-magazine is located without the main body portion of the device. It has also been ascertained from practical use that tools of this description are generally cumbersome and inconvenient to handle and that such a device may be used with much greater facility and convenience if all its parts are contained in a cylindrical casing which may be easily grasped by the hand.

The object of my invention is to produce a tacking-tool of the general character above referred to in which the magazine, raceway, and tack-driving mechanism are all contained in a cylindrical casing, which may be conveniently handled and in which simple and effective means are provided for supplying tacks to the raceway, which leads from the tack-magazine to the point where the tacks are driven, so that the raceway will be kept full so long as there are tacks in the magazine and all possibility of the tacks becoming clogged in the raceway or at the entrance thereto will be avoided. I accomplish this object by providing a cylindrical tack-magazine within the cylindrical casing of the tool and by closing the bottom thereof with a cylindrical head, which

is fitted into said magazine and connected to the driver, the arrangement being such that the piston-head will lift the tacks up to and deposit them on the raceway, so that they may hang point down therein, and by providing tack-deflecting means for preventing clogging of the tacks at the raceway-entrance.

For a more complete understanding of my invention reference is now made to the accompanying drawings, in which—

Figure 1 is a side elevation of the completed tool. Fig. 2 is a similar view with the outside casing in cross-section, showing the main body of the tool. Fig. 3 is a longitudinal section on the line *xx* of Fig. 1, showing the parts in the position which they assume just before the tack is driven. Fig. 4 is a similar view showing the position which the parts assume as the driving operation is finished. Fig. 5 is a detail view, on a larger scale, of the actuating means for the tack-separator. Figs. 6 and 7 are cross-sections on the line *yy* of Fig. 3, showing the two extreme positions of the tack-separator. Fig. 8 is a cross-section on the line *zz* of Fig. 2. Fig. 9 is a detail view of the tack-separator. Fig. 10 is a longitudinal section of the nozzle on the line *v* of Fig. 2. Figs. 11 and 12 are detail views of the raceway-entrance. Fig. 13 is a central section through the piston-head at its highest and lowest points.

As shown in the drawings, the main body *a* is of cylindrical form and is centrally and longitudinally bored and has an extension *b*, with a mouth-piece or nozzle *b'* at the lower end thereof. Said nozzle has a longitudinal passage *b<sup>3</sup>* of sufficient size to permit the passage of a tack and an obliquely-extending tack-passage *b<sup>4</sup>*, opening into said passage *b<sup>3</sup>*.

A cylindrical casing *c* surrounds the body *a* and is snugly fitted thereover, the upper end of said casing *c* being closed by a cap *d*. A driver-rod *e*, having a driver *e'* at its lower end and a handle *e<sup>2</sup>* at its upper end, passes through the body *a* and is arranged centrally therein, the driver *e'* being fitted to slide in the passage *b<sup>3</sup>* of the nozzle *b'*.

An obliquely-disposed piston-head *f* is rigidly secured to the driver-rod *e*, said head being accurately fitted in a cylindrical chamber *a'*, (hereinafter termed the "tack-magazine,") formed in the upper end of the body.

A spring *h* is interposed between the lower side of the head *f* and the bottom of the cham-



ber  $a'$ , said spring acting to throw the driver-rod into the position shown in Figs. 2 and 3.

The outer side of the body  $a$  is provided with a spirally-extending raceway-groove  $a^2$  of greater width than the length of the longest tack which will be employed and of greater depth than the diameter of the shanks of the tacks at their heads. One of the raceway-supporting faces  $a^3$  is formed by cutting a groove in the body at the upper end of groove  $a^2$ , which is one-half the diameter of the head of a tack and of a width somewhat greater than the thickness thereof. The opposite raceway-supporting face  $c'$  is formed by cutting a slot through the casing when cutting the slot to form face  $a^3$ , so that said slot and groove exactly register and said faces are on a level.

A portion of the upper end of the body  $a$  is provided with an inclined face  $a^7$ , which is continuous with the face  $a^3$  of the raceway, and the opposite face  $c'$  is continued parallel with face  $a^7$  by forming a beveled groove  $c^2$  in the casing—that is, the portion of the raceway beyond a vertical shoulder  $a^4$  on the body is uncovered or the casing above the upper end of the raceway is recessed—so that tacks may pass into the raceway and be suspended by their heads upon the face  $a^7$  and the continuation of face  $c'$ , formed by groove  $c^2$ , point downward in groove  $a^2$ . The body  $a$  is provided with a slot or recess  $a^9$ , which extends from the shoulder  $a^4$  a distance somewhat greater than the length of the tack and of width somewhat greater than the thickness of the tack-body, but less than the diameter of its head, the under side of said slot  $a^9$  being continuous with the face  $a^3$ .

A tack-deflector  $c^3$  is rigidly mounted in and projects inwardly from the inner wall of the casing  $c$  and preferably consists of a semicylindrical-shaped pin having its flat side against the shoulder  $a^4$  and its end beveled from said flat side to the inner wall of the casing. The lower edge or side of said pin is slightly flattened, (see Fig. 11,) and said surface is arranged at such a distance above the faces  $a^3 c'$  of the raceway that a tack may pass beneath it when the under side of its head rests nearly flat on said faces, as indicated in Fig. 11, but will prevent passage thereof in case the tack should assume any other position—that is, the distance between the under side of the deflector  $c^3$  and the faces  $a^3 c'$  is somewhat greater than the thickness of the head of a tack, but much less than its diameter.

The driver-rod  $e$  is provided with a head  $e^3$  at the point where the driver  $e'$  is secured thereto, forming a shoulder which engages the lower end of the body  $a$  and prevents the spring from moving the head  $f$  above a position which is on a level with the face  $a^7$ , the inclination of the head corresponding almost exactly to the inclination of the supporting-

faces of the open portion of the raceway—that is, the faces  $a^7 c'$ .

A tack separator or feeder  $j$  (shown in detail in Fig. 9) is arranged transversely of the body  $a$  and is adapted to reciprocate longitudinally between a pin  $k$  (see Figs. 6 and 7) and the rod  $e$ . The front end of the separator is provided with two prongs  $j' j^2$ , and a circular recess  $j^3$  is formed between said prongs, the diameter of which is somewhat greater than the heads of the tacks, the space between said prongs beyond said opening  $j^3$  being somewhat less in width than the diameter of the tack-heads, but greater than that of their shanks.

The shank end of the separator is bent obliquely with relation to the main part thereof, and a notch  $j^4$  is formed in said shank in which one end of a U-shaped spring  $m$ , having an intermediate coil  $m'$ , is located, the other end of said spring being located in a recess  $a^5$  in the body, as shown in Fig. 5, and bearing against the inner side of the casing, thereby acting to advance the prongs of the separator toward the opposite side of the casing. A wedge-shaped projection or cam  $n$  is secured to the rod  $e$  and is adapted to engage the opposite side of the shank of the separator from that which is engaged by the spring  $m$ .

An extension  $a^6$  of the tack-raceway is adapted and arranged to conduct the tacks into the path of the prongs of the separator. A tack-passage  $b^5$ , one side of which is formed by plate  $p$ , leads downwardly through the body extension  $b$  into the obliquely-extending passage  $b^4$  of the nozzle  $b'$ .

A pair of tack retaining and centering springs  $o$  are secured to the nozzle  $b'$  and are arranged in the passage  $b^3$  thereof, said springs performing their usual function when used in this relation.

The tack-magazine being partly filled with a suitable quantity of tacks upon the upward movement of the driver-rod the head  $f$  will lift or throw the tacks onto and over the face  $a^7$ , so that a number of them may fall into the raceway and be suspended by their heads therein upon the faces  $a^7 c'$  in the usual manner, the beveled slot  $c^2$  guiding them to an extent into such position. As the face  $a^7$  is beveled or inclined down into the magazine and as there is but little opportunity for a tack to lie on the faces  $a^7 c'$  without having its body fall into the raceway-slot  $a^2$  when the head  $f$  is moved down with the driver to eject a tack from the nozzle and drive it into the work all, or nearly all, of the tacks which have been thrown into the recess above the raceway-faces will fall back into the magazine, permitting the tacks which are hanging in the raceway to slide down beneath the deflector  $c^3$ , as illustrated in Figs. 2, 3, and 11.

The particular function of the deflector  $c^3$  is to prevent clogging of the tacks at the entrance to the portion of the raceway which is



below the shoulder  $a^4$ , its rounded surface preventing the tacks from finding lodgment at this point and deflecting them so that they fall back into the magazine.

It sometimes happens that the tack-body will pass the shoulder  $a^4$  point first and lie on the faces  $a^3 c'$ , while its head will be caught between the deflector  $c^3$  and said faces, thus preventing any more tacks from passing into the raceway proper while it is in this position.

By providing the slot  $a^9$  in the body below the deflector and by providing the deflector  $c^3$  with a beveled or tapered end, as before described, the body portion of the tack may readily pass sidewise through said slot, the head sliding readily on the beveled surface of the deflector back into the magazine.

The lowest portion of the inclined piston-head  $f$  is a short distance below the lower end of the slot  $a^9$ , the open portion of the raceway extending opposite a portion of the head between its highest and lowest points, as indicated in Fig. 13, and while the exact position of the head shown with respect to the face  $a^7$  when in its uppermost position is not wholly essential yet I am enabled to secure advantageous results by the particular arrangement shown, for no matter in what position the tool is held the tacks will be lifted to such a point that they will slide or fall upon the open or uncovered portion of the raceway although but few tacks may be left in the magazine, and as in the normal operation of the tool the head  $f$  is thrown back quickly and as the tool is often held at an inclination it usually happens that the magazine is completely emptied before the tacks in the raceway have been forced out of the nozzle. As the raceway contains a large number of tacks, it is quite immaterial whether or not tacks are deposited therein on each reciprocation.

When the spring  $h$  moves the driver-rod to its upper limit, as shown in Fig. 3, the wedge-shaped projection  $n$  engages the tack-separator and draws it back to the dotted position shown in Fig. 6. In this position the prong  $j^2$  of the separator lies directly across the raceway extension  $a^6$  and prevents further downward movement of the tacks therein. As the driver-rod is forced downwardly to the position shown in Fig. 4 the wedge-shaped projection  $n$  will also be moved downwardly, liberating the separator and permitting the spring  $m$  to force it into the position shown in Fig. 7. This will cause the prong  $j'$  of the separator to pass between the tack which is resting against the prong  $j^2$  and the next succeeding tack, so that the latter will be intercepted by the prong  $j'$  and the former will be carried on through the slot between the prongs into the opening  $j^3$  of the separator, and then, as it will no longer be supported by the separator, it will drop into the tack-passage  $b^5$  and fall downwardly into the passage

$b^3$ , where it will be intercepted by the driver, as shown in Fig. 4. When the pressure on the driver-rod is removed, the spring will force the same into the position shown in Fig. 3, permitting the tack which was previously intercepted thereby to fall into passage  $b^3$  directly in front of and below the end of the driver, it being then intercepted and supported by the centering-springs  $o$ , as shown in Fig. 3, so that when the driver is again forced downwardly its end will engage the head of the tack and force it past the springs  $o$  into the work. A single tack will thus be fed in front of the driver each time it makes a complete reciprocation so long as there are tacks in the raceway.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. A tacking device comprising a casing having a tack-magazine and a tack-raceway formed in the walls of the magazine having inclined tack-supporting faces, a recess being provided in said walls above the upper portion of the inner raceway-face to permit the tacks to pass thereover into the raceway, a tack-lifter vertically movable in said magazine closely adjacent the portion of the walls thereof directly below said upper portion of said face, and means for operating said lifter, substantially as described.

2. A tacking device comprising a casing having a tack-magazine and a tack-raceway formed in the walls of the magazine having inclined tack-supporting faces, a recess being provided in said walls above the upper portion of the inner raceway-face to permit the tacks to pass thereover into the raceway, a tack-lifter vertically movable in said magazine closely adjacent the portion of the walls thereof directly below said upper portion of said face, the upper side of said lifter being inclined to correspond to the inclination of said face, substantially as described.

3. A tacking device comprising a casing having a tack-magazine extending longitudinally therein, the walls of said magazine being provided with a partially-encircling raceway-slot, and tack-supporting faces at each side thereof, the upper end portion of said slot being in open communication with said magazine above the inner tack-supporting face, and a tack-lifter fitted and reciprocally mounted in said magazine and movable therein below the point of communication of said slot therewith, substantially as described.

4. A tacking-tool comprising a cylindrical casing having a longitudinally-extending magazine and a spirally-extending raceway formed in said casing and encircling said magazine, said casing being recessed so that said raceway is in open communication therewith at its upper end, a circular tack-lifter fitted within said chamber and vertically movable therein, substantially as described.



5. A tacking-tool comprising a casing having a tack-magazine therein, the walls of said magazine having a tack-passage formed therein and two tack-supporting faces at opposite sides of said passage, the upper end portion of the innermost supporting-face and the inner surface of the magazine-walls intersecting, and said walls being recessed above said face portion to permit a tack to pass from the magazine into said passage, a tack-lifter closing the bottom of said magazine and vertically movable therein below the recess in said walls, substantially as described.

6. A tacking-tool comprising a casing having a tack-magazine therein, the walls of said magazine having a tack-passage formed therein and two tack-supporting faces at opposite sides of said passage, the upper end portion of the innermost supporting-face being beveled at its inner edge and intersecting the inner surface of the magazine-walls, and said walls being recessed above said face portion to permit a tack to pass from the magazine into said passage, a tack-lifter closing the lower end of said magazine and vertically movable therein, substantially as described.

7. A tacking-tool of the character described, comprising a cylindrical body, a cylindrical casing surrounding said body, a spirally-extending raceway formed between said body and casing, a cylindrical tack-magazine formed in the upper end of said body, and inclosed by said casing, said raceway being partly formed on the upper end of said body and opening into said magazine, a reciprocating driver-rod passing centrally through said magazine, and to close the lower end thereof, and means for automatically lifting said rod and head so that the latter is lifted to positions adjacent the point of open communication between said magazine and raceway, substantially as described.

8. A tacking-tool comprising a casing having a tack-raceway passage therein and inclined tack-supporting faces at each side thereof, a tack-magazine within said casing, a recess being formed in the walls of said magazine above said faces to permit the tacks to pass from said magazine into said passage, and a tack-deflector at the lower end of said recess closely adjacent said faces and permitting the tacks to pass beneath it when in their correct position, said deflector having obliquely-disposed faces to deflect misplaced tacks back into the magazine, substantially as described.

9. A tacking-tool comprising a casing having a tack-raceway passage therein and inclined tack-supporting faces at each side thereof, a tack-magazine within said casing, a recess being formed in the walls of said magazine, above said faces to permit the tacks to pass from said magazine into said passage, and a tack-deflector at the lower end of said re-

cess at a distance from the tack-supporting faces less than the diameter of the heads of the tacks, substantially as described.

10. A tacking-tool comprising a casing having a tack-raceway passage therein and inclined tack-supporting faces at each side thereof, a tack-magazine within said casing, a recess being formed in the walls of said magazine above said faces to permit the tacks to pass from said magazine into said passage, and a tack-deflector at the lower end of said recess at a distance from the tack-supporting faces less than the diameter of the heads of the tacks, said casing having a slot at the opposite side of said deflector from said recess, continuous with the inner raceway-face, to permit the shank of a tack to pass laterally therethrough, substantially as described.

11. A tacking-tool comprising a casing having a tack-raceway passage therein and inclined tack-supporting faces at each side thereof, a tack-magazine within said casing, a recess being formed in the walls of said magazine, above said faces, which permits a tack to pass readily from the magazine to the passage at its upper portion, and which is restricted at its lower portion to permit the passage of the shank portion only of the tack, substantially as described.

12. A tacking-tool comprising a casing having a tack-raceway passage therein and inclined tack-supporting faces at each side thereof, a tack-magazine within said casing, a recess being formed in the walls of said magazine, above said faces, which permits a tack to pass readily from the magazine to the passage at its upper portion, and which is restricted at its lower portion to permit the passage of the shank portion only of the tack, and means for restricting said recess, between its upper and lower portion, to an extent less than the diameter of, and greater than the thickness of a tack's head, substantially as described.

13. A tacking-tool comprising a casing having a tack-raceway passage therein and inclined tack-supporting faces at each side thereof, a tack-magazine within said casing, a recess being formed in the walls of said magazine, above said faces, which permits a tack to pass readily from the magazine to the passage at its upper portion, and which is restricted at its lower portion to permit the passage of the shank portion only of the tack, and an obliquely-disposed tack-deflecting face at the upper end of the lower portion of said recess, substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ARSENE HEBERT.

Witnesses:

LOUIS H. HARRIMAN,  
H. B. DAVIS.