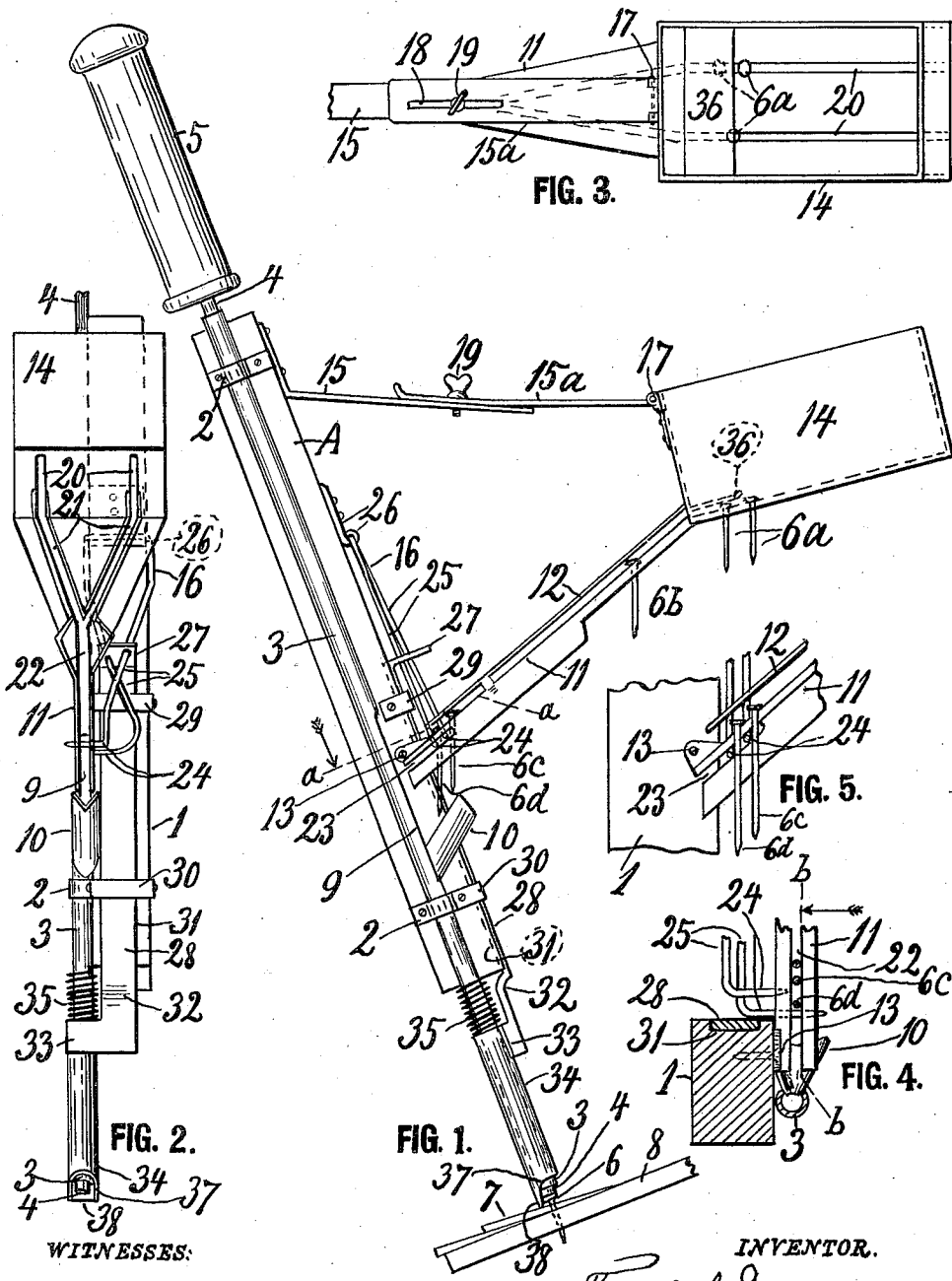


F. A. DEVEREAUX.
NAIL DRIVING DEVICE.
APPLICATION FILED MAR. 20, 1911.

1,030,286.

Patented June 25, 1912.



WITNESSES:

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UNITED STATES PATENT OFFICE.

FRANCIS A. DEVEREAUX, OF MINNEAPOLIS, MINNESOTA, ASSIGNOR OF ONE-HALF TO
FRANK M. DONNELLY, OF MINNEAPOLIS, MINNESOTA.

NAIL-DRIVING DEVICE.

1,030,286.

Specification of Letters Patent.

Patented June 25, 1912.

Application filed March 20, 1911. Serial No. 615,776.

To all whom it may concern:

Be it known that I, FRANCIS A. DEVEREAUX, citizen of the United States, residing at Minneapolis, in the county of Hennepin and State of Minnesota, have invented a new and useful Nail-Driving Device, of which the following is a specification.

My invention relates to devices for holding and driving nails in general, but is especially adapted for driving small nails, like shingle nails into shingle roofs from a portable device carried in the hand.

The object is to provide a cheap, convenient and efficient device of said kind.

In the accompanying drawing,—Figure 1 is a side elevation of my improved nailing apparatus shown in operative position upon a fragment of a shingle-roof, into which it has driven a nail almost completely home. Fig. 2 is the main portion of the device, viewed as from right to left in Fig. 1. Fig. 3 is a top view of the nail hopper and adjacent brace in Fig. 1. Fig. 4 is a slightly enlarged section on the line *a—a* Fig. 1. Fig. 5 is a section on the line *b—b* Fig. 4 with the cover 12 restored and the nail chute 10 and tube 3 omitted.

Referring to the drawing by reference numerals, 1 designates a straight frame bar, which together with the mechanisms mounted on it constitutes a light nailing device adapted to be carried in one hand and operated by the other hand. In a full sized apparatus said frame may be made of wood and may be about one foot long and about three-quarters of an inch thick and one inch wide. On said frame bar is secured by clamps 2 a tube 3, in which is slidably fitted a plunger rod 4, having a heavy handle or head 5 acting as a hammer in driving nails by the lower end of the rod 4, as shown in Fig. 1, where the plunger rod emerges from the tube 3 and drives the nail 6 into the shingles 7 placed on the roof board 8. The tube 3 has a side slot 9 with a chute 10 in its lower end. Into said chute and slot, and thereby into the tube 3, the nails are dropped from the lower end of an inclined nail race 11, which has a cover 12 to keep the nails in it. Said race has its lower end pivoted at 13 to the frame and its upper end secured to a nail hopper 14, and the latter is connected to the upper end of the frame by a brace composed of two overlapping sections 15 and 15^a, of which the latter

is pivoted at 17 to the hopper and is provided with a slot 18, through which a thumb-screw 19 is passed and threaded into the section 15, so that the hopper and the race 11 may be inclined more or less by moving said screw in the slot, the hinges or joints 13 and 17 permitting such variation of incline.

In Fig. 2 is shown that nail-slits or ducts 20 in the bottom of the hopper join with ducts 21 in the bottom of the race 11, and that the latter ducts converge into a single duct 22. The lower end of the race (see Figs. 1 and 5) is provided with longitudinal lateral slots, or in the present drawing gaps, 23, into which project across the duct 22 (see Fig. 4) two prongs 24, which in the present instance are formed at the lower ends of two depending arms 25 of a spring wire loop 16, whose middle is held in a bracket 26, fixed on the frame. Said arms 25 are loosely guided in an angular upper end portion 27 of a sliding bar 28, which slides in a groove 31 of the frame, where it is retained by two keepers, 29, 30. The lower end of said sliding bar has an offset at 32 and therebelow it is secured at 33 to a sleeve 34, which is slidable on the lower end of tube 3, and is normally projected about half an inch beyond said end by a spring 35 placed on the tube 3 and partly compressed between the sleeve and the adjacent end of the frame, or otherwise so arranged that the spring will hold the bar with its angular portion 27 resting against the keeper 29.

In Figs. 1 and 3, 36 is a shield in the front end of the hopper to prevent the bulk of nails from pressing upon the nails starting to slide down the race, as indicated by nails 6^a. 6^b shows a nail in transit down the race, while 6^c and 6^d indicate nails arrived at the escapement mechanism. The lower end of the sleeve 34 is cut away on a slant at 37 to form a sharp point or edge 38, which engages the shingle or other woodwork operated on, and thereby prevent slipping of the device while in operation.

In the operation of the device, the hopper is more or less filled with nails, which from the handling and use of the device are gradually fed down into the race 11, where they remain hanging in line with the lowest nail resting against the lower prong 24 until actual nailing is to take place, when the operator grasps with one hand about the frame

at A, and with the other hand the handle 5, and holding the device usually with the hopper away from him, he puts the bottom end of sleeve 34 at the place where he wishes to drive a nail, by pressing downward endwise with the frame the spring 35 yields until the offset 32 stops the downward movement of the frame; said movement of the frame causes the oppositely inclined arms 25 of the escapement to slide in the arm 27 of the sliding bar 28, and thereby retract the lower prong 24, so that the nail 6^a will drop into the tube 3, and the upper prong 24 is pushed forward to intercept nail 6^c; during the moment the device is thus operated by one hand the other hand has raised the handle 5 high enough to bring the lower end of the plunger rod 4 at least up to the line *a-a* in Fig. 1, to let the dropping nail pass into the bottom end of tube 3, where it rests with its point upon the woodwork, and is then driven home by a downward blow or stroke of the handle and plunger. If the nail is large or the wood is hard, more than one blow may be given, but in shingling a single blow is all that is required. If the blow is repeated, that will have no effect on the escapement, as that is operated only by the raising and lowering of the frame. When the device is lifted and moved to the next place for driving a nail, the spring 35 expands and pulling downward on bar 28, the arm 27 of the latter retracts the upper prong 24 and pushes forward the lower prong, thus allowing the nail 6^c to move to the position 6^a, until the sleeve 34 is placed on the woodwork and the frame is pushed downward, when the lower prong 24 will be retracted and the upper prong pushed forward, and the whole operation is repeated, as already described, for each nail to be driven.

If the pitch of a roof worked on is extra steep or level, the hopper and its nail-race 11 may have the incline changed by means of the screw 19 in the brace 15, 15^a.

What I claim is:

1. In a nail driving device, the combination of a portable frame, a tube secured on the frame and having a side opening and a chute adjacent thereto for guiding nails into the tube, a nail-driving plunger slidable in the tube, a nail hopper secured to the frame by an upper and a lower arm, one of said arms constituting a race for conducting nails from the hopper to the chute and being pivotally connected with the frame, the other arm constituting a brace pivoted to the hopper and having near its middle a lap-joint with a clamping screw, whereby the hopper and race may be adjusted to different inclined positions relative to the frame.

2. In a nail-driving device, a portable frame, a tube secured on the frame and provided with a lateral opening, a nail hopper mounted on the frame and having an inclined chute arranged to guide nails into the side opening of the tube, a nail driving plunger in the tube, a sleeve slidable on the lower end of the tube, a bar having a limited sliding movement on the frame, the lower end of said bar being secured to the sleeve and the upper end having an angular lug with two holes through it, a nail escapement mounted on the frame at the lower end of the chute and comprising two inclined spring arms, each slidably inserted in one of the holes in the lug and formed with an angular end portion or finger, one finger as the lug is moved up and down permitting a single nail to pass out of the chute while the other finger retains the other nails, and a spring acting on said sleeve and bar to hold the same normally downward on the tube.

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

FRANCIS A. DEVEREAUX.

Witnesses:

E. A. ELLENSTEIN,
HENRY W. BENTON.