

(No Model.)

6 Sheets—Sheet 1.

H. ALBERT.
CAN LABELING MACHINE.

No. 460,738.

Patented Oct. 6, 1891.

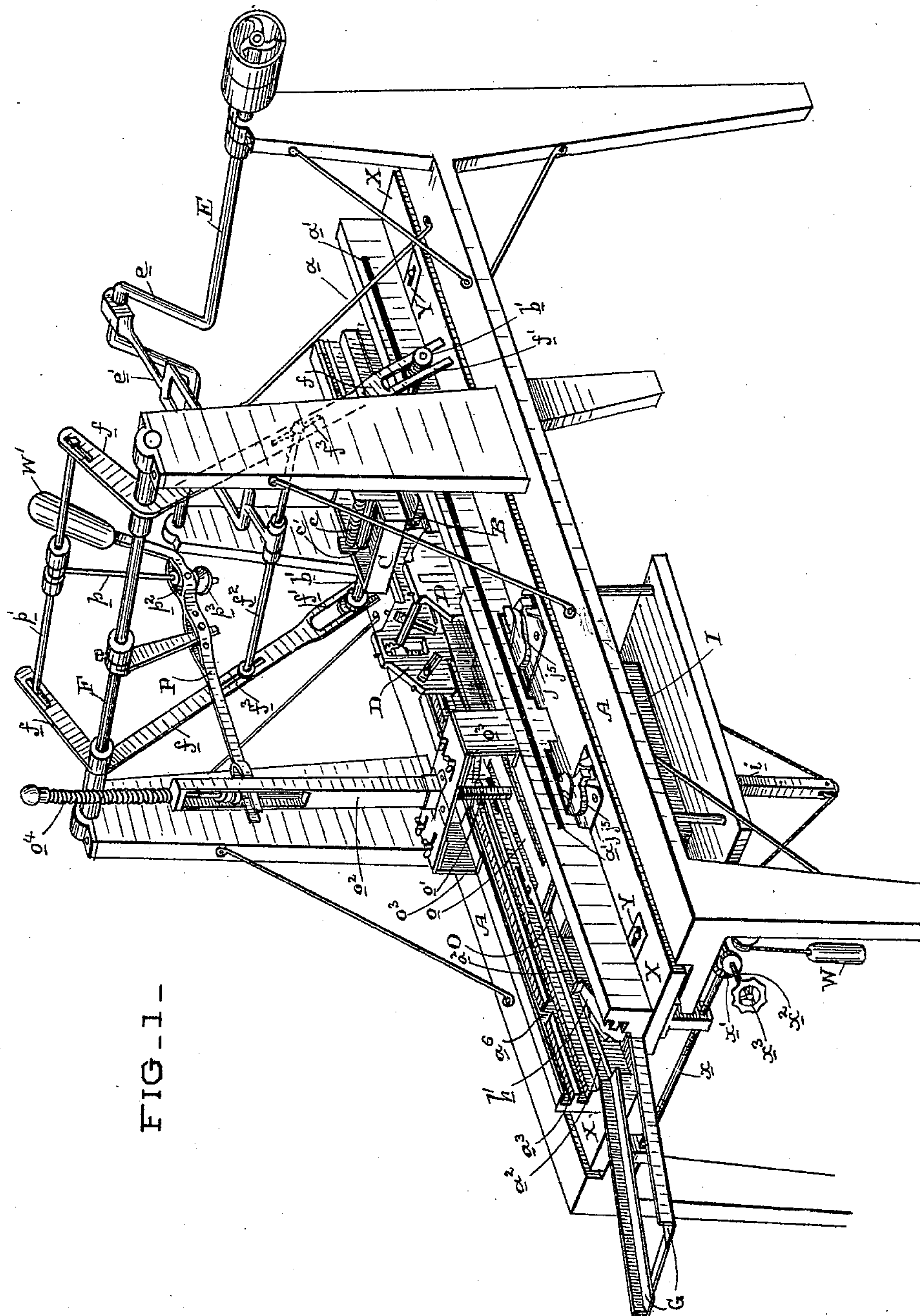


FIG. 1—

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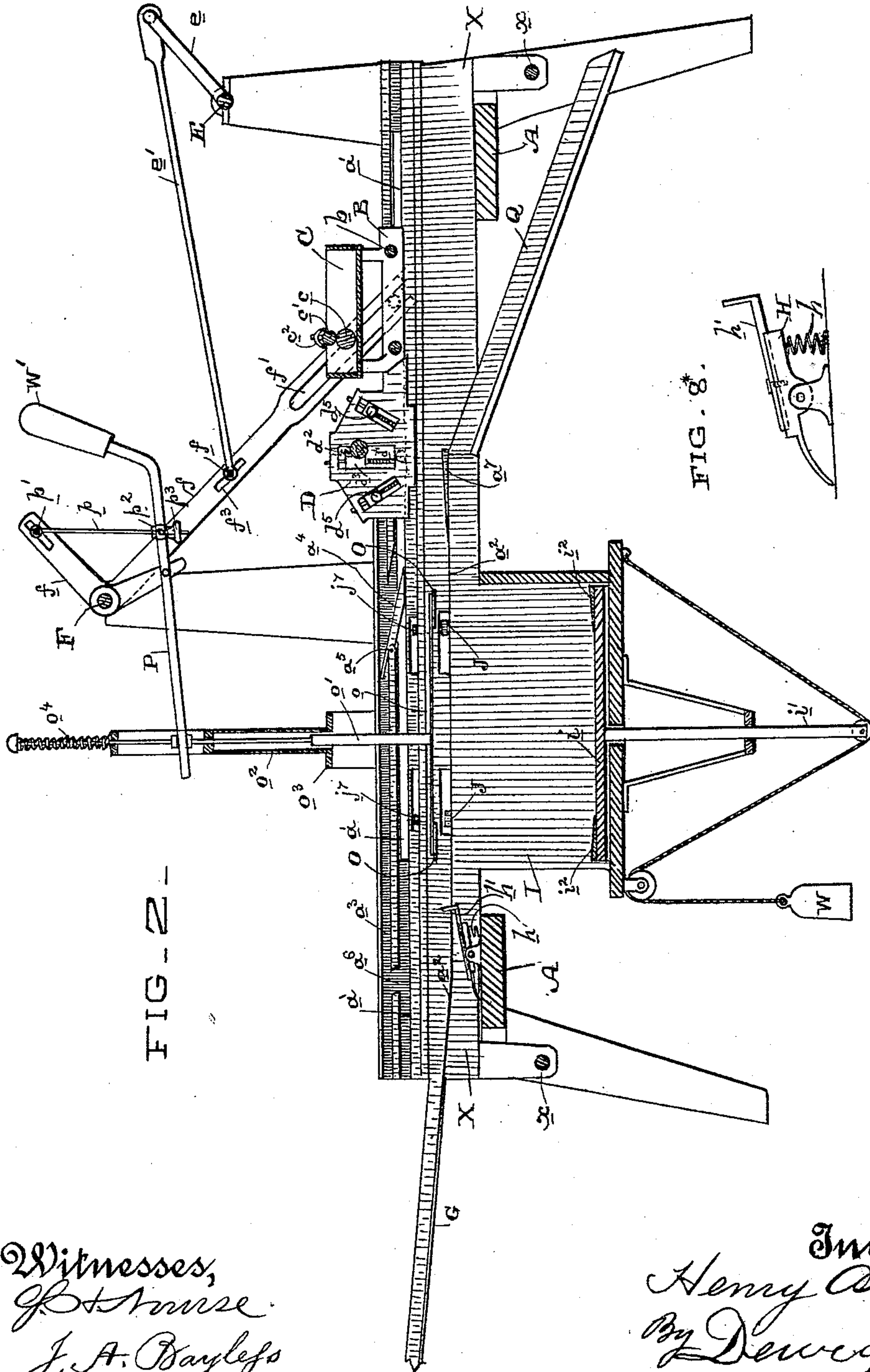
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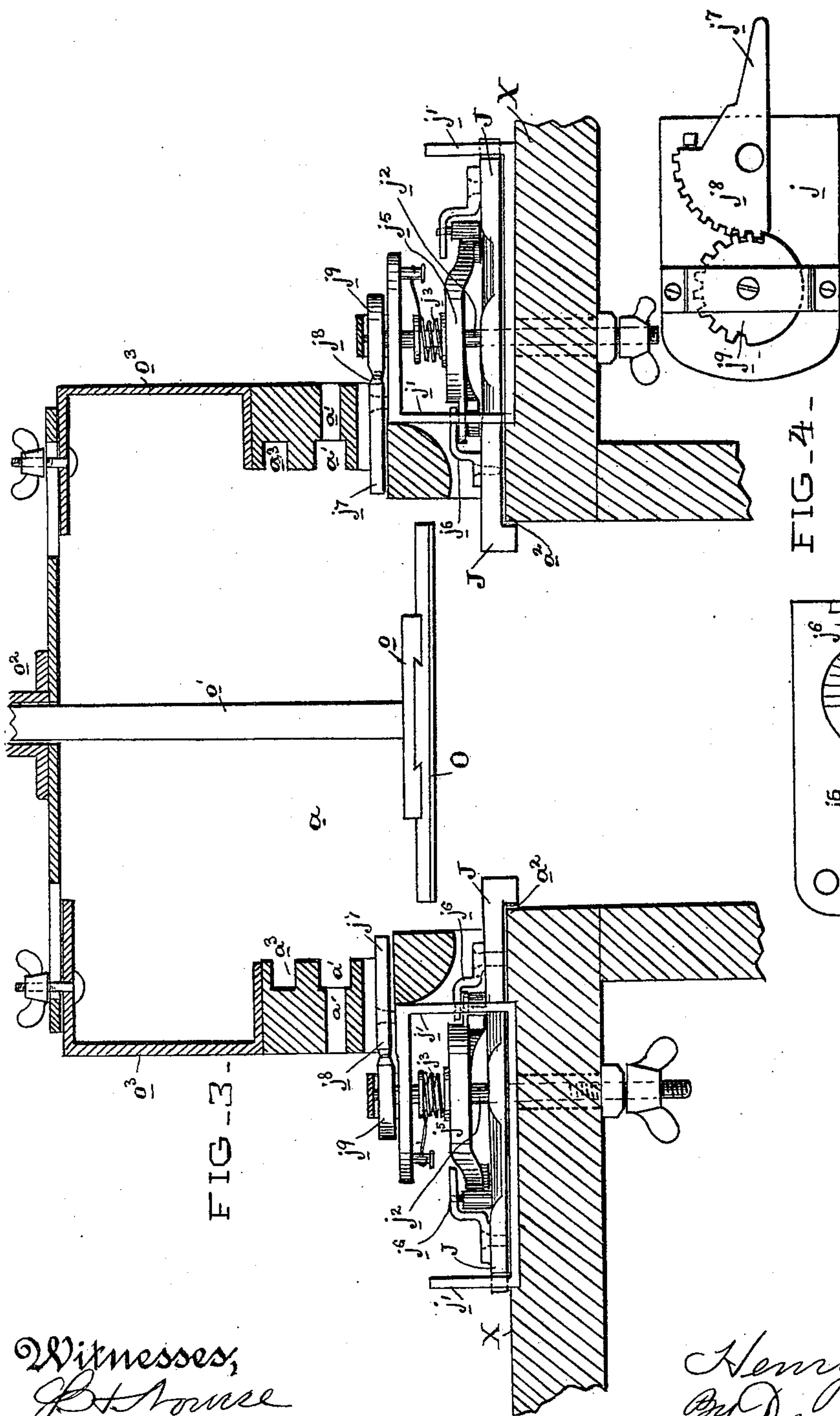
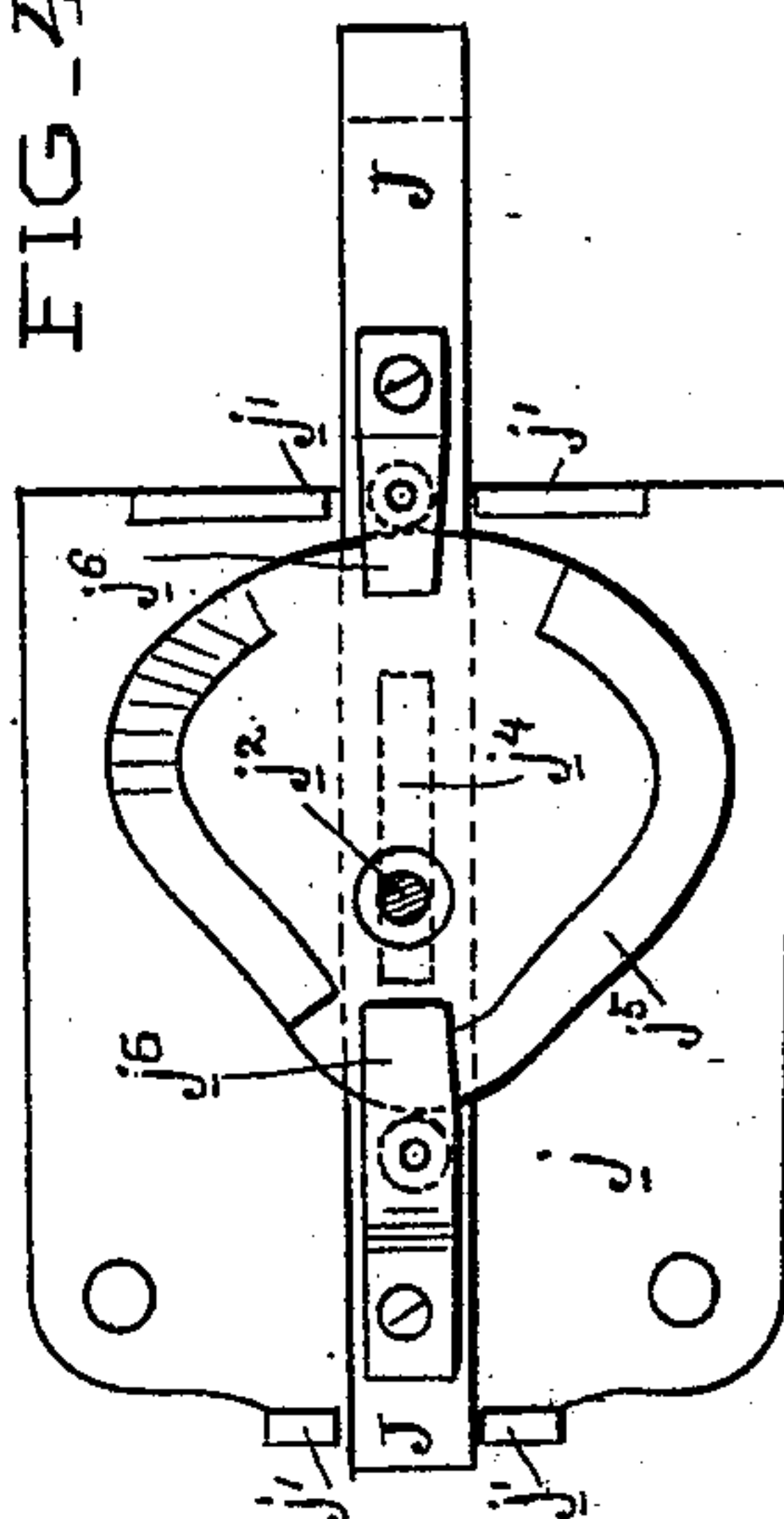


FIG-4-



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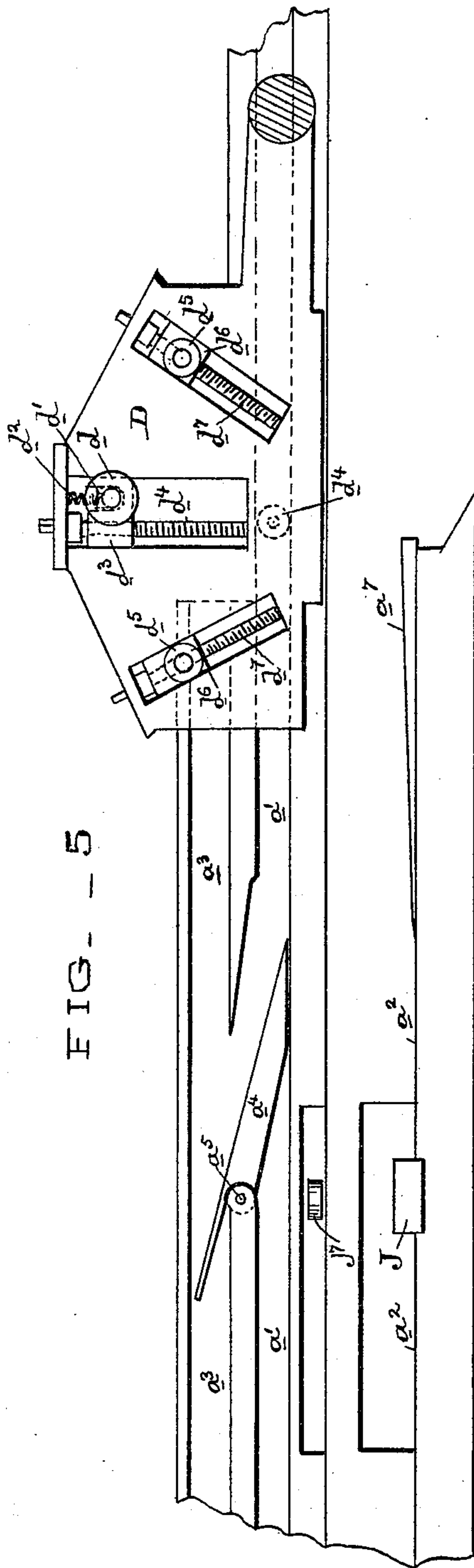
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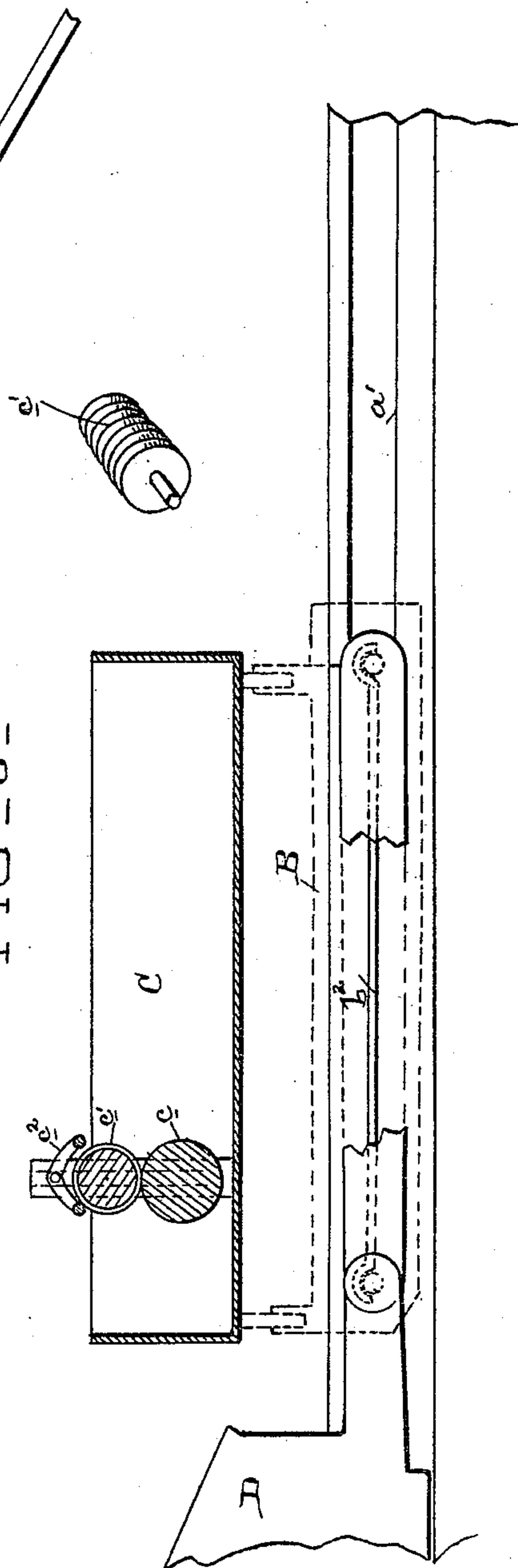
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Patented Oct. 6, 1891.



THE



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(No Model.)

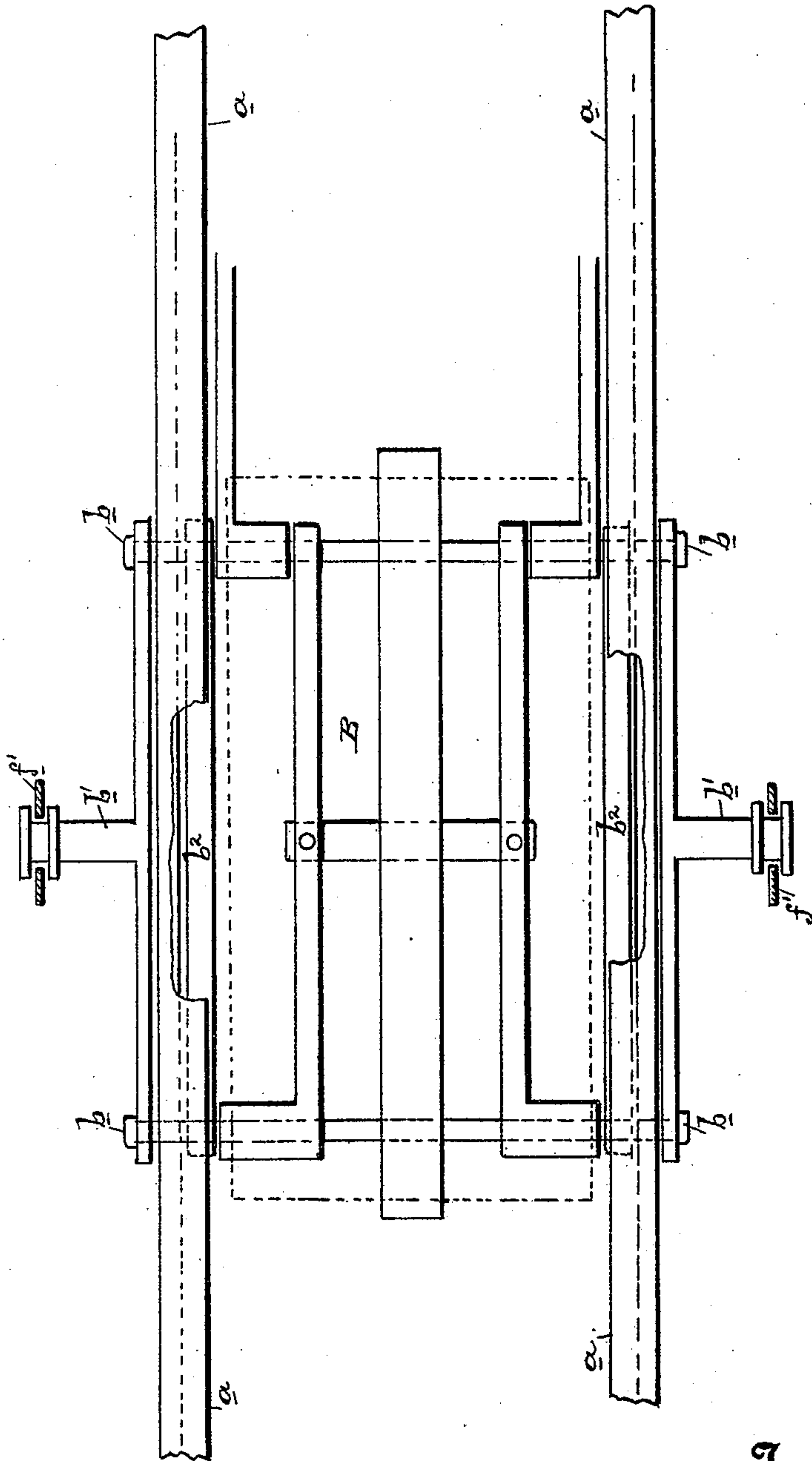
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FIG - 7 -



Witnesses,
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(No Model.)

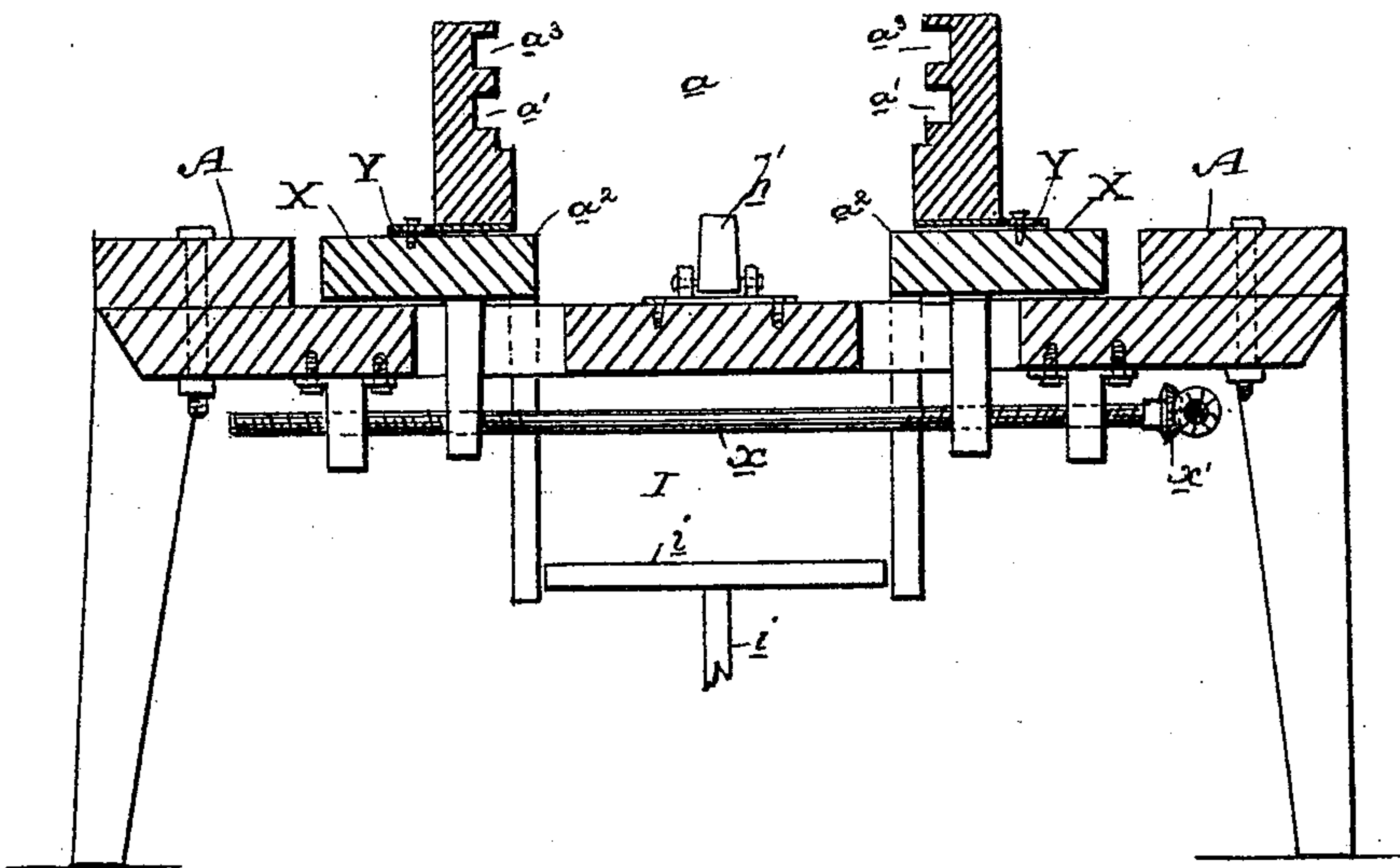
6 Sheets—Sheet 6.

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CAN LABELING MACHINE.

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Patented Oct. 6, 1891.

FIG - 8 -



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UNITED STATES PATENT OFFICE.

HENRY ALBERT, OF CRESCENT CITY, ASSIGNOR OF ONE-THIRD TO THOMAS R. HAYES, OF PASADENA, CALIFORNIA.

CAN-LABELING MACHINE.

SPECIFICATION forming part of Letters Patent No. 460,738, dated October 6, 1891.

Application filed January 13, 1891. Serial No. 377,656. (No model.)

To all whom it may concern:

Be it known that I, HENRY ALBERT, a citizen of the United States, residing at Crescent City, Del Norte county, State of California, have invented an Improvement in Can-Labeling Machines; and I hereby declare the following to be a full, clear, and exact description of the same.

My invention relates to the general class of can-labeling machines, and especially to machines of this class in which a reciprocating can-puller and pasting mechanism operates within a runway, as exemplified in the machine shown and described in my patent, No. 445,418, granted January 27, 1891.

My invention consists in certain improvements upon my former machine, and the novel constructions, combinations, and arrangements hereinafter fully described, and specifically pointed out in the claims.

The general object of my invention is to provide a simple and effective machine for labeling cans, and which can be readily adjusted to suit the requirements of different sizes of cans.

Referring to the accompanying drawings for a more complete explanation of my invention, Figure 1 is a perspective view of my machine. Fig. 2 is a vertical longitudinal section of same. Fig. 3 is a cross-section in the plane of the paste-platens and an elevation of the locks. Fig. 4 are plan views showing the lock and the mechanism thereof. Fig. 5 is an elevation of the interior of one side of the runway and one side of the can-puller. Fig. 6 is a section of the paste-receptacle shown on frame B and a small perspective view of one end of the paste-rolls. Fig. 7 is a plan of frame B. Fig. 8 is a cross-section of the frame A, pieces X, and can-runway. Fig. 8* is a detail showing the controlling device.

A is the frame of the machine having a runway *a* on its top. Within this runway is adapted to be reciprocated a frame B, which carries the paste-containing vessel C and which has hinged to its front portion the can-puller D. The frame B is mounted in the runway by means of outwardly-extending slide-pins *b*, which fit and move freely in extended slots or tracks *a'* in the sides of the runway. Its movement is effected by the following mechanism:

E is a shaft having on one or both ends suitable driving mechanism—such as a crank or crank-wheel, fly-wheel, or belt-pulley—and at its center a crank *e*.

F is a rod upon which are freely swung or pivoted the angle-levers *f*, the long arms of which extend downwardly and are formed into forks *f'*, which embrace and play in bearings in the outer ends of arms *b'*, connected with the slide-pins of the frame B. Between the downwardly-extending or longer arms of the angle-levers *f* is a rod *f²*, from which a connecting-rod *e'* extends to the crank *e* of shaft E. Now by rotating shaft E the frame B will be reciprocated in the runway, and its stroke may be varied by making the cross-rod *f²* adjustable in the swinging levers *f*, as is shown, by fitting its ends in elongated slots *f³* therein.

The receptacle C for the paste consists of a suitable vessel, which is mounted upon the frame B in any proper manner. Within this receptacle is a lower roller *c* and an upper roller *c'*, both of said rollers being mounted transversely of the vessel and in end grooves or slides, whereby they can be readily removed and may rest in perfect contact with each other. The upper roller *c'* is formed with a grooved periphery, as shown, the grooves extending circumferentially and throughout the entire length of the roller. A scraper *c²* acts upon the upper roller *c'* to remove the surplus paste.

The can-puller D consists of two side plates having rearwardly-extending arms, which are pivoted to the forward end of the frame, as shown. Between these plates is carried the top pressure-roller *d*, the ends of which are mounted in sliding boxes *d'*, held down by springs *d²*, whereby said roller is enabled to exert a pressure upon the top of the can and at the same time yield to any inequalities in the surface upon which it bears. The sliding boxes are themselves mounted in adjustable bearings or blocks *d³*, mounted in the sides and adjusted by means of screws *d⁴*, whereby the primary position of the pressure-roller can be determined. Upon the inner surface of the side plates of the can-puller are the small rollers *d⁵*, which, when the puller-frame is dropped down upon the can, bear on said can near each end and roll and guide it along. These small rollers are rendered adjustable

to-suit different sizes of cans by being carried on movable blocks d^6 , operated by screws d^7 , and they are arranged diagonally or converging downwardly. This inclined position is of advantage, because in effecting the change in position or adjustment of the rollers they will bear properly upon any sized can and keep it in the center of the can-puller under the pressure-roller.

As in my former machine, it is intended that the can-puller in advancing toward the can shall rise to a higher plane in order to drop down upon the can and to avoid the triggers of the locks, and shall then pull the can forwardly in the machine, and to this end the construction of the runway is substantially similar to that shown in my former machine. A brief description, therefore, will only be needed for my present application.

The can-puller is provided on each side with rollers which travel in the track-grooves or slots a' of the runway. In the sides of the runway are the upper track-grooves a^3 . Near one end these grooves communicate by a switch-bar a^4 , one on each side and pivoted at a^5 , so that they may swing. The lower end of the switch-bar lies normally upon the lower track-groove a' , its point being flush therewith, while its upper end extends beyond its pivot and rises above the level of the upper track-groove. At their other ends the two track-grooves communicate by a groove a^6 . Now when the can-puller is moving toward the can its rollers d^4 travel in the lower grooves a' until they reach the switch-bars a^4 . They then travel up on these switch-bars and reach the level of the upper track-grooves a^3 , thereby swinging the whole can-puller to a plane higher than that in which the can itself lies. The rollers d^4 , passing the pivotal point a^5 of the switch-bars, travel upon the upper extended end of said bars, and thereby raise their lower ends from the lower track-grooves, thus opening said grooves for the passage of the slide bars or pins of the following frame B, and even though the rollers d^4 pass off of the extensions of the switch-bars said bars do not drop down immediately to their normal position, as their lower ends are held up by means of supporting-bars b^2 on the sides of the frame B, so that said frame passes in the lower track-grooves without interference from the switch-bars. As soon as the frame is passed the switch-bars drop down to their normal position. When the can-puller reaches the can, its rollers d^4 drop down through the communicating grooves a^6 into the lower track-grooves, and thus the can-puller drops down upon the can, its small rollers d^5 fitting in front and behind it at each end and the top roller pressing upon it, thereby fully insuring its rolling action. On the return stroke the frame B and can-puller travel in the lower track-grooves, rolling the can along.

G is an inclined feed-channel for the cans, by which they are successively directed into

the feed end of the runway a . In this end of the runway is the controlling device for feeding the cans one at a time. This consists of a swinging frame H, controlled by an underlying spring h . In the top of this frame is fitted adjustably a bent stop-arm h' , which can be moved and set forward or back to suit the requirements of different cans. This is accomplished by mounting it in its frame, so that it can slide, and setting it by a screw. In its normal position the spring holds the bent arm up directly in the path of the can, which in this position lies exactly under the point at which the can-puller descends upon it, and when the can-puller engages it it simply pulls the can forward, thereby depressing the spring-controlled stop-arm, which allows the can to pass over it, but immediately springs up again to limit and stop the next can.

I is the label-box extending downwardly directly under the runway of the machine, its top being open and communicating therewith. In the box is a vertically-movable bottom i , which carries the pile of labels. The bottom is held up, with its pile of labels, to proper place for the reception by the uppermost label of the paste by means of the weight W acting on the stem i' of the bottom by means of a cord and pulleys, as shown, and in a similar manner to the device shown in my previous machine.

Now, in order to form a stop for the label-pile to hold them exactly in the place desired and yet relieve the topmost one, I have the following locks or holders:

J are the locks or holders, consisting of bars extending into the runway from each side and projecting over the top of the label-pile. There are four or more of these, two being shown near each end, one at each side of the label-pile. They are carried each in a frame j , having end guides j' , in which said locking-bars are adapted to have both an up-and-down movement and a forward-and-back movement. In the frame j is mounted vertically a shaft j^2 , controlled by a spring j^3 , the lower end of this shaft passing through an elongated slot j^4 in the locking-bars, whereby said bars have their movement uninterfered with by the shaft. Upon the shaft is carried a cam j^5 , which engages the locking-bars by means of fitting its eccentric rim in guides j^6 , provided with anti-frictional rolls. This cam is so fashioned that its first effect upon being rotated is to raise the locking-bar bodily and its next effect is to move it longitudinally. The cam-shafts are operated by means of trigger-bars j^7 , pivoted to the top of the frame and having their inner ends extended into the path of travel of the can-puller sides. These triggers have their outer ends formed with or provided with toothed segments j^8 , which engage with corresponding tooth disks or pinions j^9 on the cam-shafts. The operation of these locks or holds is as follows: Normally the locking-bars J overlap and hold

down the label-pile. Now when the can-puller is moving forward with a can the forward ends of the sides of the can-puller first come in contact with the trigger-bars of the first pair of locks, thereby operating the cams and effecting first the elevation of the locking-bars and then their withdrawal, so that that end of the label-pile is relieved, and at this moment the can reaches the end of the label-pile and picks up the end of the topmost label. As soon as the trigger-bars are relieved by the sides of the can-puller the springs j^3 return the first pair of locks to position upon the next label. The can-puller then comes in contact with the trigger-bars of the second pair of locks and operates them in the same way, and upon being relieved the locking-bars return and hold that end of the label-pile. The object of the rising movement of the locking-bars is to carry them to a plane sufficiently high to insure their return upon the labels without danger of catching the edges of the label-pile. These locking mechanisms being carried wholly by the frames j , enables me to readily adjust their position to suit different lengths of labels. This is accomplished by bolting the frames in elongated slots, as shown, whereby they can be moved to different positions.

The labels are supplied with paste by the following means: O are pasting-heads. There are two of these, one at each end of a supporting-bar o , and they lie directly over and transversely of the ends of the label-pile. The supporting-bar is provided with a guide-stem o' , extending upwardly through a suitable guide o^2 , carried by a frame o^3 , and having a lifting-spring o^4 about its upper end. The pasting-heads are depressed by means of the lever P , pivoted to an arm of the rod F and connected by a rod p with a cross-rod p' , extending between the short arms of the levers f . Now by the operation of the shaft E the pasting-heads are depressed and are allowed to rise under the power of the spring. The time of this movement is such that just after the can puller has rolled its can over the label-pile the platens begin their descent until they press upon the ends of the topmost label and supply said ends with paste. Then, as the can-puller returns the pasting-heads rise out of the way of the pressure-roller of the can-puller, which passes under them while the can-puller sides pass on each side. The amount of pressure of the pasting-heads upon the label ends is nicely regulated and varied by making an adjustable connection between the lever P and the connecting-rod p . The rod passes through a rocking bearing p^2 in the lever and has upon its lower end a nut p^3 , which, by being set up or down, effects the contact with the lever at different times, thereby providing for varying the pressure to be given to the platens. This same result can be effected by rendering the cross-rod p' adjustable, as shown, in the short arms of the levers f . Upon the end of the lever P is

the counterbalance-weight W' , the object of which is to balance the platens and their connected parts, and thus permit the use of a comparatively light spring for the purpose of raising the platens.

The pasting-heads are supplied with paste by the contact with their under surfaces of the upper paste-roller c' in the paste-receptacle.

The upper limit of movement of the pasting-heads is such that the paste-roller passes forward and back directly under and in contact with their under surfaces.

Although the upper roller c' in the paste-receptacle might have a smooth surface, there is an advantage in forming it with a grooved surface, as described, in that it is not only better supplied itself with paste from the lower roller, but also better transfers the paste to the under surface of the pasting-heads in a number of fine parallel lines, which furnish a sufficient quantity, and which, when pressed down upon the label, spread out to provide just enough, thereby avoiding the squeezing out of the paste.

The action of the pasting-head on the label ends is peculiar and of great advantage. When the pasting-head comes down upon the end of the label, it supplies it with paste, and then upon rising from said end the label adheres to the pasting-head; but as the locking-bars hold the label down the free end must describe a short arc of a circle in attempting to follow the pasting-head, so that the end rubs or draws over the surface of the pasting-head in the manner of a brush, and has its paste more perfectly spread and also distributed to the very edge of the label. It is not essential, therefore, that the pasting-head shall come in contact with the label in the first instance at its very end, and by being removed slightly therefrom avoids any liability of putting any paste upon the next label below.

Q is a discharge-chute for the cans. At the end of the cam-ledge a^2 , just before reaching the discharge-chute, I have a slight inclined plane a^1 , the object of which is to raise the can at that point under the pressure-roller, thereby producing a slightly-increased pressure, which, as it takes place over the lap of the label, is of advantage in insuring the proper adhesion of said lap.

On each end of the movable bottom i of the label-box is placed the inclined plane i^2 , the object of which is to raise the ends of the label a little, for two purposes—namely, to better insure the pressure of the pasting-heads and so getting the paste upon them and the placing of the label ends in proper position to be picked up by the body of the can without interference by the raised portions or beads formed by the heads of the can.

I have adapted my present machine to provide for different sizes of cans by means of adjustments to be given to all the parts which may require them for this purpose. The first

adjustment is naturally the variation in the width of the runway to provide for different sizes of cans. This adjustment is accomplished as follows: The runway is formed by side pieces, and these are carried by supporting-pieces X, which are mounted upon the frame A in such a manner that they can be moved to or from each other to vary the width of the runway. This movement is effected by means of the right and left hand screws x at each end of the machine connected by pinions x' with a longitudinal shaft x^2 , having a hand-wheel x^3 . The side pieces of the runway have a minor adjustment of their own on the supporting-pieces X by means of the slotted plates and screws Y, which provide accurately for the can-ledges a^2 . The frame o^3 , guiding the pasting-head stem o' , is also adjustable by the slots and thumb-screws, as shown, and the pasting-heads O are fitted removably and adjustably upon the supporting-bar o by sliding thereon to provide for different lengths of labels and for the substitution of others for different widths of labels. The locks being carried by the adjustable pieces X, move with said pieces, and as the sides of the can-puller move to or from each other it is only necessary to substitute a different length of pressure-roller. The sides of the label-boxes are carried by the movable pieces X, and are thereby adjusted, and another bottom of suitable size is to be substituted when the box is varied.

The general operation of the machine may be thus briefly described: The cans are placed in the feed-chute G, and are stopped and relieved one by one by the bent arm h' . Starting the machine the frame B and can-puller move back, and the latter rises to its upper plane. The paste-roller c' passes under and supplies the elevated platens with paste. At the end of the stroke the can-puller drops upon the foremost can. On the forward movement the can is rolled along. The paste-roller again passes under the still elevated pasting-heads, and the can-puller following releases the locks. The can rolls upon the top-most label, the end of which has been previously supplied with paste, and picks up said label, which, as the can rolls, winds about said can and is pressed evenly by the pressure-roller. The first pair of locks returns to hold the label-pile and the second pair is released, so that the can picks up the other pasted end of the label, which is now fully applied. Then the second locks return and the pasting-heads now descend and apply paste to the ends of the next label and at once rise again. The labeled can is now discharged and the operation is repeated. The ends of the labels may be moistened in any suitable manner.

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

1. In a can-labeling machine, the reciprocating frame in the runway, in combination

with the means for operating it, consisting of the crank-shaft, the slotted swinging levers f , the lower forked ends of which freely engage the frame on each side, the cross-rod of said levers adjustably connected with the slotted portions thereof, whereby the stroke of the frame is varied, and the connecting-rod between said cross-rod and crank-shaft, substantially as herein described.

2. In a can-labeling machine, a reciprocating frame and means for operating the same, the can-puller pivotally connected with said frame and having in its sides the small rollers carried by sliding boxes movable on inclined downwardly-converging lines, whereby they are adapted to bear on different-sized cans and hold them centrally, and means for adjusting the boxes, substantially as herein described.

3. In a can-labeling machine, the can-puller consisting of side pieces, an adjustable spring-controlled pressure-roller mounted transversely between said sides, the sliding boxes d' , adjustable blocks d^3 , carrying the boxes, and the adjustable bearing-rollers movable on inclined lines to suit different-sized cans and center them under the presser-roller, substantially as herein described.

4. In a can-labeling machine, the runway having the lower and upper track-grooves and the swinging switch-bars by which said grooves communicate, in combination with the frame B and swinging can-puller D, traveling in said grooves and having the rearward extensions to which the frame is pivotally secured, and the side supporting-bars b^2 of the frame, on which the ends of the switch-bars rest when the frame is passing under them, substantially as herein described.

5. In a can-labeling machine, the combination of the vertically-reciprocating pasting-heads adapted to descend upon the ends of the labels and the locking-bars extending into the runway from each side and projecting over the top of the label-pile for holding the labels down, whereby when the heads rise the ends of the label temporarily adhering to them brush over them in the act of separation, substantially as herein described.

6. In a can-labeling machine, the combination of a reciprocating frame having a paste-carrier connected therewith, the vertically-reciprocating pasting-heads adapted to supply the labels with paste, a rock-shaft and system of levers operated by the passage of the frame for raising the heads, and a means for lowering the heads, substantially as herein described.

7. In a can-labeling machine, the combination of vertically-reciprocating pasting-heads adapted to descend upon and supply the ends of the labels with paste, a rock-shaft, pivoted levers between said shaft and heads for raising the latter, a traveling paste-carrying roller moving under and in contact with said heads when raised to supply them with paste, and a scraper acting on said roller to remove the

surplus paste, substantially as herein described.

8. In a can-labeling machine, the combination of the vertically-reciprocating pasting-heads adapted to descend upon and supply the ends of the labels with paste, the reciprocating frame B, the paste-vessel thereon, the grooved roller *c'* in said vessel passing under and in contact with the heads when raised, and a rock-shaft and system of levers between the pasting-heads and reciprocating frame, whereby both move in unison, substantially as herein described.

9. In a can-labeling machine, the pasting-heads, the supporting-bar therefor, and the stem of said bar, in combination with the means for raising and lowering the heads, consisting of the spring, the pivoted lever engaging the stem, the shaft F, having an arm to which the lever is pivoted, the swinging levers *f*, the rod connected with the swinging levers, and the adjustable connection between said rod and the pivoted lever, whereby the stroke of the heads is varied, substantially as herein described.

10. In a can-labeling machine, the pasting-heads, the supporting-bar therefor, and the stem of said bar, in combination with the means for raising and lowering the heads, consisting of the spring, the pivoted lever engaging the stem, the shaft F, having an arm to which the lever is pivoted, the swinging levers *f*, the adjustable cross-rod between said levers, and the rod connecting the cross-rod with the pivoted lever, substantially as herein described.

11. In a can-labeling machine, the pasting-heads, the supporting-bar therefor, and the stem of said bar, in combination with the means for raising and lowering the heads, consisting of the spring, the pivoted lever engaging the stem, the counterbalance-weight of said lever, the shaft F, having an arm to which the lever is pivoted, the swing-levers *f*, having the cross-bar, and the rod connecting said cross-bar with the pivoted lever, substantially as herein described.

12. In a can-labeling machine, the reciprocating frame B and attached can-puller and the reciprocating heads with supporting bar and stem, in combination with their operating mechanism, consisting of the crank-shaft, the swinging angle-levers *f*, engaging the frame sides, the rod connecting the crank-shaft with said levers, the pivoted lever engaging the stem of the head, a shaft having an arm to which the lever is pivoted, the rod connecting said lever with the angle-levers, and the spring on the stem, substantially as herein described.

13. In a can-labeling machine, the reciprocating can-puller having the pressure-roller, in combination with the can-runway having the can-ledges *a*² and the inclined planes at the discharge end of said ledges for raising

the can to effect increased pressure of the roller, substantially as herein described.

14. In a can-labeling machine, the feed-stop mechanism for the cans, consisting of the swinging spring-controlled frame in the can feed-chute, having the bent stop-plate fitted thereto and movable forward or back thereon to adjust it for different-sized cans, substantially as herein described.

15. In a can-labeling machine, the swinging spring-controlled frame in the can feed-chute, having the bent stop-arm, in combination with the can-puller adapted to fit down over a can and pull it forward over the yielding stop-arm, substantially as herein described.

16. In a can-labeling machine, the locks for the label-pile, consisting of the movable lock-bars overlapping the pile, the cams engaging said bars for raising and withdrawing them, the cam-shafts, the springs thereon, the trigger-bars, and the gears connecting said trigger-bars with the cam-shafts, substantially as herein described.

17. In a can-labeling machine, the locking device for the label-pile, consisting of the adjustable frames, the locking-bars mounted and movable therein, the cams engaging the locking-bars for raising and withdrawing them, the trigger-bars and connections with the cams for operating them one way, and the springs for returning them, substantially as herein described.

18. In a can-labeling machine, the runway, the label-box communicating therewith, and the reciprocating can-puller in the runway, in combination with the locking-bars for holding the label-pile down, the cams for raising and withdrawing said locking-bars, the trigger-bars projecting into the path of the can-puller, connections between the trigger-bars and the cams for operating them one way, and the springs for returning them, substantially as herein described.

19. In a can-labeling machine, the combination of the frame A, the movable pieces thereon, the sides of the can-runway carried by said pieces, and the means for moving said pieces to and from each other, consisting of the right and left hand screws, the longitudinal shaft or rod, and the gearing between it and the screws, substantially as herein described.

20. In a can-labeling machine, the combination of the adjustable pieces carrying the sides of the can-runway, and the sides of the label-box carried by said pieces, whereby the box can be adjusted to receive different widths of labels, substantially as herein described.

In witness whereof I have hereunto set my hand.

HENRY ALBERT.

Witnesses:

S. H. NOURSE,
J. A. BAYLESS.