

No. 614,231.

Patented Nov. 15, 1898.

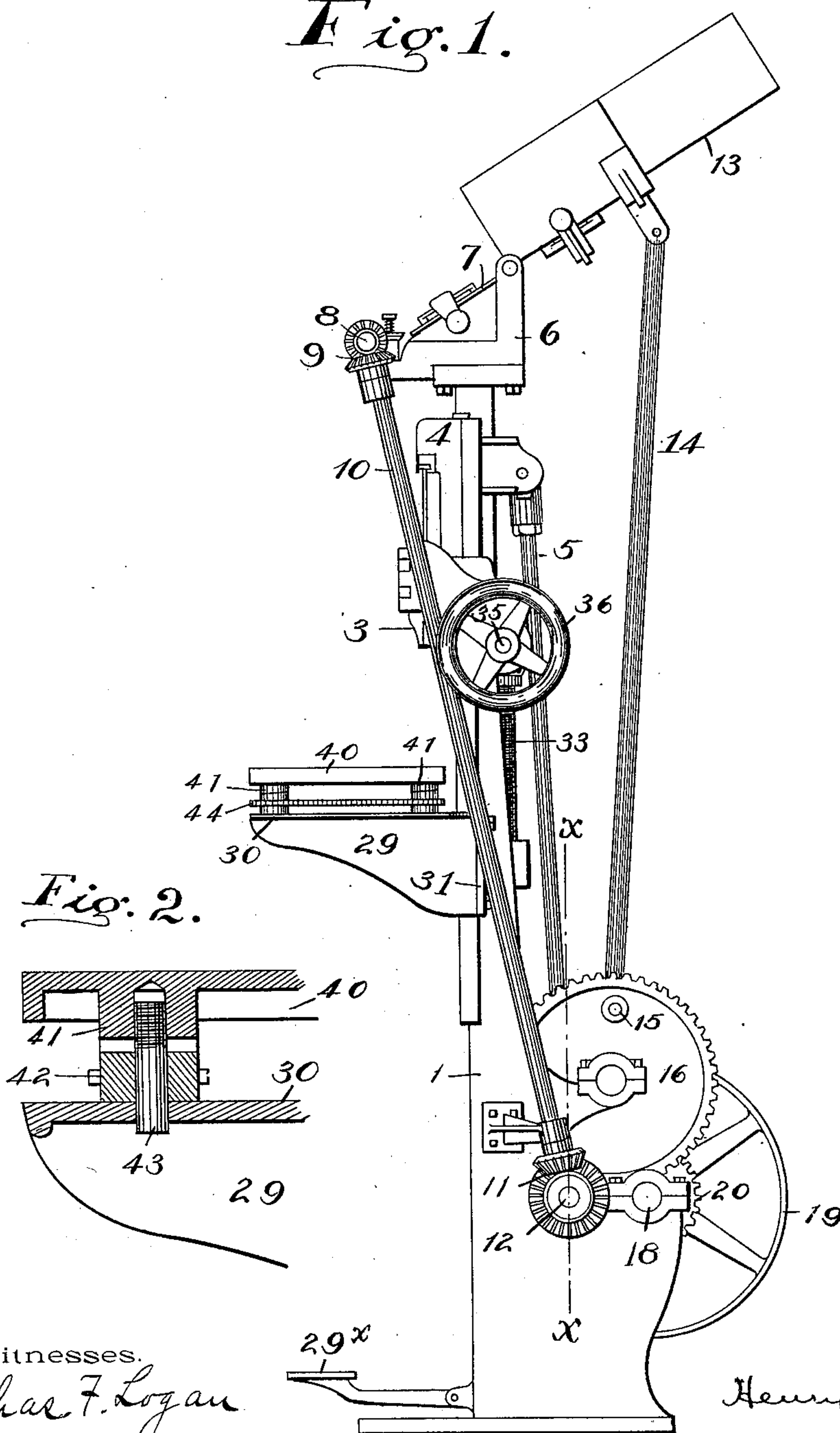
H. W. MORGAN.  
BOX NAILING MACHINE.

(Application filed Mar. 21, 1898.)

(No Model.)

3 Sheets—Sheet 1.

*Fig. 1.*



*Fig. 2.*

Witnesses.

*Chas. F. Logan*  
*Swilland Rich.*

Inventor.

*Henry W. Morgan*  
*yl Churcholchueh*  
*his* Attorney.

No. 614,231.

Patented Nov. 15, 1898.

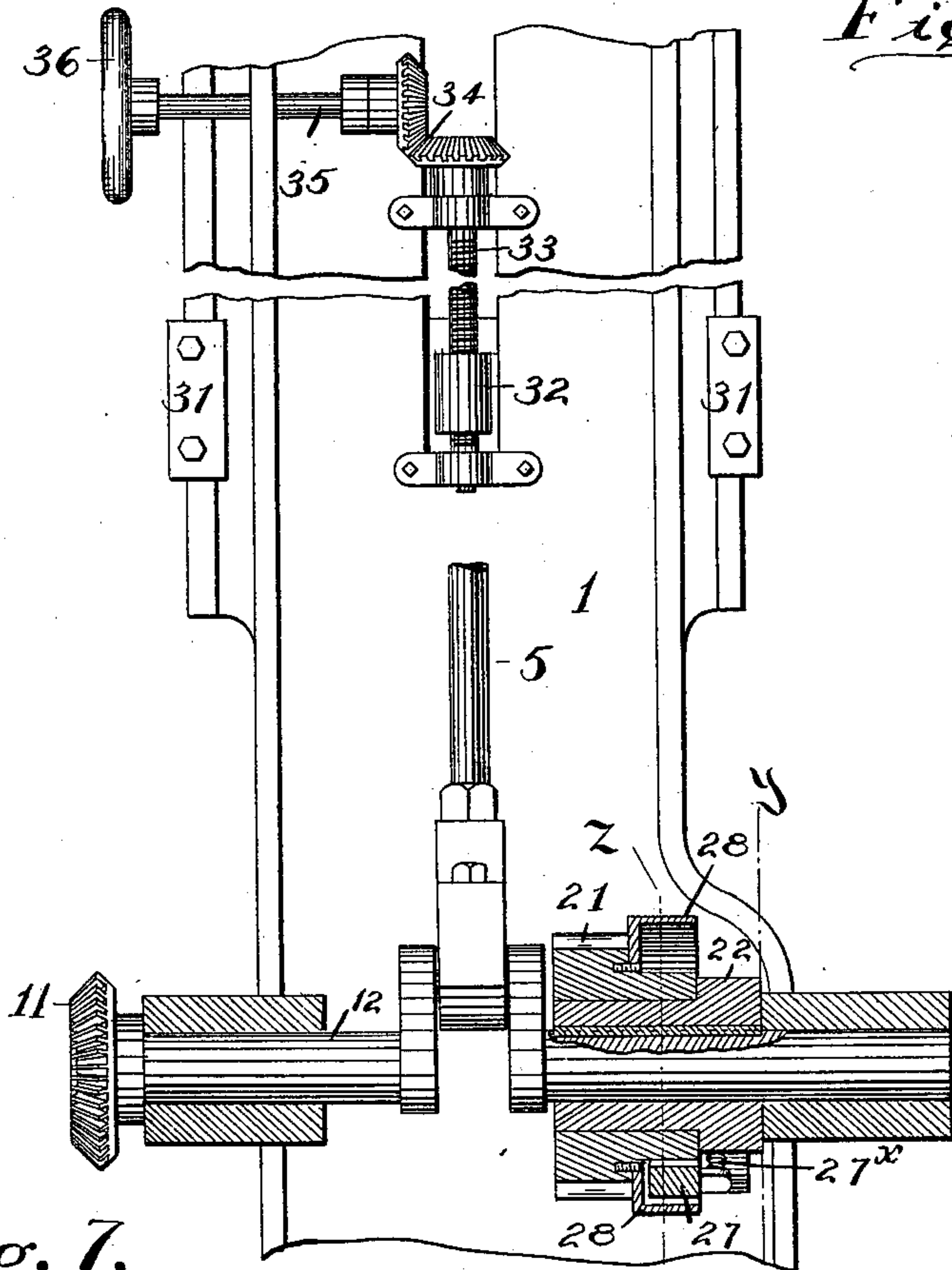
H. W. MORGAN.  
BOX NAILING MACHINE.

(Application filed Mar. 21, 1898.)

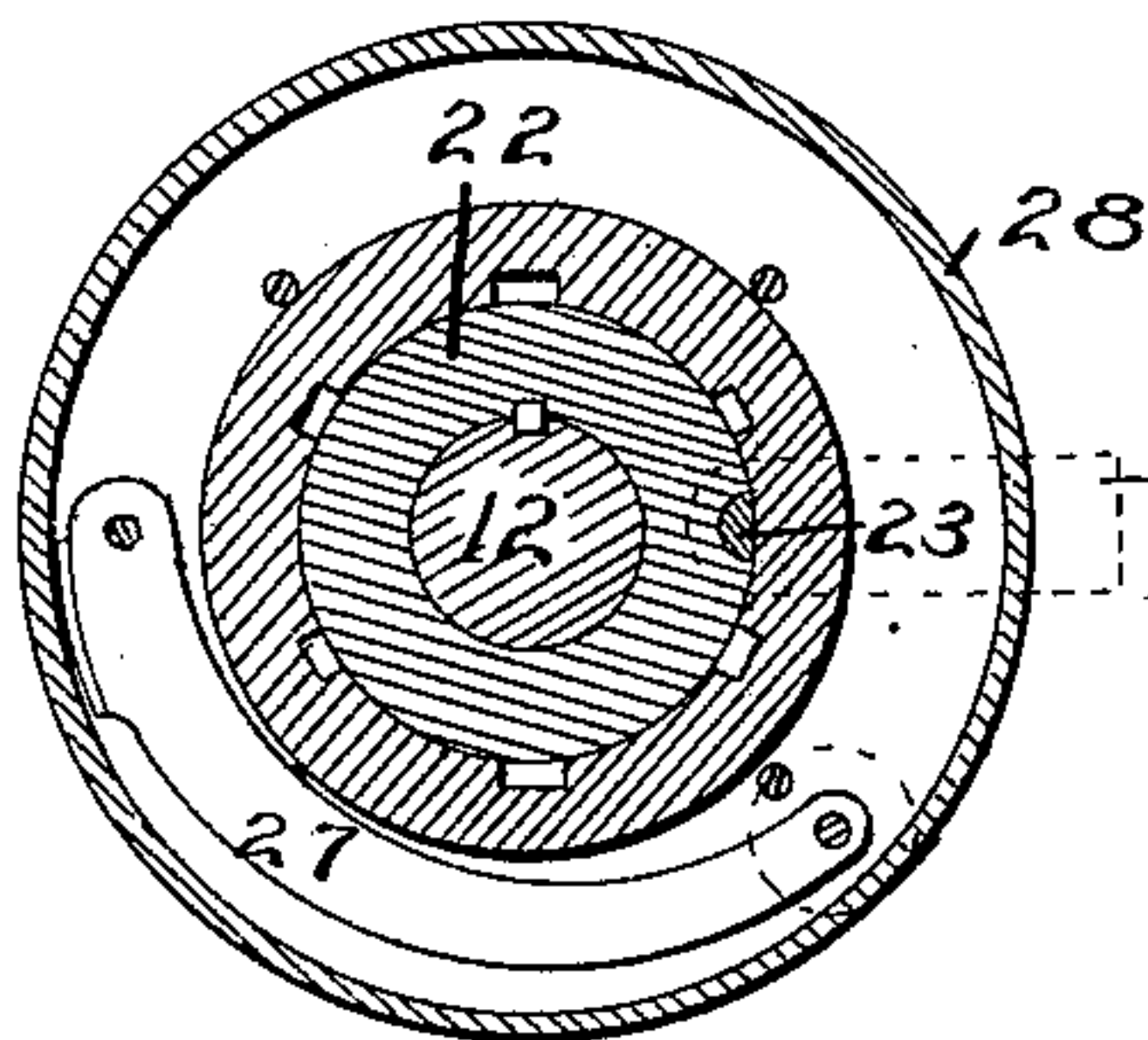
(No Model.)

3 Sheets—Sheet 2.

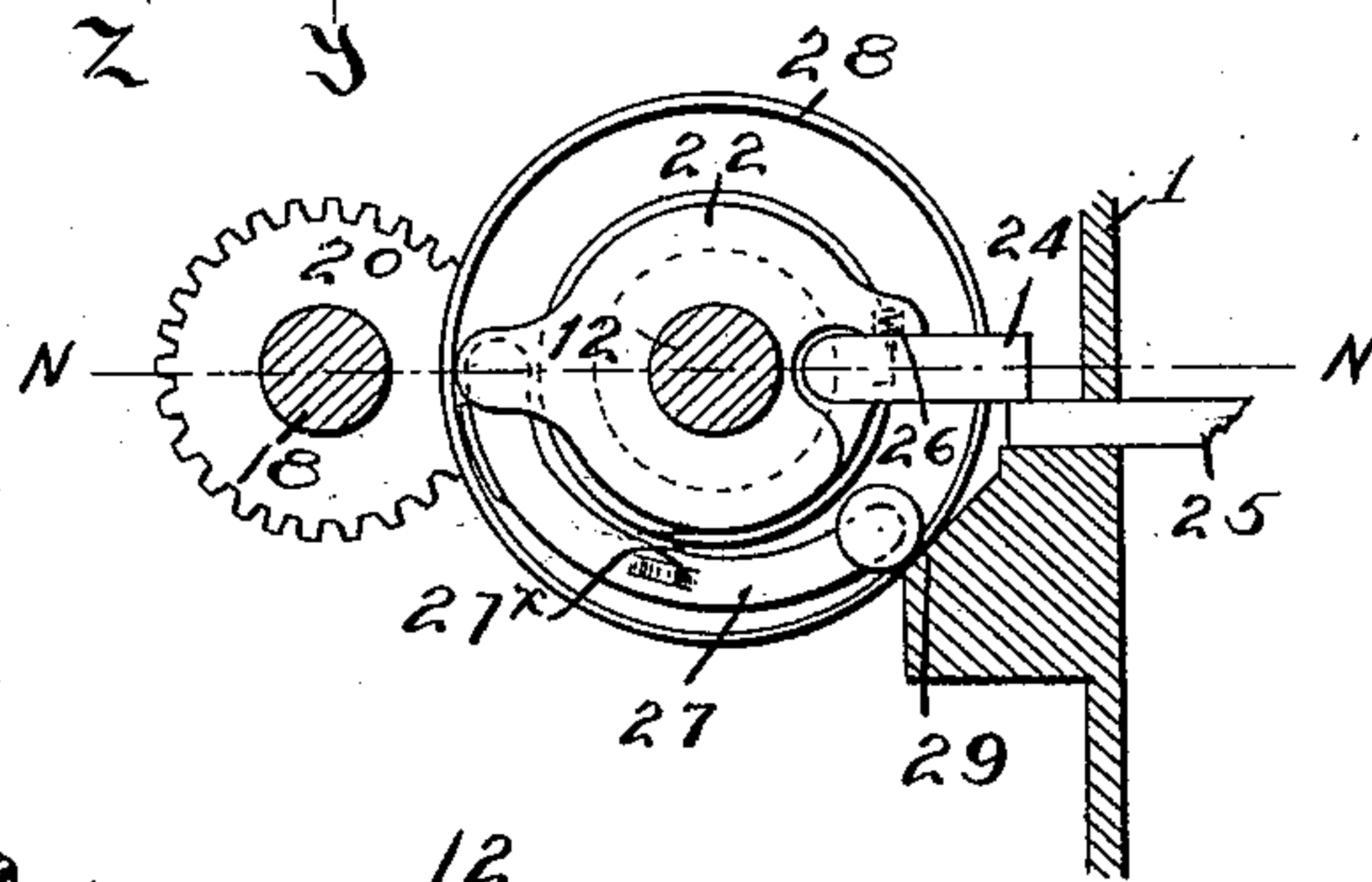
*Fig. 3.*



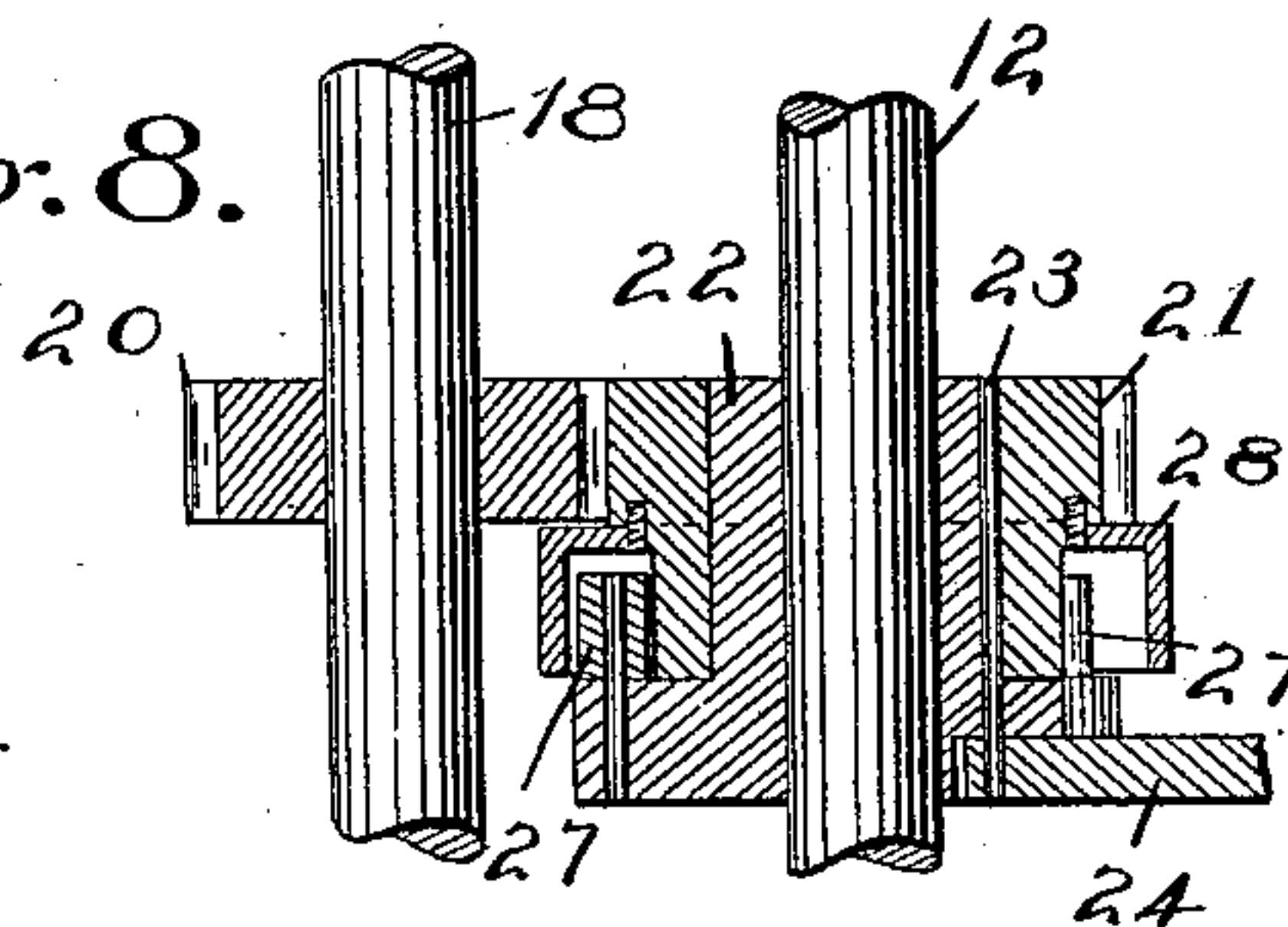
*Fig. 7.*



*Fig. 4.*



*Fig. 8.*



Witnesses.

Char. F. Logan.  
J. Willard Rich.

Inventor.

Henry W. Morgan  
by Charles Church  
his Attorneys

No. 614,231.

Patented Nov. 15, 1898.

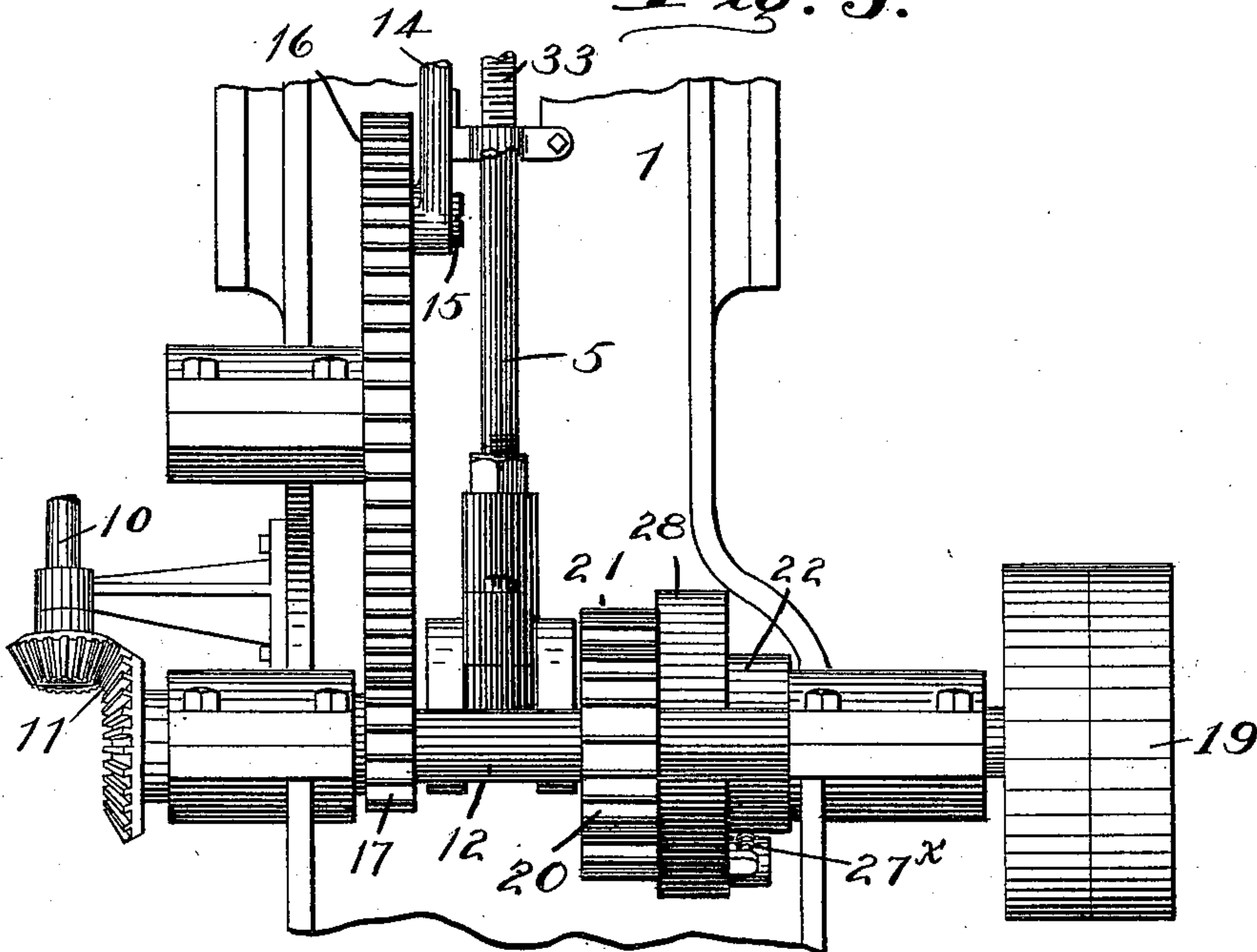
H. W. MORGAN.  
BOX NAILING MACHINE.

(Application filed Mar. 21, 1898.)

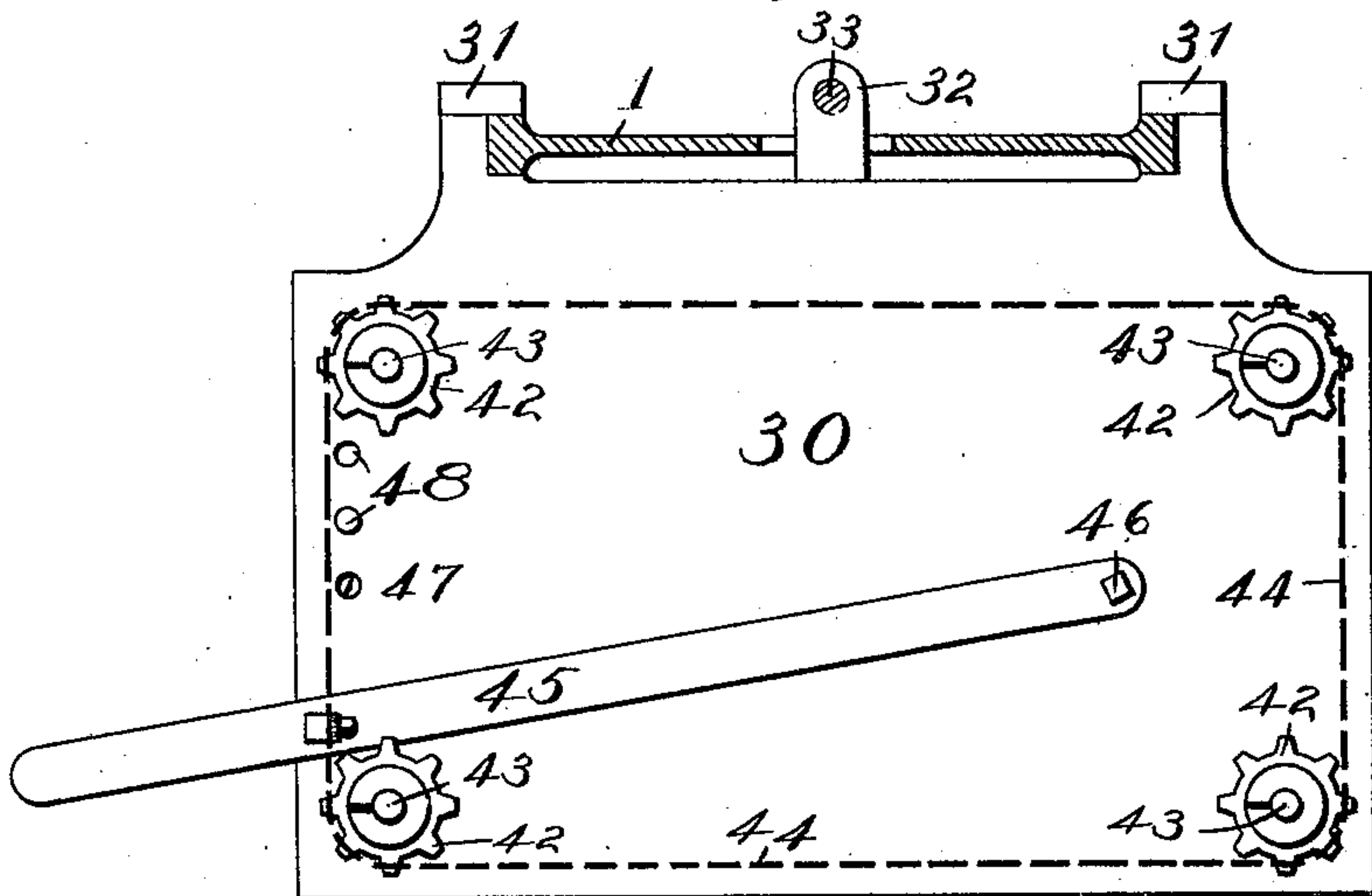
(No Model.)

3 Sheets—Sheet 3.

*Fig. 5.*



*Fig. 6.*



Witnesses.

Chas. F. Logan.  
Willard Rich.

Inventor.

Henry W. Morgan  
by Charles H. Church  
His Attorneys



# UNITED STATES PATENT OFFICE.

HENRY W. MORGAN, OF ROCHESTER, NEW YORK.

## BOX-NAILING MACHINE.

SPECIFICATION forming part of Letters Patent No. 614,231, dated November 15, 1898.

Application filed March 21, 1898. Serial No. 674,637. (No model.)

*To all whom it may concern:*

Be it known that I, HENRY W. MORGAN, of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Box - Nailing Machines; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the reference-numerals marked thereon.

My present invention relates to nailing-machines particularly adapted to nailing boxes, and has for its object to improve their construction and operation, whereby the relation between the nail-driving devices and the work-support may be readily altered or changed to enable box ends, sides, or bottoms of different thickness to be nailed, said parts being capable of adjustment by the operation of a part under the direct control of the operator; and to this end it consists in certain improvements and combinations of parts, all as will be hereinafter fully described, the novel features being pointed out in the claims at the end of this specification.

In the drawings, Figure 1 is a side elevation of a machine embodying my improvements; Fig. 2, an enlarged section through the removable work-table; Fig. 3, a vertical sectional view on the line *x x* of Fig. 1; Fig. 4, a section on the line *y y* of Fig. 3; Fig. 5, a rear elevation of a portion of the driving-gear; Fig. 6, a plan view of the support for the work-table; Fig. 7, a sectional view on the line *z z* of Fig. 3; Fig. 8, a similar view on the line *n n* of Fig. 4.

Similar reference-numerals indicate similar parts.

I have shown my improvements applied to a machine of the general type contained in my prior patent, No. 586,711, embodying generally a main frame 1, to which is secured a support 2, carrying a series of nail-chucks 3, 4 indicating a movable driver-frame sliding on the main frame and actuated vertically by a pitman 5. At the upper end of the main frame is a supplemental frame 6, embodying the usual inclined grooved railways 7, having suitable nail feeding or selecting devices adapted to supply nails in proper quantities to the chucks 3, the feeding devices being ac-

tuated in the present instance from a shaft 8, connected by beveled gears 9 with a shaft 10, connected at its lower end by beveled gears 11 with a suitable shaft 12. Pivoted at the upper end of the frame 6 is the oscillating nail box or pan 13, having the usual slots or ways in its bottom and tilted vertically on its pivot by means of a pitman 14, connected to a wrist-pin 15 on a large gear 16, which latter meshes with a pinion 17 on the shaft 18, said shaft 18 having the driving-pulleys 19 thereon, and it is rotated continuously by a suitable belt. As the shaft 10 is rotated intermittently or only when a nail is to be driven, a suitable driving-clutch connection is arranged between the shafts 10 and 12, preferably such a one as is shown in my prior patent, No. 586,711, before referred to.

In the present arrangement 20 indicates a pinion secured on the driving-shaft 18 and meshing with a gear 21, normally rotating freely on a sleeve 22, keyed to the shaft 12.

23 indicates the segmental key, journaled in the sleeve 22 and having the operating end 24, with which the bolt or stop 25 coöperates to disengage the clutch-sections, said key being turned to connect the clutch members by the spring 26.

27 indicates a brake-arm pivoted on the sleeve and moved by a spring 27<sup>x</sup> to engage with the overhanging edge or flange 28 of the gear 21 when the end of said arm is not in engagement with the stop or shoulder 29 on the frame.

From the described arrangement of gearing it will be seen that the nail-pan is constantly being tilted up and down, but by a very slow motion, by reason of the relative sizes of the gears 16 and 17, and the nails may be driven and fed when the clutch-stop bolt 25 is withdrawn by the operation of the treadle 29<sup>x</sup>. The function of the brake-arm 27 is to hold the crank-shaft and operating-gear together by frictional contact and prevent the weight of the driving-head from turning the crank-shaft ahead of the driving-clutch, as in my prior patent.

30 indicates a main table or work-support formed upon or attached to brackets 29, movable on suitable guides on the main frame, upon which it is held by plates 31, said table having the rearward extension or nut 32, in



which operates an adjusting-screw 33, supported at the rear of the main frame and connected by beveled gears 34 with a shaft 35, having a hand-wheel 36, by the rotation of which latter the support 30 is moved vertically upon the main frame. Mounted upon the main table or work-support 30 is a removable supplemental table 40, adapted to have a slight vertical movement upon the main table and independent thereof, so that the box or other article being operated upon may be adjusted vertically slightly to compensate for variations in the thickness of boards being nailed without disturbing the main table 30, the adjustment of which is accomplished by means of the adjusting-screw 33. In the present embodiment I provide upon the under side of the supplemental table 40 a number of bosses or projections 41, four being shown in the present instance arranged near the corners, said bosses being provided on their under surfaces with inclines or cam-surfaces, as shown, adapted to cooperate with corresponding cam-surfaces formed upon wheels 42, resting upon the top of the support 30 and centered thereon by pins 43, preferably connected to the supplemental table 40, as shown in Fig. 6. These cam-wheels 42 are provided with teeth and around them extends an endless sprocket-chain 44 for causing their simultaneous operation, said chain being connected to an operating-lever 45, pivoted at 46 to the upper side of the main table 30 and having its outer free end extending beyond the edge of the table in convenient position to be manipulated by the operator.

From the above it will be seen that by moving the lever 45 the cam-wheels may be rotated and the supplemental table 40 raised or lowered a short distance, the amount of movement permitted being regulated by a stop-pin 47, adjustable in any of a series of apertures 48, formed in the table 30, and by this means the table may be adjusted for nailing half-inch, five-eighths, or thinner boards, if desired.

The supplemental table may be removed entirely, when desired, by lifting it off and removing the cam-wheels, chain, and lever 45, so that the device is an attachment which may be readily applied to machines already in use, it being only necessary to drill four

holes for the reception of the pins or studs 44, and it is not necessary to manipulate or otherwise interfere with the adjustment of the main table or support 30, thereby enabling the workman to operate on different styles and sizes of boxes without requiring a readjustment of the whole machine.

As far as the operation of the improvements herein described is concerned, it is immaterial what form of nail feeding or driving devices is employed, although I prefer those shown in my patent before mentioned.

The arrangement by which the nail pan or receptacle is kept in constant motion, being driven from a comparatively slow-moving shaft, is advantageous in that the nails are tumbled and turned and the channels or ways kept filled without requiring a violent agitation at every other reciprocation of the nail-driving frame or head.

I claim as my invention—

1. In a nailing-machine, the combination with the main table or support, of the removable supplemental table, the horizontal wheels having the flat under sides resting directly upon the main table having the cams on their upper sides engaging the supplemental table and means for simultaneously rotating said wheels to raise and lower the supplemental table, substantially as described.

2. In a nailing-machine, the combination with the main table or support having the apertures therein, of the removable supplemental table having the downwardly-extending studs, the wheels on the studs, resting upon the main table and having the cams on their upper sides engaging the supplemental table and connections between the wheels for causing their simultaneous operation, substantially as described.

3. In a nailing-machine, the combination with the main table or work-support, of the removable supplemental table having the downwardly-extending studs engaging the main table, the cam-wheels rotating on the studs, the chain connecting the wheels having the operating-handle, and the adjustable stop for regulating the movement of the handle.

HENRY W. MORGAN.

Witnesses:

F. F. CHURCH,  
G. A. RODA.