

(No Model.)

3 Sheets—Sheet 1.

E. ANDERSON.
SHINGLE SAWING MACHINE.

No. 397,328.

Patented Feb. 5, 1889.

Fig. 1.

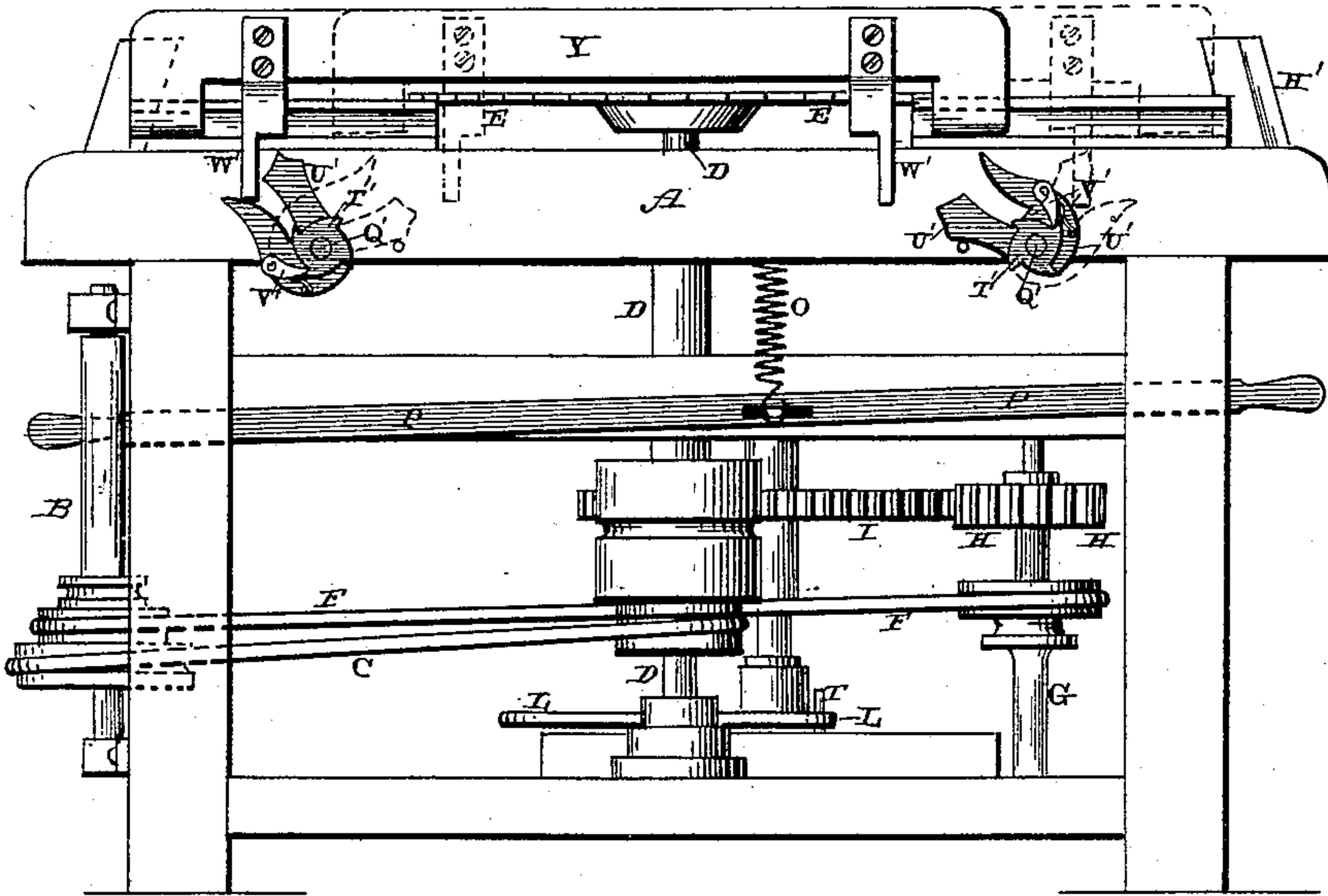
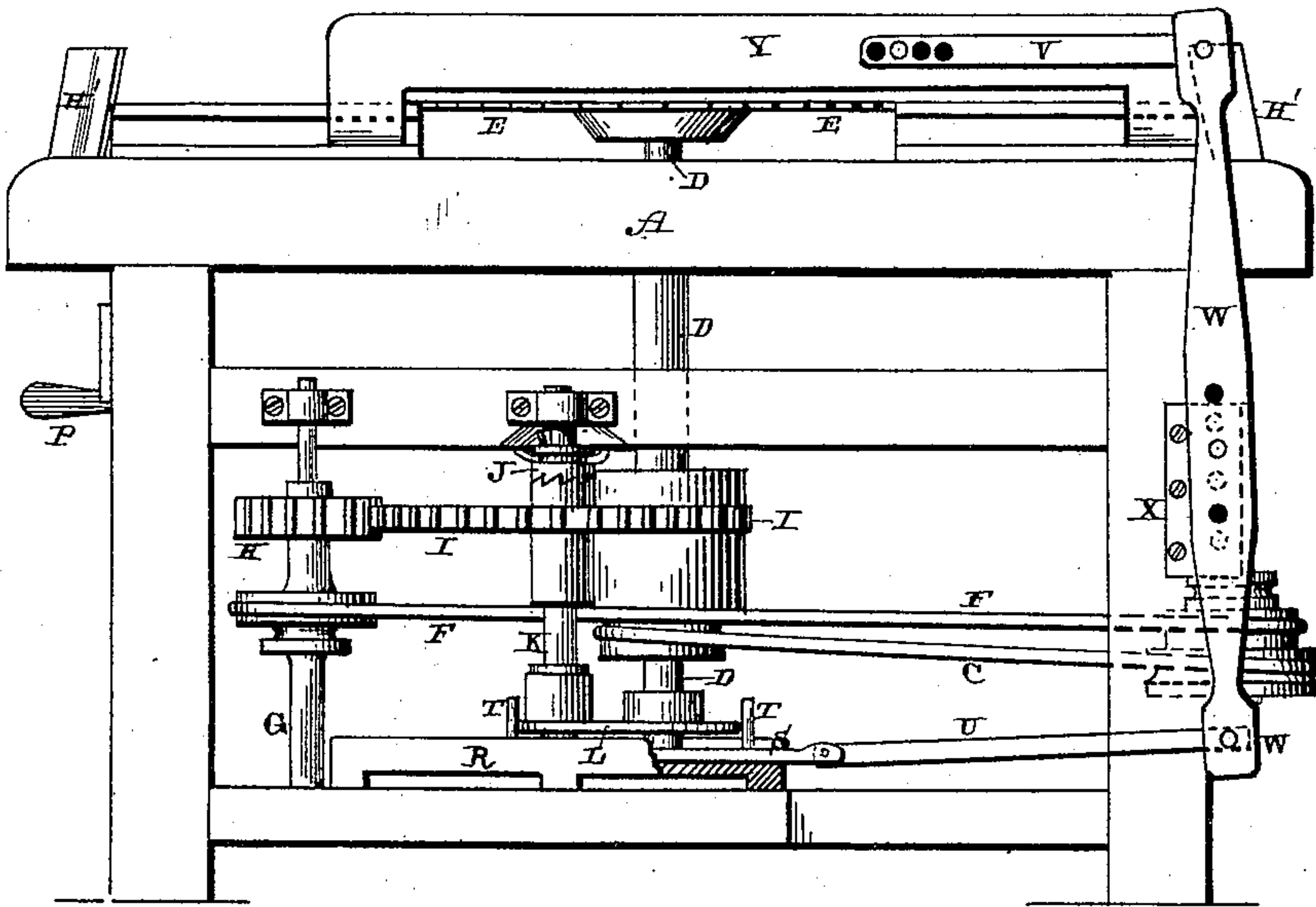


Fig. 2.



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Inventor.
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per
J. A. Lehmann, atty.

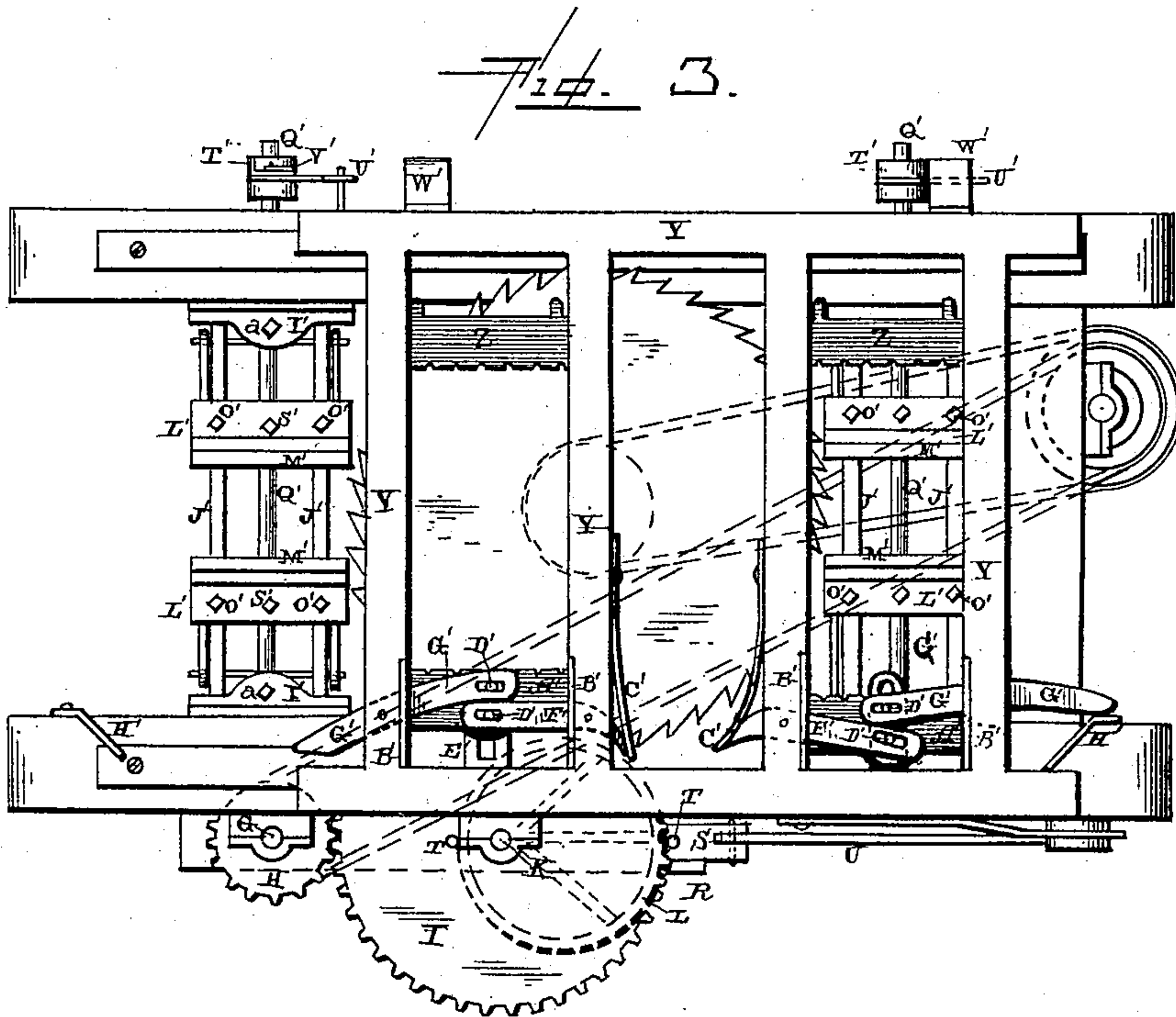
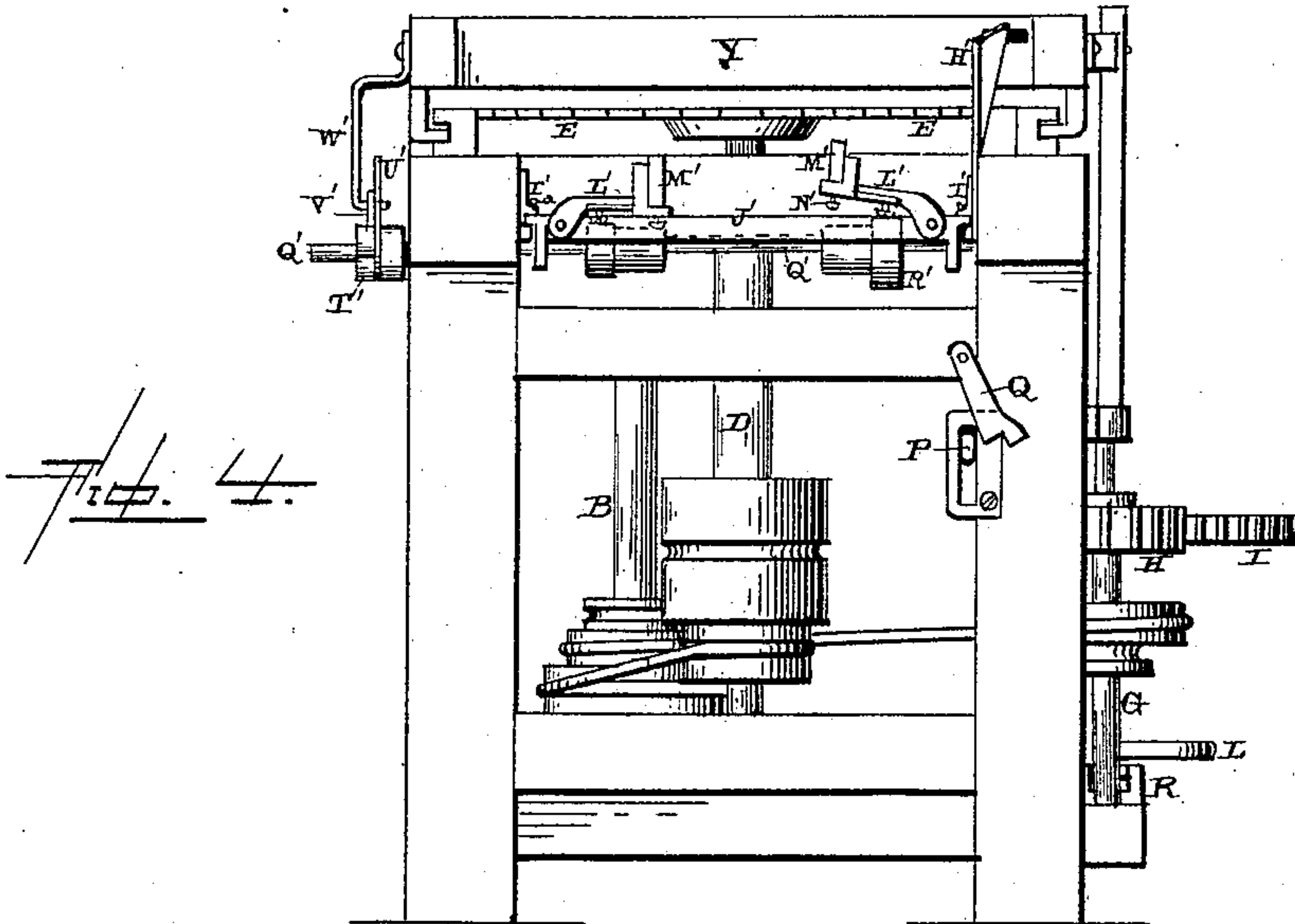
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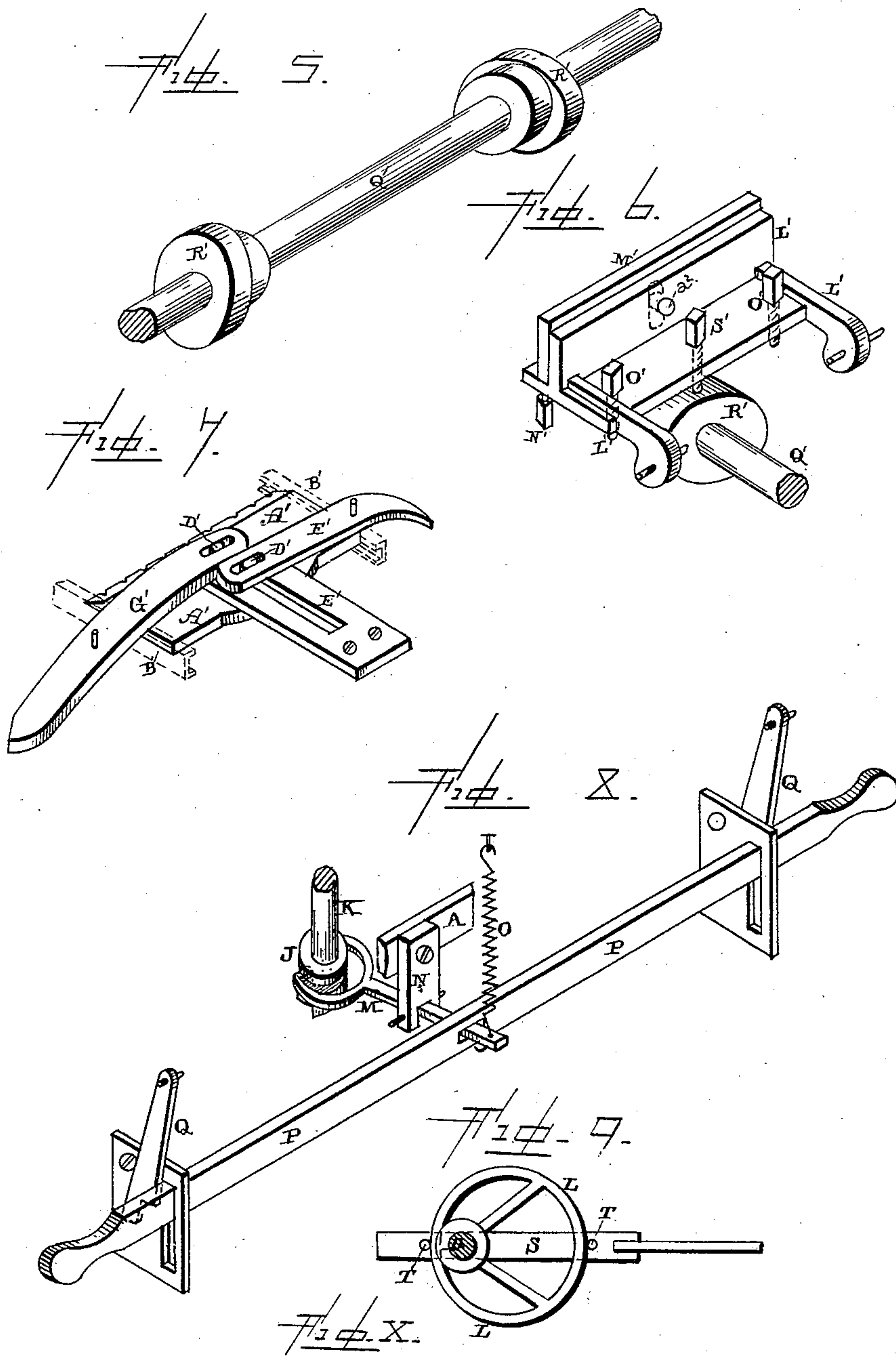
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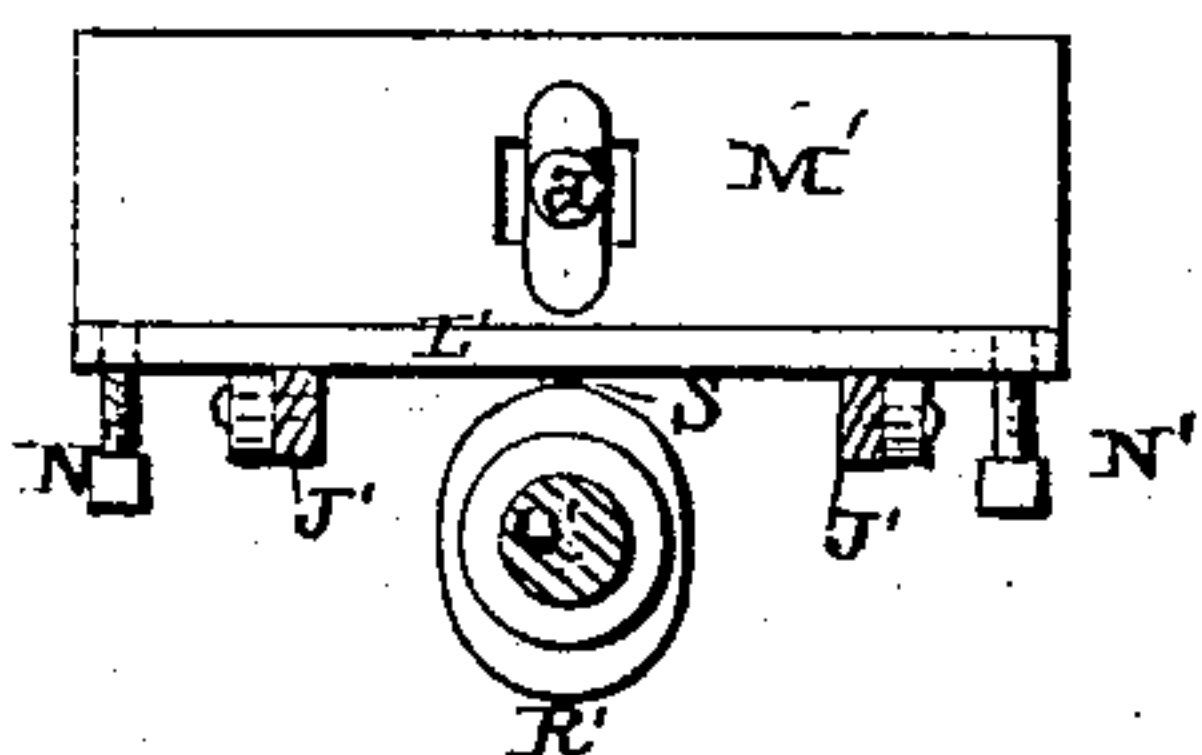
E. ANDERSON.
SHINGLE SAWING MACHINE.

No. 397,328.

Patented Feb. 5, 1889.



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UNITED STATES PATENT OFFICE.

EDWIN ANDERSON, OF TRYON CITY, NORTH CAROLINA.

SHINGLE-SAWING MACHINE.

SPECIFICATION forming part of Letters Patent No. 397,328, dated February 5, 1889.

Application filed May 23, 1888. Serial No. 274,773. (No model.)

To all whom it may concern:

Be it known that I, EDWIN ANDERSON, of Tryon City, in the county of Polk and State of North Carolina, have invented certain new and useful Improvements in Shingle-Sawing 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 pertains to make and use it, reference being had to the accompanying drawings, which form a part of this specification.

My invention relates to an improvement in shingle-sawing machines; and the objects of my invention are to have the carriage, carrying a block at each end, to reciprocate over a horizontally-revolving saw, so that a shingle is cut at each movement of the carriage; to have the leveling-bars upon which the block is dropped just previous to a shingle being sawed alternately tilted or raised, so as to form the butt-end of the shingle upon first one end of the block and then the other; to revolve a cam-shaft partially around at each forward motion of the carriage, and thus alternately raise the tilting-frames, and to so construct the parts that straight lumber can be sawed, if so desired.

Figures 1 and 2 are elevations of a machine embodying my invention, being taken from opposite sides. Fig. 3 is a plan view of the same. Fig. 4 is an end view. Fig. 5 is a detached view of the cam-shaft. Fig. 6 is a perspective of one of the tilting frames. Fig. 7 is a detached perspective of the clamp which holds the block. Fig. 8 is a detached view showing the lever and the clutch connected thereto. Fig. 9 is a detail view showing the cam which operates the slide. Fig. 10 is a detail view of one of the slotted adjusting-plates.

A represents a suitable frame of any desired shape, size, or construction which may be preferred, and journaled vertically in one end thereof is the shaft B, which has suitable driving-pulleys formed upon its lower end. From the lower one of these pulleys extends a belt, C, which passes around a pulley upon the vertical shaft D, which has the horizontally-revolving saw E secured to its upper end. From a second one of the pulleys upon the shaft B extends the belt F,

around the vertical shaft G, provided with a pulley, and which has secured to it near its upper end a pinion, H. This pinion H meshes with the spur-wheel I, which has teeth formed upon the upper edge of its hub, so as to engage with the clutch J, which is feathered upon the vertical shaft K, which is journaled upon one side of the frame A.

The vertical shaft G receives its motion from the belt F, and transmits this motion through the pinion H and wheel I, the wheel I revolving idly around upon the shaft without producing any effect upon the carriage. When, however, the clutch J is in gear with the wheel I, the shaft K is made to revolve, carrying the cam L with it, and then the carriage is made to reciprocate. This clutch J is operated by the lever M, which is journaled in a suitable bearing, N, secured to the inner side of the frame A, and which lever M has a spring, O, secured to its inner end, so as to keep its outer end, to which the clutch is secured, always pressed downward, so as to be in gear with the wheel I. The inner end of the lever passes through the long operating-lever P, which extends from one end of the frame to the other, and which, when left free to move, is drawn upward by the lever M and the spring O. When it is desired to raise the clutch J out of contact with the wheel I, either one of the ends of the lever P must be depressed and locked down into position by means of the latch Q upon the end of the frame. When the lever P is locked downward by the latch Q at either end, the inner end of the lever P is depressed and the clutch is raised, so as to allow the wheel I to freely revolve upon the shaft K without operating it.

Secured horizontally upon the frame is a grooved guide, R, in which the endwise-moving slide S, provided with the projections T, is placed. These projections catch upon opposite sides of the cam L, and as the cam is made to revolve the slide is moved back and forth. To one end of the slide S is secured the connecting-rod U, and to the outer end of the connecting-rod is pivoted the lower end of the lever W. To the upper end of the lever W is pivoted the connecting-rod V, which is connected to the carriage, and which has a series of perforations made through it, so that

the point at which it is to be attached to the carriage can be regulated at will.

Secured to the side of the frame A, at one end, is a perforated metal plate, X, through which the pivot upon which the lever W moves is passed. A series of holes are made through this plate X, and a number of holes are made through the lever W, so that the pivotal point of the lever can be changed at the will of the operator, so as to give the carriage a longer or shorter movement, as may be desired, without changing the relative heights of the connecting-rods U V to the carriage. If the pivot is passed through the upper hole in the lever, the carriage will be given a shorter stroke, whereas if it is passed through the lower hole in the lever it will give the carriage a longer one. The carriage Y is provided with suitable guides upon its under side, and is made to move back and forth in the ways prepared for it in the usual manner. To each end of this carriage is secured a stationary toothed dog, Z, and a movable dog, A', which moves back and forth in suitable grooved guides, B', and which are made to hold the blocks from which the shingle is being sawed by means of the spring C'. Projecting from the upper side of this movable dog A' are two projections, D', which pass up through the slotted guide E', secured to the inner side of the frame. These projections D', passing through this guide E', serve both to keep the dog A' in the proper position and to allow it to adjust itself to any unevenness of the block from which the shingles are being sawed without binding.

Projecting from one of the cross-bars of the carriage Y is a lever, F', which is slotted at its inner end, so as to catch over one of the projections D', and which lever has its outer end bent or turned at an angle where it passes through the cross-bar, so as to bear against the inner side of the free end of the spring C'. The pressure of the spring C' against this bent or angular end of the lever F' keeps the dog A' pressed tightly against the block, so as to support it in position as the carriage moves back and forth; also, projecting from one end of the cross-bar of the carriage Y is a lever, G', which catches at its inner end over the outer one of the projections D', and which has its inner end beveled, so as to act upon the inclined plate H', secured to the frame A. When the carriage is approaching the end of its stroke, the outer beveled end of the lever G' strikes against this inclined plate H', so as to cause the lever G' to turn upon its pivot and to force the movable dog A' backward against the pressure of the spring C', and thus allow the block from which the shingle is being sawed, and which was held between the stationary dog Z and the movable one A', to drop upon the tilting frame before the carriage begins its backward movement, and thus saw another shingle from the block. This block drops just after it passes the edge of the saw and before the backward movement

of the carriage begins to take place. As the carriage moves backward and the end of the lever G' becomes disengaged from the inclined plate H', the movable dog A' again engages with the block and holds it while a shingle is being sawed.

Secured to the opposite inner sides of the frame A are the horizontally-grooved guides I', in which the supporting-frame J' is adjustably held. This frame J' is held in any desired position in the guides I' by means of set-screws a, and hence as the saw becomes worn away by sharpening this frame J' can be adjusted forward, so as to always maintain the same relative position to the saw. Pivoted at each end of this frame J' are the tilting bars or frames L', to the free ends of which are adjustably secured the plates M', upon the upper edges of which the block is supported when the movable dogs are moved back out of contact with them, and they drop downward ready to have another shingle sawed from them. These plates are slotted at their centers, and are held in position by means of screws or other similar devices, which are passed through the slots, and the ends of these plates M' are adjusted vertically by the set-screws N', so that the plates can be leveled or adjusted from either end, as may be desired. Passing through these tilting bars L' are the set-screws O', which bear against the top of the supporting-frame J', and thus regulate the distance that the block shall drop downward and the thickness of the butts of the shingles cut. The plates M' can also be adjusted vertically by the screws a², to regulate the thickness of the butts, and hence a double adjustment is provided for this purpose. Of course the higher the tilting frames are raised at their free ends the shorter the distance the block will drop downward and the thinner their butts will be.

Passing horizontally through the frame A, and just below the supporting-frame J', is the shaft Q', which is provided with the cams R', which are set at an angle to each other, and which alternately raise the tilting frames L' through the set-screws S', which pass down through the tilting frames and bear upon the cams. The cams are set at an angle to each other, so that first one tilting frame is operated and then the other, thus causing the ends of the blocks to be alternately raised, and causing the butt of the shingle to be sawed first from one end and then the other. The amount of movement given to the tilting frames by the cams is regulated by the set-screws S'.

To the outer end of each of the shafts Q' is rigidly secured a ratchet, T', which is provided with four teeth, and placed loosely upon the end of the shaft next to this ratchet is a plate or frame, U', which has a spring-actuated pawl, V', secured thereto, and which pawl, as the plate or frame U' is caused to partially revolve, engages with the ratchet

and causes the cam-shaft Q' to revolve one-fourth around. Secured to each end of the carriage Y is a suitable arm or projection, W', which has its lower end to enter the recess or opening in the plate U' as the carriage moves forward, and thus cause the plate or frame to partially revolve upon the shaft at the same time that the pawl is engaging with the ratchet, and causing the ratchet to partially revolve. As the carriage moves forward, it returns the plate or frame U' back to its position, but without moving the shaft. Each time that the shaft Q' is turned one-quarter around by the forward movement of the carriage Y one of the cams R' is brought into play, so as to raise first one tilting frame and then the other.

Should it be desired at any time to saw straight lumber with this machine, it is only necessary to move the plate or frame U' around, so that it cannot be struck by the arm W', and then level the tilting frames, when straight material can be sawed as well as shingles.

By making the outer ends of the inclines II' extend in a straight line with the frame the outer ends of the levers G' are held forced back, and the movable dogs are held back out of contact with the blocks, and in such a manner that no strain is brought to bear on any of the parts.

After the end of the lever G' has moved beyond the inclined face of the incline H, no further power is exerted beyond the lever G' more than to hold it in the position shown in the lower left-hand corner of Fig. 3. Although the carriage Y may continue its endwise movement, no further strain is brought to bear upon the lever G', because it has passed that inclined part which acts upon it.

Having thus described my invention, I claim—

1. The combination of the driving-shaft, the belts F C, extending therefrom, the saw-shaft journaled in the frame, provided with the saw D at its upper end and operated by the belt C, the shaft G, journaled upon the frame A, operated by the belt F, and provided with a pinion, H, the shaft K, journaled upon the frame A and provided with the wheel I to mesh with the pinion H, the clutch J, placed upon the shaft K, for locking the wheel I to the shaft, the lever M, pivoted in the frame N and connected to the clutch at one end, the spring O, connected to the other end of the lever, the operating-lever P, extending endwise of the frame A and connected to the lever M, and suitable notches, Q, upon the ends of the frame for locking the lever in place while the clutch is out of gear, substantially as shown.

2. In a sawing-machine, the combination of the saw and the reciprocating carriage with the shaft K, journaled in the frame A, and means for operating said shaft, the cam L, secured to its lower end, the guide R, secured upon the frame, the slide S, placed in the

guide R and provided with the projections T, between which the cam revolves, the connecting-rods U V, the lever W, provided with a series of perforations and placed in a vertical position on the frame, perforated plate X, secured to one end of the frame, and the pivot which passes through the plate and lever, and which pivot is adapted to be changed from one hole to another, so as to vary the distance the carriage shall move, substantially as described.

3. The combination of the carriage provided with a stationary dog, the movable dog provided with the projections D', the guide E', through which the projections pass, the guides B', secured to the carriage and between which the dogs A' move, the lever F', pivoted upon the carriage and made to catch over one of the projections D' at its inner end, the spring C', the pivoted lever G', which catches over one of the projections upon the sliding dog at its inner end, and the inclined plate secured to the frame for moving the lever G' and the movable dog, so as to drop the block, substantially as described.

4. The combination of the supporting-frame J', located at one end of the frame A, the tilting frames pivoted at their outer ends to the supporting-frames, the slotted plates M, attached to the free ends of the tilting frame, the screws a^2 , for holding the plates in position, and the set-screws N', which pass through the frames and bear against the edges of the plates, substantially as set forth.

5. The combination of the supporting-frame J', the guides I', adjusting-screws, and the saw with the carriage for reciprocating the block back and forth over the saw, and the mechanism for holding the block, whereby the supporting-frame with its attachments can be adjusted in relation to the saw as the saw becomes worn away, substantially as described.

6. The combination of the supporting-frame J', the tilting frames attached thereto, the vertically-adjustable slotted plates M', attached to their free ends, screws a^2 , for securing them in position, and the set-screws O', which pass through the tilting frames, the shaft Q', provided with cams R', and a mechanism operated by the carriage for causing the shaft to revolve at each forward movement of the carriage, substantially as shown.

7. The combination of the cam-shaft, the supporting-frame, and the tilting frames pivoted thereto, the ratchet rigidly secured to the end of the shaft, the frame U', carrying a pawl loosely placed upon the shaft, the carriage, and the arm which projects downward from the carriage and operates the frame, substantially as described.

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

EDWIN ANDERSON.

Witnesses:

C. H. GOODELL,
HENRY C. GOODELL.