

(No Model.)

5 Sheets—Sheet 1.

E. ANDERSON.
SHINGLE SAWING MACHINE.

No. 437,342.

Patented Sept. 30, 1890.

Fig. 1.

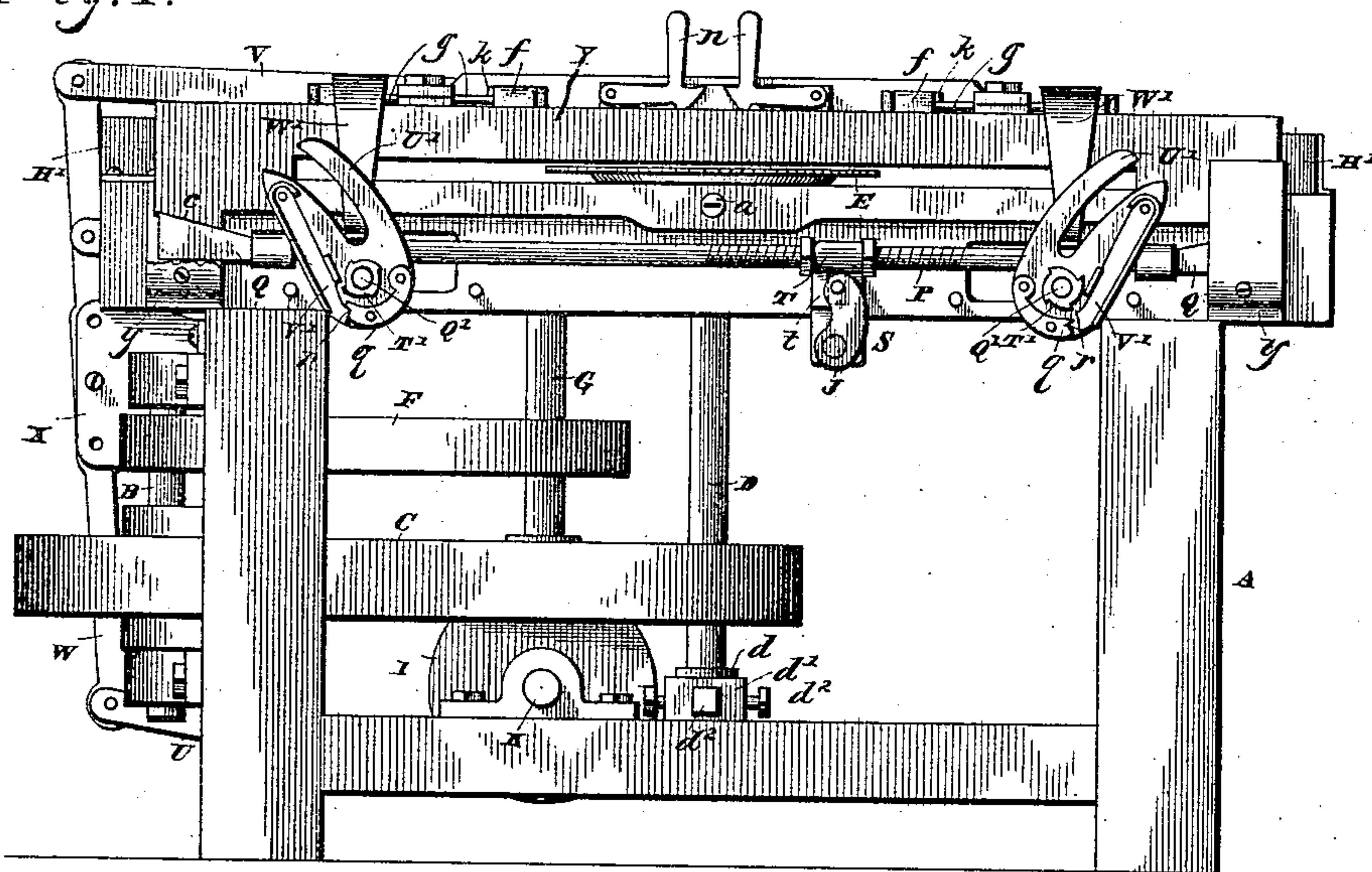
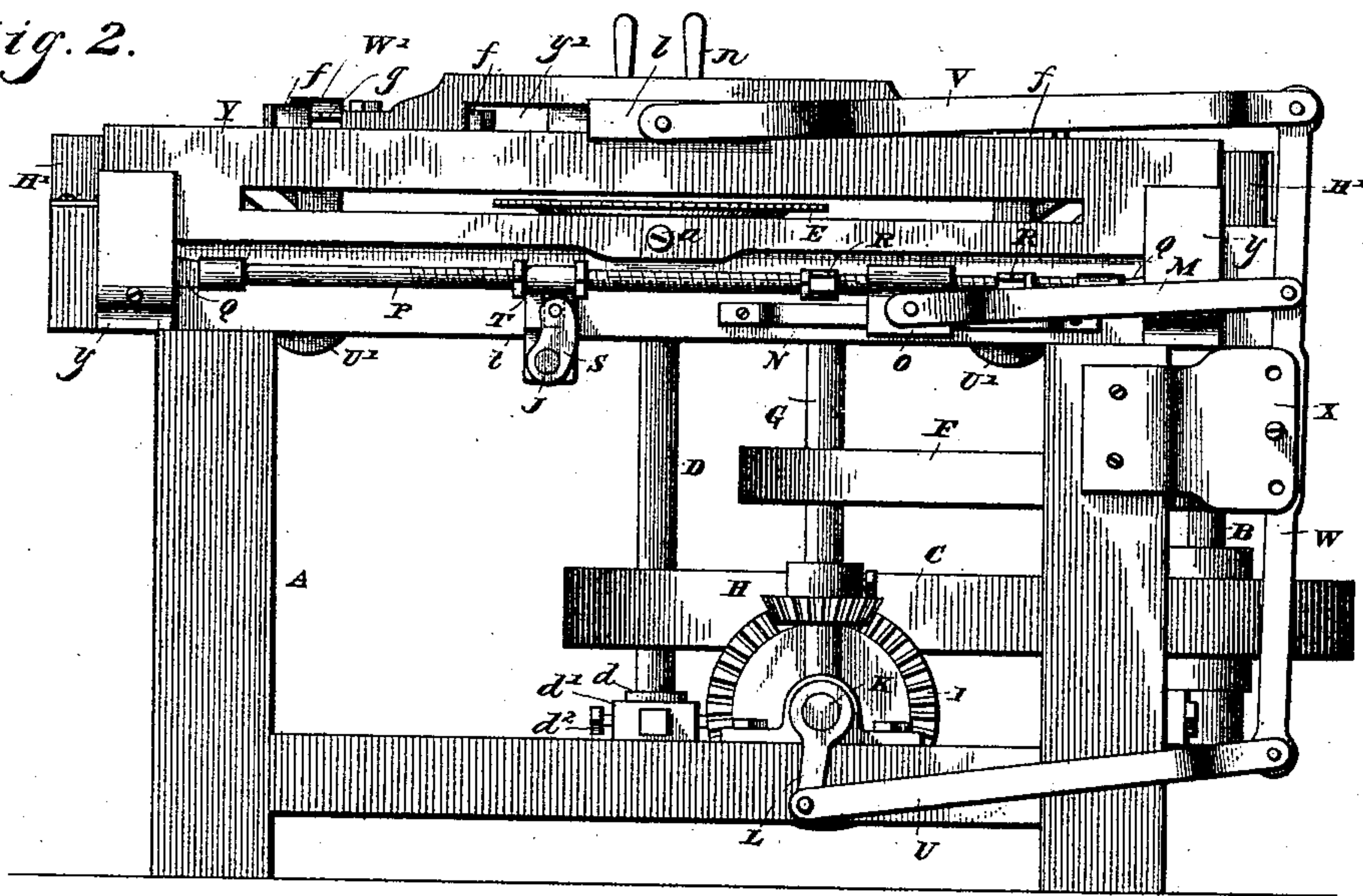


Fig. 2.



Witnesses:

M. W. Sherwin

N. L. Collier

By *his* Attorneys.

C. A. Snow & Co.

Inventor

Edwin Anderson

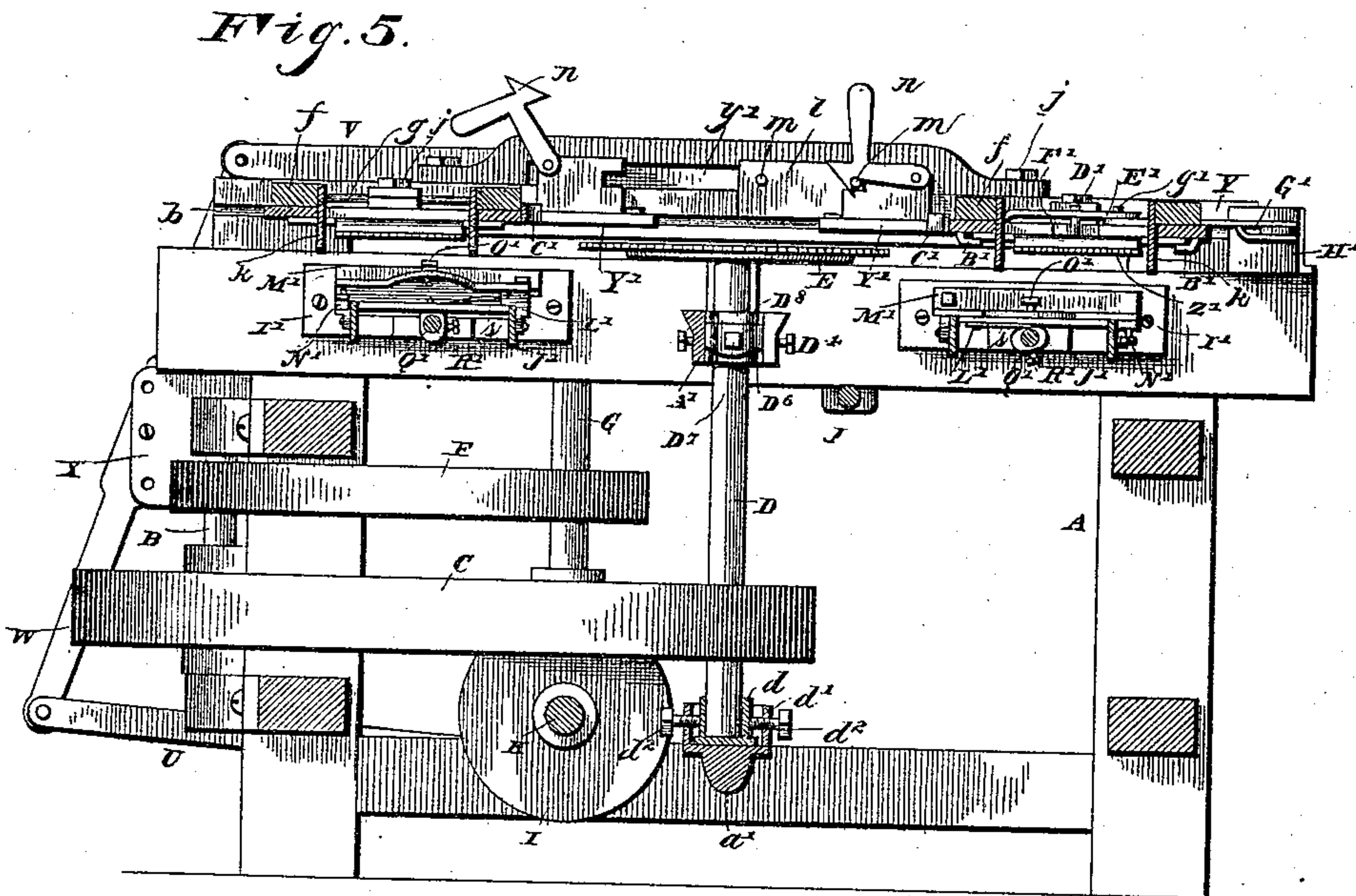
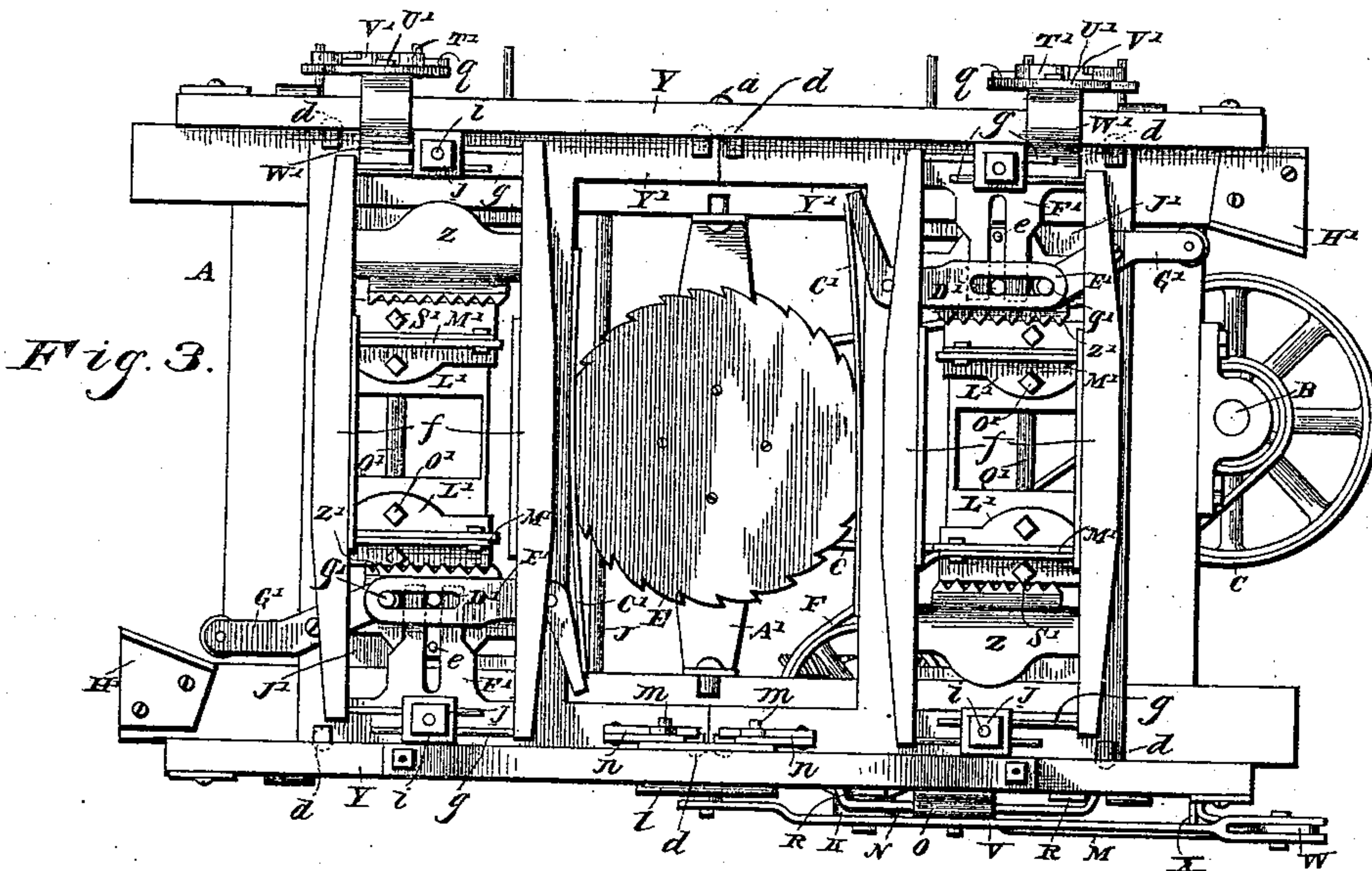
(No Model.)

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Witnesses:

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Fig. 6.

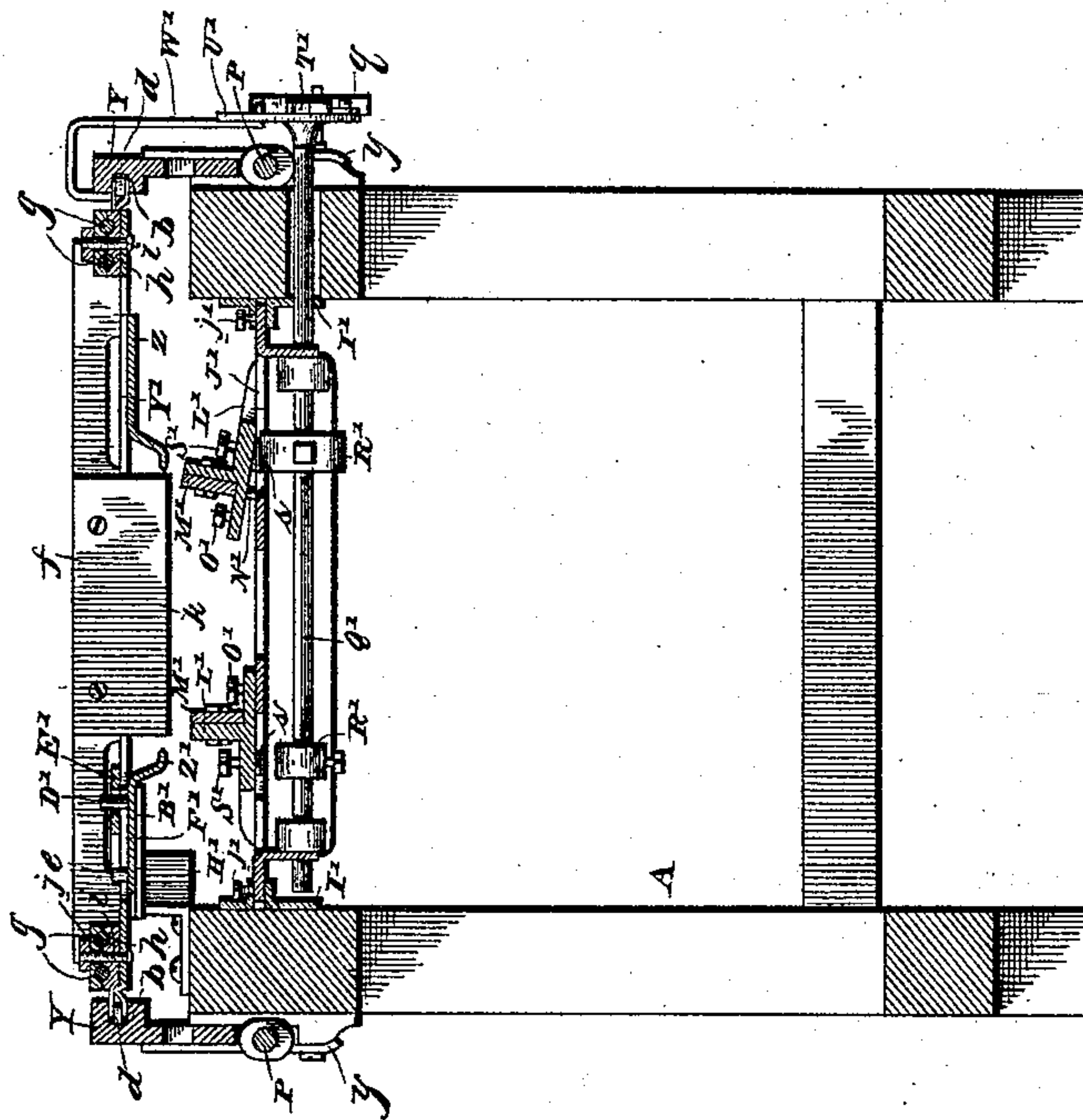
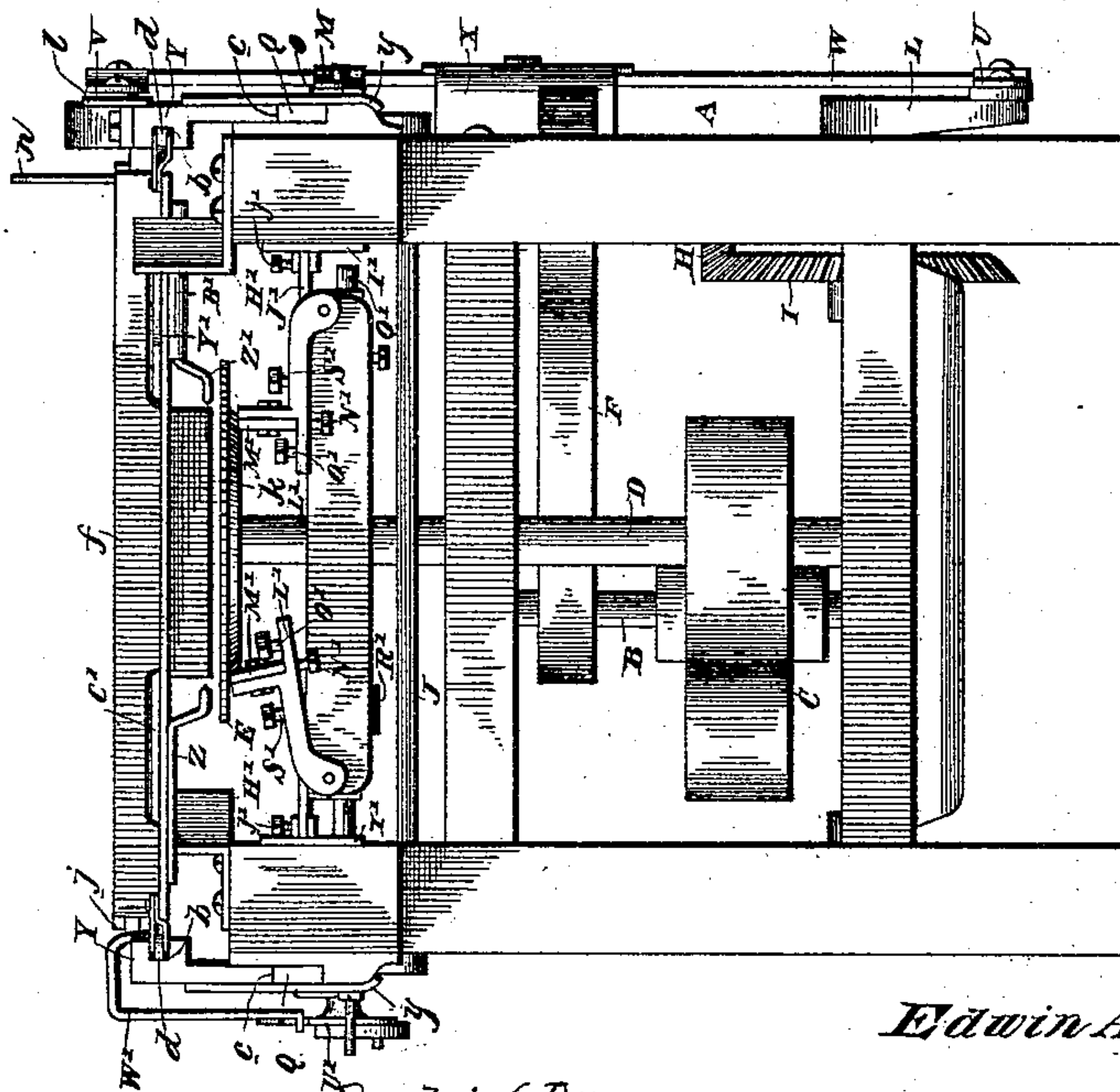


Fig. 4.



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Fig. 7.

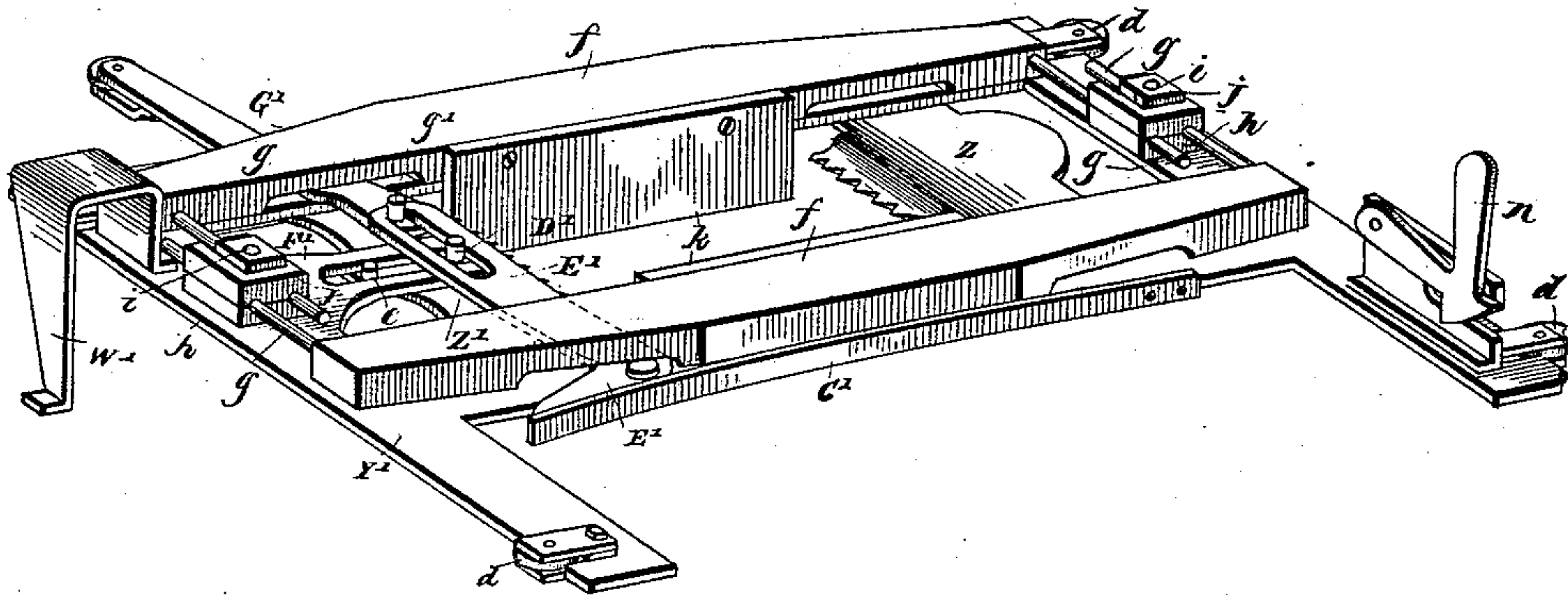


Fig. 8.

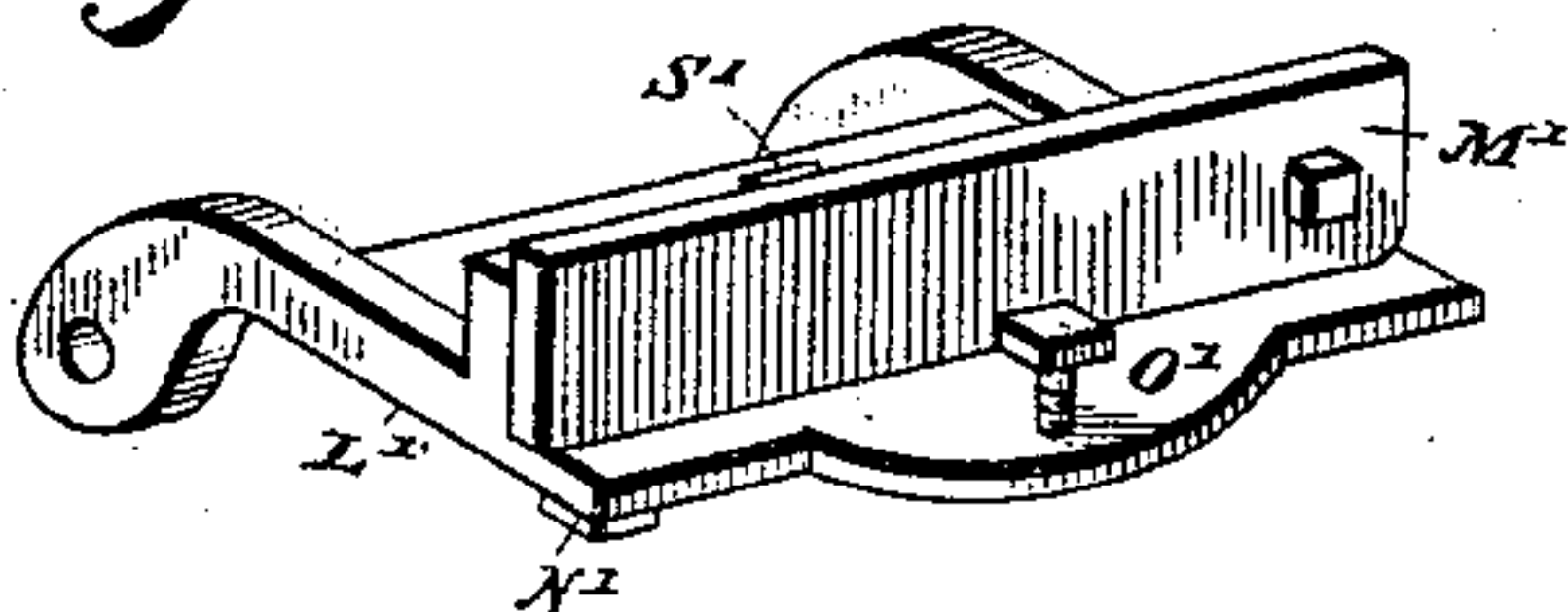
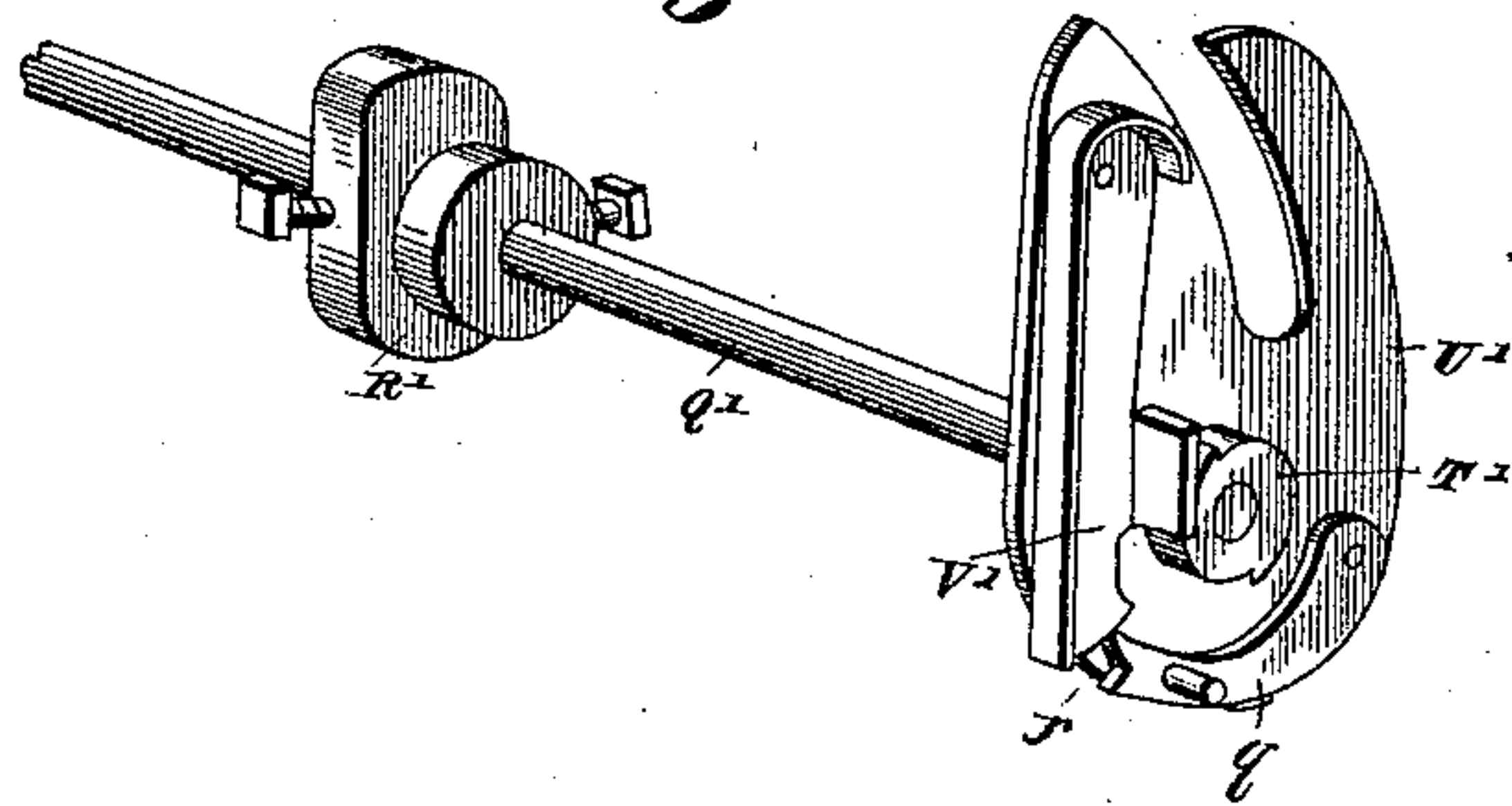


Fig. 9.



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(No Model.)

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Fig. 10.

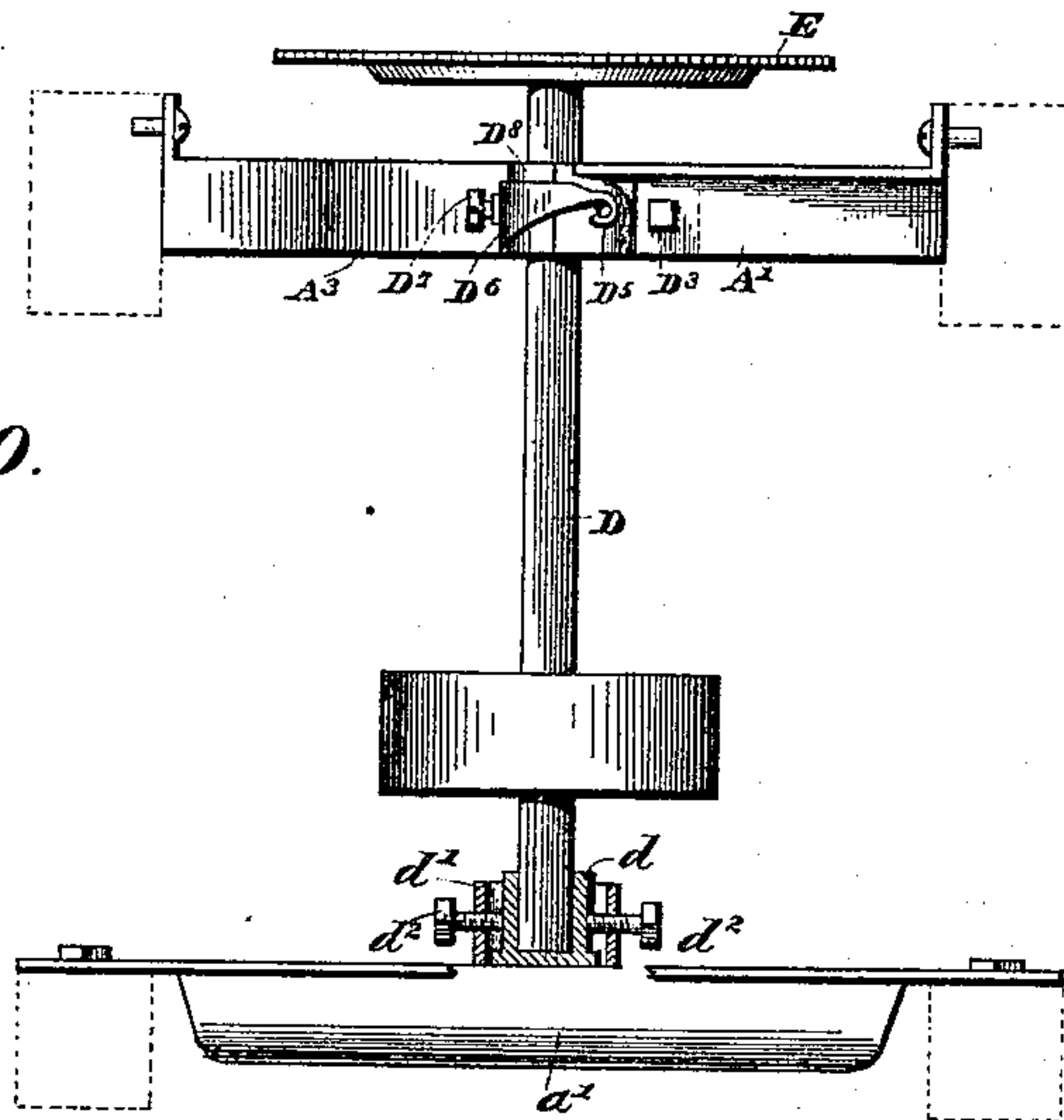


Fig. 11.

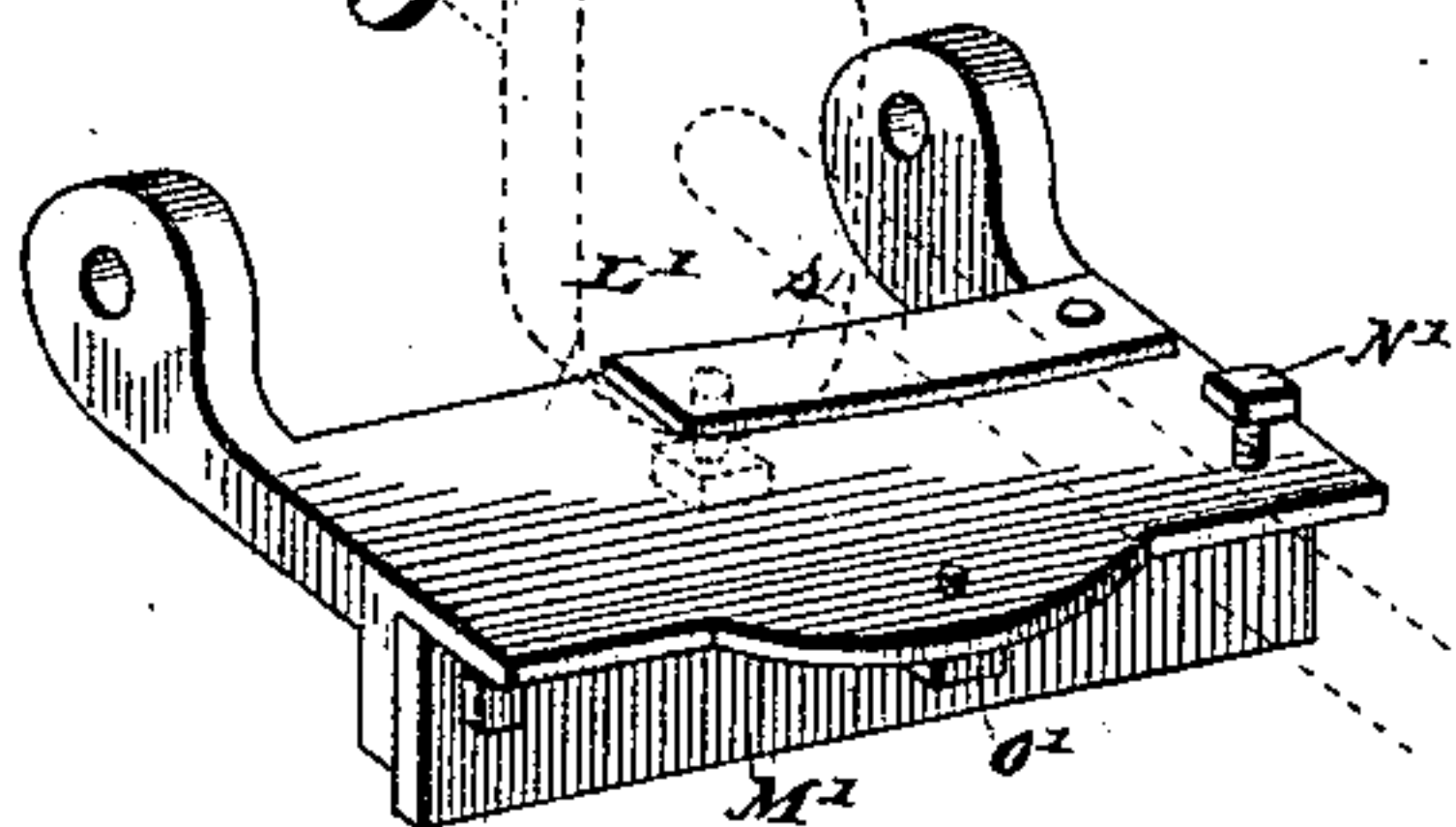
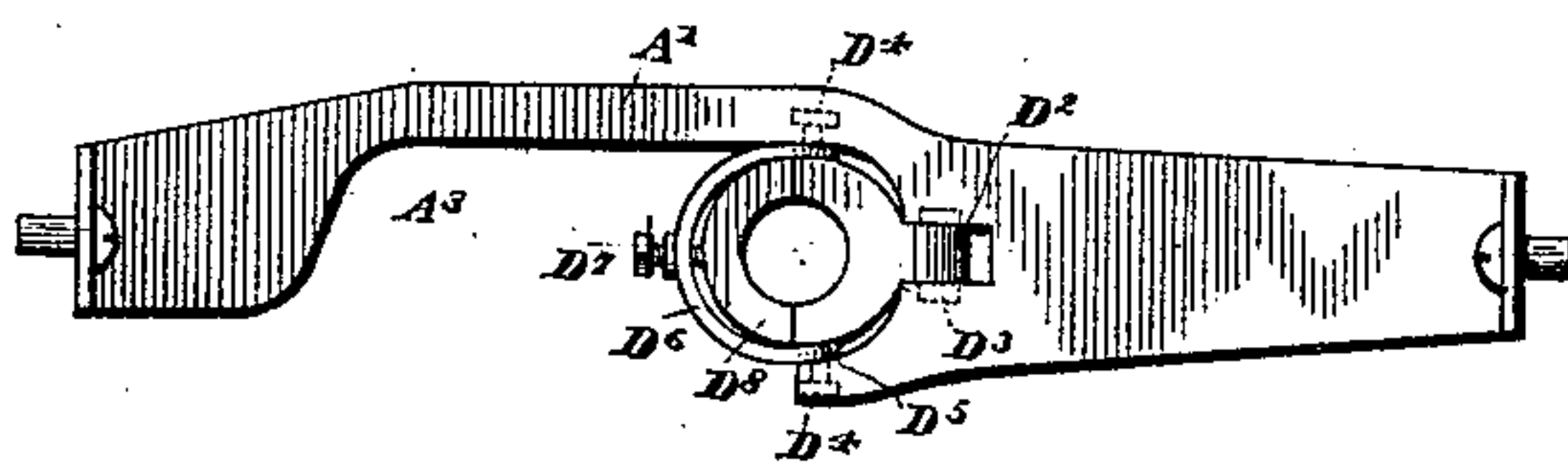


Fig. 12.



Witnesses:

M. L. Sherman

A. L. Colamer

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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. 437,342, dated September 30, 1890.

Application filed May 1, 1890. Serial No. 350,193. (No model.)

To all whom it may concern:

Be it known that I, EDWIN ANDERSON, a citizen of the United States, residing at Tryon City, in the county of Polk and State of North Carolina, have invented a new and useful Shingle-Sawing Machine, of which the following is a specification.

This invention relates to shingle-sawing machines, and is more particularly an improvement on a similar machine for which United States Letters Patent No. 397,328 were granted to me February 5, 1889.

The object of the invention is to improve the operation and details of construction of the said machine, and this object I attain by the mechanism hereinafter more fully described, and illustrated in the drawings, in which—

Figures 1 and 2 are elevations of a machine embodying my improvement, being taken from opposite sides. Fig. 3 is a plan view of the same. Fig. 4 is an end view. Fig. 5 is a central longitudinal section. Fig. 6 is a transverse section through the leveling-bars. Fig. 7 is an enlarged perspective view of one of the carriages removed from the frame. Fig. 8 is a similar view of one of the leveling devices. Fig. 9 is a similar view of one of the oscillating plates and the cam-shaft operated thereby. Fig. 10 is an enlarged elevation, partly broken away, of the saw-shaft and its bearings. Fig. 11 is an enlarged perspective view from the under and front side of one of the leveling-bars. Fig. 12 is a plan view of the upper bearing of the saw-shaft.

A represents a suitable frame of any desired shape, size, or construction which may be preferred, and journaled vertically, preferably at one end thereof, is the main shaft B, which has suitable pulleys formed thereon. From one of these pulleys extends a belt C, which passes around a pulley upon the vertical shaft D, which has a horizontally-revolving saw E secured to its upper end. At its lower end the shaft D is seated in a step d , which is inclosed within a box d' , carried by a cross-bar a' of the frame, and through the sides of this box pass set-screws d^2 , whose points abut against the step d , whereby the latter may be adjusted to a limited extent. The upper bearing is journaled in a box D^8 , which has a lug D^2 , closely fitting a socket in

a cross-bar A' , whose ends are journaled in the sides of the frame and the bearing held therein on a pivot D^3 .

D^4 are set-screws passing through the beam A' and bearing upon the side of the box D^8 , whereby the latter may be held in any desired position. Over the ends of these set-screws are engaged the hooks D^5 of a yoke D^6 , which passes around the outer half of the bearing D^8 , and a set-screw D^7 passes through said yoke and bears against said outer half to tighten it, which half can thereby be made separate and independent from the other half. With this arrangement I am enabled to cut out the beam A' , as shown at A^3 , so that the outer half of the bearing and the yoke can be removed, and afterward the shaft D and with it the saw can be taken from the machine.

From a second pulley on the shaft B extends the belt F around the vertical shaft G, provided with a pulley, as shown, to receive it, and this shaft also carries a beveled wheel H. The latter meshes with a similar wheel I, which is feathered or keyed upon a horizontal shaft K, journaled in the sides of the frame A and having a crank L upon its outer end. To the end of this crank is connected a pitman-rod U, whose outer end is pivoted to the lower end of the lever W. To the upper end of this lever, in turn, is pivoted the connecting-rod V, which is connected with the carriages in a manner to be described hereinafter, and which therefore serves the same purpose as in my former patent, above referred to. Secured to the side of the frame A at one end is a metal plate X, through one of a number of holes in which is passed the pivot pin or bolt, upon which the lever W is mounted, by which construction the pivotal point of the lever can be changed at the will of the operator, so as to give the carriages a longer or shorter movement, as may be desired, and as will be understood. Pivoted to the lever W is a second pitman-rod M, whose other end is pivotally connected with a block O, which slides upon a guide-bar N on the side of the frame.

P is a rod extending the length of the frame and having blocks Q at its ends provided with inclined upper faces, and R are nuts on the rod P, against which the sliding block O strikes alternately when near the opposite ends of

its movement, and it will be seen that by adjusting the nuts R the movements of the inclined blocks Q can be regulated at will, although they will always move in unison.

5 T is a sleeve mounted loosely upon the rod P, and which may be adjusted thereon by adjusting-nuts at either end thereof, as will be understood, and S is a crank, which has a pin at its outer end engaging a slot in the plate
10 t, depending from and carried by said sleeve.

J is a shaft journaled beneath and extending across the frame A, and to either end of which is secured one of the cranks S. It will be understood that the two sides of this machine are duplicates with respect to the construction above described, and that the shaft
15 J, connecting the two cranks S, thereby connects the two rods P and give them a simultaneous and synchronous movement in each direction, which movements may be regulated and adjusted by the several nuts in a manner which will be readily understood.

The letter Y designates the carriage-frame, which is pivoted at a to the sides of the frame
25 A and at their centers, and which frame is provided with guides or tracks b for the carriages hereinafter described. By this arrangement the carriage-frame is allowed to oscillate or rock slightly over its central pivot, and its ends c, which are beveled to fit the inclined blocks Q, are guided behind plates or guides y, secured to the main frame A. The movement of the lever W of block O and of the rods P will therefore cause the carriage-frame to rock on its pivots, as will be understood. Reciprocating on said tracks b are
35 the carriages Y', of which there are two, duplicates of each other, one at each end of the carriage-frame Y. Each carriage comprises a light frame-work, preferably having friction-rollers d located in its edges, which run upon the tracks b in the usual manner. At one side of the carriage is secured a stationary toothed dog Z, and sliding in suitable
45 grooved guides B' at the other side of the carriage is a movable toothed dog Z', adapted to hold the block from which the sawing is done in a manner well known in this art. In the upper side of the movable dog are two projections D' and e, and E' is an L-shaped lever pivoted to the body of the carriage and having a long slot in its body, which engages the innermost projection D' on the movable dog Z'. A spring C', carried by the carriage-body,
50 presses the other end of the lever E' inwardly, and consequently forces the said dog forward in the guides.

F' is a slotted guide carried by the carriage-body, within the slot in which the two
60 projections D' and e slide freely, the former projection fitting said slot, but the latter being considerably narrower, whereby the movable dog will be permitted a slight lateral or pivotal movement around the front projection, in order to accommodate itself to blocks
65 of different sizes and shapes or of uneven contour. Projecting from the outer side of

the carriage is a lever G', having a pin g' in its inner end, which engages the long slot in the lever E', and the outer end of the pivoted
70 lever G' preferably carries a friction-roller, which engages an inclined plate H', secured to the frame A. When the carriage is approaching the end of its stroke, the outer end of the lever G' strikes this inclined plate so as
75 to cause said lever to turn upon its pivot and to force the movable dog Z' 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
80 Z and the movable one Z' 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
85 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 Z' again engages with the block and
90 holds it while a shingle is being sawed. Across the top of the carriage is mounted a pair of sliding bars f, having rods g at their ends, which pass through divided bosses at each side of the carriage. The lower mem-
95 bers h of these bosses have screws i passing loosely through the upper members, and nuts j engage the upper ends of said screws, whereby the two members may be clamped together. Said members are provided in their meeting-
100 faces with registering-grooves, in which are seated the rods g of the bars f. The bars can thus be adjusted to blocks of various sizes, which blocks are guided between depending flanges k, carried by the inner faces of the
105 bars f, and which pass very closely over the upper face of the saw; but it will be understood that the blocks are clamped only between the stationary and movable jaws.

The carriage-frame Y is provided with a longitudinal slot y', within which moves a block
110 l, which is pivotally connected with the free end of the lever V, and on the inner side of this block are two pins m, located one near each end thereof. Upon each of the carriages
115 Y' is pivoted a latch n, which is adapted to engage over one of the pins m, as will be seen. When so engaged, the movement of the lever W will reciprocate the block l, and one or both of the carriages Y' will be moved in unison
120 therewith, according as the operator may engage the latches n.

Secured to the opposite inner sides of the frame A are the horizontally-grooved guides I', in which are the supporting-frames J', which
125 move longitudinally therein and are held at any desired position by set-screws j', and hence, as the saw becomes worn away by sharpening, these frames J' can be adjusted forward so as to always maintain the same
130 relative position to the saw. Pivoted at each end of each of the frames J' is a tilting frame L', to the free inner end of which is adjustably secured the plate M', upon the upper edge

of which the block is supported when dropped by the dogs into position to have another shingle sawed from it. The plate M' is pivoted at one end to an upright member of the tilting frame L' and is adjusted vertically by a set-screw N' beneath it, so that the plate can be leveled or adjusted at an angle to the horizontal, as may be desired.

Passing through the tilting frame L' is a set-screw S' , which bears at its lower end upon a metallic strap, carried by the tilting frame for a purpose hereinafter described, and also passing through said tilting frame is a set-screw O' , which bears upon a strap of the frame J' , and by this latter set-screw the distance that the tilting frame shall drop downward may be regulated. The adjustment of this distance regulates the distance which the block shall drop after the jaws release it, and the regulation or adjustment of the plates M' effected by the set-screws N' controls the angle at which the block shall be presented to the saw, and hence regulates the thickness of the edges of the pieces sawed. Of course the higher the tilting frames are raised at their free ends the shorter the distance the block will drop and the thinner the shingles will be.

Passing horizontally and transversely through the frame A and journaled in the supporting-frame J' is a shaft Q' , which is provided with cams R' , set at an angle to each other, which cams, when the shaft is rotated, alternately raise the tilting frames L' by pressing upwardly against the metallic straps, carried by the tilting frames, as above mentioned. 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-wheel T' , having four teeth, and mounted loosely upon the shaft just inside the ratchet-wheel is a plate U' , to which is pivoted a spring-actuated pawl V' , which engages the teeth of the ratchet and turns the shaft Q' in one direction. It is sometimes desirable, however, to operate the machine without tilting the block, and for this purpose I have provided a latch q , pivoted to the plate U' and having a notch r in its free end. When the latch is pressed forwardly and inwardly, the notch therein engages a projection on the pawl V' and holds the same out of engagement with the ratchet-wheel; but when the latch is thrown outwardly the pawl is permitted to engage the ratchet, as will be understood. Secured to each carriage Y' is a curved arm W' , passing over the side bar of the carriage-frame Y , which arm at its lower end is turned outwardly and enters a slot in the plate U' . As

the carriage reciprocates, the plate U' is thus caused to oscillate upon the shaft Q' , which oscillation during the inward movement of the carriage has no effect upon the shaft; but during the outward movement of said carriage turns the shaft a quarter-revolution, and through the cams R' , thus alternately elevates the two tilting frames L' , as will be understood. Rotary power being now applied to the main shaft B , the saw is rapidly rotated and the carriage-frame Y is rocked on its pivots, as above described. The block l is reciprocated within the slot y' in the carriage-frame, and the carriages Y' may be independently connected to said block through the latches, as and in the manner above described. The nuts are now adjusted upon the rod P , so that the block O reciprocates the inclined blocks Q at the ends of said rod and will rock the carriage-frame Y , which rocking is so timed and regulated that just as one carriage has moved forward and the block therein has been completely sawed, the sawed-off piece falling to the ground, that end of the carriage-frame will rise and the other end fall as the frame rocks, so that the piece of the block which remains will be lifted off the revolving saw and will not touch it as it is carried back to its position over the tilting frames L' . The dogs release the block at this point through the instrumentality of the lever G' and plate H' , and it drops onto the tilting frames L' , where it is tilted lengthwise of the grain so as to saw the next shingle at the proper angle. If the shingles are to be made thinner at one edge than at the other, the plates M' are adjusted by the set-screws N' , or if pieces are to be sawed thinner at one edge than at the other, but of the same thickness at each end, these plates are so adjusted; but the latches q are moved so as to disengage the pawls V' from the ratchet-wheels T' , and the shafts Q' , with their cams R' , will not be intermittently rotated. The degree of rise and fall of the tilting frames can be regulated by the set-screws, as well as the exact inclination of the plates M' , all as above described. As the carriages move forward, the blocks therein are clamped between the dogs, as above described, and after the sawing has been done and the carriages recede the dogs release the block, and the latter drops upon the tilting frames, being guided in its descent by the depending flanges k , carried by the bars f . When a differently-sized block is to be applied, the bars f are adjusted closely but not tightly against its sides and the thumb-nuts j are tightened so as to clamp the two members of the bosses h upon the rods g and hold the bars in proper position, as will be readily understood.

What I claim is—

1. The combination, with the main frame and the sawing mechanism carried thereby, of a carriage-frame centrally pivoted to said main frame, carriages guided in said carriage-frame, and means, substantially as described,

for rocking said carriage-frame on its pivots, as and for the purpose described.

2. The combination, with the main frame and the sawing mechanism carried thereby, of
5 a carriage-frame centrally pivoted to said main frame, carriages guided in said carriage-frame, a rod carried by said main frame, blocks at the ends of said rod having inclined upper faces upon which the ends of said carriage-frame rest, and connections, substantially as described, between said rod and the
10 sawing mechanism, as and for the purpose set forth.

3. The combination, with the main frame
15 and the sawing mechanism carried thereby, of a carriage-frame centrally pivoted to said main frame, carriages guided in said carriage-frame, a rod carried by said main frame, blocks at the ends of said rod having inclined
20 upper faces upon which the ends of said carriage-frame rest, nuts adjustably mounted on said rod, a block loosely fitting said rod between said nuts, a rod pivoted to said block, and connections between the outer end of said
25 rod and said sawing mechanism, as and for the purpose set forth.

4. The vertical rotating saw-shaft and the saw connected thereto, in combination with the main frame carrying the carriages, a box
30 carried by said frame, a step within said box in which the lower end of said shaft is seated, set-screws through the sides of said box bearing against said step, a cross-bar in said frame having a socket, a box having a lug pivoted
35 in said socket, in which box said shaft is journaled, and set-screws passing through said cross-bar and abutting against the sides of the box, substantially as described.

5. The vertical rotating saw-shaft and the
40 saw connected thereto, in combination with the main frame carrying the carriages, a box carried by said frame, and a step adjustably mounted in said box, in which step the lower end of said shaft is seated, a cross-bar in said
45 frame having a socket, a divided box, one member of which has a lug pivoted in said socket, set-screws passing through said cross-bar and abutting against the sides of said member, a yoke having its ends hooked over
50 said set-screws, a complementary member completing said box and forming a bearing for said shaft, said member being embraced by said yoke, and a set-screw through the latter bearing upon said complementary member,
55 substantially as described.

6. The combination, with the main frame, the sawing mechanism carried thereby and at the longitudinal center thereof, and the carriage-frame mounted upon said main frame and
60 provided with a longitudinal slot, of the block reciprocating in said slot and provided with two pins, the carriages sliding in said carriage-frame, and latches connected to said carriages and adapted to engage said pins independently, substantially as described.

7. The combination, with the main frame, the sawing mechanism carried thereby and at

the longitudinal center thereof, and the carriage-frame mounted upon said main frame and provided with a longitudinal slot, said carriage-frame also having longitudinal guide-
70 tracks, of a block reciprocating in said slot and provided with two pins, the carriages having guide-wheels engaging said tracks, fixed dogs on said carriages, movable dogs also
75 thereon, mechanism, substantially as described, located at the rear side of the main frame for operating said movable dogs, and latches pivoted to the front edges of said carriages and adapted to engage said pins inde-
80 pendently, all constructed as and for the purpose described.

8. The carriage, means for reciprocating it in the carriage-frame, and a stationary dog thereon, in combination with a movable dog
85 having two pins engaging a slot in the frame of said carriage, the inner pin fitting said slot and the outer pin being loose therein, and means, substantially as described, for pressing said dog inwardly, the whole constructed for
90 the purpose set forth.

9. The combination, with the frame-work of a carriage, the fixed and movable dogs at the sides thereof, and means for reciprocating it in the carriage-frame, of the bars at the front
95 and rear ends of said carriage having inwardly-extending and lapping rods, divided bosses, the lower members of which are carried by the carriage-frame and have upwardly-projecting screws, the upper members of which have cen-
100 tral holes loosely passing over said screws, and both members of which have registering grooves adapted to embrace said rods, and nuts on the upper ends of said screws, all as set forth.

10. The combination, with the supporting-frame J', of the tilting frame L' pivoted thereto, means, substantially as described, for raising and lowering the same, the plate M', pivoted
110 at one end to the inner end of an upright bar of said tilting frame, and the set-screw N' through the outer end of said frame, as and for the purpose set forth.

11. The combination, with the shaft Q', having the ratchet-wheel T' on one end, and a
115 bar W', mounted on a reciprocating portion of the mechanism, of the plate U', mounted loosely on said shaft inside said ratchet-wheel and having a slot engaged by said bar at each reciprocation thereof, a spring-actuated pawl
120 V', pivoted to said plate and engaging said ratchet-wheel, and a latch q, pivoted also to said plate and having a notch r, adapted to engage said pawl and hold it out of operative position, all substantially as and for the pur-
125 pose hereinbefore set forth.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in presence of two witnesses.

EDWIN ANDERSON.

Witnesses:

G. H. HILL,
D. E. STEARNS.