

(No Model.)

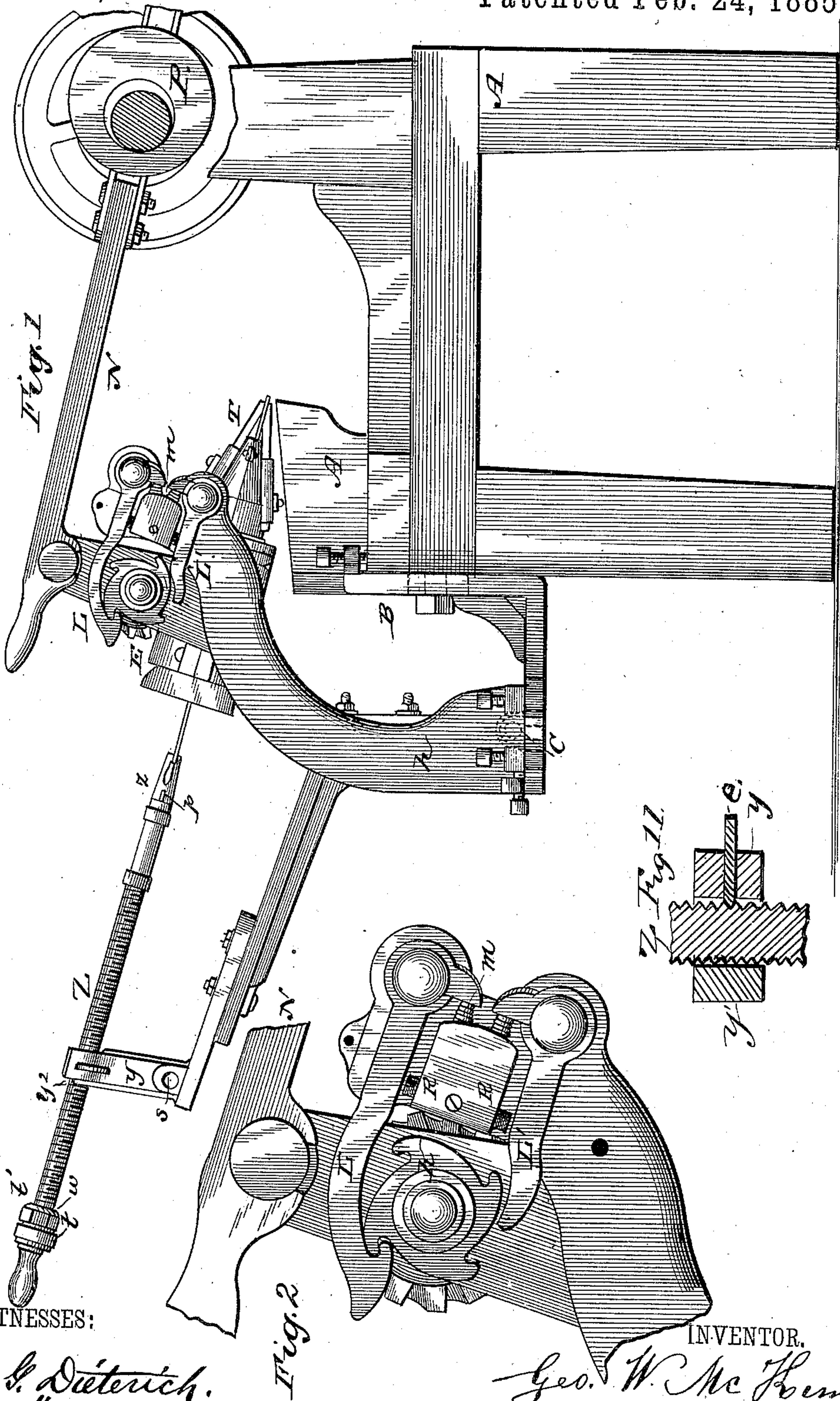
3 Sheets—Sheet 1.

G. W. McKIM.

NAIL PLATE FEEDER.

No. 313,010.

Patented Feb. 24, 1885.



WITNESSES:

Ed. S. Dietrich
J. C. Rathrop

Fig. 2

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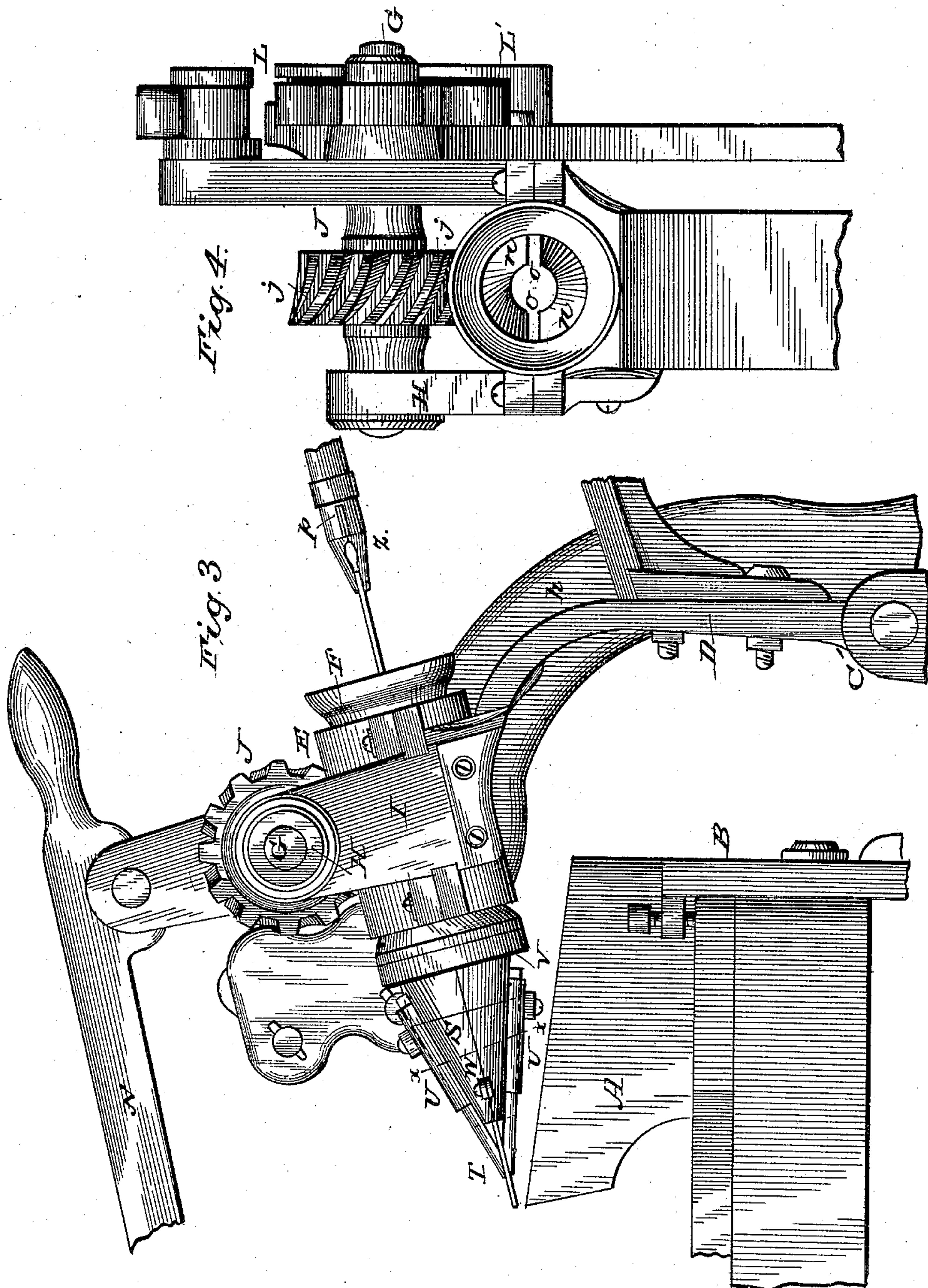
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3 Sheets—Sheet 3.

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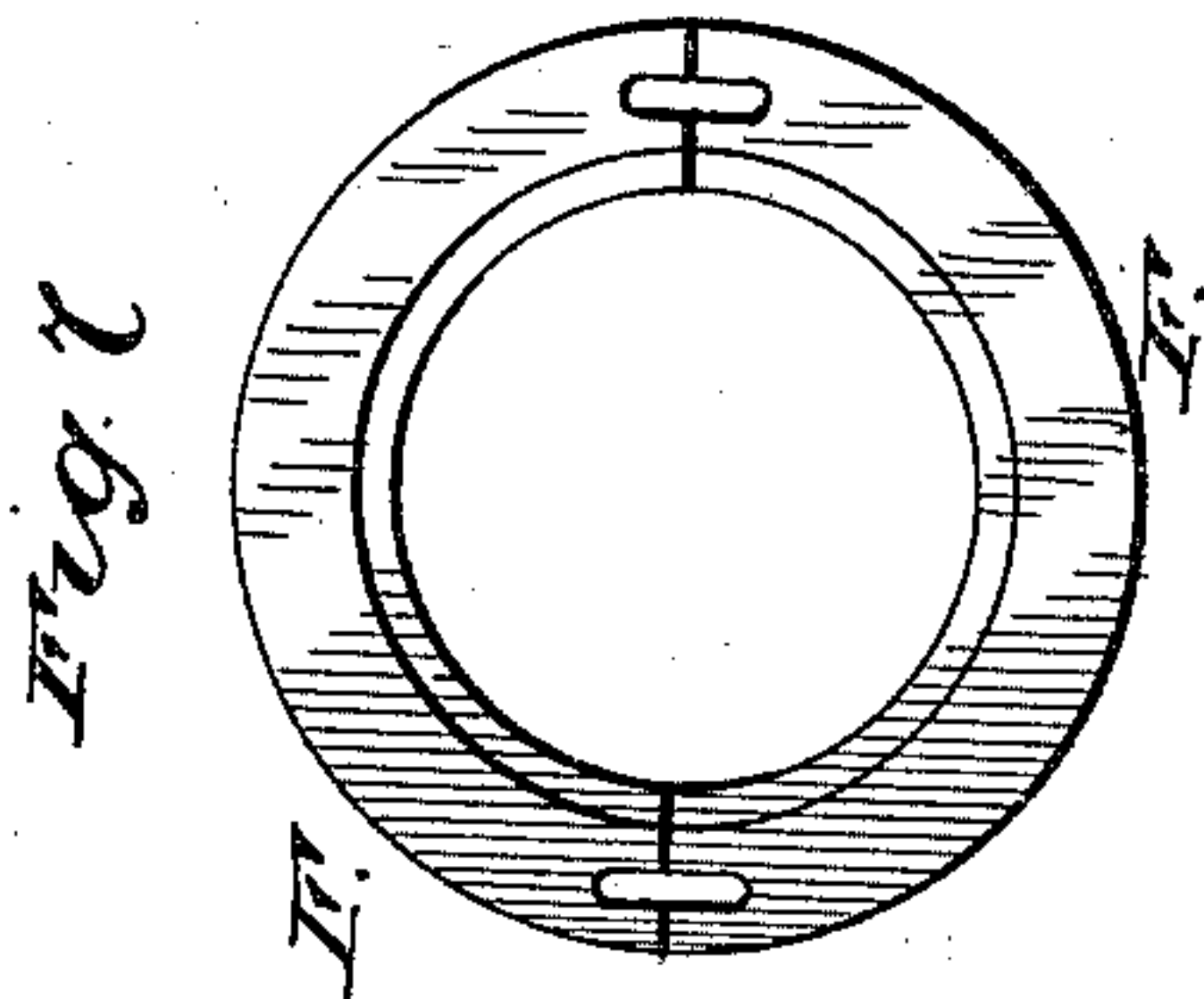
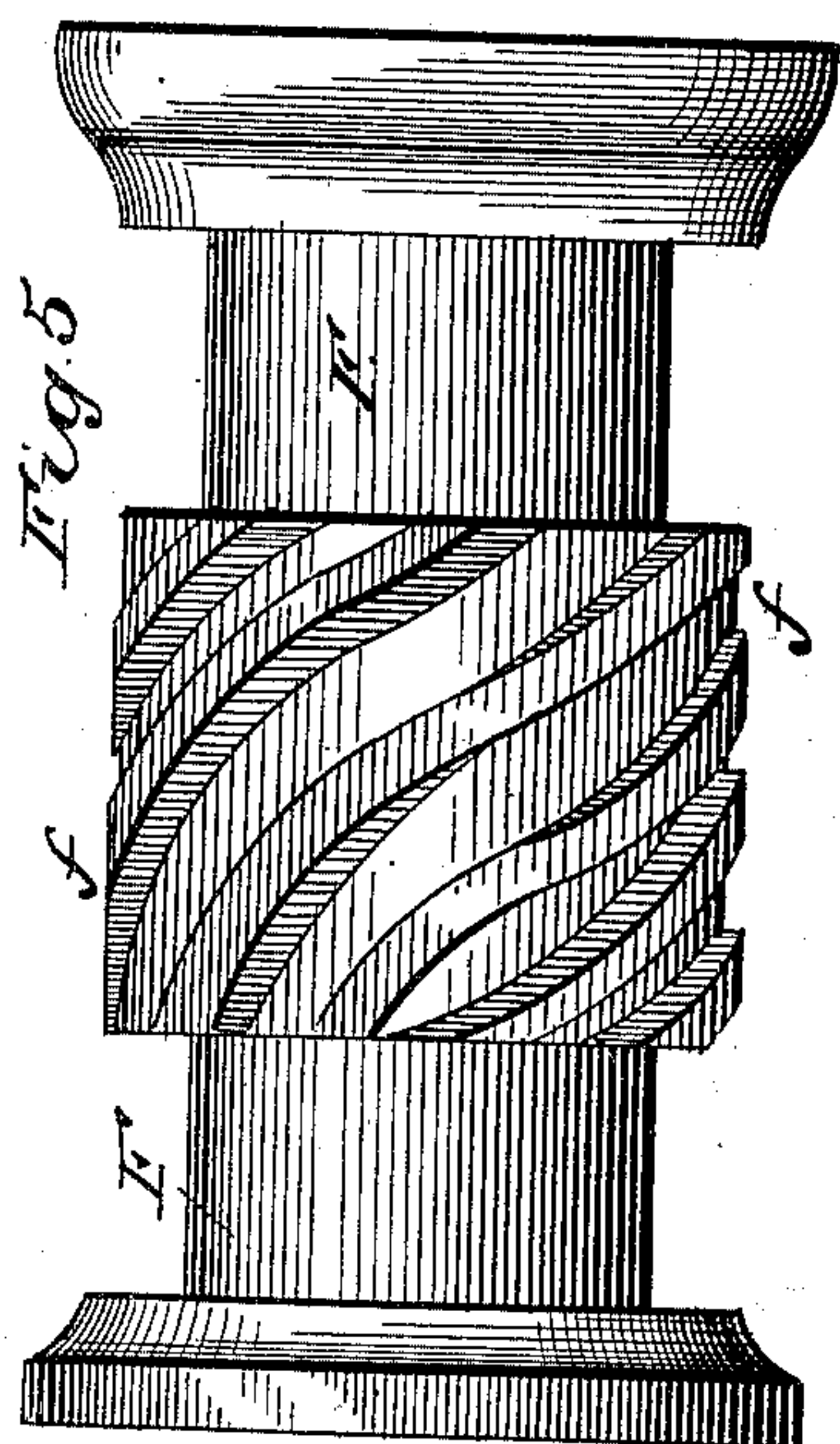


Fig. 8.

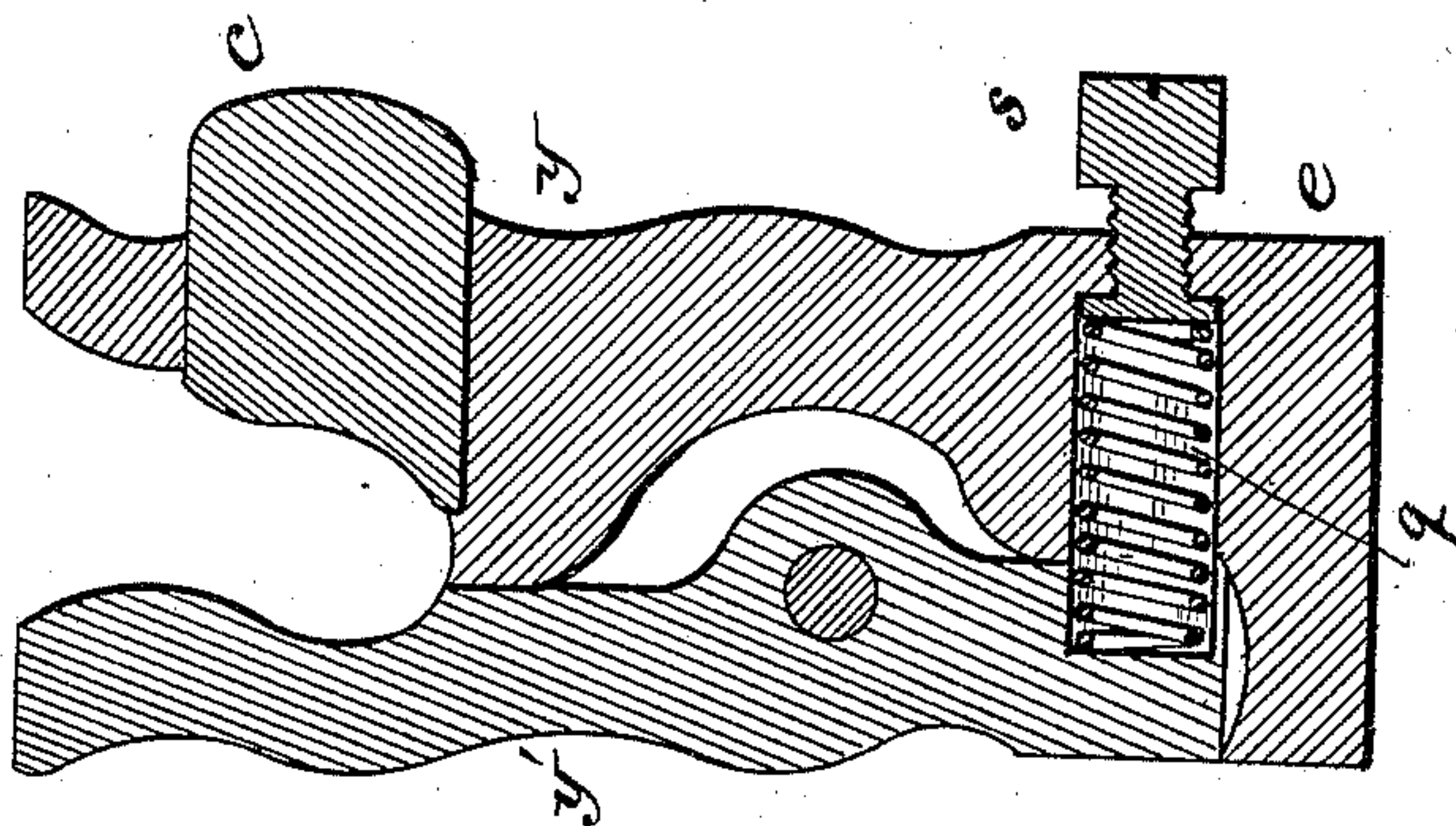


Fig. 6.

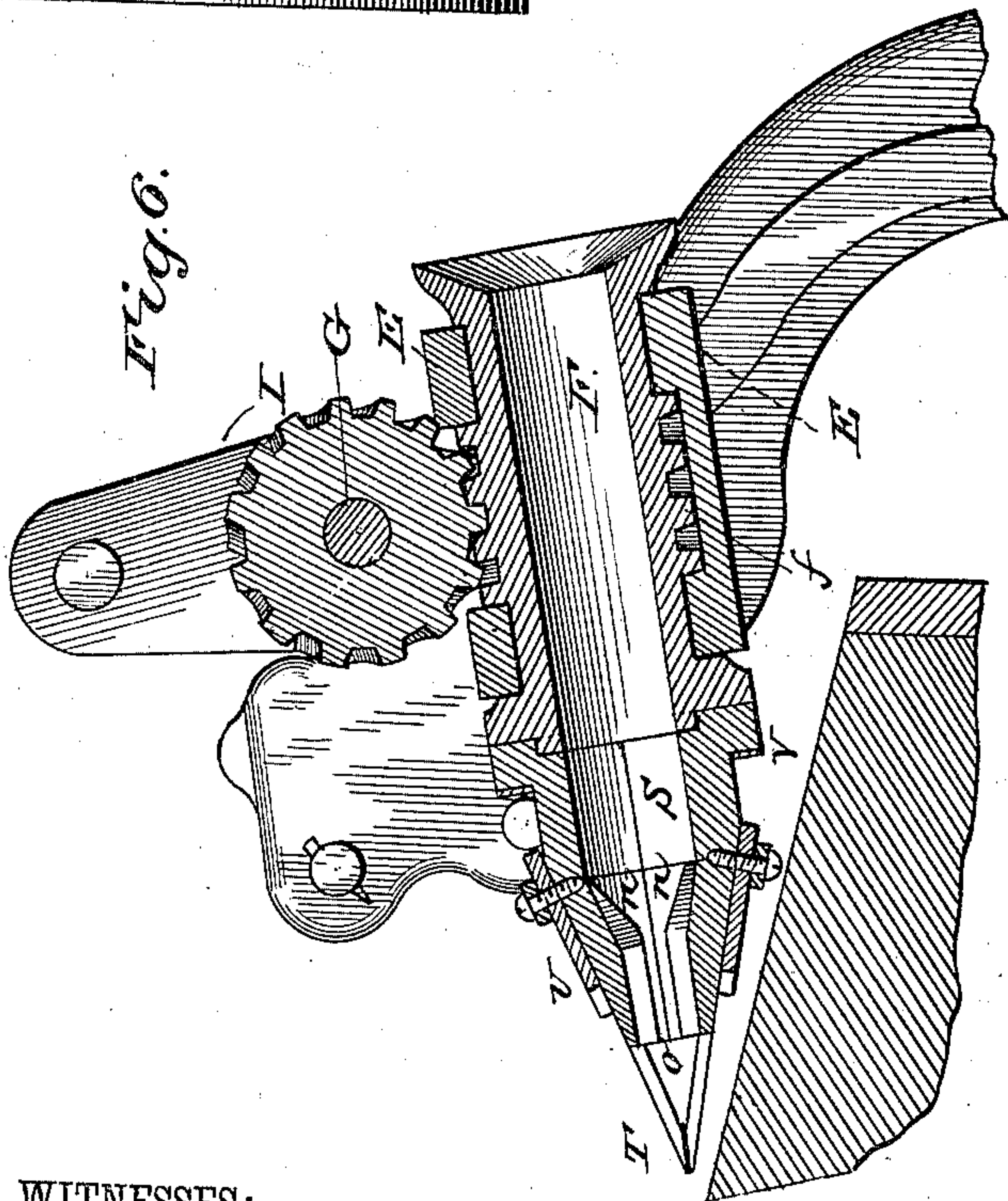


Fig. 10.

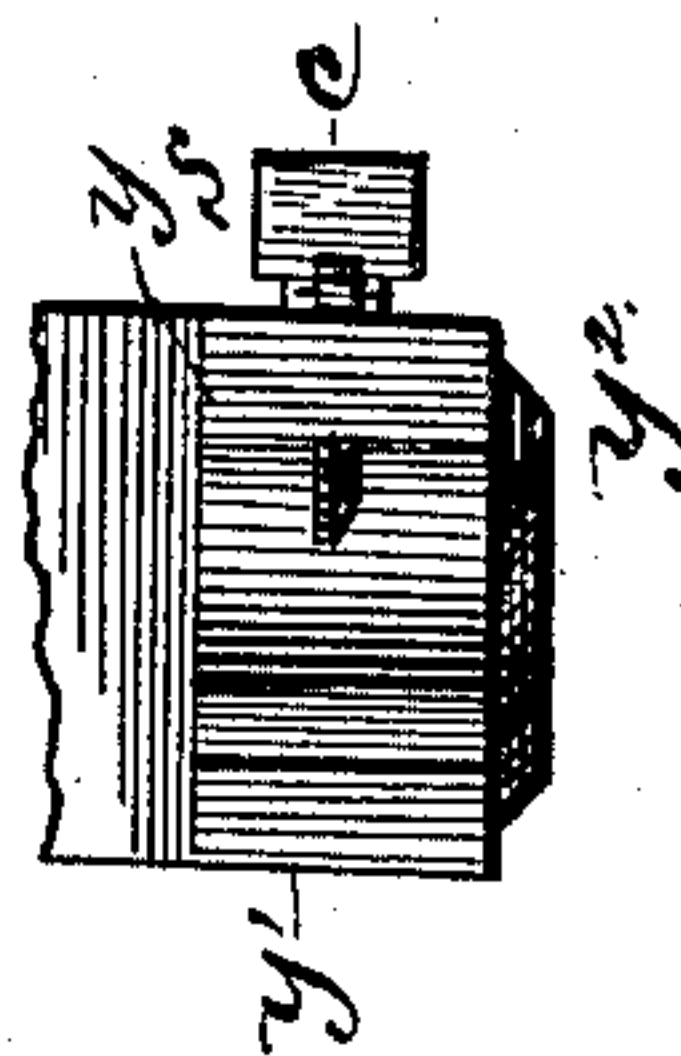
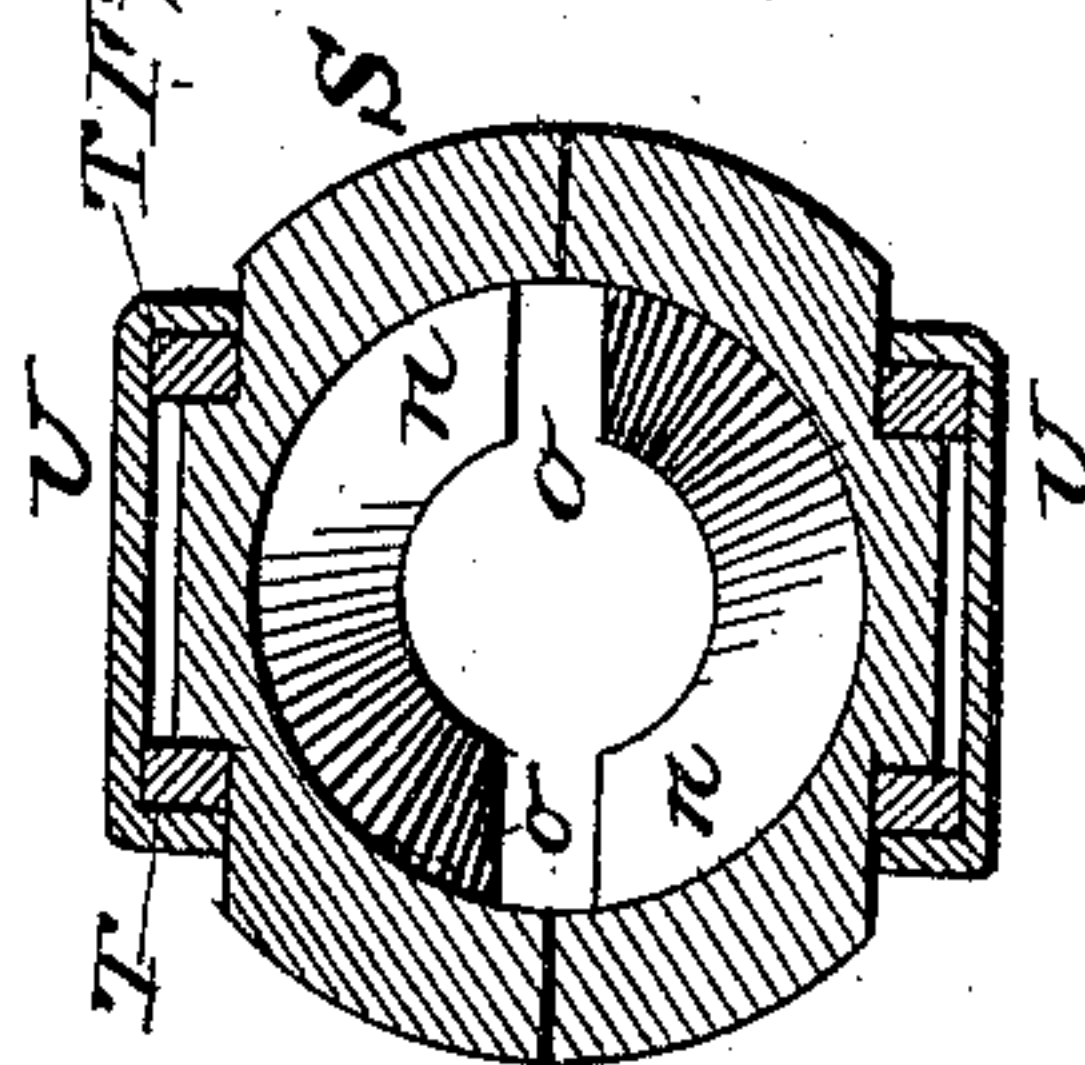


Fig. 9.



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UNITED STATES PATENT OFFICE.

GEORGE W. McKIM, OF MARTIN'S FERRY, OHIO.

NAIL-PLATE FEEDER.

SPECIFICATION forming part of Letters Patent No. 313,010, dated February 24, 1885.

Application filed May 10, 1884. (No model.)

To all whom it may concern:

Be it known that I, GEORGE W. McKIM, a citizen of the United States, residing at Martin's Ferry, in the county of Belmont and State of Ohio, have invented certain new and useful Improvements in Nail-Plate-Feeding Machines; and I do hereby declare that the following is a full, clear, and exact description, which will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to certain new and useful improvements for automatically feeding nail-plates to the nail-machine, and to other devices by means of which the movements of the nail-plate feeder are all obtained from a single eccentric mounted on the power-shaft of the nail-cutting machine.

My invention consists in a revolving barrel having spiral cogs or segmentary screw-threads thereon, in combination with a pinion having spiral cogs or segmentary screw-threads intergearing with said barrel, and in other devices and combinations, which will be fully understood by the following description and claims.

Figure 1 is a side view of a nail-machine frame with my nail-plate feeder attached thereto. Fig. 2 is a detached view of the ratchet and parts connected therewith. Fig. 3 is a detached view of the opposite side of the barrel, ratchet, and other parts. Fig. 4 is a front view of the barrel and other parts connected therewith detached from the machine. Fig. 5 is a detached view of the barrel. Fig. 6 is a longitudinal section through the barrel and nose-piece. Fig. 7 is a front view of the nose-piece detached from the barrel, Fig. 5. Fig. 8 is a section of the jaws which support the forward end of the screw feed-bar. Fig. 9 is a cross-section of the nose-piece on line xx , Fig. 3. Fig. 10 shows the bevel y^2 on the stationary jaw y ; and Fig. 11 is a horizontal section through the feed-rod, jaws, and die c .

In the drawings, the letter A indicates the frame or bed of a nail-cutting machine of any description. Mounted on said frame is a vertically-adjustable chair, B, to which is bolted an adjustable bed-plate, C, having ears or lugs C', between which is pivoted a curved oscillating arm, D, provided with bearings E at its upper end, in which is arranged to rotate a

hollow barrel, F, provided with spiral cogs or screw-threads f .

The letter G indicates a horizontal shaft, journaled in bearings H in the uprights I, attached to the upper end of the curved arm, and at each side of the barrel. This shaft extends across the barrel F at right angles to its axial line, and upon it is mounted a pinion, J, having a series of spiral cogs, j , on its periphery, which extend obliquely or angularly across its periphery and intergearing with the spirals of barrel F. The axial lines of the pinion and barrel are at right angles to each other, as will be seen by reference to the drawings. The pinion and the barrel are of equal or about equal diameters; but the angle of the pitch of the cogs on the barrel bears such relation to that of the pitch of the angle of the cogs on the pinion that when in operation the motion will be as two to one; or, in other words, the barrel will travel twice as fast as the pinion. One end of the horizontal shaft G projects beyond its bearing, and has secured to it a ratchet-wheel, K, which has four points, the said points being alternately engaged by the upper pawl, L, and lower pawl, L', which are pivoted to the upper end of a stationary curved arm, h , and act alternately as the curved arm D is oscillated back and forth. By the half-revolution of eccentric P the connecting-rod N and the oscillating arm D are moved either forward or backward, thus carrying the ratchet-wheel and cog-pinion one-eighth of a revolution at each forward or backward movement, there being sufficient lost motion between the pawls and the points of the ratchet-wheel, not only to give a momentary pause to the turning of the barrel when the nose-piece or nail-plate is resting on the cutting-bed A, but to rotate it only one-quarter of a revolution, instead of a half-revolution, as it would do were it not for said lost motion, and as the barrel travels twice as fast as said pinion and ratchet the nail-plate in the barrel is turned half of a revolution by the united action of said forward and backward movement, and is thus properly presented to the cutters. At or near the dead-points of the eccentric P and the connecting-rod N, or between the forward and backward stroke of the same, there is an interval of rest for the nail-plate (between the alternate action of the two pawls L and L', as

above described) of sufficient length for the cutters to make a stroke and thus cut a nail. This rest of the nail-plate allows the cutting-dies of the nail-machine to make their stroke and properly perform their work. Between the pawls seats are provided for two spiral springs, *m*, which bear against the heels of the pawls and insure their engagement with the ratchet at the proper times, and seats are also provided for the reception of the cushions *R*, which prevent any jar in the operation of the pawls. The barrel *F* at the forward end has attached thereto a nose-piece, *S*, having rabbeted forms on opposite sides, forming seats for the adjustable guide-fingers *T*, which are confined by means of the flanged plates *U*, which extend well down over the fingers and hold them firmly in place. These fingers are four in number and made inflexible. They grasp the nail-plate at the two lower corners, close to the cutting-bed *A*, when the plate is brought down upon said bed, ready for the stroke of the cutter. The interior of the nose-piece is provided with right and left spirally-inclined planes *n*, Figs. 6 and 9, which invariably guide the nail-plate into the nose and to the guide-fingers *T*.

The nose-piece is made in two parts to facilitate casting, and is secured to the body of the barrel by a male and female joint, and suitable bolts passing through slots, by which the nose-piece may be adjusted to set it properly in place, and to adjust it to compensate for wear of the gears of the pinion and barrel. The guide-fingers *T* are made strong and rigid, so as not to spring, as their office is to guide the nail-plate, and not to hold it temporarily, to enable the feed mechanism to act. The guide-fingers serve, besides, to carry the nail-plate and feed-nippers, as will be more fully hereinafter explained.

The two parts of the nose-piece are secured together by means of a band, *V*, which is passed around near the flange, and by rivets in lugs *W* near the nose. The feed-rod *N* at its rear end is provided with adjustable nuts *t t'*, one of which, *t'*, has its forward face beveled, and is adapted to abut against a bevel, *y²*, on the stationary jaw *y*, Fig. 10, so as to shift the movable jaw *y'* and stop the feed when the plate is used up. The tension of the pivoted jaw is kept up by means of a spiral spring, *q*, which is regulated by a set-screw, *s*. The threads of the feed-screw are of such pitch as to advance the nail-plate the width of the nail at each half-revolution, and they are rounded or beveled at such an angle as to let the screw slip back past the movable jaw when any breakage or obstruction occurs in the nail-cutting machine, so as to stop the feed for the time being. A stationary jaw, *y*,

is mounted on a base-piece, *e*, which is adjustably secured, by means of bolts passing through a slot in said base-piece, to a rearwardly-extending arm projecting from the curved oscillating arm *D*. The said stationary jaw is provided with an adjustable die, *c*, the inner edge of which is in the form of a single thread corresponding to the threads of the feed-screw. A short stub of a nail-plate is liable to be pushed by the nippers entirely forward out of the grooves *o* of the nose-piece and then twist against the nose-piece in being withdrawn. In order to prevent this, and also to assist in turning the feed-rod and stub, the nippers are provided with guide-lugs *p*, to engage in said grooves *o*, thus completely controlling the stub both in moving forward and when it is withdrawn.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, is—

1. The spirally-cogged rotary barrel *F*, mounted in suitable bearings on an oscillating arm, *D*, in combination with the spirally-cogged pinion *j*, mounted on a shaft at right angles to the axial line of the barrel, and intergearing with said barrel, the ratchet having four points mounted on said shaft, and the pawls for operating the said ratchet, whereby the barrel is caused to travel in the ratio of two to one with the pinion, substantially as and for the purpose specified.

2. In a nail-machine, the combination, with the barrel which revolves the nose-piece, of the feed-screw passing between a stationary and a pivoted jaw, the threads of the feed-screw being rounded or beveled at such an angle as to slip backward past the jaws when any obstruction is met with in the nail-machine, substantially as and for the purpose set forth.

3. The combination of the feed-screw and feed-jaws, with the beveled stop-nut on the feed-screw adapted to abut against a bevel on the stationary jaw and throw the feed out of operation when the plate is used up, substantially as specified.

4. The combination of the nose-piece provided with rabbets, the inflexible guide-fingers *T*, and the flanged plates *U*, substantially as set forth.

5. The combination, with the screw feed-rod *Z*, carrying the plate-nippers, which latter are provided with guide-lugs *P*, of the nose-piece, grooved as shown, whereby the nose-piece, nippers, and nail-plate are made to turn together, substantially as set forth.

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Witnesses:

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J. C. LATHROP.