

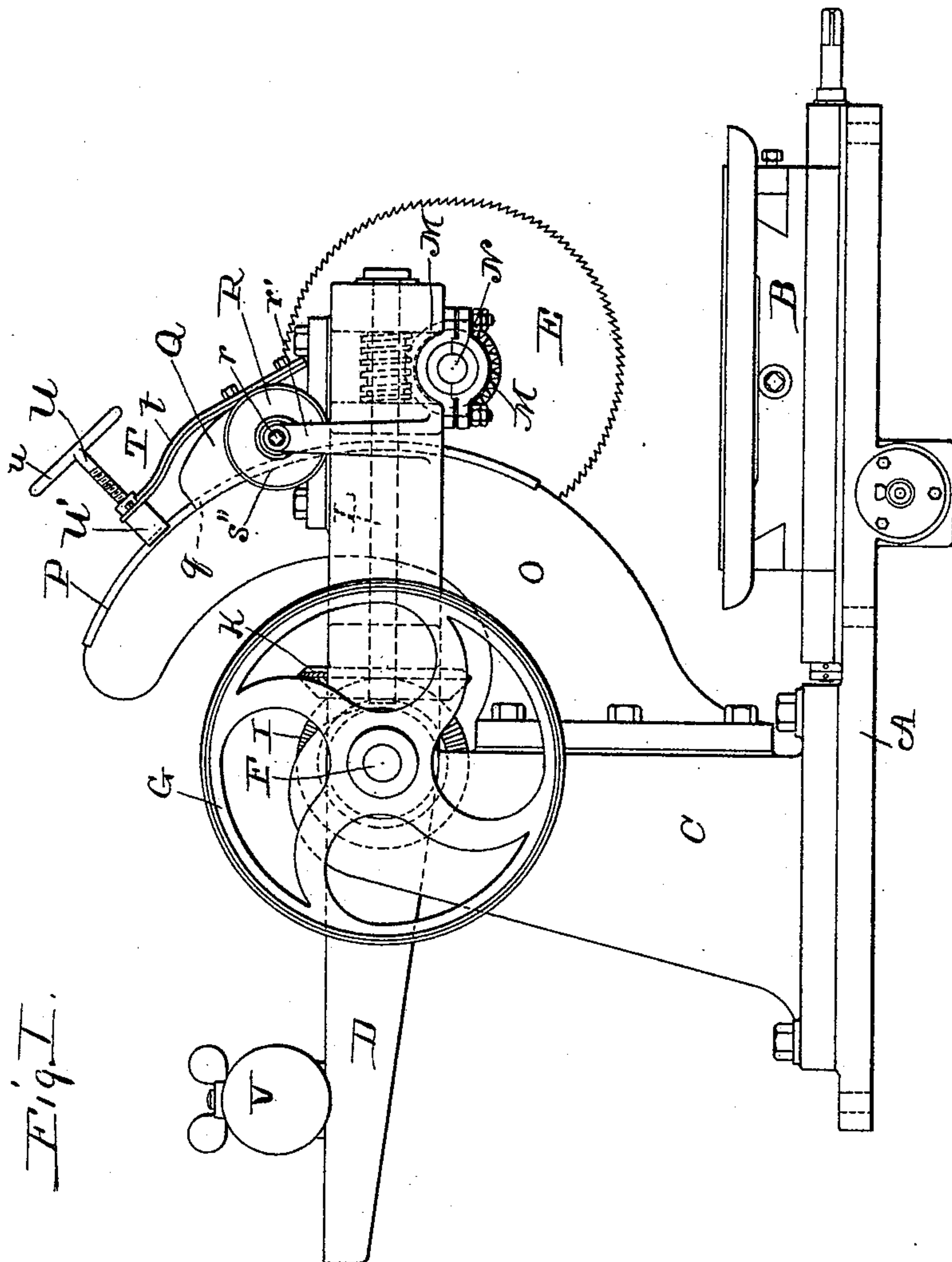
(No Model.)

3 Sheets—Sheet 1.

G. EHRHARDT.  
COLD SAWING MACHINE.

No. 500,193.

Patented June 27, 1893.



WITNESSES:

J. B. Slavin  
J. P. Howley

INVENTOR

Gustave Ehrhardt.

BY  
Higdon & Higdon  
ATTORNEYS

(No Model.)

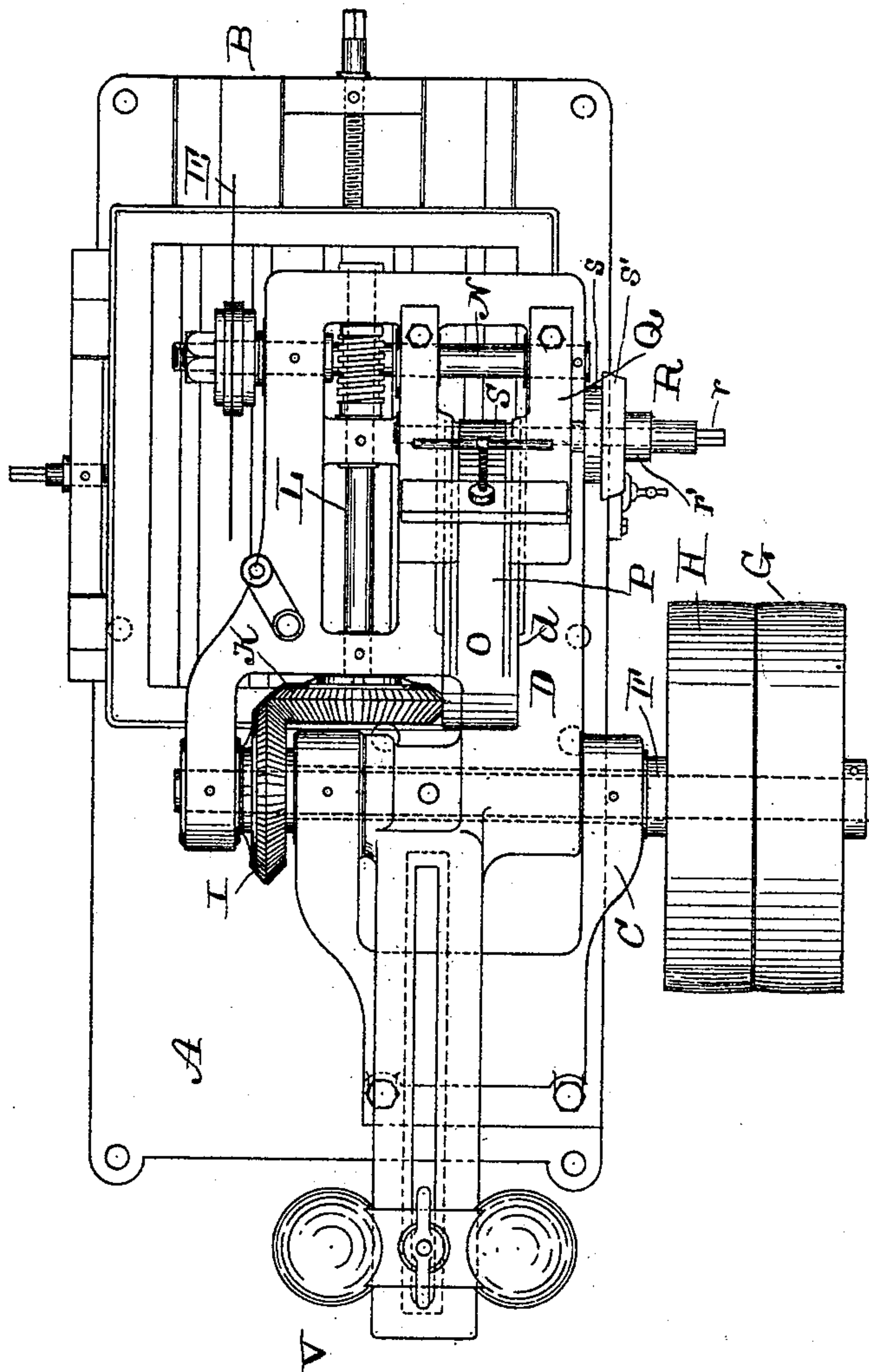
3 Sheets—Sheet 2.

G. EHRHARDT.  
COLD SAWING MACHINE.

No. 500,193.

Patented June 27, 1893.

Fig. II



WITNESSES:

J. B. Slavin  
J. P. Hawley

INVENTOR

Gustave Ehrhardt.

BY  
Higdon & Higdon  
ATTORNEYS

(No Model.)

3 Sheets—Sheet 3.

G. EHRHARDT.  
COLD SAWING MACHINE.

No. 500,193.

Patented June 27, 1893.

Fig. IV.

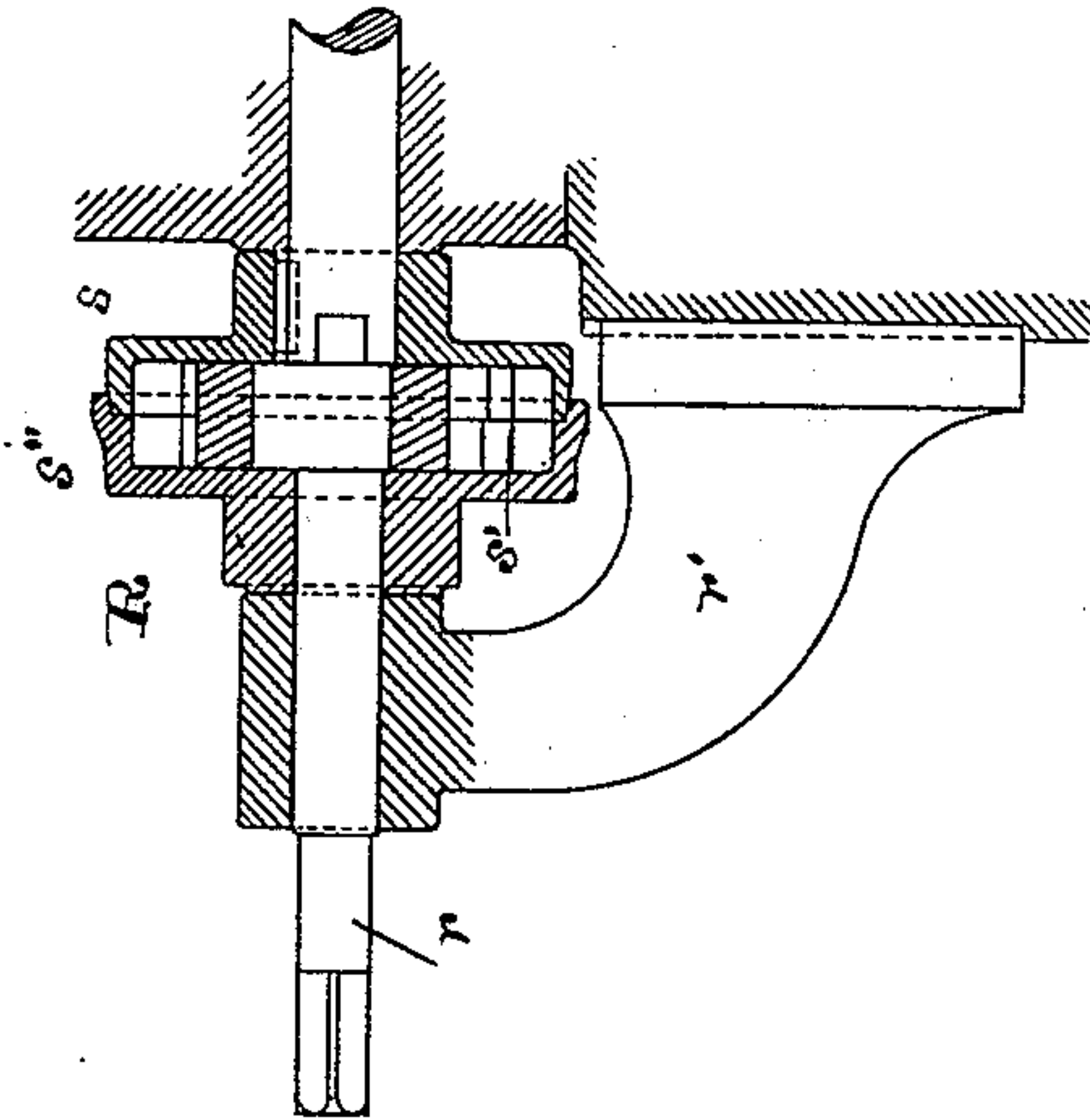
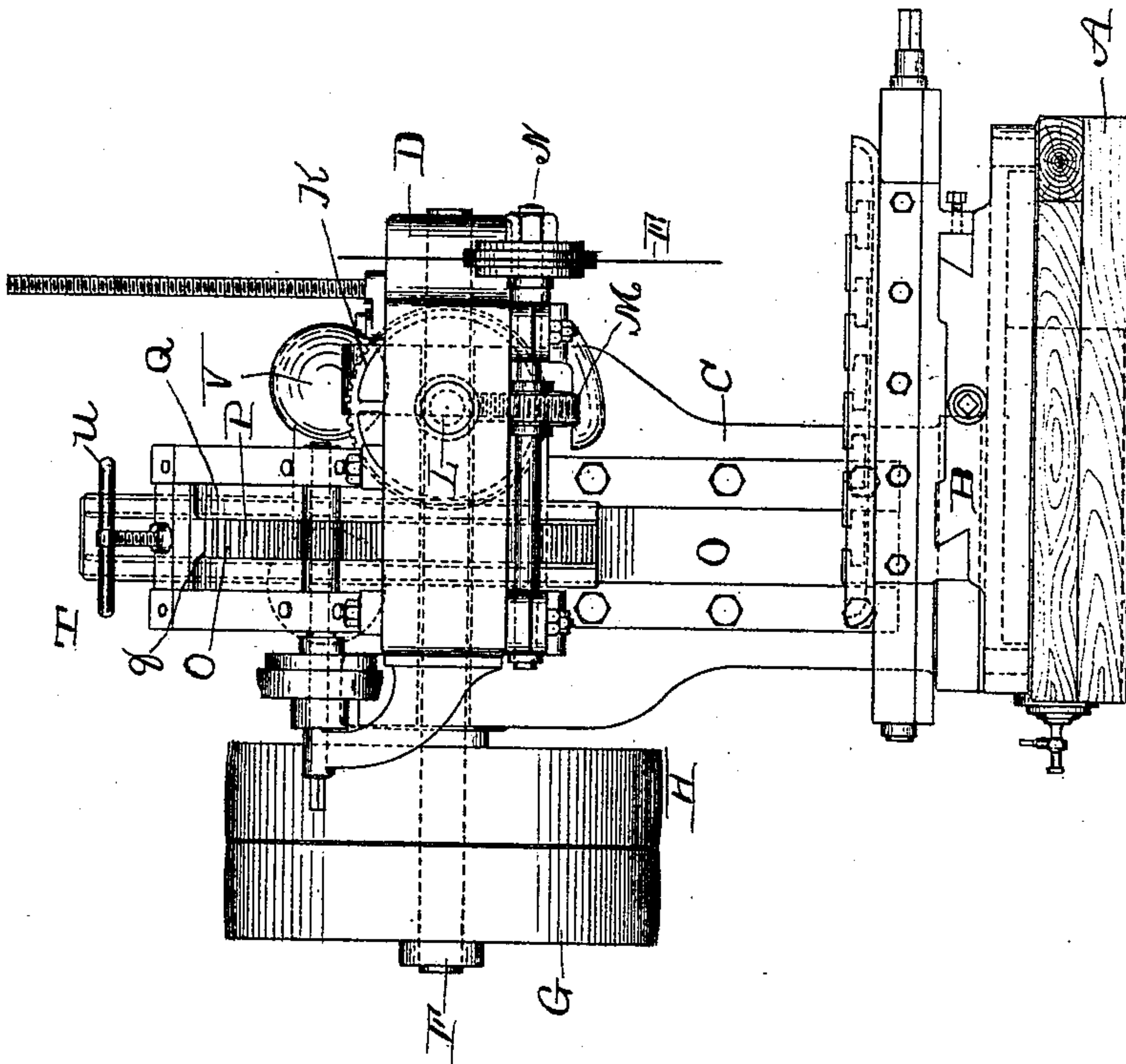


Fig. III.



WITNESSES:

J. B. Starin  
J. P. Howley

INVENTOR

Gustave Ehrhardt.

BY  
Higdon & Higdon  
ATTORNEYS



# UNITED STATES PATENT OFFICE.

GUSTAVE EHRHARDT, OF PITTSBURG, PENNSYLVANIA.

## COLD-SAWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 500,193, dated June 27, 1893.

Application filed July 16, 1891. Serial No. 399,762. (No model.)

*To all whom it may concern:*

Be it known that I, GUSTAVE EHRHARDT, a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Cold-Sawing Machines; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to improvements in cold-sawing machines, and refers particularly to the means for guiding the saw and regulating the speed of the cut; and furthermore, to the means for elevating the saw and locking it in its elevated position.

My invention is fully described in connection with the drawings, wherein—

Figure 1 is a side view of a machine embodying my improvements. Fig. 2 is a front view of the same. Fig. 3 is a plan view thereof. Fig. 4 is a detail sectional view.

A represents the bed-plate provided with an ordinary slide-rest, B, and a vertical standard, C, upon which is fulcrumed a lever, D, which carries the saw, E. The shaft, F, upon which the lever is pivoted, carries a fly-wheel, G, and a band-wheel, H, and in addition, thereto, the said shaft carries a miter-gear, I, which meshes with a similar miter-gear, K, which is carried by the worm-shaft, L, said worm-shaft being disposed longitudinally in the lever in a position to engage the pinion, M, on the shaft N, of the saw. The saw-carrying lever is longitudinally slotted to embrace a segmental guide-finger, O, which is bolted at its lower end to the front of the standard, C, the slot, *d*, in the lever being of such a size that its sides bear against opposite sides of the guide-finger, whereby lateral vibration of the lever is prevented. A rack-bar, P, is bolted to the convex surface of the guide-finger, and a sliding block, Q, which is secured to the upper side of the lever is provided in its concave surface, with a channel, *q*, to receive the rack-bar.

R represents a clutch, the shaft, *r*, of which is mounted in bearings in the sliding block and a bracket, *r'*, which is secured to the side

of the lever. The shaft of the clutch carries a pinion, S, to engage the rack-bar, and a similar pinion, *s*, which is adapted to be engaged by an intermeshing pinion, *s'*, carried by the sliding shell, *s''*. The sliding shell is feathered on the shaft, *r*, and is adapted to be moved longitudinally thereon, to engage or release the pinion, *s*. The outer end of the shaft is squared for the reception of an operating crank, whereby the shaft may be turned to elevate the front or saw supporting end of the lever.

T, represents a brake, which consists of a spring-arm, *t*, secured at one end to the sliding-block and engaged at its free end by an adjusting screw, U, which carries the brake-shoe, U', the brake-shoe being notched to embrace the rack-bar. The adjusting screw is provided with a hand-wheel, *u*. The rear end of the lever, D, carries a counter-balancing weight, V, which is adapted to be adjusted to regulate the speed of depression of the saw. From the above description it will be seen that the saw is guided, during operation, to prevent lateral vibration and insure a clear cut.

In machines of this kind, having no means for regulating the speed of the cut, difficulty is experienced in preventing the saw from cutting more rapidly, and hence less satisfactorily, in passing through a thin portion of the article which is being sawed. For instance, in sawing railway rails, with machines now used, the saw passes more easily and quickly through the web of the rail, owing to the fact of there being less resistance at this point, and hence, the cut is liable to be less smooth and regular, and the saw is liable to twist and pass out of a direct line. To overcome this difficulty is the main object of my invention, and it is accomplished by the construction hereinbefore described.

The counter-balancing weight is adjusted to allow the desired rate of speed through the main body of the article which is being operated upon, and when a thinner portion of the article, or a portion thereof which offers less resistance, is reached, the brake is operated to allow the same speed as before. When a thicker portion is again reached the brake is released. Thus, I have a self-feeding machine, in which the saw is carried by



a balanced arm or lever, the speed at which the saw advances being controlled by the excess of weight at that end of the arm or lever which carries the saw, and the said excess being regulated by the position of the counterbalancing weight, a quick change in the speed of feeding being attained by the manipulation of the brake, whereby the forward movement of the saw may be instantly checked.

To elevate the saw, the shaft of the clutch is rotated by means of the crank, the movable shell being previously repressed to cause the pinion carried thereby, to engage the pinion, *s*, and when it is desired to operate the saw the crank is removed and the pinion, *s*, is released by disengaging the pinion on the shell therefrom.

The saw may be locked in its elevated position by means of the brake.

Having thus described my invention, I claim—

1. The combination with a saw carrying arm or lever, fulcrumed at an intermediate point, of an adjustable counterbalancing weight at its rear end connected to the arm or lever so as to counterbalance, in a greater or less degree, the weight of the saw to regulate the speed of depression of the latter and means for vertically setting and braking the saw, substantially as specified.

2. The combination with a balanced saw-carrying lever provided with a longitudinal guide-slot, of a segmental or curved guide-finger, adapted to engage the said guide-slot, a rack-bar carried by said guide-finger, and saw-setting devices carried by the saw frame and adapted to co-operate with the said rack-bar, substantially as specified.

3. The combination with a saw-carrying

lever provided with a guide-slot, of a stationary segmental guide-finger engaged by said slot and having one of its faces concentric with the fulcrum of the lever and provided with a rack, and a pinion carried by said lever to engage the rack, substantially as specified.

4. The combination with a saw-carrying lever, provided with a guide slot and a counterbalancing weight, and a guide-finger, embraced by the guide-slot in the lever, and provided with a rack, of a clutch, mounted upon the lever and having a pinion, *S*, to engage the rack, a pinion, *s*, and a loose shell carrying a pinion, *s'*, to engage the pinion, *s*, substantially as specified.

5. The combination with a saw-carrying lever provided with a counterbalancing weight and having a guide-slot, and a stationary guide-finger concentric with the fulcrum of said lever and engaged by the guide-slot in the latter, of a brake mounted upon the lever to impinge against the surface of the guide-finger, whereby the descent of the saw may be regulated and checked at will, substantially as specified.

6. The combination of a saw-carrying lever having a guide-slot, and the guide-finger provided with a rack-bar and embraced by a guide-slot in the lever, of a clutch, carried by the lever to engage the rack-bar, and a brake mounted upon the lever and provided with an adjustable brake-shoe to engage the guide-finger, substantially as specified.

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

GUSTAVE EHRHARDT.

Witnesses:

F. P. HAWLEY,

JOHN GRAEBING, Jr.