

No. 751,812.

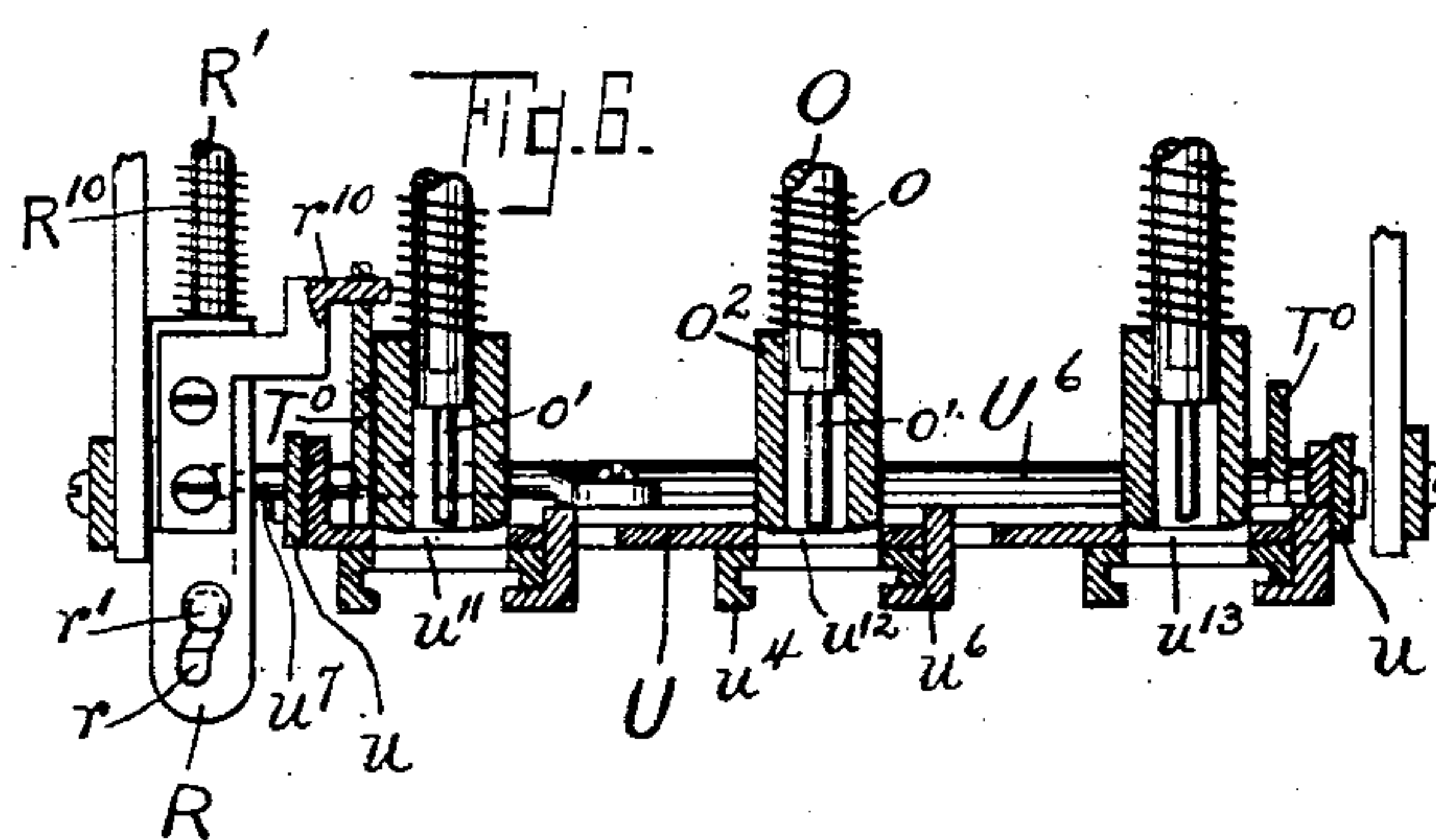
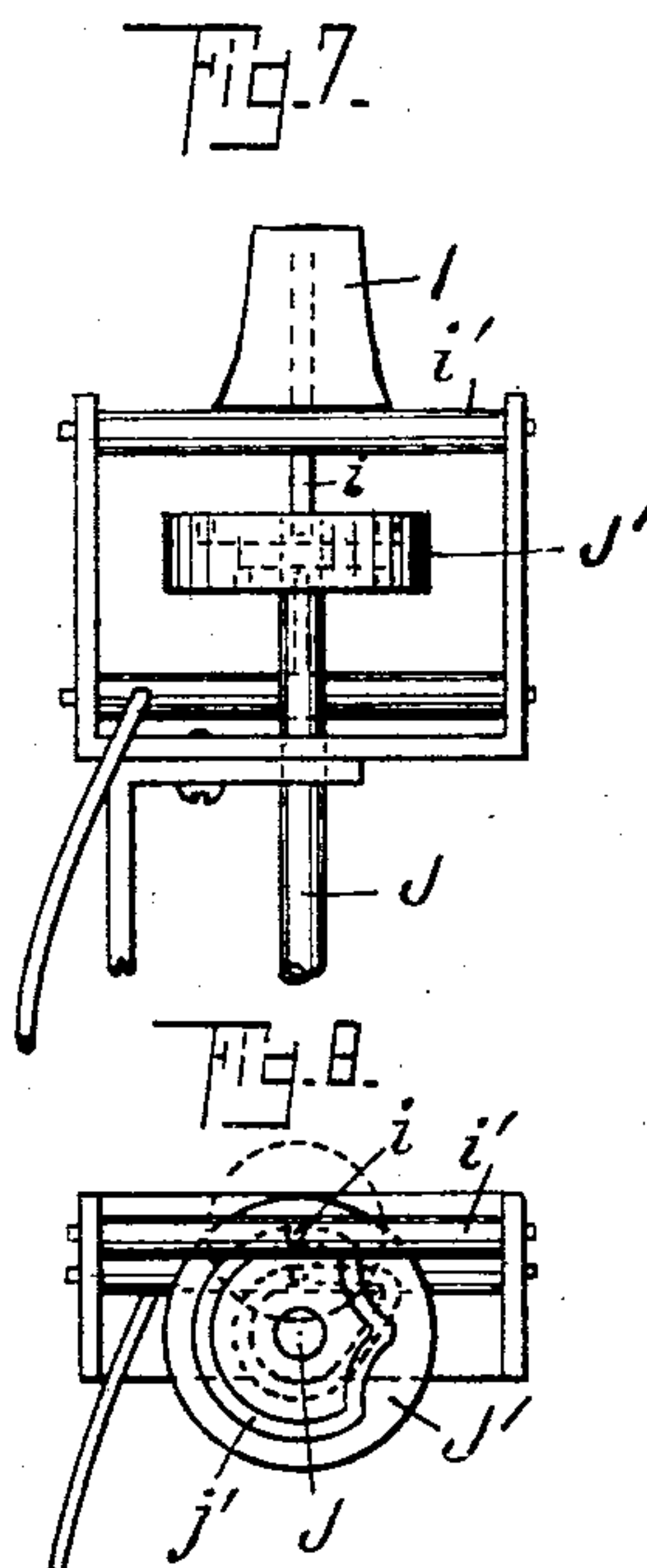
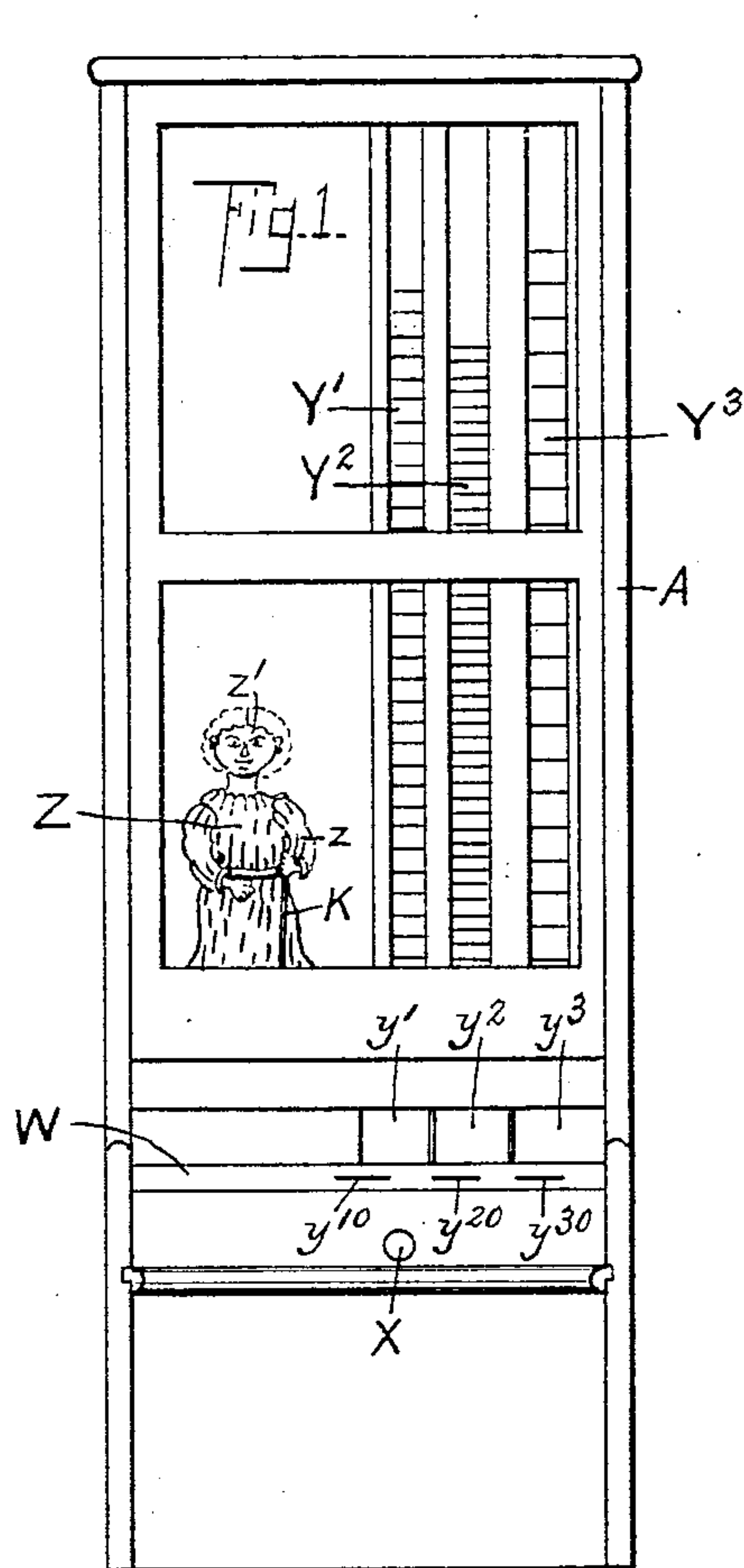
PATENTED FEB. 9, 1904.

A. RYDQUIST.
COIN CONTROLLED VENDING APPARATUS.

APPLICATION FILED APR. 5, 1902.

NO MODEL.

5 SHEETS—SHEET 1.



WITNESSES =
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C. M. Perkins.

INVENTOR.
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by Osgood & Davis
his Attys

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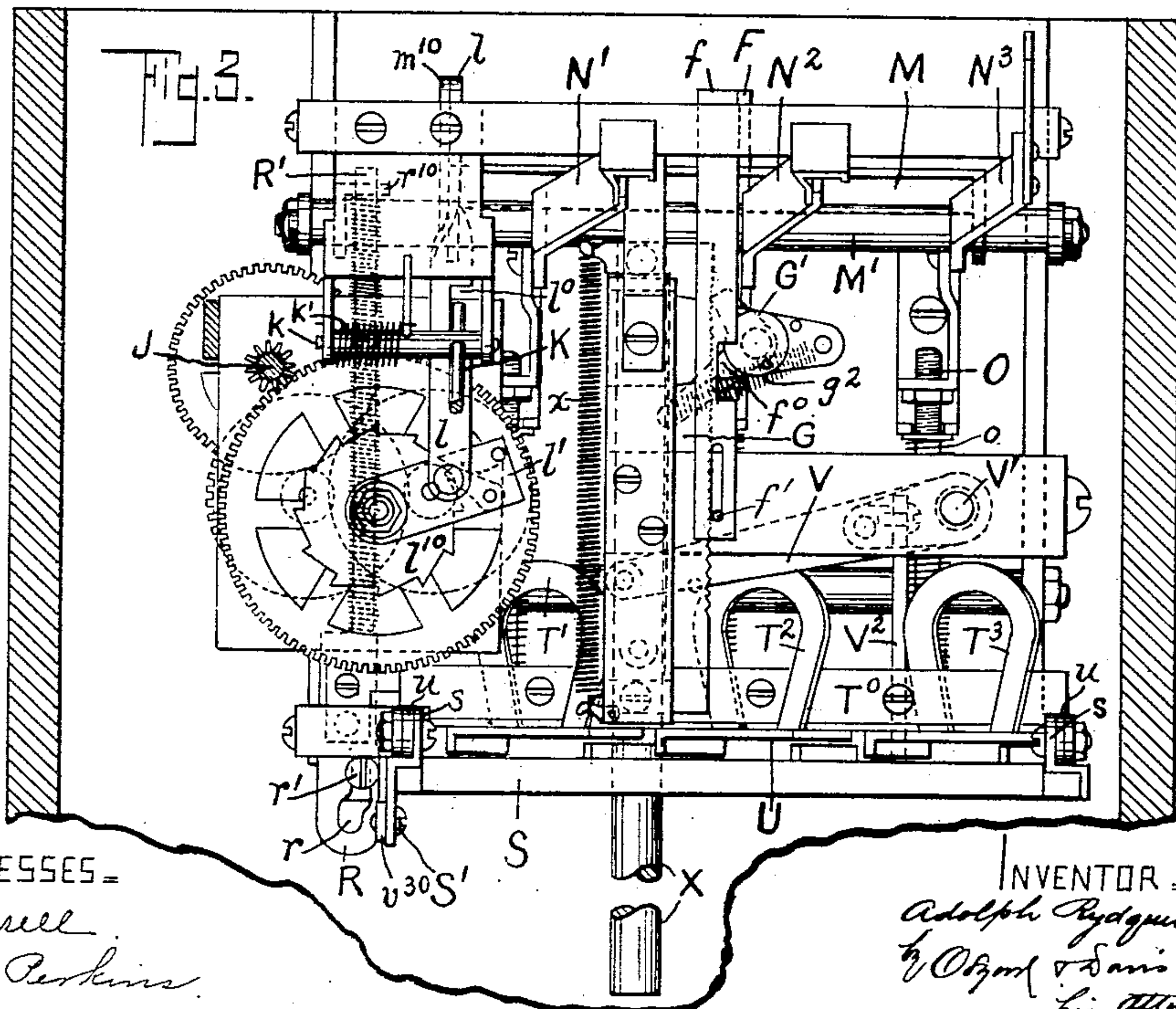
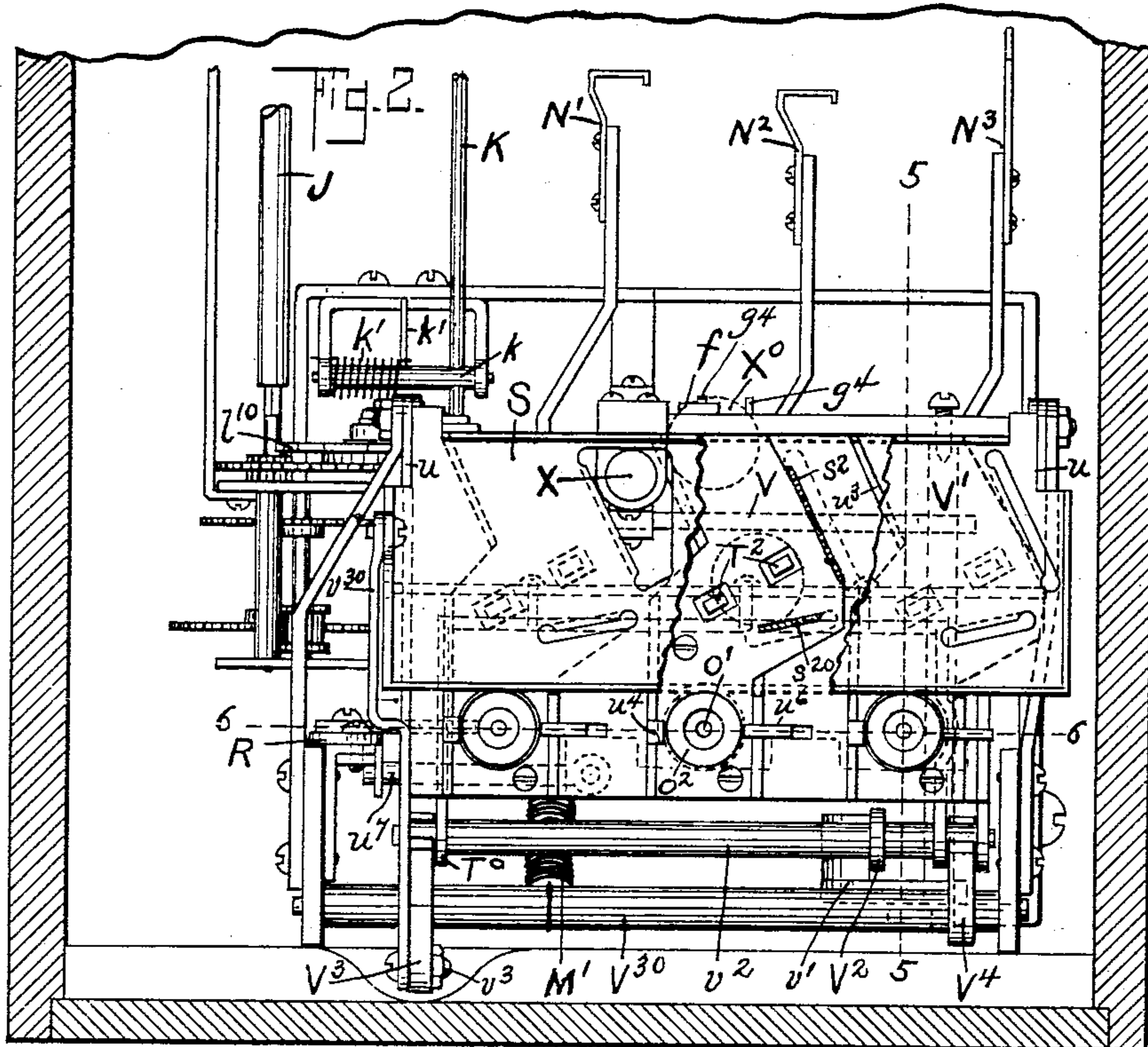
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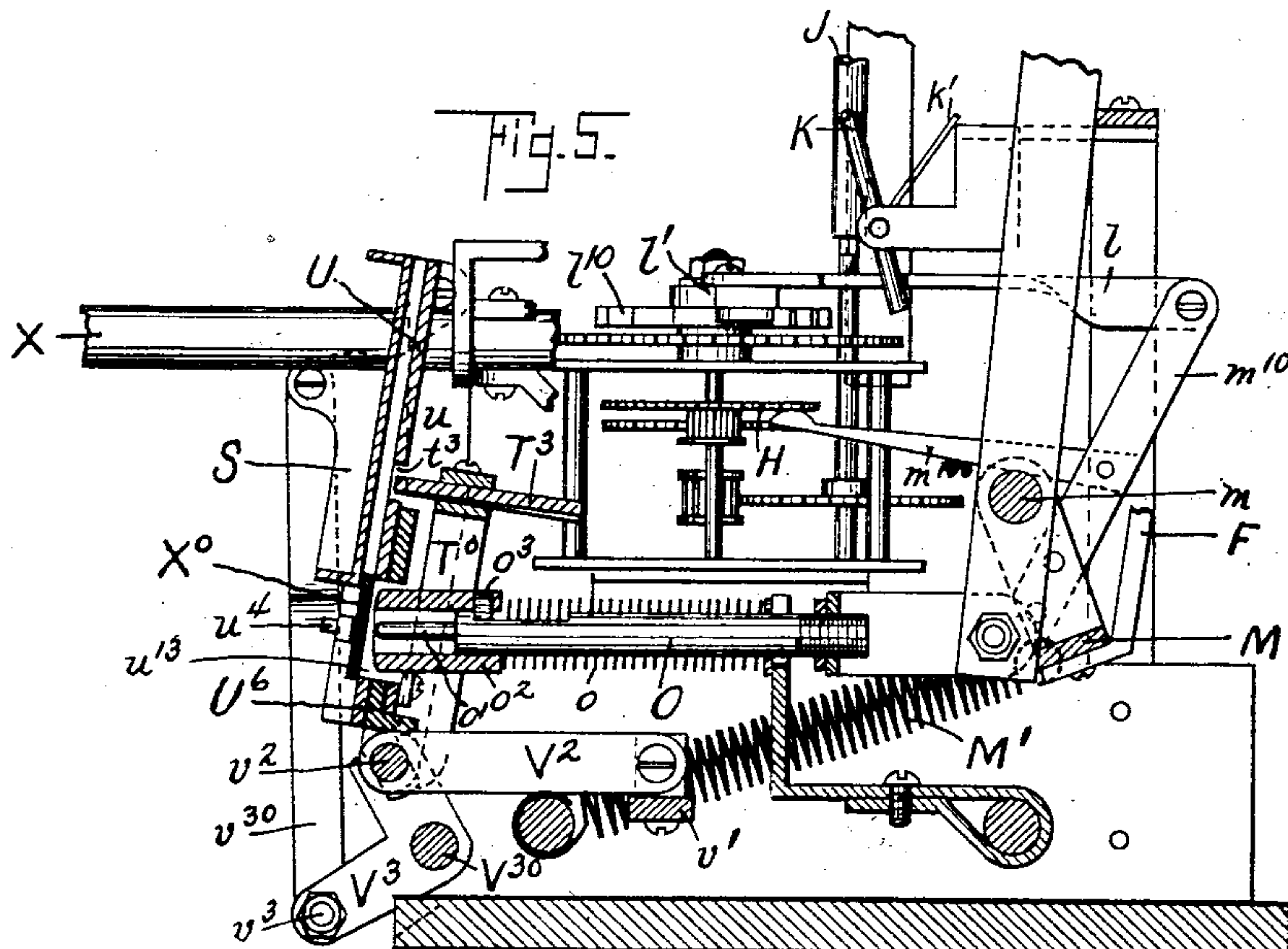
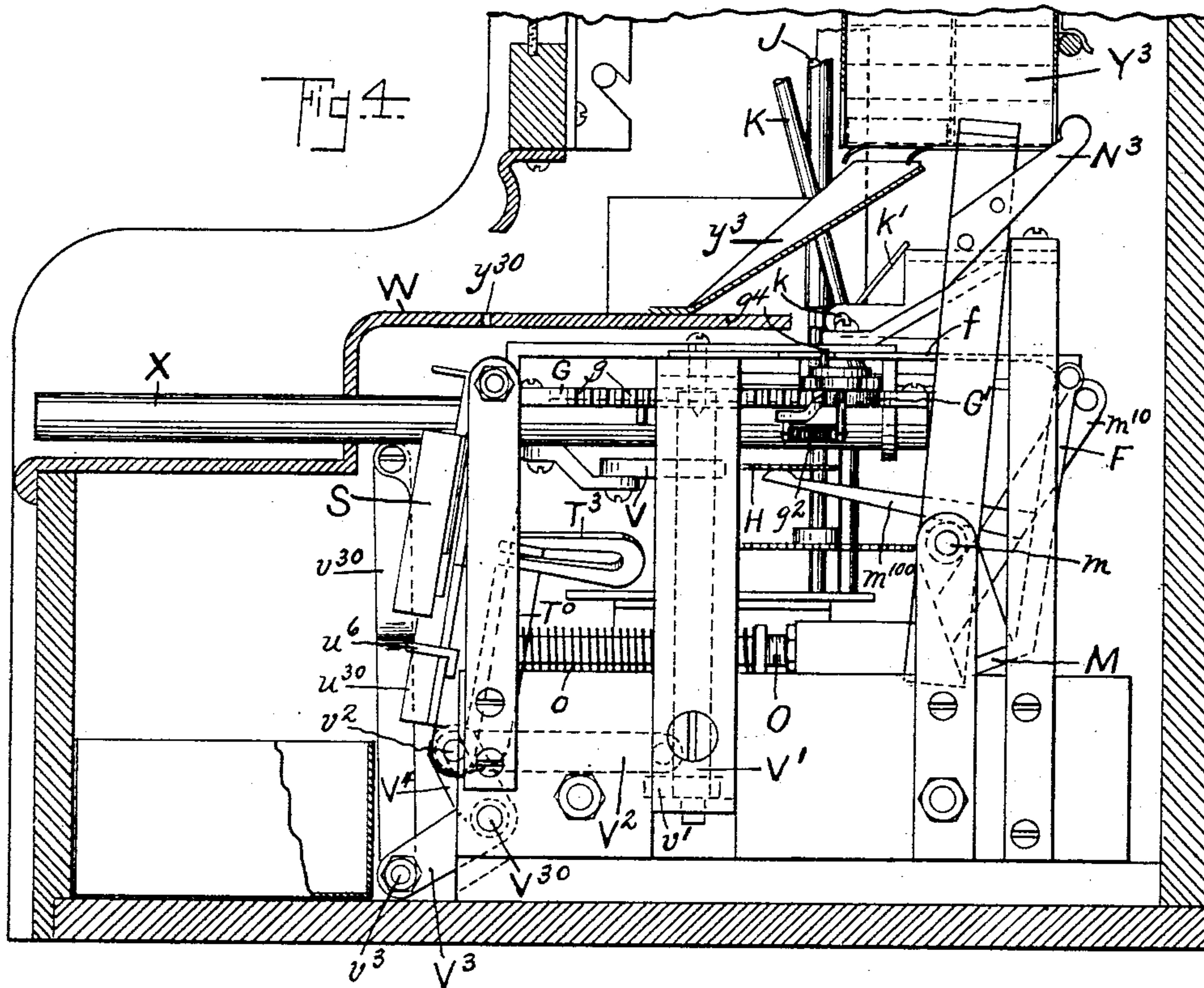
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5 SHEETS—SHEET 3.



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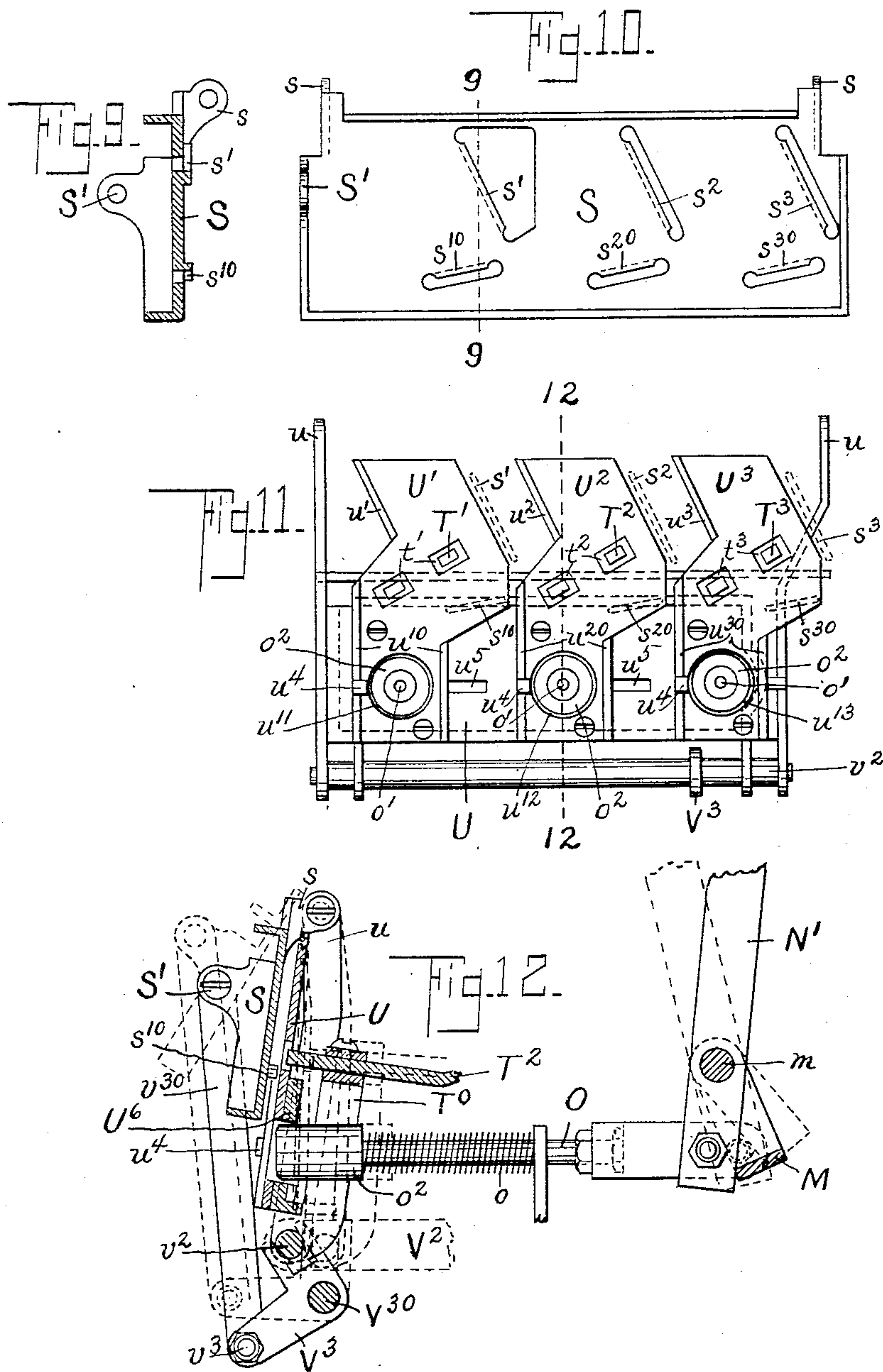
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5 SHEETS—SHEET 4.



WITNESSES =

F. Bissell.
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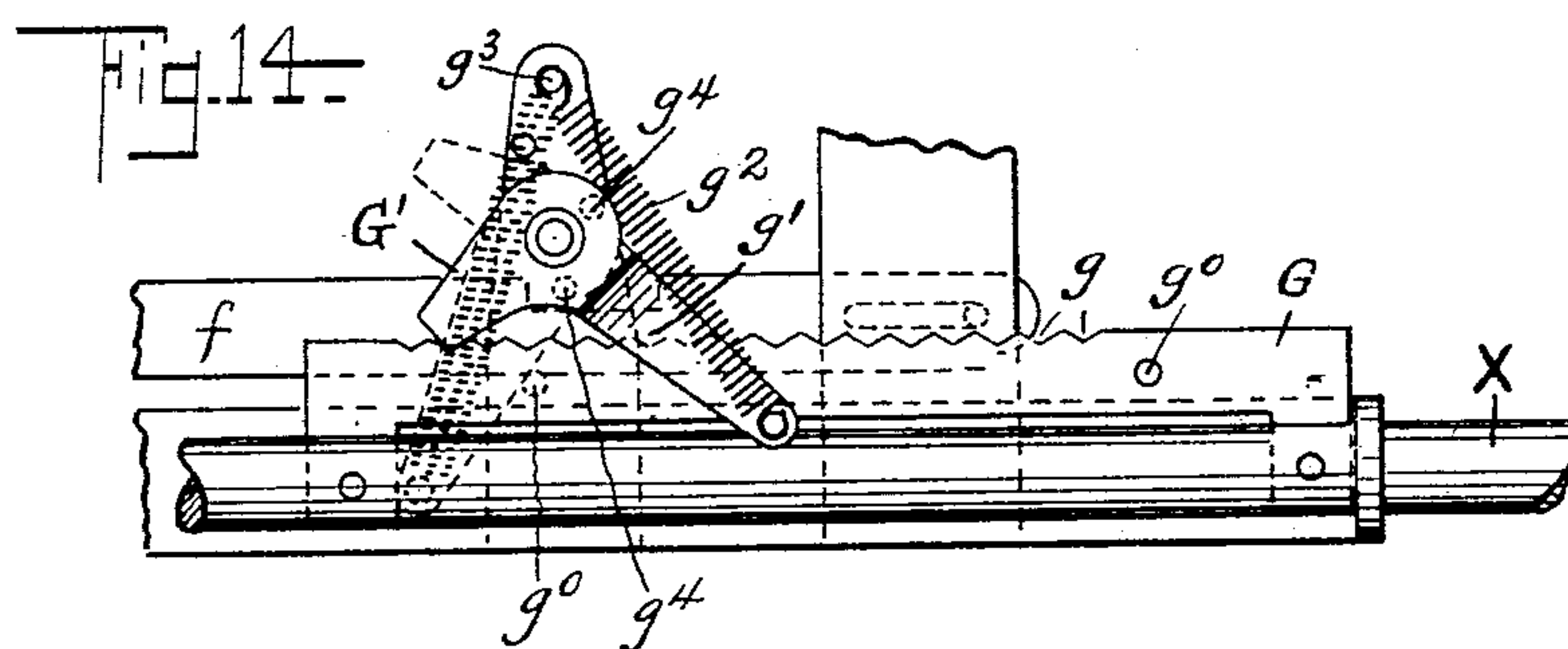
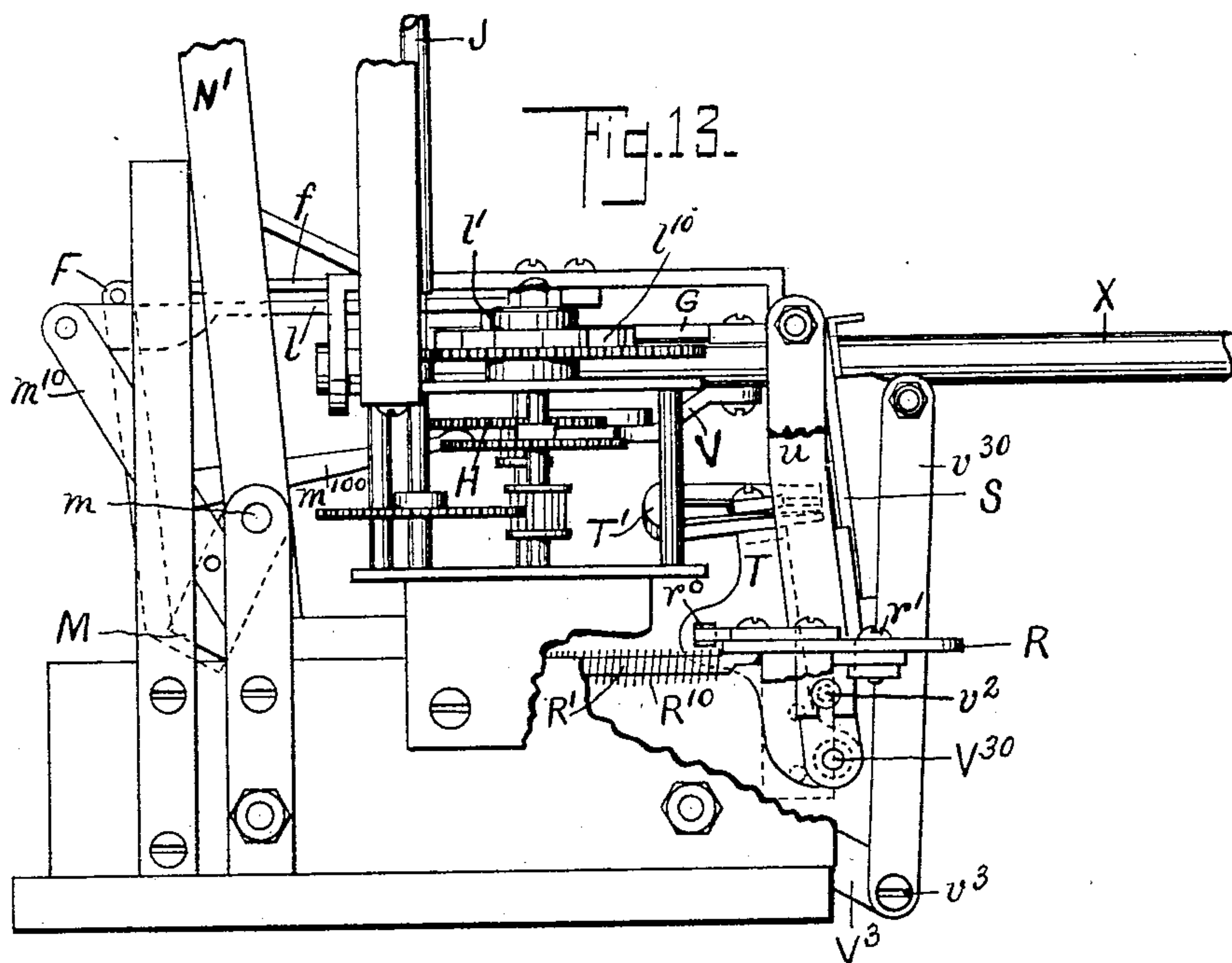
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5 SHEETS—SHEET 5.



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UNITED STATES PATENT OFFICE.

ADOLPH RYDQUIST, OF ROCHESTER, NEW YORK, ASSIGNOR TO CASE MANUFACTURING COMPANY, OF ROCHESTER, NEW YORK, A CORPORATION OF NEW YORK.

COIN-CONTROLLED VENDING APPARATUS.

SPECIFICATION forming part of Letters Patent No. 751,812, dated February 9, 1904.

Application filed April 5, 1902. Serial No. 101,545. (No model.)

To all whom it may concern:

Be it known that I, ADOLPH RYDQUIST, a citizen of the United States, and a resident of Rochester, in the county of Monroe and State of New York, have invented certain new and useful Improvements in Coin-Controlled Vending Apparatus, of which the following is a specification.

This invention relates to coin-controlled vending apparatus; and it consists in the mechanism hereinafter described and claimed.

The object of the invention is to provide a coin-controlled vending device for vending different articles from the same machine, including improved operating apparatus for the same and improved safety devices to insure the employment of the proper coin whereby the apparatus is allowed to act.

In the drawings, Figure 1 is a front elevation of an apparatus embodying this invention. Fig. 2 is a front elevation of the operating mechanism, parts being omitted and parts being broken away in order to exhibit the construction and the front of the case being removed. Fig. 3 is a top plan view of the same mechanism shown in Fig. 2. Fig. 4 is a side elevation of the same mechanism shown in Fig. 2, including parts of the case. Fig. 5 is a vertical section on the line 5 5 of Fig. 2. Fig. 6 is a horizontal section of the coin mechanism, taken on the line 6 6 of Fig. 2. Figs. 7 and 8 are respectively an elevation and a top plan view of a portion of the figure-operating mechanism. Fig. 9 is a vertical section on the line 9 9 of Fig. 10. Fig. 10 is a front elevation of the coin-plate cover of the device. Fig. 11 is a front elevation of the coin-plate. Fig. 12 is a vertical section of the coin-slide and coin-plate on the line 12 12 of Fig. 11, showing some of the connected parts and also showing the parts in two positions in full and dotted lines. Fig. 13 is an elevation of the mechanism seen from the opposite side from Fig. 5, parts being broken away to exhibit construction; and Fig. 14 is a top plan of a detail.

The device embodies coin-selecting devices whereby coins, washers, slugs, and the like

are selected from the coins of the true denominations for which the machine is adjusted, and said washers, slugs, &c., being rejected and not cooperating with the mechanism of the machine in such a manner as to permit the delivery of the articles. The machine embodies also mechanism for operating a figure, as hereinafter described.

A suitable casing A incloses the parts of the device, within which and behind a glass window is a figure Z and three magazines or reservoirs Y' , Y^2 , and Y^3 for different articles. In the front of the machine are the openings y' , y^2 , and y^3 of the said three delivery-chutes and three coin-slots y^{10} , y^{20} , and y^{30} , relating to the said magazines Y' , Y^2 , Y^3 , respectively. The coin-slots are of the exact cross-section of the coin by which the machine is to be operated. From the front of the case projects the end of a plunger X. Preferably the delivery-chutes y' , y^2 , y^3 deliver upon a table W, (shown particularly in Fig. 4,) in which also are the coin-slots above mentioned. The plunger X has pivoted to it a lever V, that rocks a vertical shaft V' , having at its lower end an arm v' , to which is attached a link V^2 , that is connected to a transverse bar v^2 , that operates a bell-crank lever V^3 at one end of said bar and an arm V^4 , fixed on said bar at the other end. This bell-crank lever and arm control the movements of the coin-plate and cover and coin-plate, respectively, away from each other in order to discharge coins and other articles therefrom.

The coin-operating plate U, Fig. 11, is hung on the frame of the machine by two hanger-rods u , which are connected at the lower ends with the bar v^2 , above mentioned.

In the form of the machine shown the three magazines from the three coin-chutes U' , U^2 , U^3 correspond, respectively, to the magazines Y' , Y^2 , Y^3 . The upper ends of these coin-chutes register with the three coin-slots y^{10} , y^{20} , y^{30} , respectively. Each coin-chute has a projecting flange u' , u^2 , u^3 , respectively, for guiding the coin that drops therein to pass the poles of a magnet T' , T^2 , T^3 , projecting close to but not in the path of the coin down the chute.

The magnets herein shown are horseshoe-magnets, and the poles thereof pass into slots t' t^2 t^3 in the chutes U' U^2 U^3 . In case an iron or steel slug is put into the machine these magnets check these slugs and prevent them from passing on to the remainder of the chute.

There is a coin-plate cover S (see Figs. 9 and 10) hung upon the frame of the machine by hangers s , adjacent to the pivotal points of the hangers u of the coin-plate. The coin-plate cover has flanges s' s^2 s^3 projecting from the face and adapted to cooperate with the chutes U' U^2 U^3 to form an inclosure for the coin as it passes along the chute. The cover-plate has also other flanges s^{10} s^{20} s^{30} extending into the path of the coin and supporting coins or slugs which are not of the proper diameter and thickness and assisting in holding those retained by the magnets T' T^2 T^3 . Referring to Fig. 11, the left-hand ends of the flanges s^{10} s^{20} s^{30} are slightly lower than the right-hand ends thereof, so as to permit a coin of the proper character to roll upon it and to pass into the final portion of the chute between vertical flanges u^{10} u^{20} u^{30} on the sides of the coin-operating plates.

The magnets T' T^2 T^3 are hung in a magnet-frame T^0 , that is supported by hangers t' on the rod v^2 , and said frame is moved, as hereinafter described, so that when the bar v^2 is moved toward the right, as shown in Fig. 12, the magnets T' T^2 T^3 are withdrawn from the slots t' t^2 t^3 , and any iron or steel slug that has been held by the proximity of the magnet thereto is permitted to drop by the removal of the magnet.

In the lower part of each coin-chute is a perforation u^{11} u^{12} u^{13} for the head of a plunger. The cover-plate S reaches only to the upper edge of these perforations, as shown in Fig. 2. Connected with the plate is a coin-clamping apparatus consisting of a lug u^4 , stationary on the plate and adjacent to the edge of the opening of each orifice u^{11} u^{12} u^{13} . On the other side of each orifice diametrically opposite to the lug u^4 is a slot u^5 in the plate for a lug u^6 on a movable clamping bar or plate U^6 , moving on the back of the coin-operating plate and behind the chutes U' U^2 U^3 . This bar U^6 is moved laterally by mechanism, hereinafter to be described, across the plate, so as to retain a coin of the proper size in a position opposite the aperture u^{11} .

The bell-crank lever V^3 is rigidly attached to the rock-shaft V^{30} . The shaft v^2 lies in a slot in the inner end of said bell-crank lever, (see Fig. 5,) whose outer end is attached by a pivot v^3 to the link v^{30} , running to and pivotally connected with the plate-cover S at S' .

At the left-hand end of the machine and on the frame thereof is a sliding plate R , having a curved slot r therein running on a pin r' on the frame of the machine. This slot r has two portions out of line, but both parallel with the line of backward and forward move-

ment of said plate R , and a diagonal portion of said slot connects said two portions that are out of line. Consequently a backward and forward movement of the plate R will cause a lateral movement of the same, and this plate R is connected with the clamping-plate U^6 , above described, at u^7 , Fig. 6. The backward and forward movement of said plate R is derived from the backward and forward movement of the coin-operating plate U through the connection u^7 , and the tilting of the magnet-plate is caused by the lug r^0 , Fig. 13, attached to said plate R and extending into a slot in the magnet-plate T^0 . The plate R has a pin or rod R' extending backward in the machine and is operated by a spring R^{10} , pressing against a suitable stationary abutment r^{10} . This spring R^{10} tends to return all the parts heretofore described to their normal positions.

If a coin of the proper diameter and thickness passes into the chute and drops down therein, it passes along the upper portion thereof between the said flanges u' and s' and passes downward until stopped by the lug u^4 and clamping-lug u^6 . If now the plunger X is operated, the lever V is tilted, the shaft V' is turned, and the link V^2 , acting on the rod v^2 , pulls the rod v^2 , which tilts the bell-crank lever V^3 , which rocks the shaft V^{30} and tilts the arm V^4 . The arm V^4 is connected with the coin-plate U , so that when it is tilted backward said plate U is swung backward and said plate R is thereby caused to slide backward also through the connections between said plates described above. These operations tilt the cover-plate S outward into the dotted-line position of Fig. 12, swing the lower end of the coin-operating plate backward, and swing the magnet-plate T^0 backward on its pivot—the bar v^2 . Any coins or slugs unless of the proper diameter and thickness are immediately released by the opening and tilting of the parts and drop down into the bottom of the machine. Very thin coins or very thin washers or slugs, unless of iron, have already slipped through the whole length of the chute and fallen below. If a coin of the proper diameter and thickness, however, has been inserted into a slot, it is held opposite the aperture u^{11} , and on the backward movement of the coin-operating plate U the coin held between the lug u^4 and movable clamping-lug u^6 is pressed against the head of a plunger which is opposite said aperture. This plunger consists of a main stem O , running in a stationary guide in the machine. Against this stationary guide rests a spring o for returning the plunger O to place. The outer end of the plunger (toward the left in Fig. 5) has a small pin end o' for the purpose of passing through the hole in any perforated washer that may have been put into the machine. The same end of the plunger O carries a head o^2 , against which the end of the spring o rests. By means of a pin or screw o^3 in the head o^2 and extending into

a suitable slot or depression in the plunger O the head may have a movement with reference to the plunger, so that if a washer with a central perforation is put into the machine 5 the head o^2 moves backward and pressing the spring o , while the pin end o' passes through the hole in the washer, and the plunger is not pressed backward. A coin of proper diameter and thickness, however, being held in the 10 chute by the movable clamping-lug u^6 will be forced against the pin end o' and will force the plunger O toward the right in Fig. 5. Each plunger O is attached to a discharging-lever $N' N^2 N^3$, that passes into the lower end 15 of its magazine $Y' Y^2 Y^3$ to discharge the lowest package in said chute outward through an orifice, Fig. 4. The back end of the plunger O or the lower ends of the discharging-levers $N' N^2 N^3$ all abut against a universal bar M, 20 which swings on an axis m and is pulled forward by a spring M' in order to return the plungers O and discharging-levers to their original positions and to operate parts hereinafter to be mentioned. The bar M has its 25 ends bent in the same direction at right angles to its main portion and is hung on the axis m at these ends, (see Figs. 3 and 5,) so that when the plunger O or lever N is forced back against it said bar M will swing backward. 30 Consequently if a proper coin is in any one chute the discharging-lever of that chute is operated and the lowest package in said chute is delivered upon the table W. At the latter end of the stroke of the plunger the lateral 35 movement of the plate R releases the coin by lateral movement of the clamping-lug u^6 , that holds it in place, and immediately the spring o of the plunger O, that has been pressing against said coin, expands and throws the coin forward 40 into a coin-receptacle. All coins of proper thickness and diameter, therefore, are found in the receptacle A, while washers, slugs, and coins not of the proper diameter and thickness are dropped directly from the coin-operating plate U into the bottom of the machine 45 and into a cavity that may be left for said purpose. If a washer or coin having the right diameter, but thinner than the coin should be, is introduced in the machine, it will pass over 50 the flange S^{10} or S^{20} or S^{30} , as the case may be, so that the washer passes out from the chute at one side.

The bar M is journaled in proper supports m in the machine and bears an arm M^{10} , connected by a link l with a ratchet-plate l' , carrying a pawl (not shown) that engages a ratchet-wheel l^{10} for moving the clockwork apparatus in order to actuate the figure Z.

The spring M' is the motor for the apparatus. When the bar M swings backward, pushed by one of the plungers O, the spring M' is extended and the pawl of the ratchet-bar l' slips backward over one or more of the ratchet-teeth l^{10} and engages the radial face of the

tooth. When the plunger is released by the 65 disengagement of the clamping-lug u^6 , the pull of the spring M' causes the clockwork to rotate and to actuate the figure in any selected manner. For instance, the link l may have a notch l^0 , Fig. 3, in its edge, in which may rest 70 a bar K, having a horizontal shaft k and a spring k' , engaging the shaft and a stationary portion of the frame. As the bar l moves forward the rod K is tilted and may operate, as indicated in Fig. 1, the arm z of the figure, so 75 that the arm of the figure is drawn back at the same time that a package is discharged from one of the chutes, and the appearance is given that the arm of the figure acts upon the lever to discharge the package. So, too, through suitable gearing a vertical shaft J may be driven 80 from the ratchet-wheel l^{10} , which may operate a cam-plate J' , having a cam-slot j' in its place, which cam-slot engages a pin i , extending downward from a cap-piece I, set upon a 85 transversely-pivoted bar i' . The shape of the cam-slot j' may therefore produce any desirable rocking movement of the cap I, and the head z' of the figure Z being set upon said cap-piece may thereby produce a bowing ac- 90 tion.

The arm m^{10} may carry a bar m^{100} , which is adapted to act as a brake upon one of the wheels H of the clockwork apparatus by which the figure is moved, so that when the bar M 95 has returned to its normal position the brake comes into action and stops the clockwork in order to prevent its running on by the momentum of the parts.

The device may have other safety mechanism connected therewith, such as that shown 100 in Fig. 14, which is a stroke-completer apparatus. A plate G is attached to or moves with the plunger X and has a series of serrations upon one edge. The spring x is attached to 105 the frame and to the plunger for resetting the latter.

A pawl G' on a stationary pivot on the frame of the machine has a tail g' held by a spring g^2 , attached to the outer end of the tail g' and 110 to a pin g^3 on the frame of the machine, tending to hold said tail in either of two positions, as shown in said Fig. 14. When the lever X is being pushed in toward the left in Fig. 14, the pawl G' snaps along the serrations or teeth 115 g , and the plunger X cannot return toward the right until a pin g^0 strikes the tail g' and tilts it into the position shown in dotted lines in said figure, which carries the tail around to such a position that it remains tilted into 120 said dotted-line position. In order to return the pawl G' to its position, an arm F, attached to the bar M, carries a link f , guided on the frame of the machine by means of a pin f' . (See Fig. 3.) A notch f^0 in the edge of said 125 link f is adapted to engage a pin g^4 on the pawl G' , and when the bar M is tilted to its most backward position (toward the right in

Fig. 4) the link f will have struck the pin g^4 and will have tilted the pawl G' back to the position shown in full lines in Fig. 14, but only after the operating stroke of the plunger X has been completed and said plunger is returned to its normal position of protrusion from the front of the case of the machine.

It will thus be seen that the mechanism embodies numerous security devices for preventing the false operations of the machine, including the provision against improper coins, thin slugs, washers, iron or steel disks, and soft disks, which of course will be bent by the action of the pin end o' of the plunger O, and the action of the machine to discharge a package will not occur.

The manner of inserting into the machine a coin of the right dimensions to enable it to be operated, the manner in which the machine is actuated, the operation of certain parts for the detection of improper coins and substitutes, and the operation of other parts to discharge the package from the machine have all been fully explained both in detail and with reference to their consecutive and relative operation. Other mechanism has just been described for operating a clockwork mechanism by which the figure 2 is actuated. That mechanism essentially consists of the universal bar M or its equivalent, which is swung backward by some one of the plungers O, the motor-spring M' , connected to said bar M at one end and to the frame at its other end, so that it is extended when said bar is swung back, and a pawl that is operated by the universal bar M when it is swung back to set the clockwork apparatus, so that it will be operated by the motor-spring M' when said spring is released and allowed to contract. The operation of the device is now clear. When a coin is forced back upon one of the plungers O by the connections between the plunger X and the plate R, said plunger O operates a lever, as N' , to discharge a package from the corresponding magazine Y' . At the same time the universal lever M is forced back by said plunger O or said lever N' , so as to stretch the motor-spring M' and set the pawl on the ratchet-wheel Z^{10} at a point where it will rotate said wheel when said motor-spring M' pulls said bar M back into its normal position. At the end of the stroke of the plunger X the pin g^0 , carried by the plunger, forces up the pawl G' , that is pivoted on the frame, and engages teeth on a plate G, carried by the plunger, thus releasing said plunger, so that the motor-spring can contract and draw all of the parts back to their normal position. As this occurs, the clockwork is rotated and the figure 2 actuated thereby in the manner described or otherwise, as may be desired. When a coin of proper dimensions lodges in the chute between one of the clamp-

ing-lugs u^6 and the corresponding fixed lug u^4 and the plunger O is forced back thereby and the universal bar M swings back, the connections described causes the ratchet-wheel Z^{10} to turn against the resistance of the spring M' .

What I claim is—

1. In a coin-controlled vending device, a plunger, a coin-plate having flanges for guiding coin, a movable cover for said coin-plate having flanges corresponding with the said flanges on the coin-plate to form chutes for the coin, clamping devices for receiving from said chutes and retaining coins of proper thickness and diameter, means for releasing said clamping devices when the plunger is approaching the limit of its motion, and spring-pressed devices actuated upon operation of said plunger for forcing the coin from said chute.

2. In a coin-controlled vending device, a plunger, a tilting coin-plate having flanges for guiding coin operated by said plunger, a tilting cover for said coin-plate having flanges corresponding with the said flanges on the coin-plate to form chutes for the coin, operated by said plunger, to release objects from said chute, clamping devices for receiving from said chutes and retaining coins of proper thickness and diameter, means for releasing said clamping devices when the plunger is approaching the limit of its motion, and spring-pressed devices actuated upon operation of said plunger for forcing the coin from said chute.

3. In a coin-controlled vending device, a plunger, a complete stroke mechanism coöperating therewith, a coin-operated plate actuated by said plunger said plate having chutes and perforations entering said chutes and clamping devices for holding a coin of the selected diameter and thickness opposite said perforations, a plunger opposite each perforation having a central pin and a relatively movable head surrounding said pin, means for swinging said plate, a coin-plate cover adapted to swing away from said coin-plate when the latter swings, means for releasing said clamping devices when the plate approaches the limit of its motion, a magnet-frame having magnets entering slots leading into said coin-plate, means for withdrawing said magnet therefrom as the plunger approaches the limit of its motion, magazines equal in number to the plungers entering the perforation into the chutes and discharge-levers entering said magazines and operated by said last-mentioned plungers, substantially as described.

Dated Rochester, New York, this 25th day of March, 1902.

ADOLPH RYDQUIST.

Witnesses:

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F. BISSELL.