

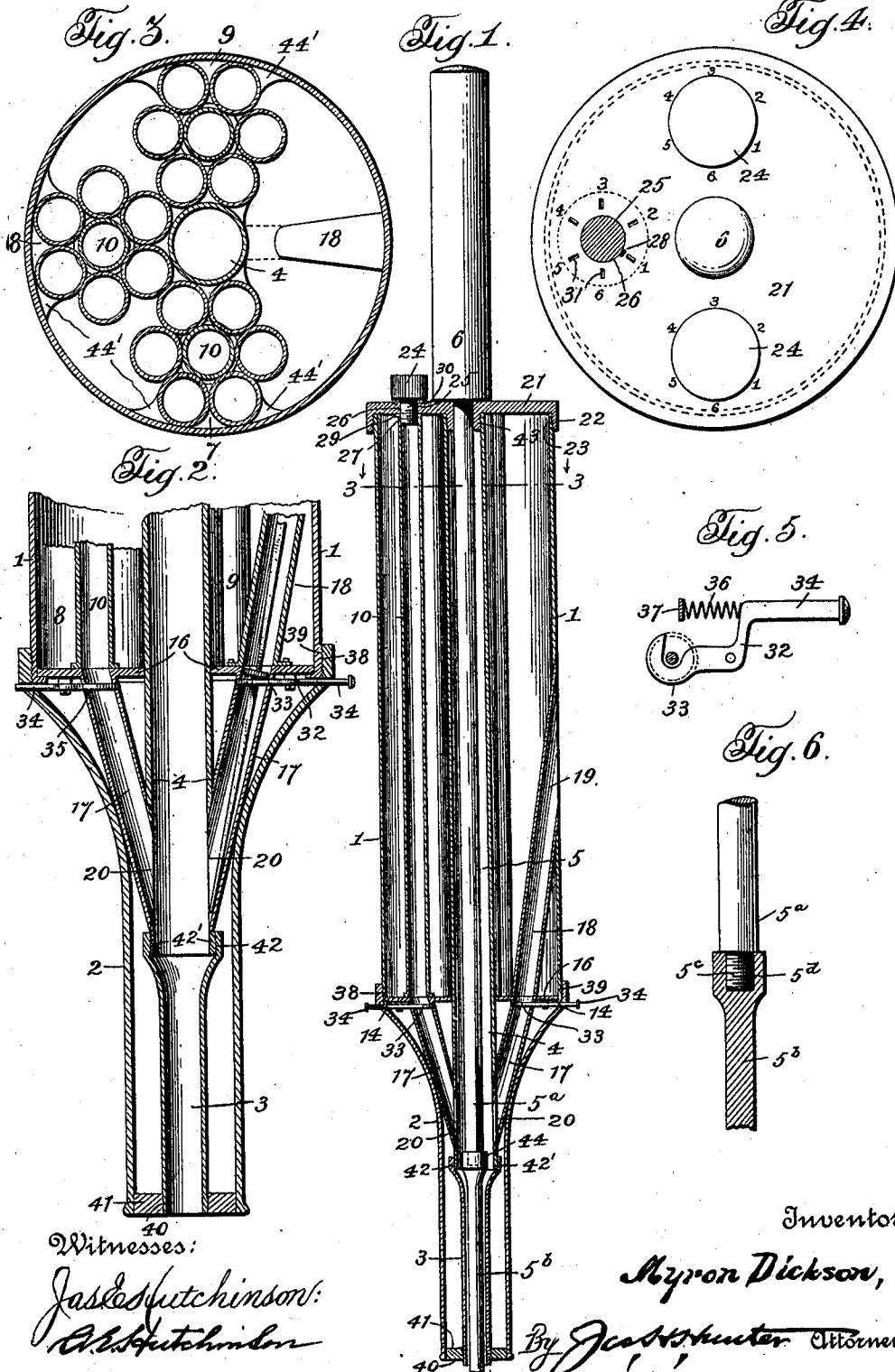
M. DICKSON.
NAIL DRIVER.

APPLICATION FILED AUG. 26, 1909.

Patented Jan. 31, 1911.

2 SHEETS—SHEET 1.

982.801.



Witnesses:
James Hutchinson:
A. Hutchinson

Inventor:

Myron Dickson,

By J. C. Hunter, Attorney:

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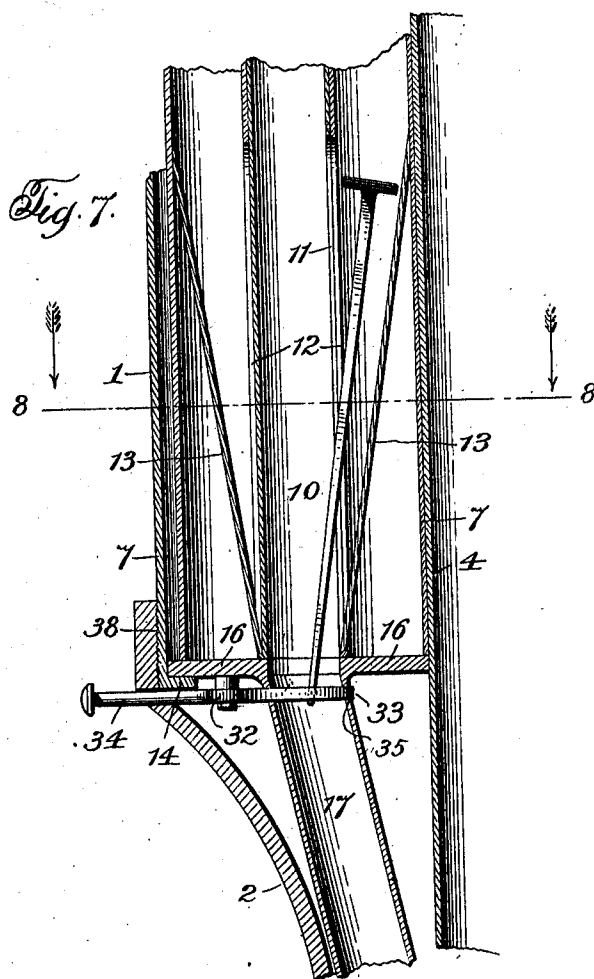
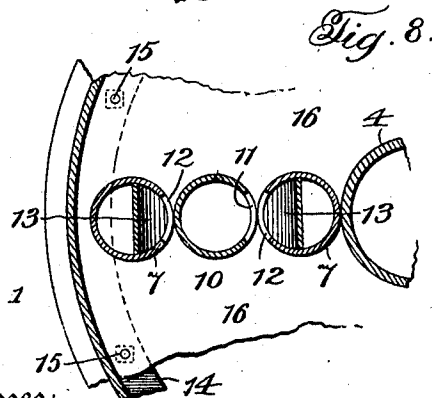
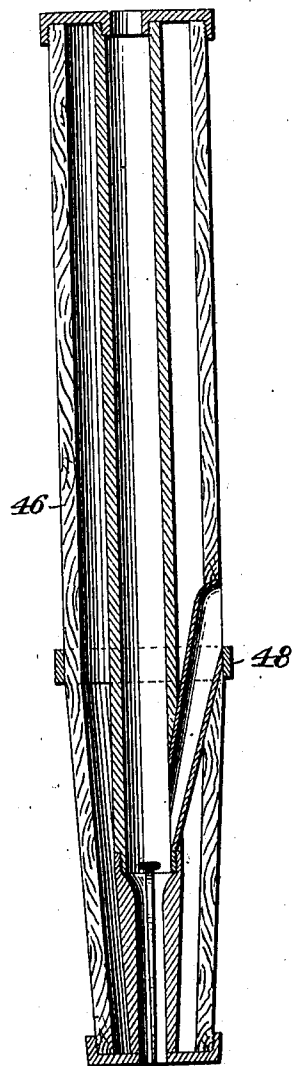


Fig. 9.



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UNITED STATES PATENT OFFICE.

MYRON DICKSON, OF MARTINSVILLE, INDIANA.

NAIL-DRIVER.

982,801.

Specification of Letters Patent.

Patented Jan. 31, 1911.

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To all whom it may concern:

Be it known that I, MYRON DICKSON, citizen of the United States, residing at Martinsville, in the county of Morgan and State of Indiana, have invented certain new and useful Improvements in Nail-Drivers, of which the following is a specification, reference being had therein to the accompanying drawing.

10 This invention relates to hand implements for driving nails, and aims to provide an improved tool for this purpose of the magazine type, which will be of compact construction for convenient handling and manipulation in use.

15 Important novel features of the invention reside in the particular construction and arrangement of the magazine together with special means for controlling the feeding of the nails therefrom to the delivery nozzle of the device.

20 Another important characteristic of the invention resides in the special construction and connection of the parts to facilitate the use of different driving plunger heads, delivery nozzles and different container tubes to make the device applicable to the driving of nails varying in size and form.

25 The invention, with other objects and advantages thereof, and the particular construction, combination and arrangement of parts comprising the same will be apparent from the detail description, hereinafter contained, when considered in connection with the accompanying drawings forming part hereof and illustrating one embodiment thereof.

30 In the drawings: Figure 1 is a longitudinal sectional view of a device constructed in accordance with the present invention. Fig. 2 is a view similar to Fig. 1 of the lower portion of the device on an enlarged scale, the plunger being removed, Fig. 3 is a transverse section taken on the line 3—3 of Fig. 1 and looking in the direction of the arrow, Fig. 4 is a detailed view showing in top plan the cap at the upper end of the casing, Fig. 5 is a detailed view of the feed controlling device, Fig. 6 is a detailed view of the lower portion of the plunger, Fig. 7 is a fragmentary longitudinal section on an enlarged scale, Fig. 8 is a transverse section taken on the line 8—8 of Fig. 7 and looking in the direction of the arrow, Fig. 9 is a longitudinal section of a modified form.

35 Referring to the drawings in detail, 1

designates a casing or shell provided at one end with a contracted lower end portion 2 located centrally of which is a delivery nozzle 3. Extending centrally and longitudinally of the casing is a tubular guide 4 for a driving plunger 5, provided with a head 6, which is constructed to enter and work nicely through the delivery nozzle to drive the nails therefrom, said tubular guide 4 being arranged above and in longitudinal alinement with the delivery nozzle.

7, 8 and 9 designate separate groups of container tubes constituting the magazine of the tool. These groups of container tubes are arranged within the casing around the plunger guide 4, each group comprising a number of tubes arranged in circular series fixedly supported in the casing, and a feed tube 10 arranged for rotation centrally of each series of tubes, said feed tube having at its lower end a side opening 11 adapted to be brought into alinement separately with outlet openings 12 at the lower ends of the container tubes, said tubes being provided with walls 13 adjacent their outlet openings 12 inclined toward the feed tube, whereby when the opening of the feed tube is brought into alinement with the opening of one of the container tubes a nail at the bottom thereof will be directed into the feed tube. Seated within the upper part of the portion 2 and secured to an interior annular shoulder 14 thereof by fastening screws 15 is a transverse circular plate 16 supporting delivery chutes 17 leading from the rotary feed tubes 10 to the delivery nozzle 3, and also a delivery chute 18 leading to the delivery nozzle from an auxiliary feed opening 19 in the shell, the lower end of the tubular plunger guide being provided with openings 20 to permit the passage of nails from said chutes to the delivery nozzle, said plate serving to cover the lower ends of all of the container tubes excepting the rotary feed tubes.

The casing is adapted to be closed at its upper end by a cap 21 provided with a screw threaded portion 22 to detachably engage a screw threaded portion 23 of the casing, this arrangement permitting the convenient loading of the magazine with nails.

Means are provided at the top of the casing for rotating, positioning and locking the feed tubes in different positions of adjustment with their inlet openings in proper alinement with the outlet opening of the

container tubes, said means comprising turn buttons 24, provided with shanks 25 to pass through apertures 26 in the cap 21 and be rigidly connected with the tops of the feed tubes to turn the same, the shanks of the turn buttons in the present instance are shown screw threaded at their lower ends to engage internally screw threaded portions 27 of the feed tubes. The cap 21 is provided with slots 28 coincident with the openings 26 to permit lugs 29 of the turn buttons to be engaged beneath the underside of the cap. This arrangement serving to maintain the turn buttons in proper working positions relative to the cap. Each turn button is provided with a lug 30 to engage a series of depressions 31 spaced around the openings in the cap to facilitate the proper positioning and holding the feed tubes with their inlet openings in alinement with the various container tubes.

In order to control the passage of the nails from the feed tubes, a separate feed gate or valve for each feed tube is provided to trap and hold the nails in the delivery chute. Each feed gate consists of an angle arm 32 terminating at one end in a curved or slotted cut off part 33 and having at its other end a push rod 34, said angle arm being pivoted to the underside of the plate 16 so that the cut off portion is adapted to work through an aperture 35 of one of the chutes to catch the heads of the nails and hold them in the chute as indicated in Fig. 2 of the drawings. As will be understood, the nails are fed singly, the nail above the nail in the delivery chute resting upon the head of the nail held in the chute and being thus prevented from entering the chute until the feed vale is operated to release the nail in the chute. A spring 36 is arranged to bear against a depending lug 37 of said plate and against the angle arm to normally hold the feed gate in the position indicated. The push rod projects to the outside of the casing and is adapted to be pressed inwardly against the action of the spring to move the cutoff portion of the feed gate to one side of the nails.

As will be understood, all of the tubes of the magazine including the rotary feed tubes are loaded with nails the rotary feed tubes being positioned with their side openings 11 out of alinement with the outlet openings of the other container tubes, the nails being fed from each group of container tubes beginning with the nails contained in the feed tube, which when empty is turned to successively bring its side opening 11 in alinement with the outlet openings of the respective stationary container tubes of the group as required.

By providing the auxiliary feed opening 19 and the delivery chute 18, it is possible

to feed nails to the delivery nozzle independent of the magazine and its feeding mechanism.

In the present instance, I have illustrated the magazines as being made up of three groups of container tubes, each group comprising seven tubes. It will be understood, however, that it is within the scope of the invention to employ a greater or less number of groups or series of tubes, each group comprising any number of tubes according to requirements. By the particular construction and arrangement of the container tubes, I make it possible to shorten the length of the magazine without decreasing its capacity, and a compact construction is provided.

What I regard as particularly important features of my invention reside in the special construction, combination, arrangement, and connection of the parts whereby the container tubes, driving plunger head, delivery chutes and delivery nozzle can be readily interchanged for other similar parts of different size or form to adapt the device for use with nails of various sizes and forms and whereby the container tubes can be quickly removed and other parts substituted to lighten and convert the device into the type of tool in which the nails are separately fed by hand through an opening in the casing.

The end portion 2 is constructed as a separate part from the casing to be detachably connected thereto, said portion being provided with a threaded part 38 for engagement with a threaded part 39 of the casing. Each delivery nozzle 3 is provided at its lower end with a threaded portion 40 for engagement with a threaded collar 41 of the portion 2, and with the threaded part 2 at its upper end for engagement with a threaded portion 42' at the lower end of the plunger guide 4, the upper end of which is threaded to engage a threaded flange 43 depending from the cap 21. The flange 43 extends slightly within the plunger guide and coacts with shoulder portion 44 of the plunger to limit the upward movement of the plunger.

The circular series of tubes of each group are connected by solder or secured together in any convenient manner, so that each group of container tubes is adapted to be handled as a whole to be removed from or placed within the casing to rest upon the plate 16, said groups of tubes being fixed against movement in the casing by small lugs 44' connected to the interior of the casing and the exterior of the plunger guide. The driving plunger 5 consists of a rod or stem 5^a to which is adapted to be connected plunger heads 5^b of different sizes corresponding to the different size delivery nozzles 3 that are adapted to be employed, the

plunger stem being provided with a reduced threaded part 5^c for engagement with threaded sockets 5^d of the plunger head.

Fig. 7 illustrates the device when converted into a tool of the type in which the nails are fed separately by hand from the exterior of the casing, the container tubes having been removed and a wooden casing 46 substituted for the metal casing 1, said wooden casing being provided with a reinforcing ferrule at its lower end and an intermediate reinforcing band 48.

What I claim is:

1. A hand implement of the class described comprising a reciprocatory driving plunger, a guide for the plunger, a delivery nozzle, a stationary magazine comprising a series of container tubes, and a feed tube movable to different positions relative to said container tubes to receive separately the nails from the respective container tubes within its interior channel and feed them to the delivery nozzle, the longitudinal axis of the feed tube and the longitudinal axis of the container tubes extending in parallel lines.

2. A hand implement of the class described comprising a reciprocatory driving plunger, a guide for the plunger, a delivery nozzle, a stationary magazine comprising a plurality of container tubes, a single part feed tube mounted to be turned to different positions relative to the container tubes to receive separately the nails from the respective container tubes within its interior channel and feed them to the delivery nozzle.

3. A hand implement of the class described, comprising a reciprocatory driving plunger, a plunger guide, a delivery nozzle, a stationary magazine comprising several series of container tubes, and independent means for each series of tubes for separately feeding the contents of each tube to the delivery nozzle.

4. A hand implement of the class described, comprising a reciprocatory driving plunger, a guide for the plunger, a delivery nozzle, a stationary magazine including a circular series of container tubes, and a rotary feed tube common to all of said tubes to separately feed the contents of each tube to the delivery nozzle, said tube being arranged centrally of the container tubes, the longitudinal axes of the container tubes and the longitudinal axis of the rotary feed tube extending in parallel lines.

5. An implement of the class described, comprising a reciprocatory driving plunger, a guide for the plunger, a delivery nozzle, a stationary magazine including a plurality of tubes arranged in circular series, and a single part feed tube arranged centrally of said series of container tubes to control the feeding of the contents of each of said tubes to the delivery nozzle, said feed tube being

movable relative to the series of container tubes.

6. A hand implement of the class described, comprising a casing having a delivery nozzle at one end thereof, a plunger guide arranged centrally of the casing in line with the delivery nozzle, a reciprocatory driving plunger to work in said guide, a magazine including separate series of container tubes fixed in the casing around the plunger guide, and means to separately feed the contents of each tube to the delivery nozzle.

7. A hand implement of the class described, comprising a reciprocatory driving plunger, a guide for the plunger, a delivery nozzle, a stationary magazine including a circular series of container tubes, a rotary feed tube to separately feed the contents of the container tubes to the delivery nozzle, said tube being arranged centrally of the container tubes, and a feed gate controlling the outlet of the rotatable feed tube.

8. A hand implement of the class described, comprising a reciprocatory driving plunger, a guide for the plunger, a delivery nozzle, a stationary magazine including a circular series of container tubes, a rotary feed tube arranged centrally of the container tubes, a delivery chute intermediate one end of the feed tube and the inlet of the delivery nozzle, and a feed gate at the lower end of the rotary feed tube.

9. A hand implement of the class described, comprising a casing having a delivery nozzle at one end thereof, a plunger guide arranged centrally of the casing above the delivery nozzle and in alinement therewith, a reciprocatory driving plunger to work in said guide, a magazine including a plurality of container tubes extending longitudinally of the casing and fixed therein in separate circular series around the plunger guide, a rotary feed tube for each series of container tubes arranged centrally thereof, and a delivery chute leading from the lower end of each feed tube to the delivery nozzle.

10. A hand implement of the class described, comprising a casing having a delivery nozzle at one end thereof, a plunger guide arranged centrally of the casing above the delivery nozzle, a reciprocatory driving plunger to work in said guide, a magazine including several series of tubes extending longitudinally of the casing and fixed therein, a feed tube for each series of container tubes, and a delivery chute leading from each feed tube to the delivery nozzle.

11. A hand implement of the class described, comprising a casing having a delivery nozzle at one end thereof, a plunger guide arranged centrally of the casing above the delivery nozzle, a reciprocatory driving plunger to work in said guide, a magazine including several series of container tubes

extending longitudinally of the casing and fixed therein, a feed tube for each series of container tubes, a delivery chute leading from each feed tube to the delivery nozzle, and separate feed gates controlling the outlets of the feed tubes.

12. A hand implement of the class described, comprising a casing having a delivery nozzle at one end thereof, a plunger guide extending longitudinally and centrally of the casing above the delivery nozzle, a reciprocatory driving plunger to work in said guide, a magazine including several series of container tubes extending longitudinally of the casing and fixed thereto, a feed tube for each series of container tubes, a delivery chute leading from each feed tube to the delivery nozzle, and operating means outside of the casing for the feed tubes.

13. A hand implement of the class described, comprising a casing having a delivery nozzle at one end thereof, a plunger guide extending longitudinally and centrally of the casing above the delivery nozzle, a reciprocatory driving plunger to work in said guide, a magazine including several series of container tubes extending longitudinally of the casing and fixed therein, a feed tube for each series of container tubes, a delivery chute leading from each feed tube to the delivery nozzle, an auxiliary feed opening in the casing, and a delivery chute leading from said opening to the delivery nozzle.

14. A hand implement of the class described, comprising a casing, a reciprocatory driving plunger, a guide for the plunger, a delivery nozzle, a magazine including a circular series of tubes extending longitudinally of the casing and fixed thereto, and a movable feed tube each of said tubes being provided with an outlet opening adjacent the feed tube, and a lower wall opposite said opening inclined toward the feed tube, said feed tube being provided with an opening to be separately aligned with the opening of each container tube, a delivery chute leading from the feed tube to the delivery nozzle.

15. A hand implement of the class described, comprising a reciprocatory driving plunger, a guide for the plunger, a delivery nozzle, a magazine comprising a circular series of tubes extending longitudinally of the casing and fixed thereto, a rotary feed tube arranged centrally of the circular series of container tubes, each of said container tubes being provided with an outlet opening adjacent the rotary feed tube and a lower wall opposite said opening inclined toward the feed tube, said feed tube being provided with an opening to be separately aligned with the opening of each container tube, and a delivery chute leading from the outlet of the feed tube to the delivery nozzle.

16. A hand implement of the class described, comprising a reciprocatory driving plunger, a guide for the plunger, a delivery nozzle, a magazine including a series of stationary container tubes and a rotatable container tube, said rotatable container tube being constructed and arranged to also serve to separately feed the contents of each of the other container tubes to the delivery nozzle, the longitudinal axes of the stationary container tubes and the longitudinal axis of the rotary container tube extending in parallel lines.

17. A hand implement of the class described comprising a reciprocatory driving plunger, a guide for the plunger, a delivery nozzle, a magazine comprising a plurality of container tubes some of said tubes being movable and constructed and arranged to also serve to separately feed the contents of other of the container tubes to the delivery nozzle.

18. A hand implement of the class described comprising a reciprocatory driving plunger, a guide for the plunger, a delivery nozzle, a stationary magazine comprising a series of container tubes, and a feed tube movable to different positions relative to said container tubes to receive separately the nails from the respective container tubes within its interior channel and feed them to the delivery nozzle, and means to control the delivery of nails from said feed tube to the delivery nozzle.

19. A hand implement of the class described comprising a reciprocatory driving plunger, a guide for the plunger, a delivery nozzle, a stationary magazine comprising a series of container tubes, a feed tube movable to different positions relative to said container tubes to receive separately the nails from the respective container tubes within its interior channel and feed them to the delivery nozzle, a delivery chute intermediate one end of the feed tube and the inlet of the delivery nozzle, and a device working in said delivery chute to control the passage of nails to the delivery nozzle.

20. A hand implement of the class described, comprising a reciprocatory driving plunger, a guide for the plunger, a delivery nozzle, a stationary magazine comprising a series of container tubes, and a feed tube movable to different positions relative to said container tubes to receive separately the nails from the respective container tubes within its interior channel and feed them to the delivery nozzle, and means to control the delivery of nails from said feed tube to the delivery nozzle, said means comprising a valve having a curved cut-off portion to engage the head of a nail and arrest its passage.

21. A hand implement of the class described comprising a reciprocatory driving

plunger, a guide for the plunger, a delivery nozzle, a stationary magazine comprising a series of container tubes, a feed tube movable to different positions relative to said container tubes to receive separately the nails from the respective container tubes within its interior channel and feed them to the delivery nozzle, a delivery chute intermediate one end of the feed tube and the inlet of the delivery nozzle, and a device to trap and temporarily hold the nails in said delivery chute.

22. A hand implement of the class described comprising a reciprocatory driving plunger, a guide for the plunger, a delivery nozzle, a stationary magazine comprising a plurality of container tubes, a feed tube to separately feed the contents of each container tube to the delivery nozzle, a delivery chute intermediate the outlet of the feed tube and the inlet of the delivery nozzle, and means to control the delivery of nails to the delivery nozzle comprising an arm pivotally mounted and carrying a slotted cut-off portion to work through the slot in the delivery chute and to normally occupy a position therein to engage the head of a nail and hold the same in the chute, and a portion on said arm by means of which to operate the same to move the cut-off portion and release the nail.

23. A hand implement of the class described comprising a casing having a delivery nozzle at one end thereof, a plunger guide in the casing, a reciprocatory driving plunger to work in said guide, a magazine within the casing including a plurality of

container tubes, means for feeding the contents of said tubes to the delivery nozzle, an auxiliary feed opening in the casing, and a delivery chute leading from said opening to the delivery nozzle.

24. A hand implement of the class described comprising a reciprocatory driving plunger, a guide for the plunger, a delivery nozzle, a magazine including a plurality of container tubes each provided with an outlet opening, and a single part feed tube provided with an inlet opening to be separately alined with the opening of each container tube, said feed tube being mounted for movement to permit its inlet opening to be alined with the outlet opening of each of the container tubes.

25. A hand implement of the class described comprising a reciprocatory driving plunger, a guide for the plunger, a delivery nozzle, a magazine including a plurality of container tubes each provided with an outlet opening, and a feed tube provided with an inlet opening to be separately alined with the opening of each container tube, said feed tube being mounted for movement to permit its inlet opening to be alined with the outlet opening of each of the container tubes, and a delivery chute leading from the feed tube to the delivery nozzle.

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

MYRON DICKSON.

Witnesses:

J. B. BRYAN,
GEORGE M. ISENHOWER.