

(No Model.)

3 Sheets—Sheet 1.

J. A. GILMORE.  
CUTTING OFF MACHINE.

No. 480,461.

Patented Aug. 9, 1892.

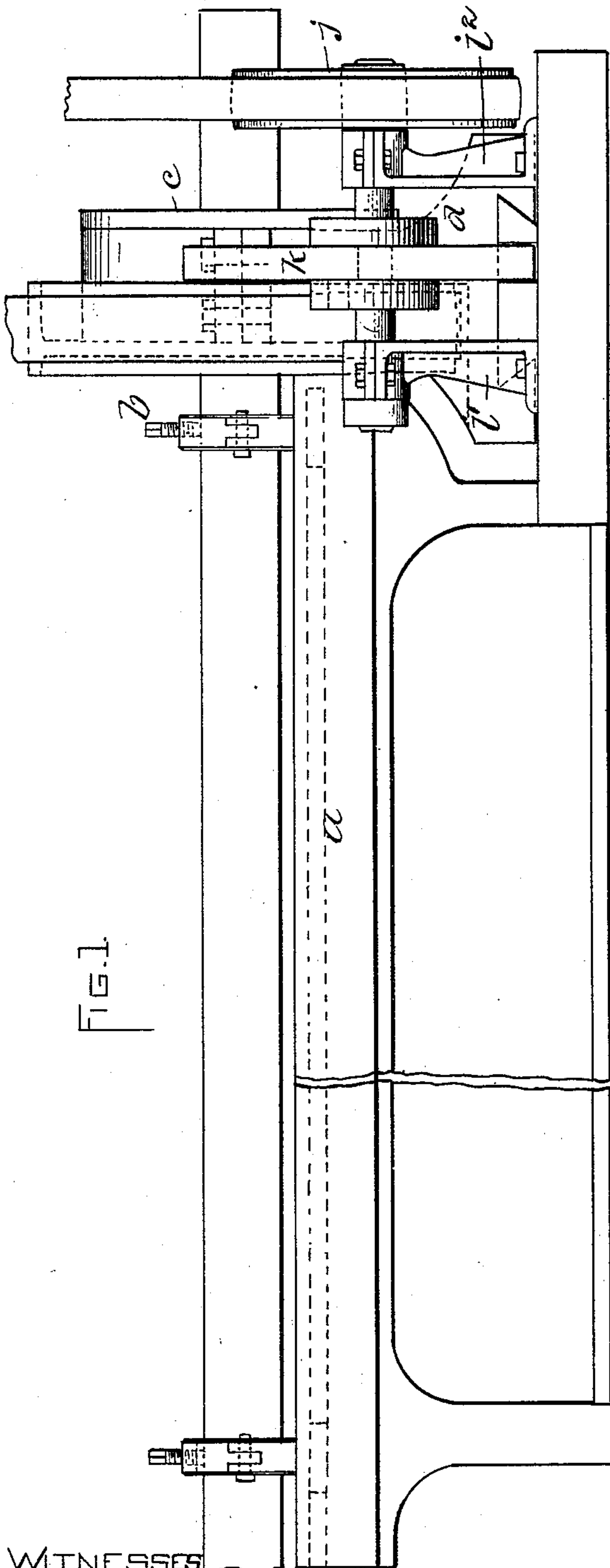
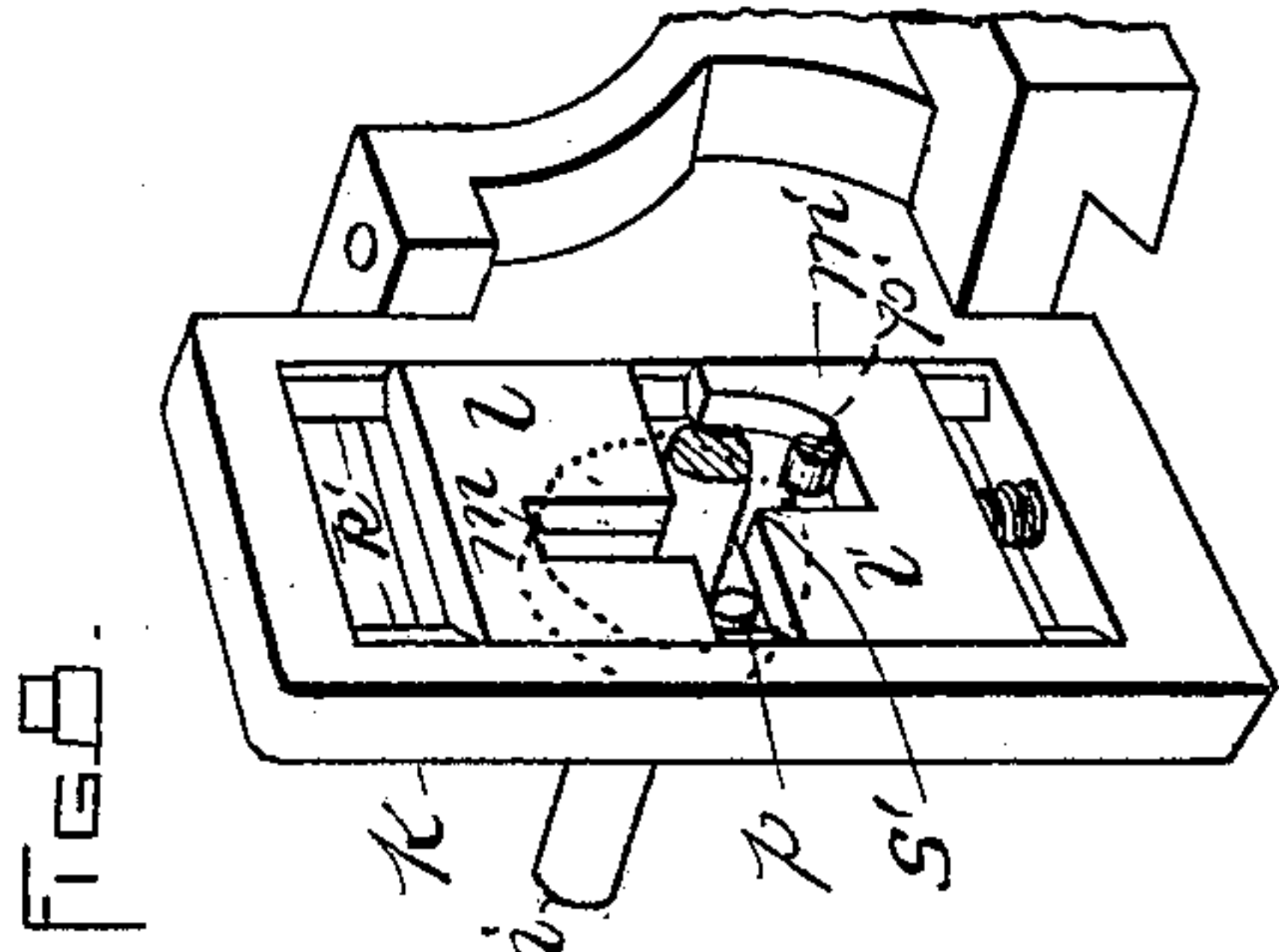


FIG. 1.



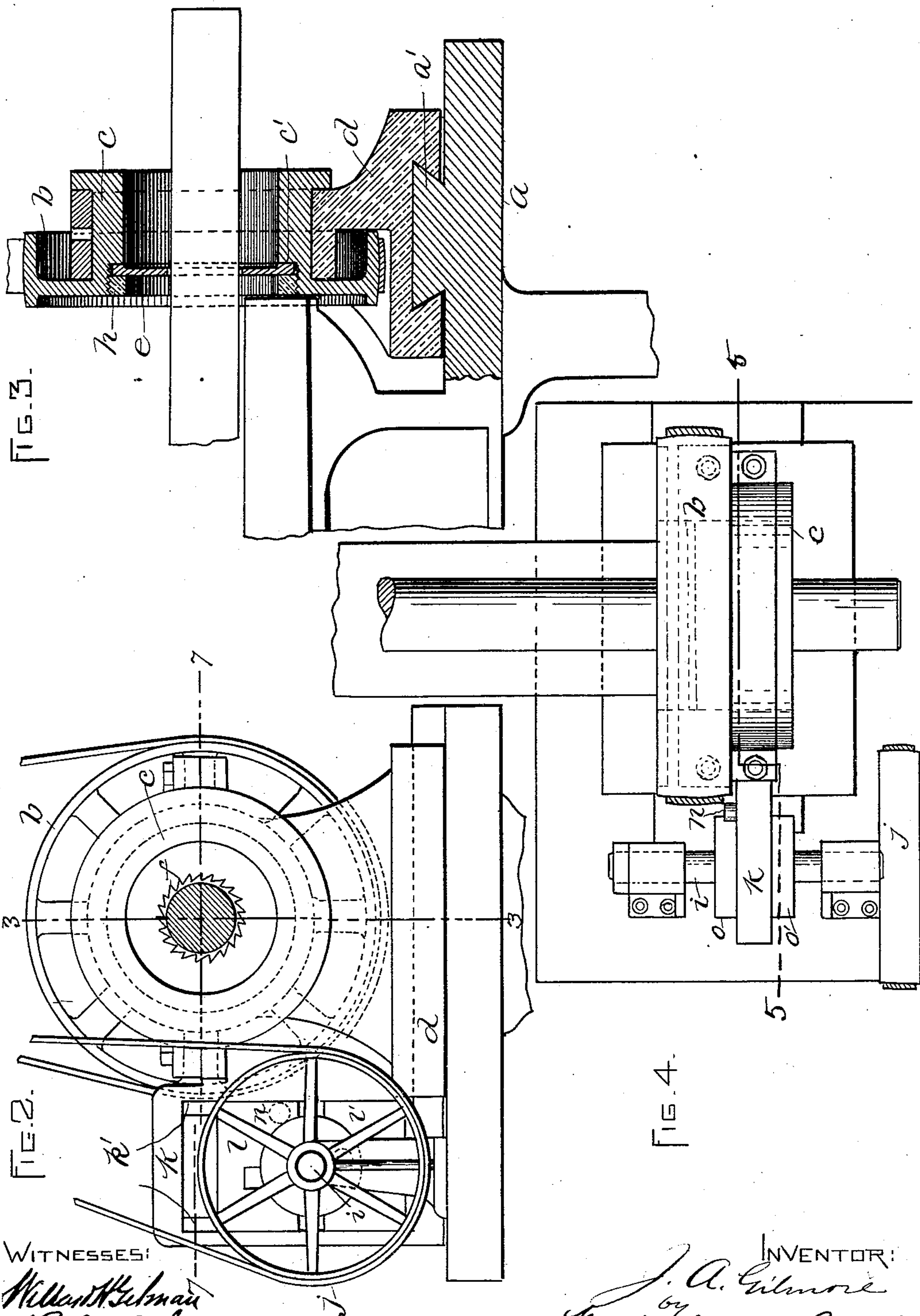
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WITNESSES:

William H. Schman  
H. A. Hall

INVENTOR:

J. A. Gilmore  
by  
Wright, Brown & Crossley  
Attys.



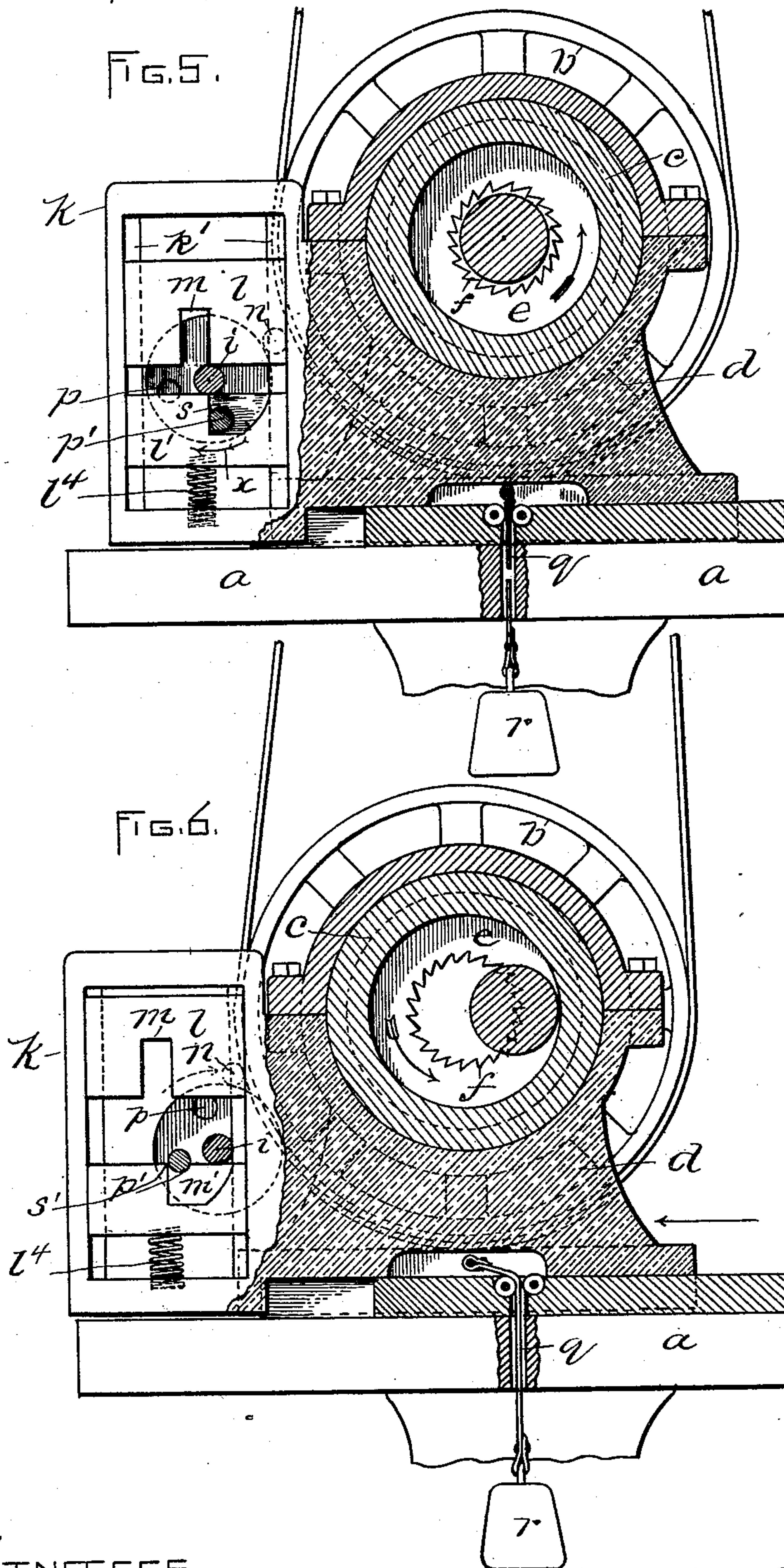
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WITNESSES.  
William H. Schmau.  
H. A. Hall.

INVENTOR:  
J. A. Gilmore  
by  
Wright, Brown & Horsley,  
Attys.



# UNITED STATES PATENT OFFICE.

JOHN A. GILMORE, OF BOSTON, MASSACHUSETTS.

## CUTTING-OFF MACHINE.

SPECIFICATION forming part of Letters Patent No. 480,461, dated August 9, 1892.

Application filed March 25, 1892. Serial No. 426,373. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN A. GILMORE, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Cutting-Off Machines, of which the following is a specification.

My invention has reference to machines for cutting metal rods, tubes, bars, or other stock, and has for its object to construct an apparatus which will accomplish the desired result with the greatest expedition and neatness and with the least liability of bending or otherwise injuring the saw or cutting device.

My invention further contemplates means for directing or feeding the saw forward and backward automatically through the material being severed, as shall presently appear.

My invention consists, essentially, of a disk having a central aperture provided with a suitable cutting-edge, which may be reciprocated to enter the material to be treated or may be stationary and the material fed thereto.

In the accompanying drawings, which form part of this specification, I have shown an arrangement which I deem the best embodiment of the principle of the invention; but it is obvious that modifications may be made therein without departing from the spirit of the invention.

Figure 1 is a side elevation of the machine, showing a piece of material inserted in the cutting-aperture. Fig. 2 is an end view in elevation showing the main pulley, hub, and cutting device with the means of reciprocation. Fig. 3 is a vertical section on line 3 3 of Fig. 2. Fig. 4 is a top plan view of the principal elements of the application. Fig. 5 is a vertical section through the main pulley and hub in line 5 5 of Fig. 4, the yoke and slides appearing in elevation, one disk being removed, but leaving its pin. Fig. 6 is a similar section showing the yoke also in elevation, one of the disks also removed. Fig. 7 is a longitudinal section on line 7 7 of Fig. 2. Fig. 8 is a detail in perspective of the yoke, slides, and shaft carrying disks and pins, one disk being removed. Fig. 9 is a detail of the disks and pins.

To the table or bed *a* is secured the dovetail guide *a'*, upon which the carriage *d* is adapted to slide. This carriage *d* consists of an upright or standard, which serves as a

bearing and support for the main pulley *b*. This pulley derives its movement from a belt or other suitable means and may be revolved at a high speed. Said pulley has an elongated hub *c*, Figs. 1 and 3, provided with an annular recess or shoulder *c'*, against which the cutting-disk *e* rests, and is secured in its seat by a ring *h*, screw-threaded into the annular depression or recess, Figs. 3 and 7. This disk has a central aperture of a given diameter, the edge of which aperture is supplied with proper cutting-instruments—as, for instance, teeth *f'*. The material to be cut is adapted to be inserted in this cutting-aperture, and in all the figures a piece of stock is shown in position to be severed.

Secured to the carriage *d* or formed integrally therewith is an upright frame or yoke *k*, Figs. 2, 5, 6, and 8, arranged to slide free of the bed *a* and having vertical guides *k'* on the inner upper sides thereof. On each side of this yoke are standards *i' i''*, secured suitably to the bed *a* and having bearings for shaft *i*, adapted to be rotated by a pulley *j*. This shaft *i* carries two disks *o o'*, secured thereto, which disks are in opposite sides of and adjacent to the sliding plates *l l'*. These plates are composed of two pieces each, so that they may be readily inserted in the yoke *k* and upon the grooves *k'*. Cut-out portions *m m'* are provided in these plates and are adapted to be engaged by inwardly-projecting pins *p p'*, secured to disks *o o'*.

The operation of the machine will now be readily understood. A piece of stock is inserted in the cutting-aperture and the pulley *b* is revolved at the proper speed. Pulley *j* is now set in motion in the direction of arrow, and, as seen in Fig. 5, pin *p'* will in the revolution of the disks bear against surface *s* and force yoke *k* and carriage *d* to the left, carrying the cutting-edge substantially half-way through the stock, as shown in Fig. 6. As soon as pin *p'* has cleared point *s'* of the portion *s* weight *r* will act to return the carriage to the middle or normal position. A pin *n* is provided in the plate *l* and rides over disk *o*, thereby holding plate *l* so that pin *p* cannot engage slot *m* until pin *p* has passed the central position. As soon, however, as it resumes the normal position plate *l*, no longer re-



strained by pin *n*, drops down and slot *m* engages pin *p* and as the shaft *i* continues to revolve pushes carriage *d* to the right until pin *p* is carried out of engagement with slot *m*, when the carriage is again returned by weight *r*. As pin *p* descends out of engagement with slot *m* it will force plate *l'* downwardly until its half-revolution is completed, when spring *l'* serves to return plate *l'* to be engaged by pin *p'*. The automatic feed may be as rapid as desired, depending upon the revolution of shaft *i*.

As has been hereinbefore indicated, I do not confine myself to any particular form of means for effecting the differential feed of the saw to the material or the material to the saw, since skilled mechanics will understand that well-known eccentric gears or angular gears, which are also old and common, may be used for the purpose and that the feed movement can be accomplished in many other ways.

Having thus described the nature of my invention and explained a way of constructing and using the same, though without attempting to set forth all of the forms in which it may be made or all of the modes of its employment, I declare that what I claim is—

1. A cutting-off machine comprising in its construction a cutter consisting of a disk having a central aperture or opening and provided on the edge of this opening with cutting-teeth, at set forth.

2. A cutting-off machine comprising in its construction a cutter consisting of a disk pro-

vided centrally with an opening and having cutting-teeth on the edge of this opening and a movable support for the cutter, as set forth.

3. A cutting-off machine comprising in its construction a pulley and a cutter consisting of a disk supported at its periphery in said pulley and provided centrally with an opening and having cutting-teeth on the edge of this opening, as set forth.

4. A cutting-off machine comprising in its construction a cutter consisting of a disk provided centrally with an opening and having cutting-teeth on the edge of this opening, a movable support for the cutter, adapted to be reciprocated, and means, substantially as described, for reciprocating the said support, as set forth.

5. In a cutting-off machine, a cutter consisting of a disk having a central opening and provided with cutting-teeth on the edge of this opening, said cutter mounted on a support adapted to reciprocate, and means, substantially as herein shown and described, whereby the cutter may enter the material at a speed which slackens as the cutter proceeds.

In testimony whereof I have signed my name to this specification, in the presence of two subscribing witnesses, this 29th day of February, A. D. 1892.

JOHN A. GILMORE.

Witnesses:

ARTHUR W. CROSSLEY,  
WILLARD H. GILMAN.