

P. A. OLÇÉN.

COMBINED TACK DRIVER AND CARPET STRETCHER.

(Application filed Oct. 18, 1899.)

(No Model.)

3 Sheets--Sheet 2.

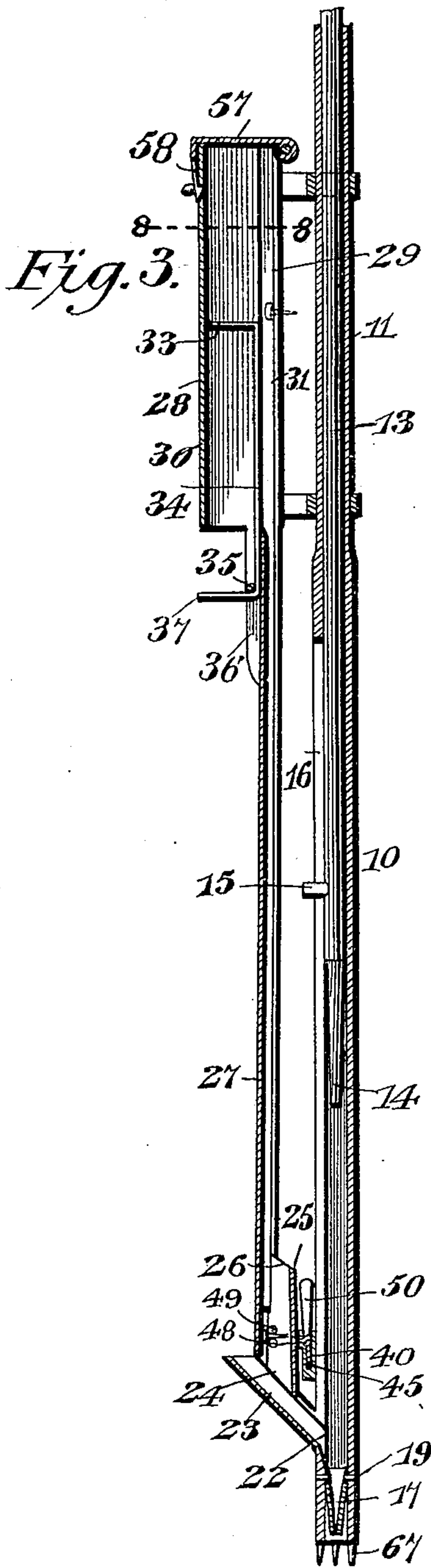


Fig. 4.

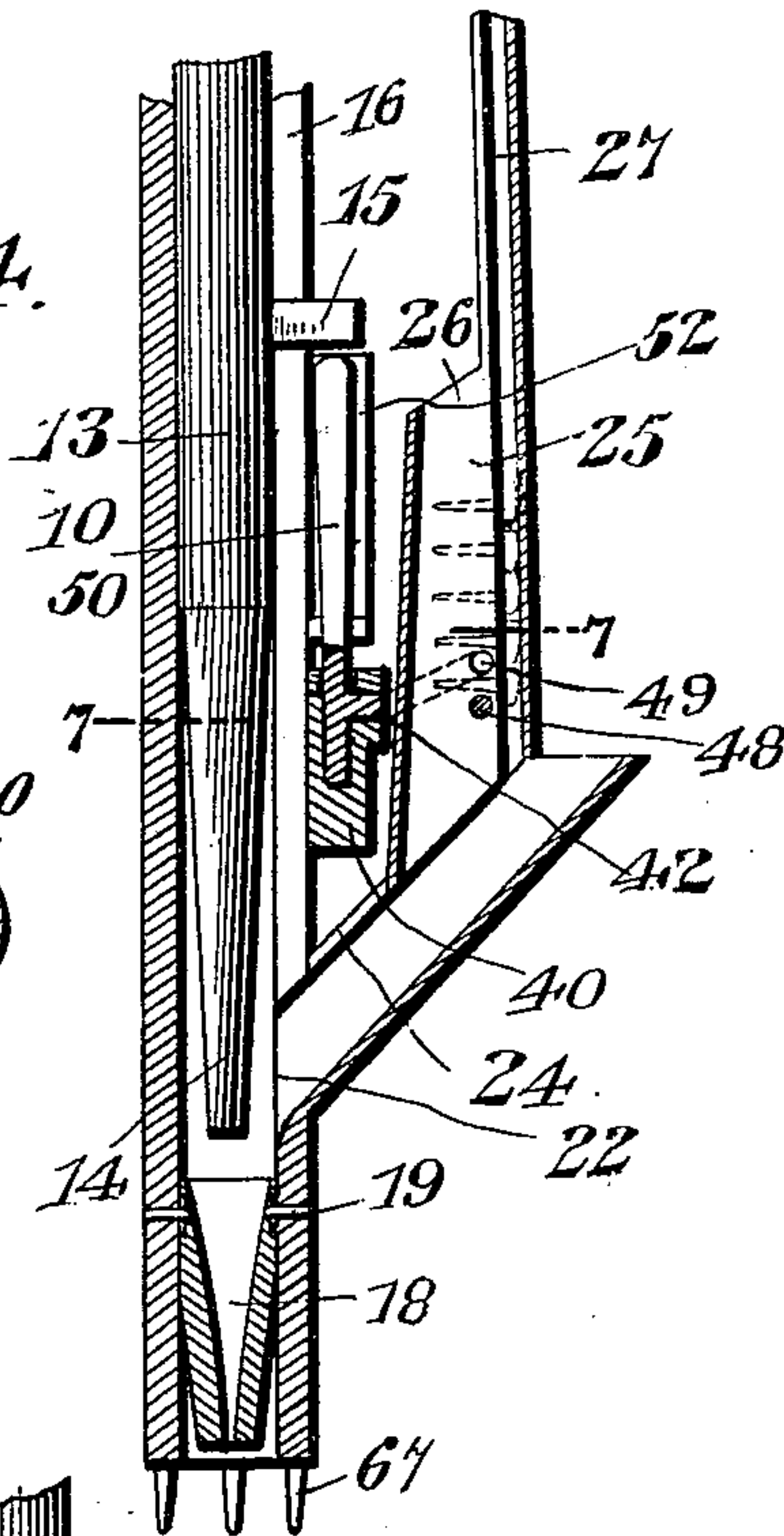


Fig. 7.

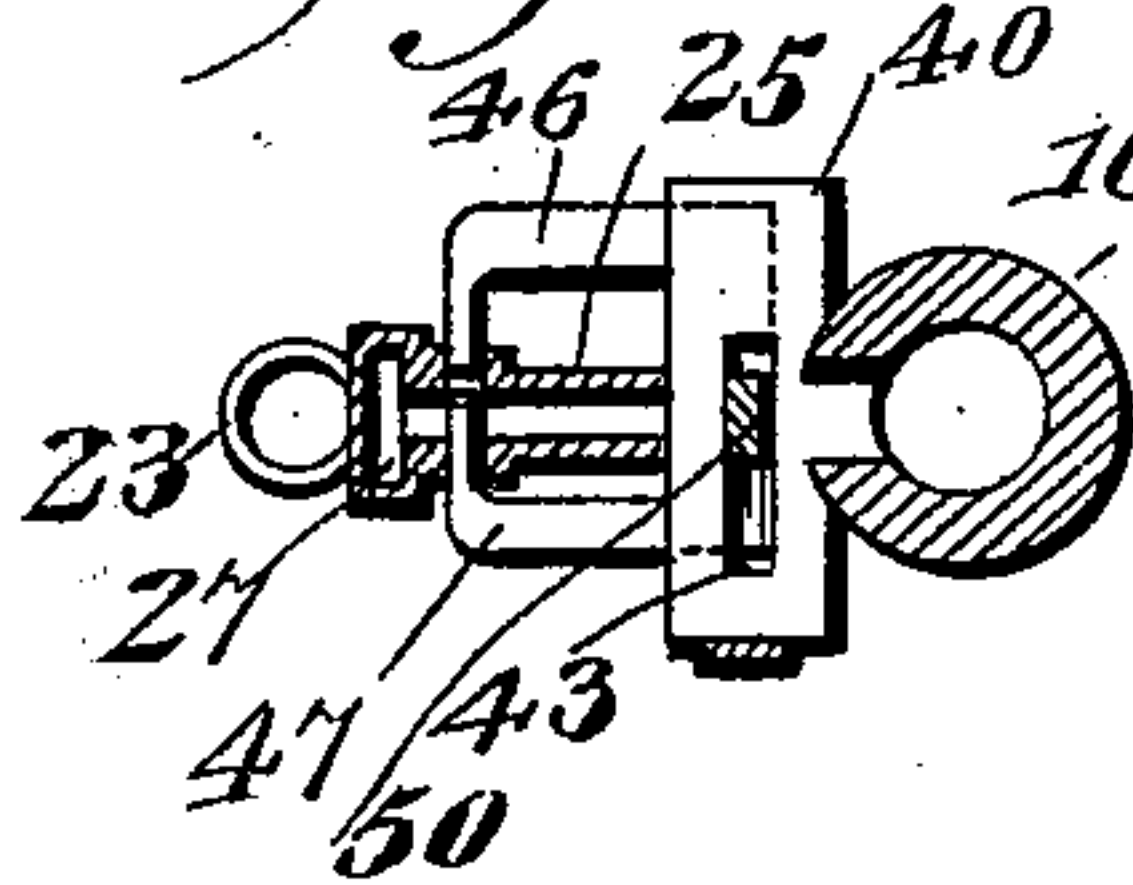


Fig. 8.

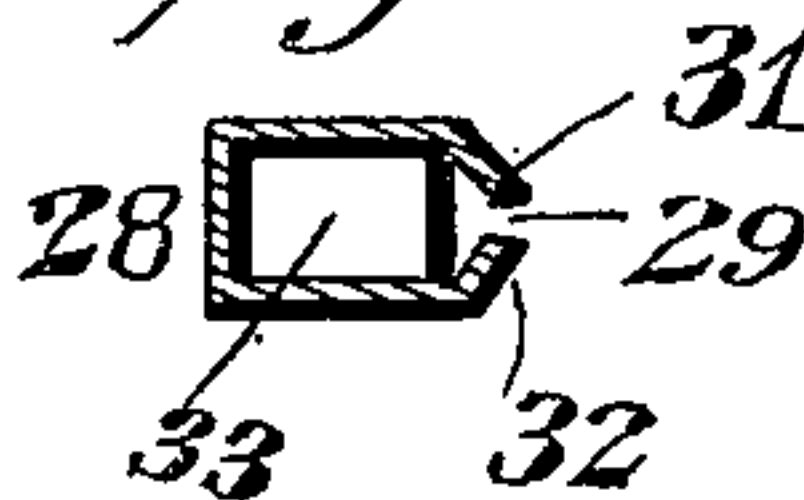


Fig. 5.

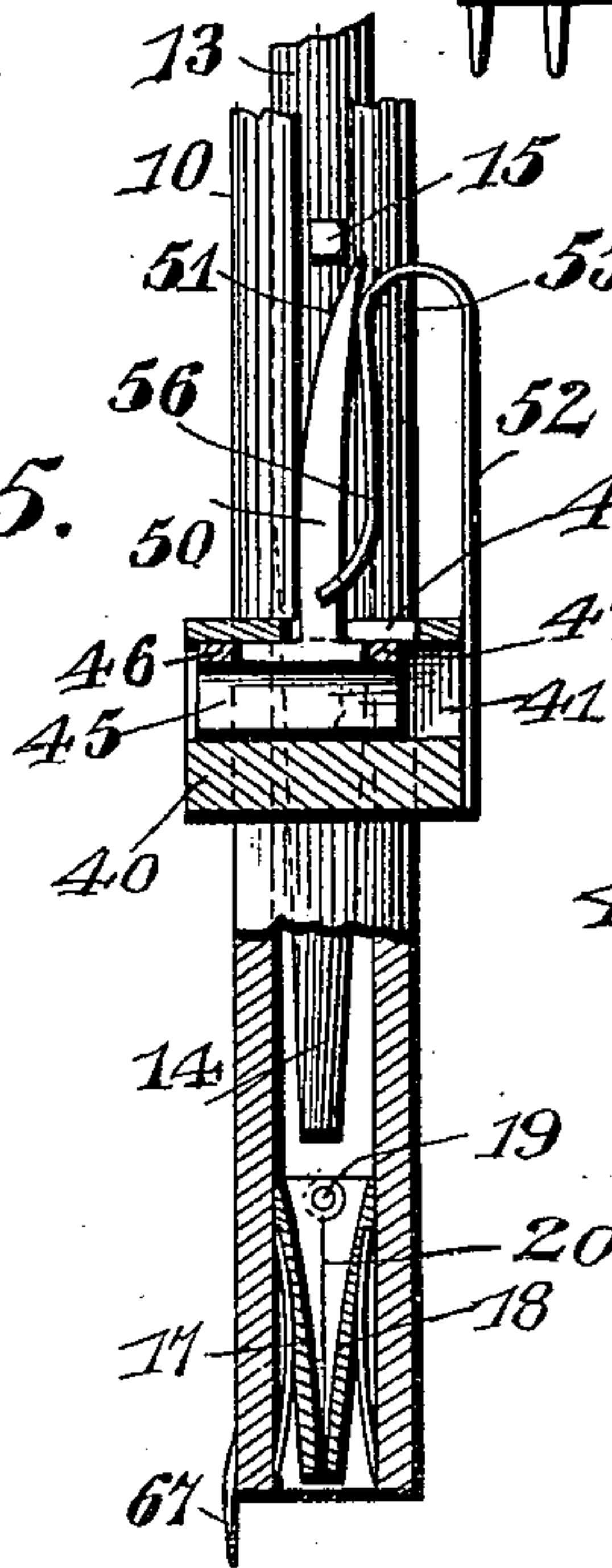
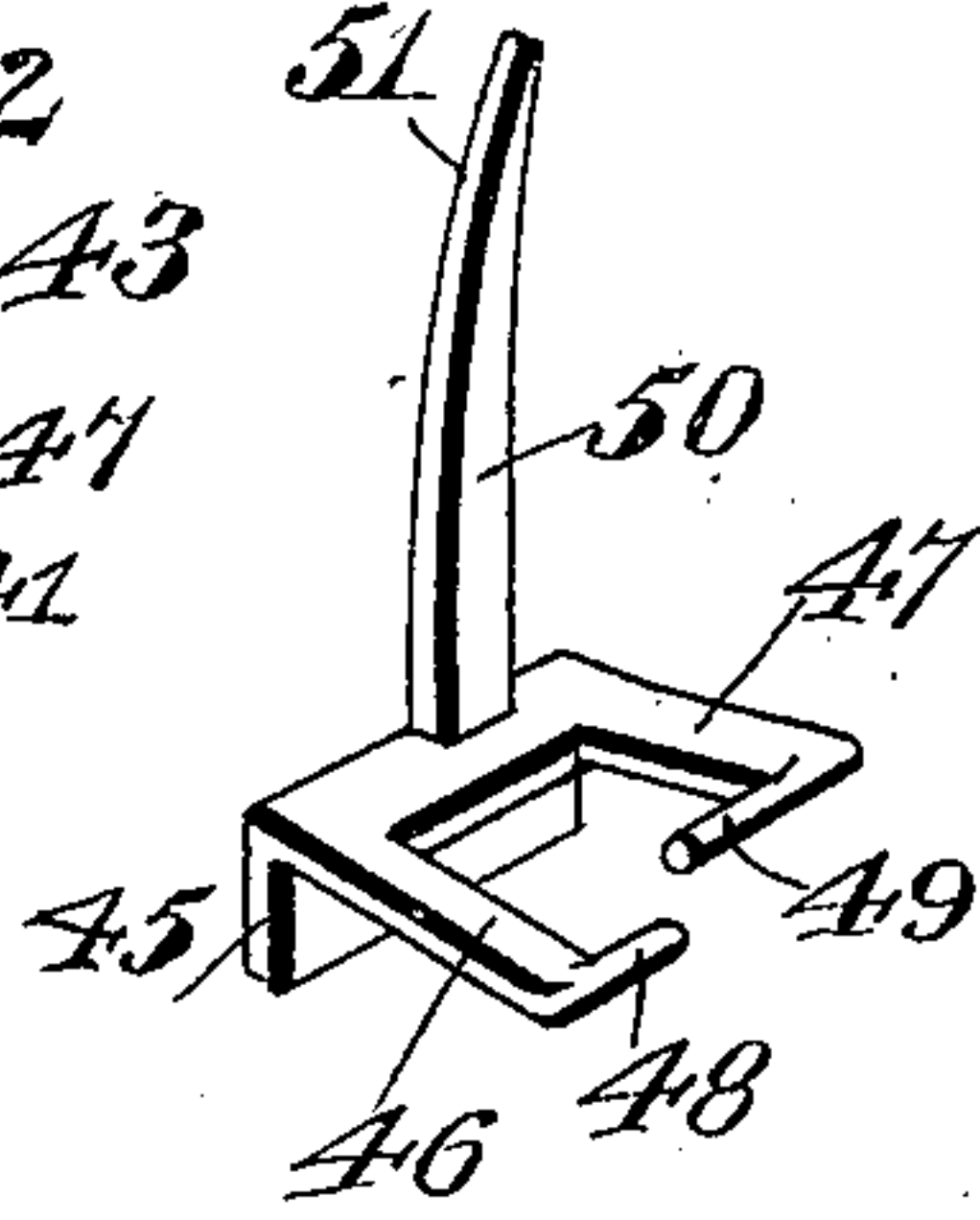


Fig. 6.



Witnesses

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COMBINED TACK DRIVER AND CARPET STRETCHER.

(Application filed Oct. 18, 1899.)

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3 Sheets--Sheet 3.

Fig. 9.

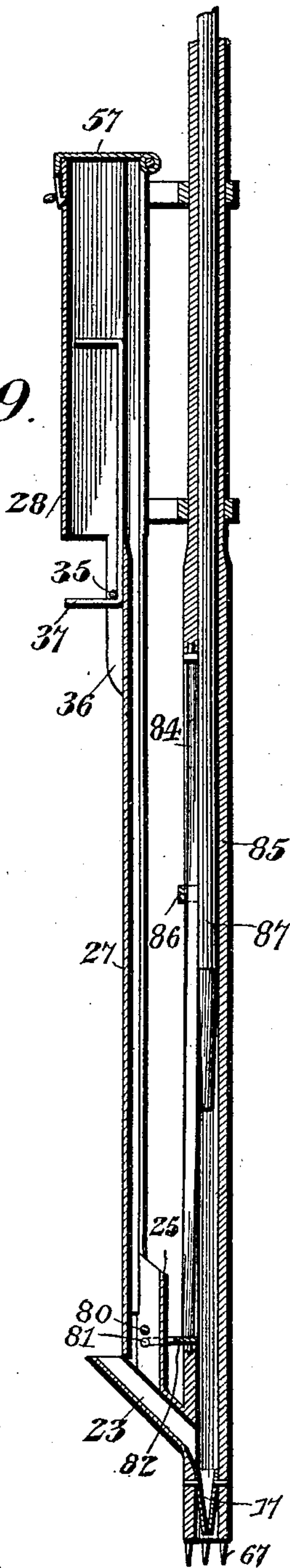
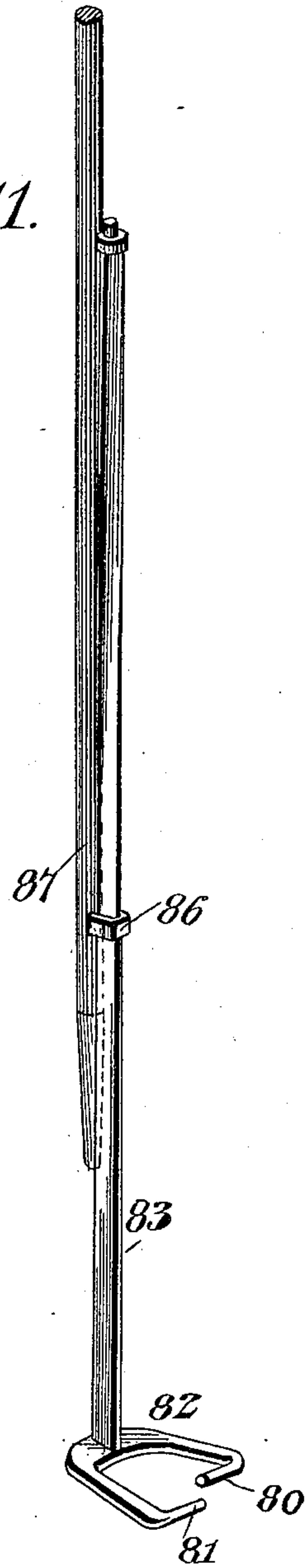
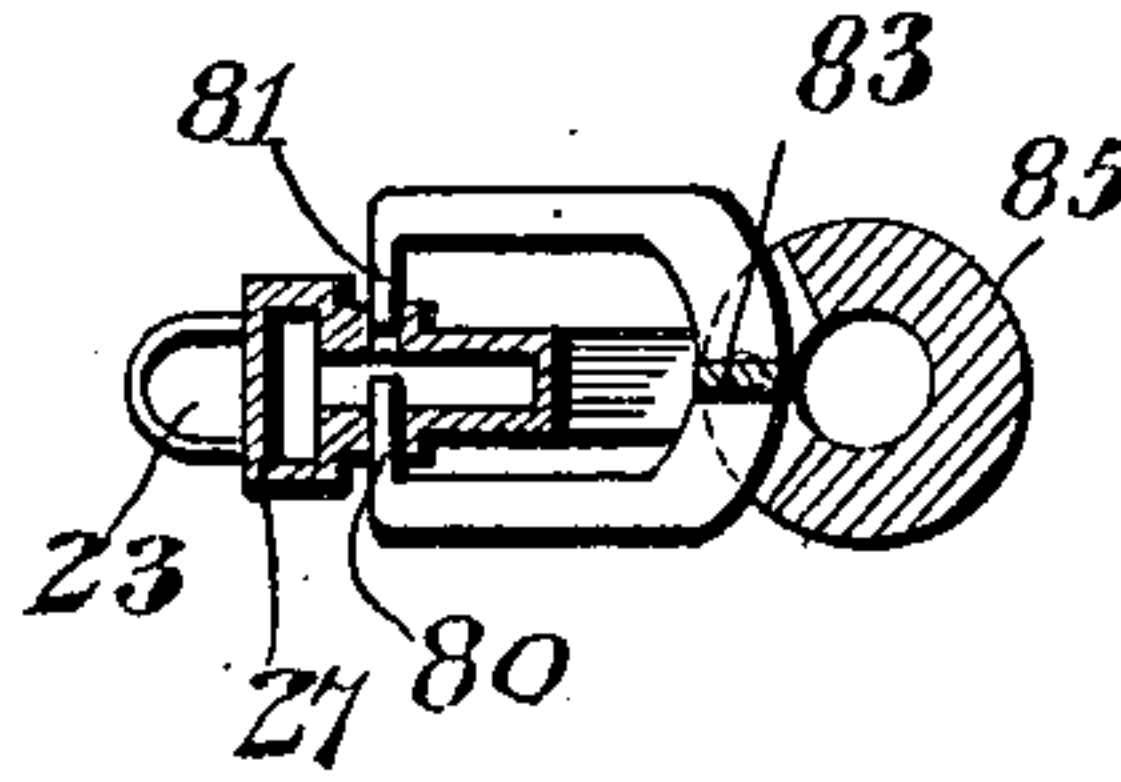


Fig. 11.

Fig. 10.



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UNITED STATES PATENT OFFICE.

PETER ALFRID OLCÉN, OF BRANDON, CANADA.

COMBINED TACK-DRIVER AND CARPET-STRETCHER.

SPECIFICATION forming part of Letters Patent No. 666,547, dated January 22, 1901.

Application filed October 18, 1899. Serial No. 733,999. (No model.)

To all whom it may concern:

Be it known that I, PETER ALFRID OLCÉN, a subject of the Queen of Great Britain, residing at the city of Brandon, in the Province of Manitoba and Dominion of Canada, have invented a new and useful Combined Tack-Driver and Carpet-Stretcher, of which the following is a specification.

This invention relates to tack-drivers, and has for one object to provide a carpet-stretcher in combination with the driver having such a construction and arrangement that the carpet may be grasped and moved into position for the driving of a tack through it and into the floor.

A further object of the invention is to so construct and arrange the carpet-stretcher that it may be operated either by hand or foot and to so construct the tack-driver that the tacks may be placed therein in bulk and will be fed one at a time into position for driving and may be then positively struck and forced through the carpet and into the floor.

The construction is furthermore designed to prevent the feeding of more than one tack at a time into position to be struck, and thus to prevent jamming of the mechanism.

In the drawings forming a portion of the specification, and in which like numerals of reference indicate like parts in the several views, Figure 1 is a perspective view showing the device in operative position with respect to a pocket and ready for driving a tack. Fig. 2 is a detail elevation showing the plunger-tube and its claws and showing also the position of the carpet-stretcher when not in use. Fig. 3 is a vertical section taken through the tack tube and chute. Fig. 4 is a detail section showing the lower portion of Fig. 3 and looking from the opposite side, the positions of the tacks in the lower end of the tack-chute being indicated. Fig. 5 is a detail view of the lower end of the apparatus, partially in elevation and partially in section and showing the tack-holding jaws in the lower end of the plunger-casing, also the location of the feeding-dog. Fig. 6 is a detail perspective of the feeding-dog. Fig. 7 is a section on line 7 7 of Fig. 4. Fig. 8 is a section on line 8 8 of Fig. 3. Fig. 9 is a longitudinal sectional view of the device and illustrating another manner of feeding the tacks from the tack-box to the

tack-holding jaws. Fig. 10 is a transverse sectional view of the device and taken through the feeding mechanism. Fig. 11 is a detail perspective view illustrating the operating connection between the plunger and the feed mechanism.

Referring now to the drawings, the construction comprises a plunger-casing 10, consisting of a lower broadened portion 11 and an upper narrowed portion 12, the entire casing being tubular and cylindrical and having a constant internal diameter. In this casing is arranged a reciprocatory plunger 13, the lower end of which is tapered, as shown at 14, for a purpose which will be presently explained, and radially of one side of the plunger is disposed a pin 15, which projects outwardly of the casing and through a longitudinal slot 16 therein, and which slot extends from a point adjacent the lower end of the casing to a point adjacent the upper end of the broadened portion.

Within the lower end of the casing are pivoted tack-holding jaws 17 and 18 upon a common pivot 19, passed through the inwardly-directed webs 20 at the sides of the jaws. These jaws are so formed that their lower ends lie normally in mutual engagement, as shown, and this mutual engagement is yieldingly maintained through the medium of springs arranged exteriorly of the jaws and between them and the inner surface of the casing. These jaws are adapted to receive a tack point downward between them, the taper of the jaws in their normal positions being substantially that of lines drawn from opposite points of the head of the tack to the point. After a tack has been contributed to the jaws the plunger 13 is passed quickly downwardly of the casing and into engagement with the head of the tack and forces the tack from between the jaws and into whatever material may be below the casing. After this operation the plunger is raised to permit the passage of a second tack to the jaws.

In order to supply tacks to the jaws 17 and 18, an opening 22 is formed in the casing 10 just above the jaws, and communicating with this opening is a tack-tube 23, having a longitudinal slot 24 in its upper wall and extending throughout the upper portion of its length. Disposed upon the tube 23 and communicat-

ing at its lower end through the slot 24 is a box 25, the outer side of which is open, as shown at 26, and communicates with a chute 27, extending upwardly and parallel with the plunger-casing and communicating at its upper end with a hopper 28. The rear side of the chute 27, adjacent the casing 10, has a longitudinal slot 29 extending throughout its length and continuing upwardly and through the inner side of the hopper 28. In the hopper 28 is disposed a vertically-movable partition 33, extending entirely across the hopper laterally and reaching from the front wall 30 thereof to the foremost portions of the rearwardly-converging wall-sections 31 and 32, the adjacent edges of which sections are separated by the continuation of the slot 29, above referred to. Formed integral with the partition 33 is a slide 34, extending downwardly of the hopper and through the open bottom thereof and lying at its lower portion between the front face of the chute 27 and a retaining-pin or keeper 35, passed through flanges 36 upon the outer face of the chute. The pin 35 and partition 33 prevent outward displacement of this slide and hold it with its side edges in the angles between the sides of the hopper and the rear wall-sections. The lower end of the slide 34 is projected outwardly to form an operating-handle 37, through the medium of which the slide and its partition may be reciprocated in the hopper. It will be noted that the tack-tube 27 is located in the same plane with and outward from the slot 16 in the casing, thereby covering said slot and protecting the pin 15. Thus if a quantity of tacks be placed in the hopper and upon the partition 33 and the partition be then reciprocated the tacks will be jostled and turned and certain of them will be moved to project their points outwardly of the slot 29, and upon being further moved will be precipitated over the edge of the partition, as indicated in Fig. 3, and will slide downwardly of the chute, their heads lying within the inclosure of the chute and their points projecting through the slot in the rear thereof. As shown in the drawings, the upper end of the box 25 is opened and has a width substantially equal to the width of the slot 29, so that the tacks will continue their downward passage, and the lowermost tack, as well as a number thereabove, may be held to lie with their heads in the chute and their points projecting into the box. If the tacks are held in this position and are then successively released, they will successively drop into the tack-tube 23 and will slide downwardly thereof and will pass through the opening 22 point first and will finally drop in proper position into engagement with the jaws 17 and 18, it being understood that at this time the plunger 13 is moved with its lower end above the opening 22, as shown in Fig. 3 of the drawings.

In order to hold the tacks above the tack-tube 23 and to assure their successive and

proper delivery to the tack-tube in proper relation to the plunger, a feed mechanism is provided and consists of a block 40, fixed to the outer face of the casing 10 and between it and the box 25. This block has a transverse perforation or passage 41 therein, preferably rectangular in cross-section, and communicating with this perforation is a transverse slot 42 in the outer face of the block and just below the upper end thereof. Through the top of the block 40 and communicating with said slot and perforation is formed a second slot 43. Within the slots and perforation mentioned operates a feed-dog consisting of a plate 45, arranged slidably within and fitting the transverse perforation or passage 41, and from the outer face of this plate and adjacent the upper edge thereof extend two arms 46 and 47, which project outwardly and through the slot 42, the arm 46 lying at right angles to the vertical plane of the plate 45 and the arm 47 extending upwardly at an angle to the plane of the arm 46. The arms 46 and 47 lie in parallel vertical planes, and at the outer ends of the arms 46 and in the same horizontal plane therewith is formed a finger 48, extending in the direction of the arm 47. At the outer end of the arm 47 and in the same slanting plane therewith is a finger 49, extending in the direction of the finger 48 and lying parallel with and in a plane above said finger 48. The arms 46 and 47 are extended to lie at opposite sides of the box 25, with the fingers 48 and 49 lying in perforations in the sides thereof, the arrangement of these fingers being such that when the dog is moved from side to side through the perforation or passage 41 the fingers will successively be projected into and withdrawn from the inclosure of the box. The fingers, however, lie at all times in the perforations in the walls of the box, so as not to be displaced, whereby the dog is guided in its movement, and the adjacent sides of the tack-box form stops for engagement with the respective arms 46 and 47, so as to limit the lateral movement of the dog in opposite directions. In order to thus move or reciprocate the dog, a shank 50 is formed upon the upper edge of the plate 45 and extends upwardly and through the slot 43, and which shank has a curved cam-face 51 lying transversely of the slot 16 of the plunger-casing and in the path of the pin 15 of the plunger. In practice when the plunger is moved downwardly the pin 15 slidably and frictionally engages the cam-face 51 and moves the dog in a direction to withdraw the finger 49 and project the finger 48, it being understood that normally the dog is held with the finger 49 within and transversely of the box 25 under the influence of a spring-plate 52, fixed to the block 40 and having its upper end in engagement with the shank 50. In its normal position the finger 49 receives the weight of the tacks in the box and in the chute thereabove. When the pin 15 engages the shank 50 and

moves the finger 49 out and the finger 48 in, the lowermost tack drops from the finger 49 and onto the finger 48, the column of tacks falling correspondingly and resting upon the lowermost tack. When the plunger is raised and the pin 15 is moved from the shank 50, the spring 52 moves the dog to its opposite position, when the finger 49 enters between the lowermost tack and the tack next above, while the finger 48 subsequently releases the tack resting thereon and allows it to fall into the tack-tube 23 and into the jaws 17 and 18, it thus being seen that the tack is released by the dog when the plunger is moved upwardly to a position above the opening. If the plunger be then dropped or forced downwardly, it will move the dog to deposit a second tack upon the finger 48 and will at the same time drive the tack from the jaws and into position.

From reference to Fig. 5 of the drawings it will be seen that the spring-plate 52 has its upper end bent to form a hook, the outer end of the bight 55 of which engages the upper end of the shank 50, while the lower end of the bill 56 is slotted and receives the cam at a point adjacent its base.

In connection with the hopper 28 is provided a cover 57, having any desirable form of fastening 58 to hold it in position.

The carpet-stretcher employed in connection with this tack-driving mechanism consists of a lever 60, fulcrumed by means of a hinge 61 at the lower end of a link 62, which is in turn hinged at 63 to the lower portion 11 of the plunger-casing. A spring-plate 64 is fixed to the portion 11 of the casing between it and the link 62 and adjacent the hinged connection of the link with the casing, and this plate has its free end bent outwardly to engage the link 62 and tends to hold the link with the connected parts at a broad angle to the casing.

At the inner end of the lever 60, adjacent the casing, is fixed an arch 65, adapted to receive the lower end of the casing when the link 62 is at the limit of its inward movement. This arch 65 is provided with teeth 66 upon its under surface, and the length of the link 62 is such that the teeth 66 may be engaged with a carpet upon which the lower end of the casing is resting.

The lower end of the plunger-casing is provided at its rear side with downwardly-extending pins or teeth 67, which are adapted to enter the floor of a room close against the mop-board or molding. The carpet is then laid out upon the floor, and after being temporarily fixed roughly in place the teeth 66 are engaged with the edge of the carpet, the upper end 12 of the casing is held firmly, and the foot or hand of the operator is placed upon the lever 60, forcing the lever in the direction of the casing and moving the edge of the carpet under the casing and against the teeth 67. While the carpet is held in this position the plunger 13 is operated to drive

a tack, after which the apparatus may be readjusted for a similar operation at a different point of the carpet.

As shown in Fig. 2 of the drawings, a link 70 is pivoted to the plunger-casing and has a perforation 71 therein, adapted to receive a pin 72 upon the lever 60 and hold the latter in its raised position when not in use.

In Figs. 9, 10, and 11 of the drawings there is shown a construction in which the feeding mechanism is so arranged and formed that it is not operative to drop a tack until the plunger has reached a point near the upper limit of its motion, so that the plunger may be reciprocated adjacent its lower limit of motion to strike a number of blows, and thus insure the complete driving of the tack, although, as will be understood, a person of experience will as effectively operate the structure hereinabove described. In this form of the invention the tack-hopper and other parts are the same as that shown in the other figures of the drawings; but in substitution of the feeding mechanism fingers 80 and 81, corresponding to the fingers 48 and 49, are formed upon a plate 82, attached to a rod 83 adjacent its lower end, the lower end of this rod being journaled in the lower wall of a slot 84, formed vertically of the front of the casing 85, the upper end of the rod or shank 83 being journaled in the upper wall or end of the slot. This rod 83 is given a slight twist, as shown in Fig. 11 of the drawings, and snugly fitting the rod is the perforation of a lug 86 upon the plunger 87. Thus as the plunger is reciprocated the lug 86 passes up and down the rod 83 and acts to oscillate it and correspondingly reciprocate the fingers 80 and 81. The twisted portion of the rod 83 is in the upper portion thereof, and hence so long as the lug 86 is not raised to an extent sufficient to engage the twisted portion of the rod the latter will not be oscillated and the fingers will be held stationary.

From the foregoing description it will be apparent that there is an operative connection between the feed device and the plunger during a certain period only of the movement of the latter, said operative connection being terminated at a point adjacent to the outer limit of the movement of the plunger, and that the latter also has a movement independently of the feed device after the termination of the operative connection.

Having thus described the invention, what I claim is—

1. In a tack-driver, the combination with a casing, having a longitudinal slot, and tack-holding jaws at the lower end thereof, of a reciprocatory plunger located in the casing, a tack-hopper carried at the upper end of the casing, a tack-tube pendent from the hopper, located in the same plane with the slot in the casing, and also covering said slot, a tack-box at the lower end of the tack-tube and also in communication with the tack-holding jaws, a feed device located between

the tack-box and the casing, and in communication with the longitudinal slot in the casing and also with the interior of the tack-box, and an operating device carried by the plunger, working in the slot in the casing, and having an automatic operative engagement with the feed device, during the movement of the plunger.

2. In a tack-driver, the combination with a casing, having a longitudinal slot, and tack-holding jaws at the lower end thereof, of a reciprocatory plunger located in the casing, and provided with an operating device working in the slot, a tack-hopper carried at the upper end of the casing, a pendent tack-tube located in the plane with and covering the slot in the casing, and also provided with a longitudinal slot located in the inner side of the tube, a tack-box located at the lower end of the tack-tube and in communication with the tack-holding jaws, and a feed device located between the tack-box and the slotted portion of the casing, and in operative relation to the operating device of the plunger.

3. In a tack-driving device, a tack-hopper having a closure at its upper end, its lower end open, a vertical tack-passage on one side of the hopper and depending therefrom, for the shanks and heads of the tacks, and provided further with a vertically-movable partition parallel with, operating on and forming the inner side of that portion of said passage for the tack-heads within the hopper, said partition being bent at its upper end to form the vertically-movable bottom of the hopper and having an operating-lever at its lower end, and a guide-keeper for said partition below the hopper, substantially as described.

4. In a tack-driver, the combination with a casing having tack-holding jaws, of a plunger working therein, a tack-box in communication with the jaws, a feed device communicating with the tack-box, and having a shank, and means for imparting an axially oscillating movement to the shank.

5. In a tack-driver, the combination with a casing, having tack-holding jaws, of a plunger working therein, a tack-box in communication with the jaws, a feed device communicating with the tack-box, and having an upright shank, the latter being axially pivoted, and a slide carried by the plunger, slidable longitudinally upon the shank and oscillating the latter.

6. In a tack-driver, the combination with a casing, having tack-holding jaws, of a plunger working therein, a tack-box in communication with the jaws, a feed device communicating with the tack-box, and having an upright twisted shank, which is axially pivoted, and a slide carried by the plunger, embracing the twisted shank, and oscillating the latter when the plunger is operated.

7. In a tack-driver, the combination with a casing, having tack-holding jaws, of a plunger working therein, a tack-box in communication with the jaws, a feed device communicating with the tack-box, and having an upright shank, the latter being axially pivoted, and twisted longitudinally in its upper portion, and a slide carried by the plunger, embracing the shank, and operating the latter, when the plunger is operated.

8. In a tack-driver, the combination with a casing, having a longitudinal slot, and tack-holding jaws, of a plunger working within the casing, a tack-box in communication with the jaws, a feed device communicating with the tack-box, and having an upright shank pivoted at opposite ends in the opposite ends of the longitudinal slot in the casing, and a slide carried by the plunger, embracing the shank and oscillating the latter during the movement of the plunger.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

PETER ALFRID OLCÉN.

Witnesses:

A. D. CAMERIN,
D. R. LAIDLAW.