No. 876,086. PATENTED JAN. 7, 1908.

M. PEARSON.

NAILING TOOL.

APPLICATION FILED MAR. 3, 1906.

2 SHEETS—SHEET 1.

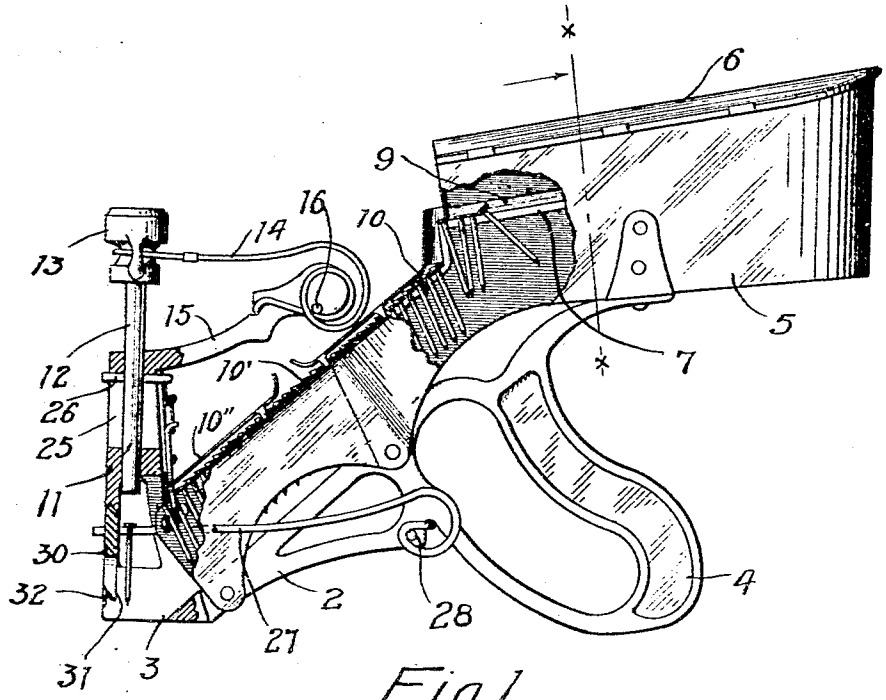


Fig 1.

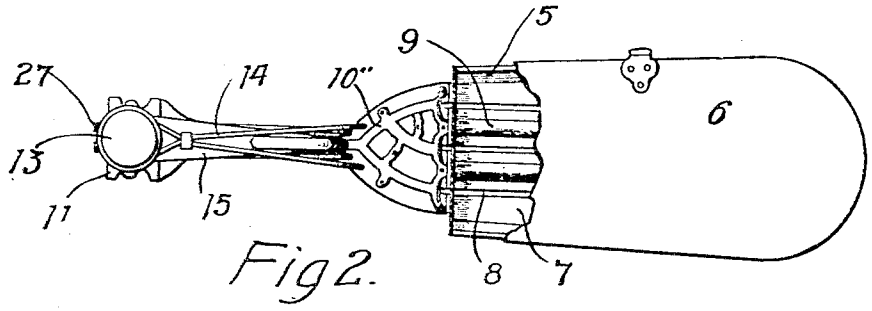


Fig 2.

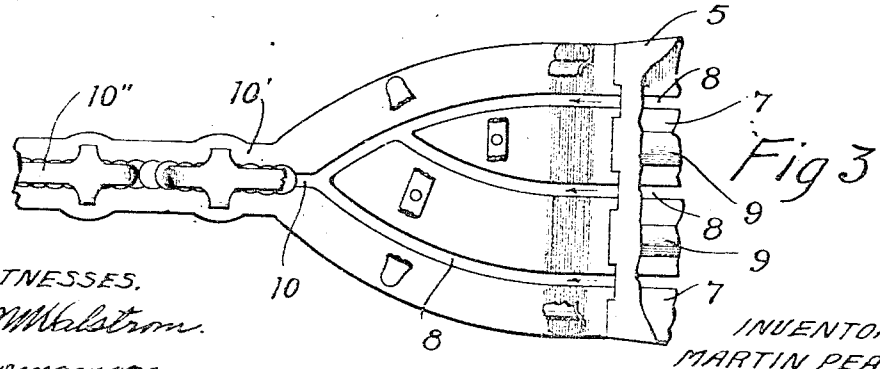


Fig 3

WITNESSES.

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2 SHEETS—SHEET 2.

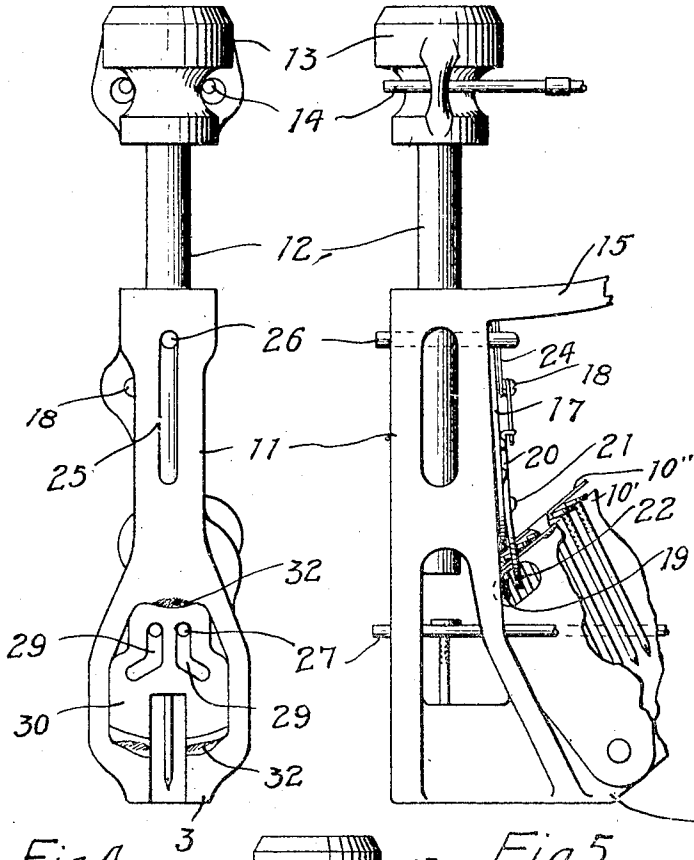


Fig 4.

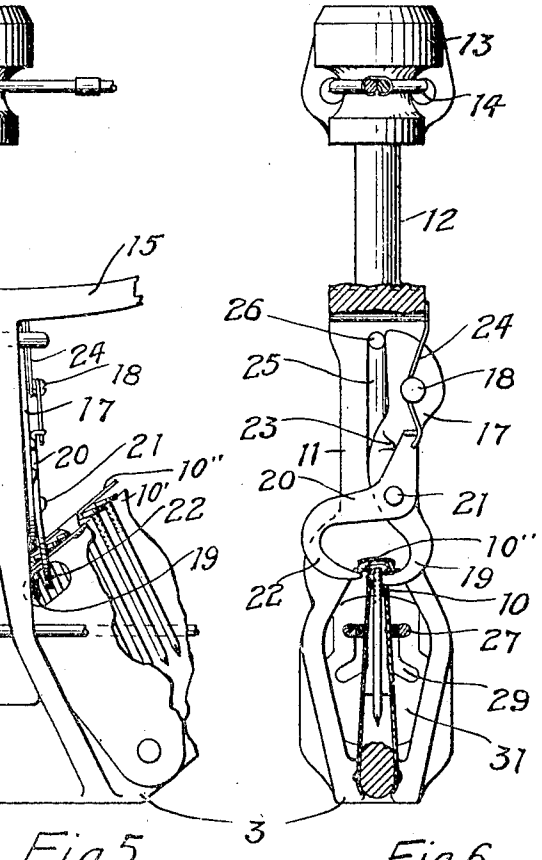


Fig 5.

Fig 6.

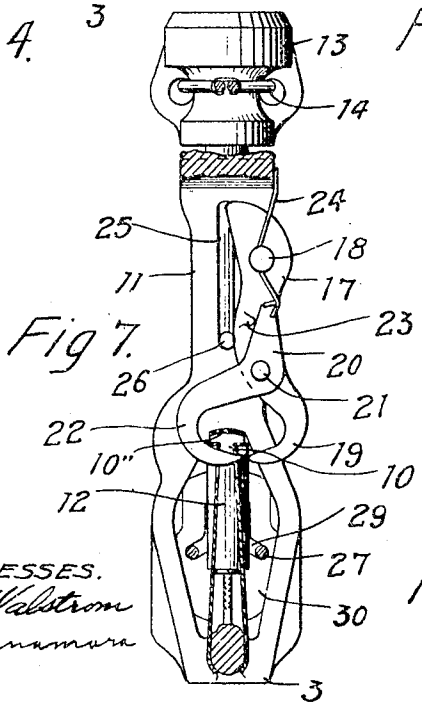


Fig 7.

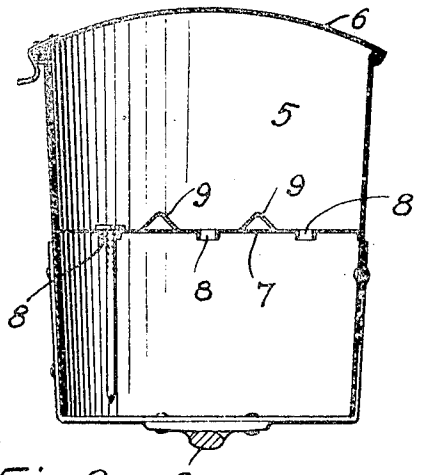


Fig 8.

WITNESSES.

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UNITED STATES PATENT OFFICE.

MARTIN PEARSON, OF ROBBINSDALE, MINNESOTA.

NAILING-TOOL.

No. 876,086. Specification of Letters Patent. Patented Jan. 7, 1908.

Application filed March 3, 1906. Serial No. 303,991.

To all whom it may concern:

Be it known that I, MARTIN PEARSON, of Robbinsdale, Hennepin county, Minnesota, have invented certain new and useful Improvements in Nailing-Tools, of which the following is a specification.

My invention relates to tools adapted to feed nails into the path of a driving plunger, and the object of my invention is to improve the device shown and described in Letters Patent of the United States, No. 467,864, issued to me January 26, 1892, and to adapt the device for handling and driving nails.

The invention consists, generally, in various constructions and combinations, all as hereinafter described and particularly pointed out in the claims.

In the accompanying drawings forming part of this specification, Figure 1 is a side elevation partially in section of a nailing tool embodying my invention. Fig. 2 is a top view of the same. Fig. 3 is an enlarged view illustrating the feed chutes through which the nails are conducted down to the driving plunger. Fig. 4 is an end view of the tool. Fig. 5 is a side elevation of the forward end of the tool showing the devices for controlling the feed of the nails. Fig. 6 is a sectional view showing the driving plunger in its normal raised position. Fig. 7 is a similar view showing the driving plunger depressed. Fig. 8 is a sectional view of the hopper on the line x—x of Fig. 1.

In the drawing, 2 represents a stock or frame for the tool, having a lower end 3 and a handle portion 4 adapted to rest upon the surface into which the nail is to be driven. A hopper 5, having a suitable cover 6, is mounted on the top of the handle 4, and is inclined slightly and has a bottom 7 provided with a series of longitudinal slots 8 forming chutes or guideways into which the shanks of the nails drop and are suspended by their heads therein. The bottom 7 is a sufficient distance from the lower part of the hopper to allow the nails to stand vertically in the chutes, which are of sufficient width to allow the nail shanks to drop through, but are too narrow to permit the passage of their heads. Ribs 9 V-shaped in cross section are mounted longitudinally on the bottom 7 between the slots therein for the purpose of engaging the nails and directing them into the slots. When a nail strikes the inclined surfaces of the ribs it will roll down thereover into one of the slots, and the shank falling therethrough will swing down to a vertical position. The inclination of the slots is sufficient to cause the feed of the nails by gravity therein.

I have shown a hopper provided with three parallel slots, but a greater or less number may be provided if preferred. These slots extend through the end wall of the hopper and converge and merge into a single chute or slot 10 provided in an inclined plate 10′ which extends downwardly from the end wall of the hopper. Suitable guards 10″ are provided over the chutes, for the purpose of holding the nails in place therein. The nails traveling down the chutes 8 will converge and finally all mingle in one chute 10 and pass along therein to the driving mechanism. The nails are placed in the hopper and will automatically find their way into the feed chutes and work down therein into the chute 10. The shaking and jarring of the tool incident to its movement over the surface to be nailed will ordinarily be sufficient to cause proper feeding of the nails, but if necessary at any time the operator can shake the hopper to break up any clogging of the nails therein and insure their rapid and uniform feed. A stop 11 is mounted on the frame of the tool, and a vertically moving driving plunger 12 having a head 13 is mounted in said stop, and is normally held in its raised position by a spring 14, which is supported on an arm 15 and is looped around a pin 16 without contact therewith, and has ends adapted to straddle the head 13. Upon the depression of the driving plunger the spring 14 will be put under tension to return the plunger to its normal position when the nailing operation is completed. The loop in the spring 14 is carried around each end of the pin 16, the spring at the beginning of the loop bearing on said pin, but being out of contact therewith except at one point whereby the flexing of the spring will be uninterrupted, and its power through the greater portion of its length may be utilized. A lever 17 is pivoted at 18 on the stock, and has a depending inwardly curved arm 19 at its lower end which normally projects across the lower end of the chute 10 and blocks the same to prevent the discharge of a nail. A second lever 20 is pivoted at 21 on the lever 17, and also has an inwardly curved arm 22 at its lower end near the arm 19 and normally out of the path of a nail passing down the chute 10. A stop 23 is provided on the

lever 17 against which the lever 20 is yieldingly held by a spring 24. A slot 25 is provided in the stock in which a pin 26 mounted on the plunger 12 is adapted to slide, the lever 17 normally projecting across said slot into the path of said pin. When the pin descends the lever 17 will be oscillated on its pivot and the arm 19 withdrawn temporarily from the path of the nails, and the arm 22 will be moved across the chute 10 to obstruct the passage of the nails. During the time, however, that the arm 19 is being withdrawn and the arm 22 moved across the chute, a single nail will be allowed to feed forward past the arms. When the pin 26 returns to its normal position it will engage the upper end of the lever 17 and swing its lower end and the arm 19 back to its normal position across the chute. Thus, as indicated in Figs. 5 and 6, a single nail will normally occupy the space between the arms 19 and 22 and be fed forward out of the chute as soon as the arm 19 is withdrawn. After leaving the chute 10 the nails fall upon parallel spring jaws 27 supported at 28 on the frame of the tool and extending beneath the lower end of the chute 10 and across the space beneath the driving plunger and having their free ends inserted into curved slots 29 provided in a plate 30 at the lower end of the stock. The spring jaws are a sufficient distance apart to allow the nail shanks to drop between them, but are too near together to permit the passage of the nail head, consequently when a nail falls out of the chute it will drop between the jaws and be suspended thereon, as indicated in Fig. 1. The slots 21 extend downwardly and outwardly, and when the spring jaws are depressed the shape of the slots will cause the separation of the jaws sufficiently to allow the passage of the nail head. The plate 30 is fitted into a recess 31 in the stock, and is substantially flush with the surface thereof and is secured preferably by means of the projecting loops 32 provided at the edge of the recess.

The spring jaws will normally be in the upper ends of the slots 29 and substantially horizontal, and the nails as they are fed down out of the chute 21 will fall upon these jaws in the path of the driving plunger, and when the plunger is struck by a hammer and driven downward its lower end will engage the head of the nail and force it and the spring jaws downward until the point of the nail is driven into the surface on which the tool is placed. About the time the driving plunger reaches the limit of its downward movement, the spring jaws will be separated by the outward curve of the slots 29, and the nail head will pass between the jaws and be freed from the grasp thereof, the plunger continuing its downward movement between the separated jaws until it reaches the limit of its stroke. The spring 14 put under tension by the depression of the plunger will lift it to its normal position and the nail discharged from the chute when the plunger moved down and prevented from dropping upon the spring jaws by the presence of the plunger between them will now be allowed to drop between the jaws which have returned to their normal position ready to be depressed again upon the next stroke of the plunger. The nails can therefore be driven into a surface as rapidly as the blocks can be struck on the driving plunger.

I claim as my invention:

1. In a nailing tool, a vertically arranged stock, a driving plunger mounted therein and having a head provided with an annular groove and guards on each side of said head, a spring having its middle portion looped around said head in said groove and passing through said guards, whereby the accidental disengagement of said spring from said head is prevented, an arm mounted on said stock and extending rearwardly therefrom, and said spring having its ends secured to said arm and provided with a suitable coil between said ends and said head, substantially as described.

2. In a nailing tool, a vertically arranged stock, a driving plunger mounted therein and having a head, an arm mounted on the upper end of said stock and extending rearwardly therefrom, the upper portion of said arm being on a level substantially with the upper portion of said plunger, a pin arranged transversely in the upper portion of said arm, and a spring having its middle portion looped around said head and its ends curved downwardly and coiled around said pin, and the extremities of said ends bearing on said arm, and said spring tending, normally to hold said plunger in a raised position.

3. In a nailing tool, the combination, with a stock, of a vertically moving plunger mounted therein, a nail chute arranged to deliver nails into the path of said plunger, a lever pivoted on said stock and having a curved arm arranged to project across said chute and normally prevent the discharge of nails therefrom, a second lever pivoted on said first named lever and having an arm that is normally out of the path of the nails in said chute, said first named lever having a stop thereon, and a spring device for normally holding said second named lever against said stop and yieldingly holding said first named arm across said chute, and a pin provided on said plunger and arranged to engage said first named lever and move its arm out of the path of the nails and move said second named arm across said chute into the path of the succeeding nails when the one in front has been discharged.

4. In a nailing tool the combination, with a stock, of a vertically moving plunger mounted therein, a nail chute arranged to

deliver nails into the path of said plunger, a lever pivoted on said stock and arranged to project across said chute, and normally prevent the discharge of nails therefrom, a second lever pivoted on said first named lever and adapted to swing in the same plane therewith and normally out of the path of the nails in said chute, and a single spring arranged to yieldingly hold said first named lever across the path of the nails in said chute, and means on said plunger arranged to engage said first named lever and move it out of the path of the nails and move said second named lever across said chute into the path of the succeeding nails when the first one has been discharged.

In testimony whereof, I have hereunto set my hand this 24th day of February 1906.

MARTIN PEARSON.

Witnesses:

RICHARD PAUL,

C. MACNAMARA.