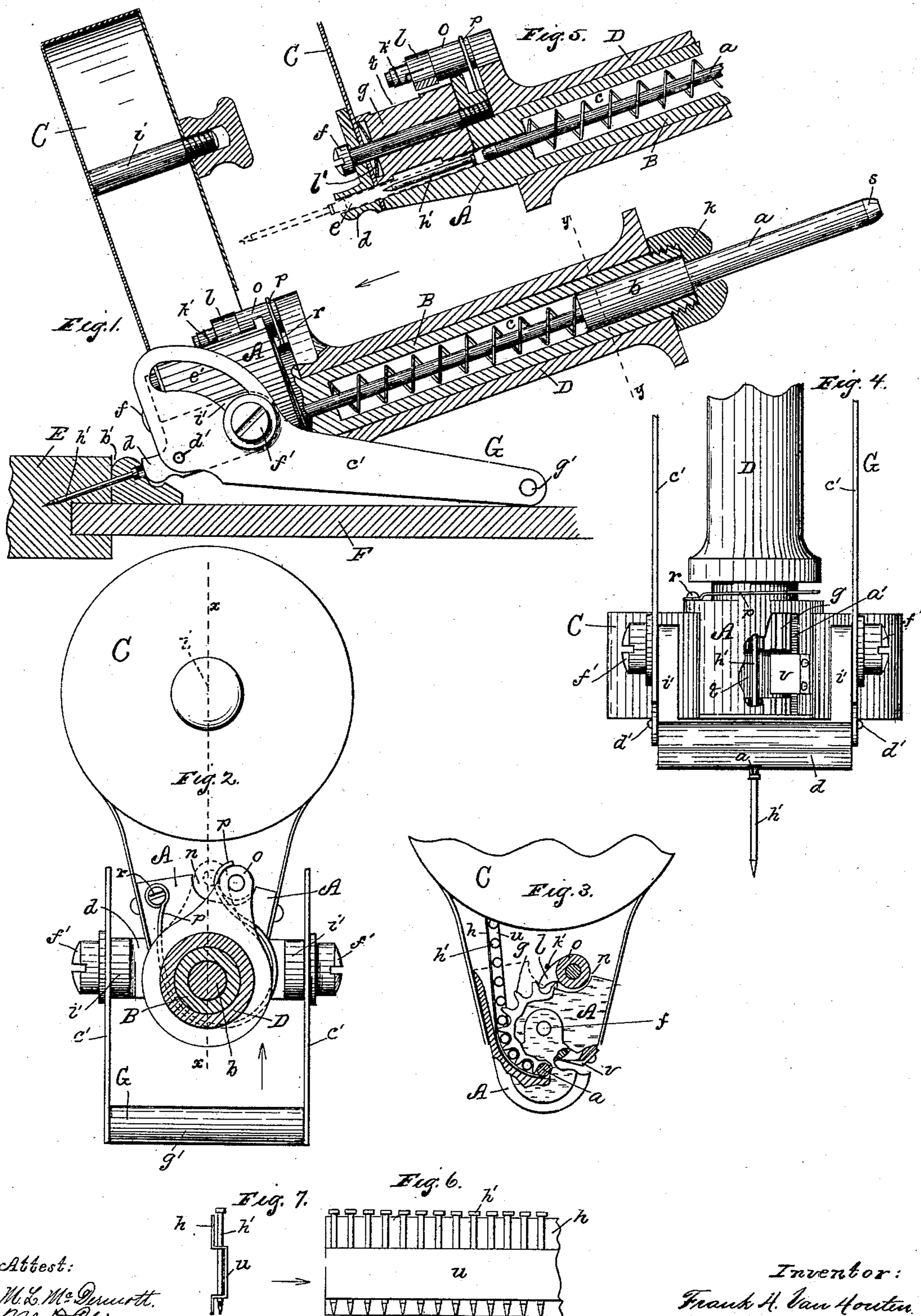


(No Model.)

F. H. VAN HOUTEN.
DEVICE FOR DRIVING NAILS.

No. 418,360.

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UNITED STATES PATENT OFFICE.

FRANK H. VAN HOUTEN, OF MATTEAWAN, NEW YORK.

DEVICE FOR DRIVING NAILS.

SPECIFICATION forming part of Letters Patent No. 418,360, dated December 31, 1889.

Application filed September 17, 1889. Serial No. 324,236. (No model.)

To all whom it may concern:

Be it known that I, FRANK H. VAN HOUTEN, of Matteawan, in the county of Dutchess and State of New York, have invented a new and useful Improvement in Devices for Driving Nails, which improvement is fully set forth in the following specification, and shown in the accompanying drawings.

My object is to produce in this invention an improved device for driving nails, more particularly small nails to be driven in an inclined direction—as, for instance, nails for fastening moldings and similar work. I aim to have this device constructed so that it will set the heads of the nails as well as driving the latter, and also avoid any marring or bruising of the molding or other work, something that can hardly be avoided when an ordinary hammer is used to drive the nails. I also provide this implement with an adjustable gage, by means of which the inclination given the nails in the work may be regulated. The invention also comprises other novel features, all of which are hereinafter fully described, and more particularly pointed out in the claims.

Referring to the drawings, Figure 1 is a side elevation of the implement in position for use, some of the parts being centrally and longitudinally sectioned, as on the dotted line $x x$, in Fig. 2; Fig. 2, a view of the implement seen as indicated by arrow in Fig. 1, the barrel and some other parts being transversely sectioned, as on the dotted line $y y$ in Fig. 1; Fig. 3, a view showing the carrying-wheel and other associated parts, various parts being transversely sectioned and broken away; Fig. 4, a view of the lower parts of the implement, seen as indicated by arrow in Fig. 2; and Fig. 5, a central longitudinal section of the lower parts of the implement, taken on the dotted line $x x$, in Fig. 2. Fig. 6 shows the nails in a ribbon of paper to be used in the nail-driver. Fig. 7 is an end view of the paper ribbon shown in Fig. 6.

Referring to the parts, A is the body of the machine or implement serving to hold the other parts, it being constructed with a cylindrical barrel B. In this barrel is placed a driving-rod a for the nails, the rod being pro-

vided with an enlarged part b , having a diameter equal to that of the bore of the barrel.

c is a spiral spring upon the driving-rod, within the barrel, which, pressing the part b , tends to hold the rod up away from the head of the nail h' , as shown in Fig. 5.

d is a delivering-lip for the nails, secured rigidly to the body A by means of a bolt f . This lip is formed with a cylindrical opening or bore e at the middle of the lip, in line with the driving-rod, out through which opening the nails are driven by the driving-rod into the wood, as shown. The delivering-lip is held to the body in a position transverse to the axis of the barrel, and is designed to rest directly against the molding when the implement is in use. The lip is of sufficient transverse length to enable the operator to hold the implement truly against the molding, so that the nails shall be driven straight into the wood with reference to a plane transverse to the molding.

g is a toothed wheel held to turn upon the bolt f , its axis being parallel with the axis of the barrel or guide B for the driving-rod and at one side thereof, so that the lower end of the driving-rod may pass along a space between adjacent teeth of the wheel. This toothed wheel acts to draw the ribbon of paper h , supplied with nails, to the driving-rod, presenting the nails successively in position immediately beneath the end of the driving-rod, as shown. The ribbon of paper, with the nails, is formed of considerable length and wound upon a rigid stud i , in an inclosure or box C, preferably made of sheet metal, from which it is drawn by the toothed wheel, as above described, the row of nails held in the paper acting as a toothed rack for the wheel.

Upon the outside of the rigid barrel B, I place a second barrel D, fitted to turn upon the barrel B. The latter extends beyond the end of the barrel D, and is provided with a cap-nut k , screwed rigidly down against the end of the barrel B, and so that the outer barrel may turn freely under the cap-nut. At its lower end the barrel D is provided with a spring-pressed pawl l , in position to engage the teeth of the wheel g . The body A is cut

away to form an opening *n*, Figs. 2 and 3, down through which the part *o* of the barrel D holding the pawl extends, the sides of said opening respectively forming stops to limit the distance to which the barrel D may be turned in any case upon its bearing on the barrel B. A spring *p*, held by a screw *r*, rigid with the body A and pressing against the part *o* of the outer barrel, tends to keep it in its right-hand position, as shown in Fig. 2.

In using this implement the outer barrel D is grasped by the left hand of the operator, while to drive a nail the outer end *s* of the driving-rod is struck with a mallet held in the right hand. After the nail is driven the implement is slid along the molding to a point where another nail is required, and while its position is being thus shifted the outer barrel is turned toward the left by the hand, as shown by position indicated by dotted lines in Fig. 2, which act turns the wheel to the amount of one tooth and brings another nail under the driving-rod in position to be driven into the wood. The driving-rod is constructed as to length so that the cap-nut *k* may form a gage for the depth to which the nail is driven. The blow of the mallet carries the head *s* of the rod to the cap-nut, and the mallet is arrested or stopped by the cap-nut at a time when the lower end of the driving-rod protrudes slightly from the face of the delivering-lip, just sufficient to properly set the nail, as shown in Fig. 1. This cap-nut also forms a stop for the upward movement of the driving-rod caused by the spring *c*, on account of the part *b* of the driving-rod encountering the cap-nut. The toothed wheel has a portion of its teeth cut away at the middle, forming a circumferential depression or channel *t*, Fig. 4, in which to receive the projecting part *u* of the ribbon or paper; and *v* is an edged piece rigid with the body A, held in the channel to form a scraper to raise the ribbon of paper from the wheel after the nails are driven out of it and conduct it out through the discharge opening *a'* in the lower side of the body.

In nailing molding in the panel of a door, for instance, it is desirable to have the nails enter the stile E of the door, Fig. 1, instead of the panel F, for commonly the panel will shrink and draw out of the stile; and if the molding is nailed to the panel it will be drawn away from the stile by the panel and leave an ugly crack or opening at *b'*, Fig. 1. To nail the molding in this manner the nails have to be driven in an inclined direction, as shown in Fig. 1, and the inclination of the driving-rod has to be gaged accordingly. To give the driving-rod any desired slant, I attach to the implement an adjustable gage G, in position to rest upon the panel or other convenient part of the work. This gage consists of two equal arms *c' c'*, pivoted at *d' d'* at the respective ends of the lip, the arms being provided with concentric curved slots *e' e'*, through which clamping-screws *f'*

f' pass, the screws entering arms *i' i'*, extending upward from the lip. At their extreme ends the arms *c'* are connected by a girt or tie *g'*. By shifting this gage upon the pivots *d' d'* the driving-rod may be given any degree of inclination between a vertical and a horizontal position.

The pawl *l* may be constructed to operate from gravity, but I prefer to provide it with a spring *h'*, to cause it to drop in between the teeth of the wheel *g*.

This implement, if made sufficiently strong, may be used for nailing down floors or for other work in which the nails have to be driven in a slanting direction.

l', Fig. 5, is a friction spring or tension for the toothed wheel, to hold the latter in position at each time after being moved by the pawl. As shown, this tension-spring is a disk made slightly crowning and placed beneath the wheel. The exact form of this tension device is not essential. A wire spring would serve the same purpose.

What I claim as my invention is—

1. An implement for driving nails, comprising a body or holder for the parts formed with a barrel, in combination with a spring-pressed driving-rod for the nails within the barrel, a delivering-lip for the nails secured to the body, an outer barrel, a cap-nut for the inner barrel, a toothed wheel to carry the nails, and a pawl upon the outer barrel to operate the toothed wheel, substantially as and for the purpose set forth.

2. An implement for driving nails, consisting of a body or a holder for the parts formed with a barrel, in combination with a driving-rod in the barrel, a spring for the rod, a transverse delivering-lip for the nails secured to the body, and a movable or adjustable gage to regulate the inclination of the driving-rod pivoted to the sides of the body, substantially as shown and described.

3. In an implement for driving nails, a body or holder for the parts thereof formed with an inner barrel, in combination with a spring-pressed driving-rod for the nails within said barrel, a delivering-lip for the nails secured to the body, an outer barrel held to turn upon the inner barrel, a toothed wheel, and a pawl operated by the outer barrel to move the toothed wheel, the latter being placed to have a space between its teeth come in line with the driving-rod, substantially as and for the purpose specified.

4. An implement for driving nails, having a body formed with a barrel, in combination with a driving-rod held by the barrel, a delivering-lip secured to the body, an outer barrel held to turn upon the inner barrel, a toothed wheel, a pawl operated by the outer barrel to move the toothed wheel, and a scraper or lifter for the toothed wheel, substantially as and for the purpose set forth.

5. An implement for driving nails, a body or holder for the parts formed with a barrel, a driving-rod for the nails held by the bar-

rel, a delivering-lip held by the body, an
outer barrel concentric with the inner barrel,
a toothed wheel, and a pawl operated by the
outer barrel to actuate the toothed wheel, in
5 combination with a series of nails contained
in a flexible holding-strip, substantially as
shown and described.

In witness whereof I have hereunto set my
hand, this 29th day of August, 1889, in the
presence of two subscribing witnesses.

FRANK H. VAN HOUTEN.

Witnesses:

E. B. WHITMORE,

M. L. McDERMOTT.