

No. 622,638.

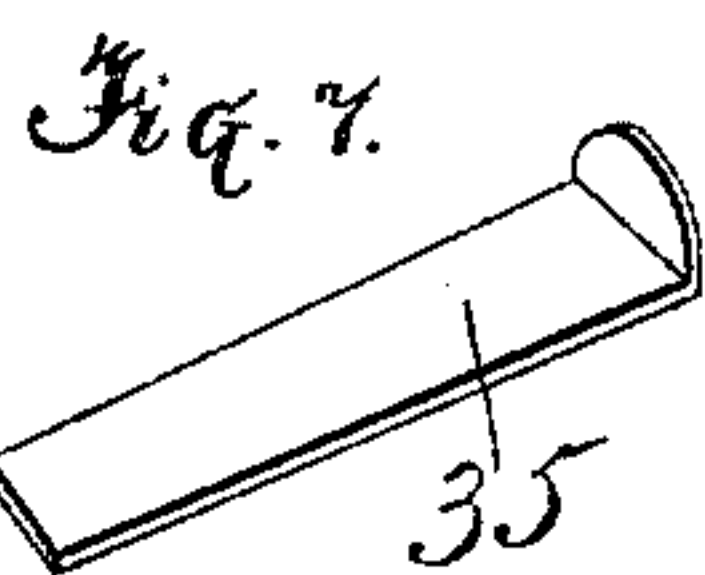
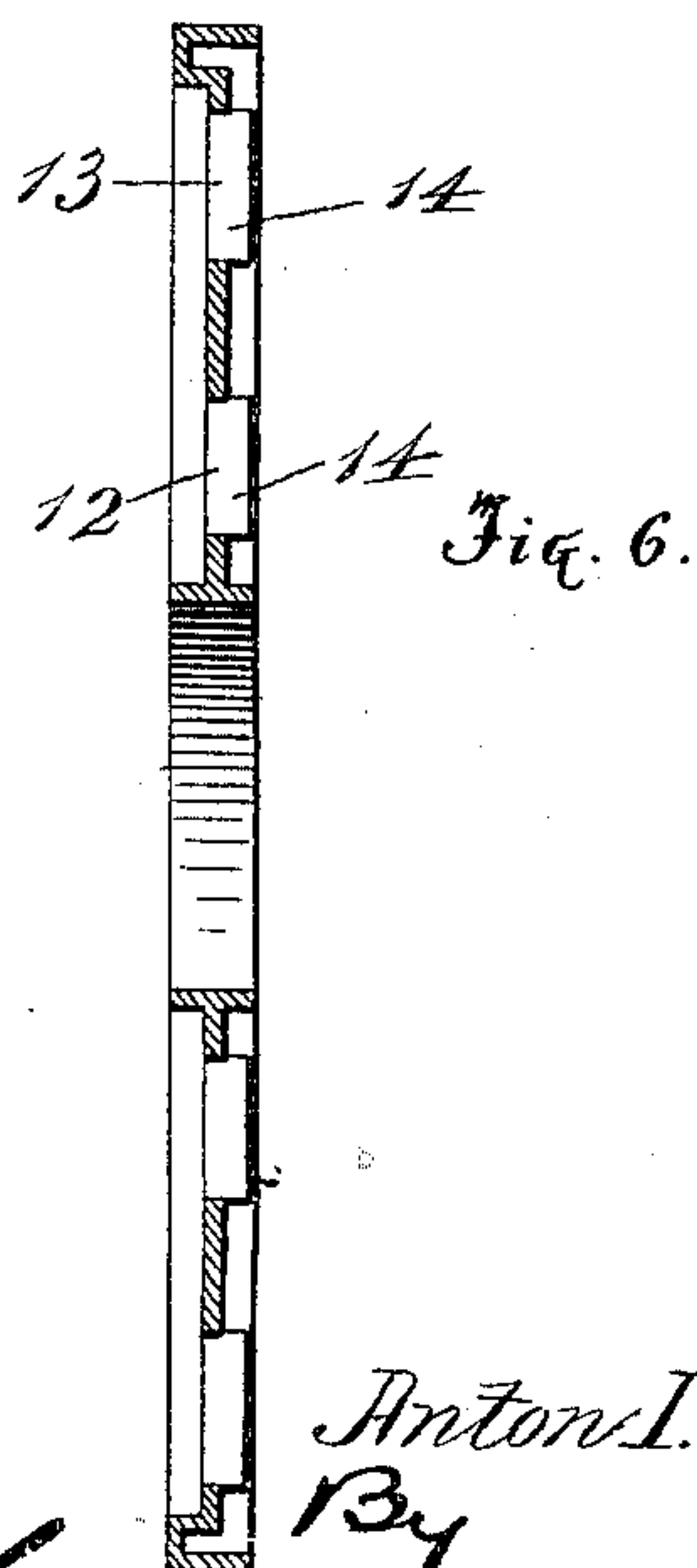
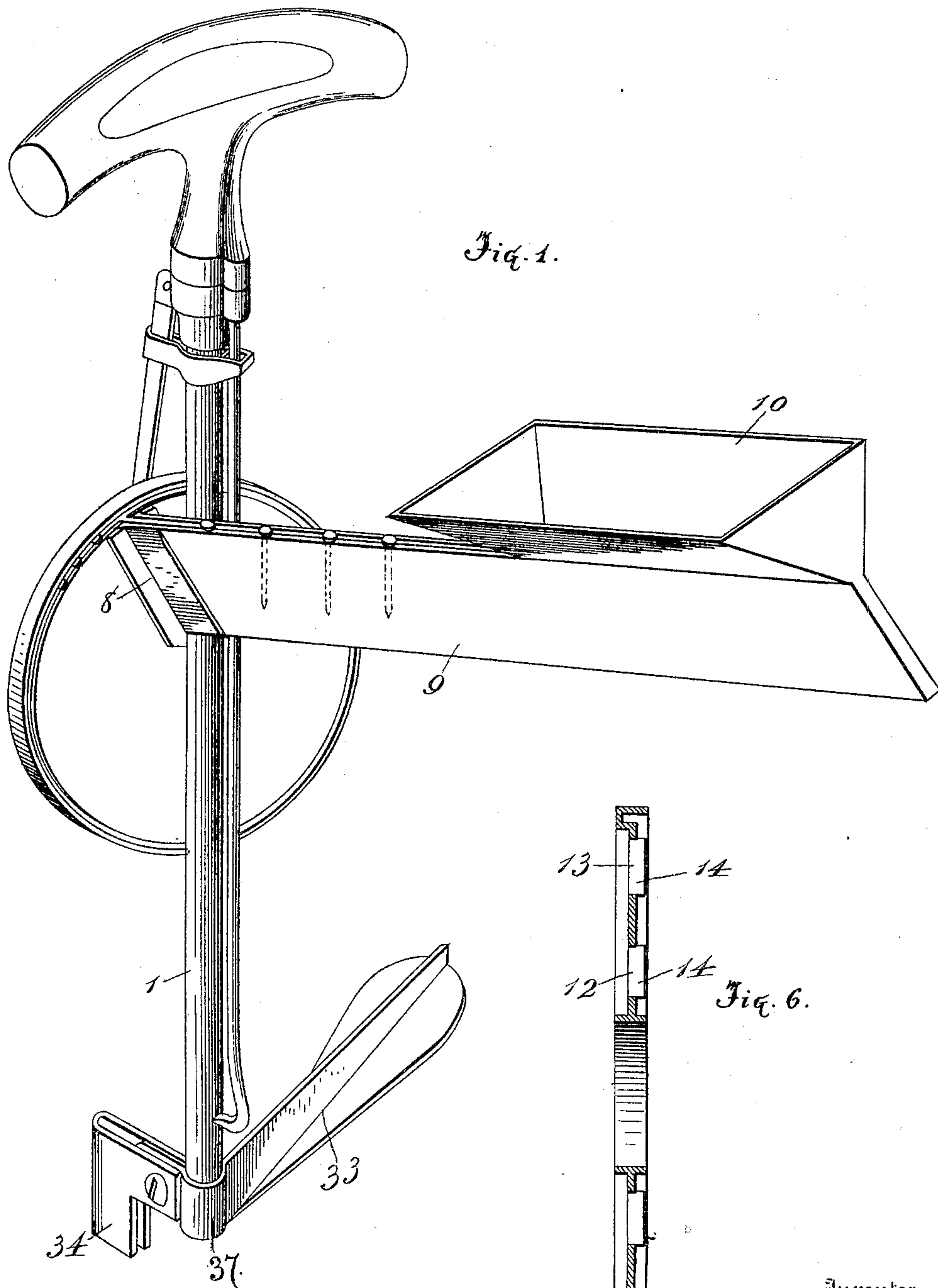
Patented Apr. 4, 1899.

A. I. SANDBO.
NAILING MACHINE.

(Application filed Dec. 18, 1897. Renewed Mar. 9, 1899.)

(No Model.)

2 Sheets—Sheet 1.



Witnesses

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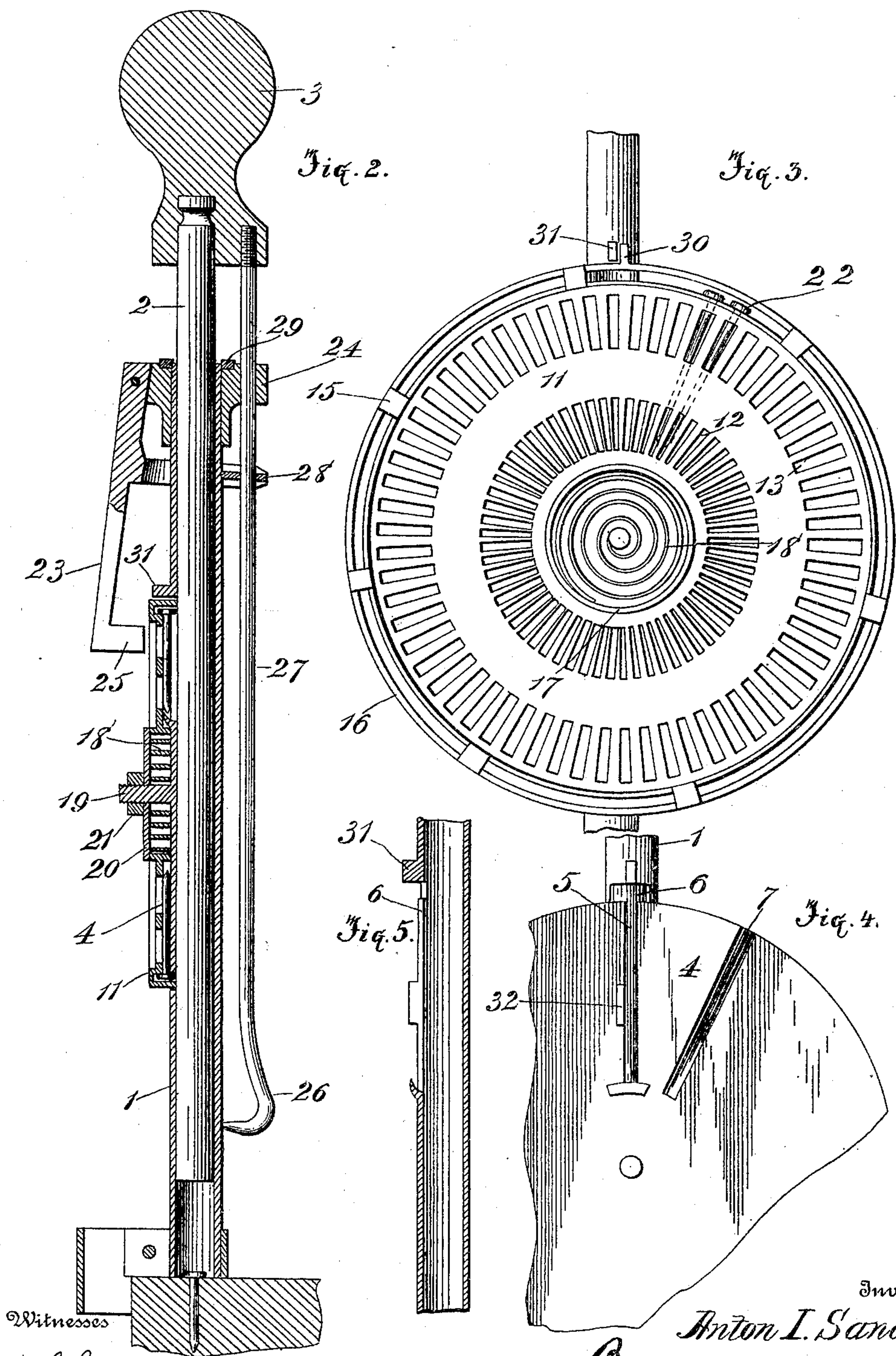
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UNITED STATES PATENT OFFICE.

ANTON I. SANDBO, OF WAUKON, IOWA.

NAILING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 622,638, dated April 4, 1899.

Application filed December 18, 1897. Renewed March 9, 1899. Serial No. 708,457. (No model.)

To all whom it may concern:

Be it known that I, ANTON I. SANDBO, a citizen of the United States, residing at Waukon, in the county of Allamakee and State of Iowa, have invented certain new and useful Improvements in Nailing-Machines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention, which will be hereinafter fully described, illustrated, and pointed out in the claims, relates to certain new and useful constructions and combinations of parts necessary to produce a completely operative and reliably efficient nailing-machine which may be used for any of the purposes for which such a device is desirable.

The special object of my invention, among others, is to provide a nailing-machine which will be used in places not conveniently accessible, as the ceiling of a room when it is desired to nail the lath in position. It will also be found useful in nailing in angles where it would be difficult to reach with a hammer, as well as meeting all the requirements of an ordinary nailing-machine.

In the accompanying drawings, Figure 1 is a perspective view of my improved nailing-machine complete, showing the nail-feeding attachment secured in position ready for filling the magazine and also showing the gage attachment designed to facilitate the uniform adjustment of laths. Fig. 2 is a longitudinal section of the nailing-machine, showing the nail-feeding attachment removed. Fig. 3 is a view of the outer surface of the magazine, showing a series of openings or slots between which is located a series of partitions designed to separate the nails from each other and hold them in position for being discharged. Fig. 4 is a plan of the inner face of the fixed disk or plate and a portion of the tubular nail-conveyer. Fig. 5 is a detailed section of a portion of the tubular nail-conveyer, showing one wall of the nail-receiving slot. Fig. 6 is a central section of the nail-magazine, while Fig. 7 is a perspective view of the plate used to close the opening in the fixed disk when the nail-feeding magazine is disconnected therefrom.

My invention consists in providing a nail-

feeding magazine, a nail-receiving conveyer-tube, means for automatically rotating the magazine, and additional means for delivering nails to the magazine in a uniform manner.

Referring in detail to the several parts of my invention by figures, 1 is the nail-conveying tube, within which reciprocates the driving-shaft 2, the latter being provided with the operating-handle 3, made of sufficient size and weight to provide the requisite impetus for reliably driving home the nail after the same has been fed into the conveyer-tube 1, as will be hereinafter fully set forth.

Fixedly secured to the conveyer-tube 1 is the disk 4, provided with the slotted aperture 5, which registers with an aperture 6, provided in the tubular conveyer 1, said slots being designed to permit the free passage of a nail into said tube. The disk 4 is also provided with the receiving-aperture 7, having the outer flanges or ribs 8, between which is received the end of the nail-feeding trough 9, the latter having the nail reservoir or hopper 10, as clearly set forth in Fig. 1.

Designed to coöperate with the disk 4 is the rotatably-mounted disk 11, having a series of slotted apertures 12 near the central part thereof and a series of slotted apertures 13 located near its edge, as shown in Fig. 3. Between each of the apertures in said series 12 and 13 I firmly secure to the disk a series of ribs or partitions 14, which extend parallel with the slots and between which a nail is designed to be received. To the periphery of the disk 11 I attach at suitable intervals the anchoring-stems 15, to which I secure the retaining flange or rim 16, while the center portion of the disk 11 is entirely cut away and provided with the wall or barrel 17, designed to receive the actuating-spring 18, by means of which a nail-magazine, formed substantially as above set forth, is rotated or partly rotated during the discharging process.

To the fixed plate or disk 4 I securely attach or integrally form therewith the axle or stem 19, upon which the disk 11 is designed to rotate. A suitable bearing for coöperating with the stem 19 is provided for the disk 11 by means of the disk 20, which is provided with a centrally-disposed aperture of sufficient size to receive said stem, said parts being secured upon the axle thus provided by

the retaining-nut 21 or any other suitable means.

In Fig. 3 I have shown the position occupied by the nails 22, a portion of said nails being visible through the series of slotted apertures 12 and 13, and in order to insure that each nail will be promptly and reliably discharged from its seat or position in the magazine I provide the automatically-controlled finger 23, pivoted at its upper end to the collar 24, the latter being firmly attached by screw-threads or otherwise to the upper end of the tubular conveyer 1. The lower end 25 of the finger 23, it will be seen, is directed inward or toward the magazine, and said end is so disposed that it will take successively into the series of slotted apertures 13 when the driving-shaft 2 is fully withdrawn from the tubular conveyer 1, as at such time it will be observed that the outwardly-curved end 26 of the guiding-shaft 27 will be brought into engagement with the loop-section 28, attached to said finger, resulting in causing the end 25 to bear directly upon the exposed portion of the nail, and thus force the latter through the slotted apertures 5 and 6 into the tubular conveyer 1, and as the guiding-shaft will be sufficiently withdrawn to permit the nail to be received by the tubular conveyer said nail may be readily forced home at the desired point by causing the driving-shaft to telescope with said tube, as will be readily apparent from Fig. 2 of the drawings.

In order to nullify the contact of the handle 3 with the collar 24, and thus reduce the effect of such blow to a minimum, I provide the cushion 29, formed of rubber or other suitable material and preferably embedded in an annular seat formed in said collar or handle, as preferred.

In adjusting the nail-magazine in position it will of course be necessary to rotate the disk 11 and its accompanying barrel against the tension of the spring 18 sufficiently to insure that the action of said spring will automatically and successively feed the contents of the reservoir, and in order that the adjustment of the spring when once secured may be retained I provide upon the periphery of the rim 16 the post 30, which, cooperating with the stud 31, secured to the tubular conveyer 1, prevents further rotation of the magazine when discharged of its contents, as will be more clearly set forth in the statement of the operation thereof.

Secured to the disk 4 upon the edge of the slot 5 and located intermediate the series of ribs 14 and of sufficient length to freely pass between said ribs I provide the fixed rib 32, the office of which is to contact with each successive nail, and thus check the rotation of the disk 11 at the desired point, which will leave the nail directly over the registering slots 5 and 6 and place it in position for dropping into the tubular conveyer or be forced therein by the finger 23. It will be observed that the guiding-shaft 27 is so formed that the

curved end thereof will not normally actuate or affect the loop-section 28, thus leaving the finger undisturbed until the driving-shaft is almost entirely withdrawn. This construction, which leaves said finger undisturbed, is considered very desirable and important, inasmuch as the driving-shaft may be any number of times reciprocated to insure the driving home of the nail, it being clear that another nail will not be disturbed until said shaft is almost entirely withdrawn, or sufficiently so to insure the cooperation of the parts 26 and 28.

In Fig. 1 I show a perspective view of a gage device removably connected to the end of the conveyer-tube. This gage device consists of a sleeve 37, fitting over the end of the conveyer-tube. Formed with the sleeve is a support 33, which is designed to hold the flat side of a lath while the end is being nailed. Secured to the sleeve 37 and at right angles to the support 33 is a space-divider, which is designed to limit the required distance between the laths to be nailed.

When the end of the nail-feeding trough 9 has been removed from the seat provided by the flanges 8, the opening or exposed section is closed by the removable slide 35, thus preventing the nails from leaving the magazine excepting through the registering slots 5 and 6.

The spring 18, above referred to, is connected at its inner end to the axle or stem 19, while the outer end thereof is secured to the inner wall of the barrel 17.

Having thus fully described the construction of the details involved in my improved nailing-machine, the operation may be stated to be as follows: The nail-reservoir after being filled with the desired variety of nails is attached in position by removing the slide 35 and entering the end of the feeding-trough between the flanges. The nail-magazine is then manually moved against the tension of its spring, which action permits the nail receptacles or compartments to become successively filled, and it will be seen that when the magazine is entirely full the post 30 will be upon the opposite side of the stud 31 from the position thereof shown in Fig. 3. When the nail-magazine has thus been entirely filled, the nail trough and reservoir are moved and the slide 35 introduced in position between the flanges 8 to prevent the nails falling out of said opening. The tension of the spring 18 can be relied upon to successively bring all of the nails in position over the registering slots 5 and 6, through which it is discharged into the tubular conveyer 1 by means of the finger 23, it being understood that the shaft 2 is fully withdrawn, permitting said nail to drop freely into said conveyer, when an inward thrust of said shaft will force the nail home in the desired position. The handle 3 is preferably made solid and formed of cast-iron or other preferred variety of metal, the object being to provide

the requisite weight to insure that the nail will be promptly driven home. It will be clear, however, that as many blows may be brought to bear upon the nail as may be necessary to send it into the desired position, inasmuch as an additional nail cannot be introduced into the conveyer 1 until the shaft 2 is fully withdrawn and until the finger 23 is actuated by the curved end 26 of the shaft 2, as will be clearly understood by reference to the drawings.

What I claim as new, and desire to secure by Letters Patent, is—

1. In a nailing-machine, the combination with the conveyer-tube having a slotted disk, of a rotary disk having a series of apertures therein, the ribs interposed between the said apertures, the spaced anchoring-stems connected to the periphery of the rotary disk, a surrounding rim secured to the stems and the central portion of said rotary disk having a wall with a spring therein, substantially as and for the purpose set forth.

2. In a nailing-machine, the combination with the fixed disk having an axle, a disk adapted to rotate thereon, and having a series of apertures therein, the partitions or ribs interposed between said apertures, the spaced anchoring-stems and surrounding rim on said rotary disk, a central wall having a spring, and the supplementary disk on said stem of the fixed disk, and surrounding the central wall of the rotary disk, as shown and described.

3. In a nailing-machine, the combination with the conveying-tube, a driving-shaft mounted therein, a collar mounted on said tube, a finger pivoted to the collar with a

right-angled lower portion, a loop formed with said finger, a guide-shaft having a curved lower end, the said guide-shaft being connected to the handle of said driving-shaft, and passing through the collar and loop, of the fixed disk provided with apertures, the rotating disk having apertures therein, and the actuating-spring, substantially as specified.

4. In a nailing-machine, the combination with the conveying-tube having a stud thereon, of the rotating disk having apertures therein, a spring connected to said disk the spaced anchoring-stems and the surrounding rim having a post to contact with the stud of the conveying-tube, substantially as specified.

5. In a nailing-machine, the combination with the conveying-tube, the finger pivoted to a collar mounted on said tube, and a guide-shaft with curved free end, of the fixed disk having slots therein, one of which is provided with a rib of the rotating disk having nail-apertures therein, and the rotating disk having partitions, parallel with the said apertures, substantially as specified.

6. In a nailing-machine, the combination with the conveying-tube, of a gage device having a sleeve, a support extending outwardly from the end, a divider at right angles with the support, said divider being adapted to regulate the distance between the laths to be nailed, substantially as specified.

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

ANTON I. SANDBO.

Witnesses:

OTTO HAGEN,
W. A. WITTBECKER.