

No. 716,507.

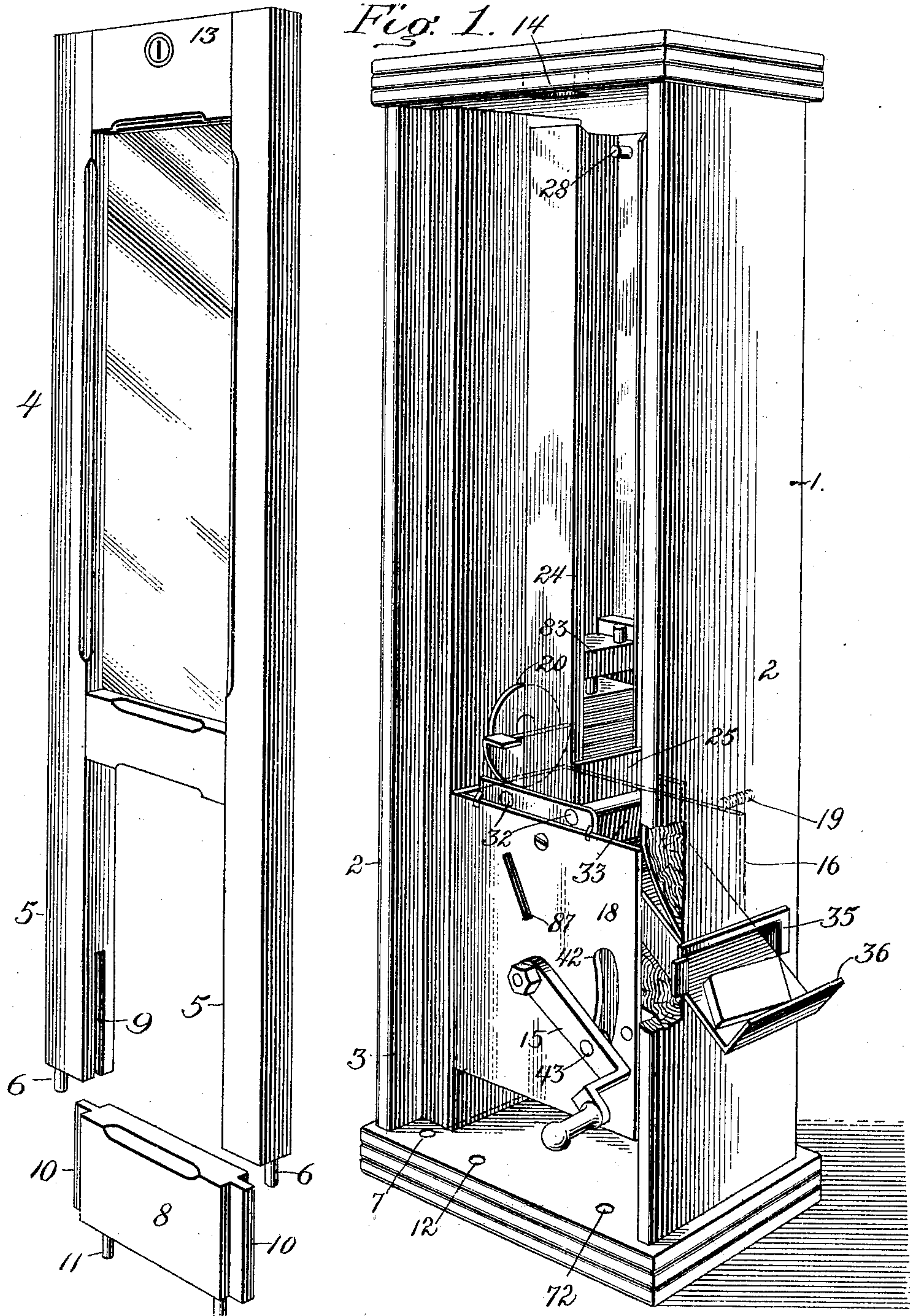
Patented Dec. 23, 1902.

J. A. WILLIAMS.
VENDING MACHINE.

(Application filed May 16, 1902.)

(No Model.)

4 Sheets—Sheet 1.



Witnesses
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Fig. 3.

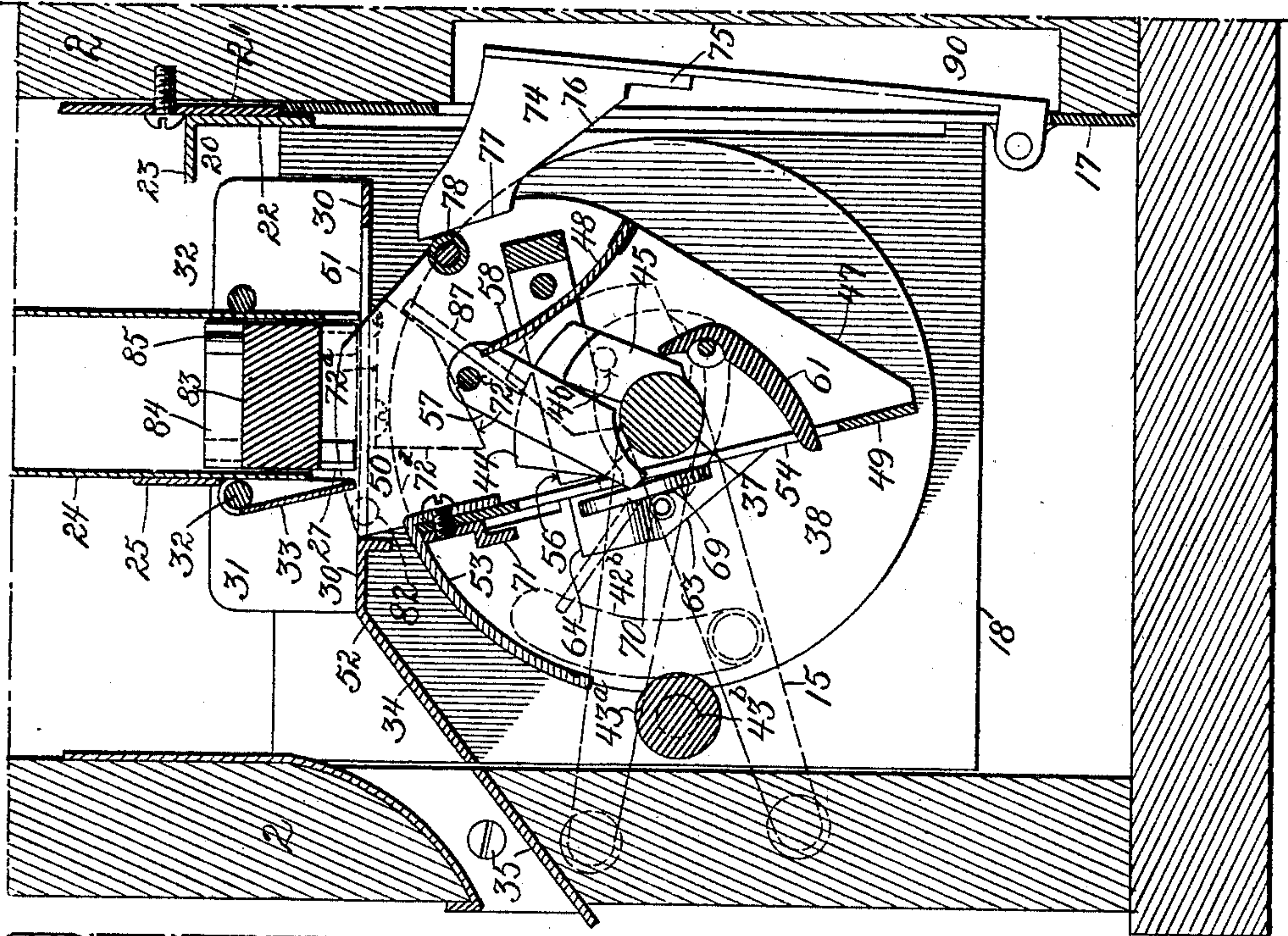
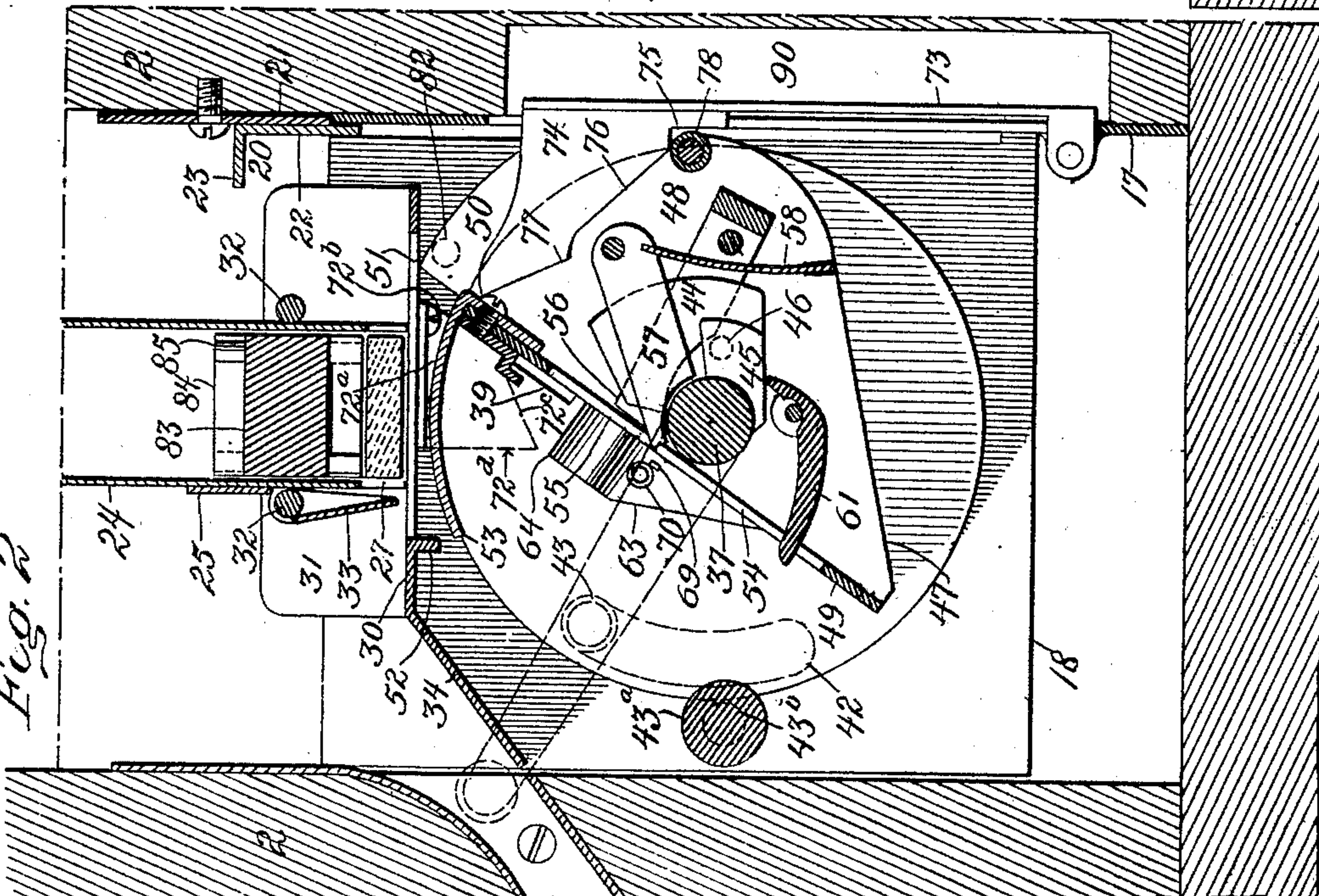


Fig. 2



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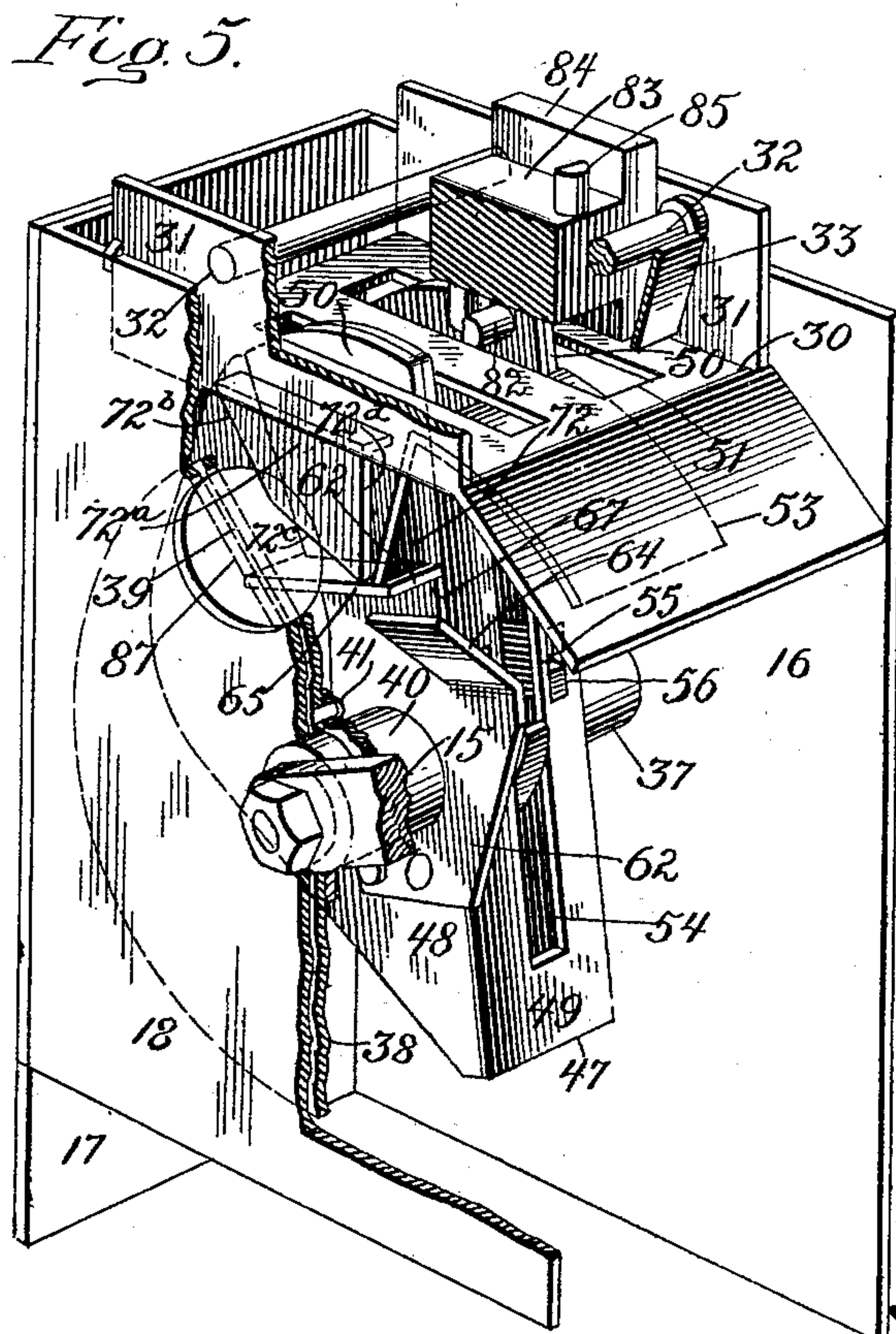
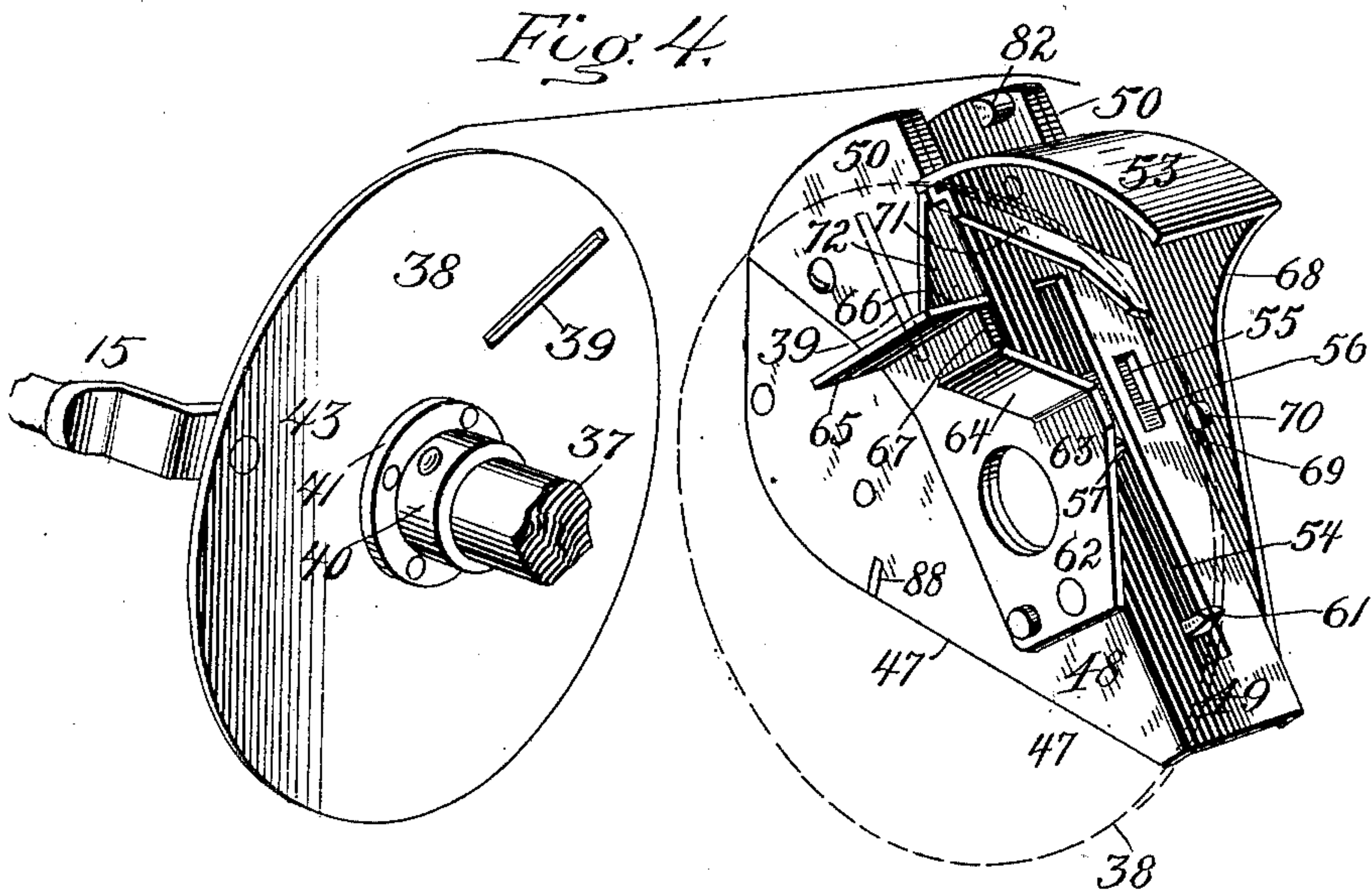
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4 Sheets—Sheet 3.



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Fig. 6.

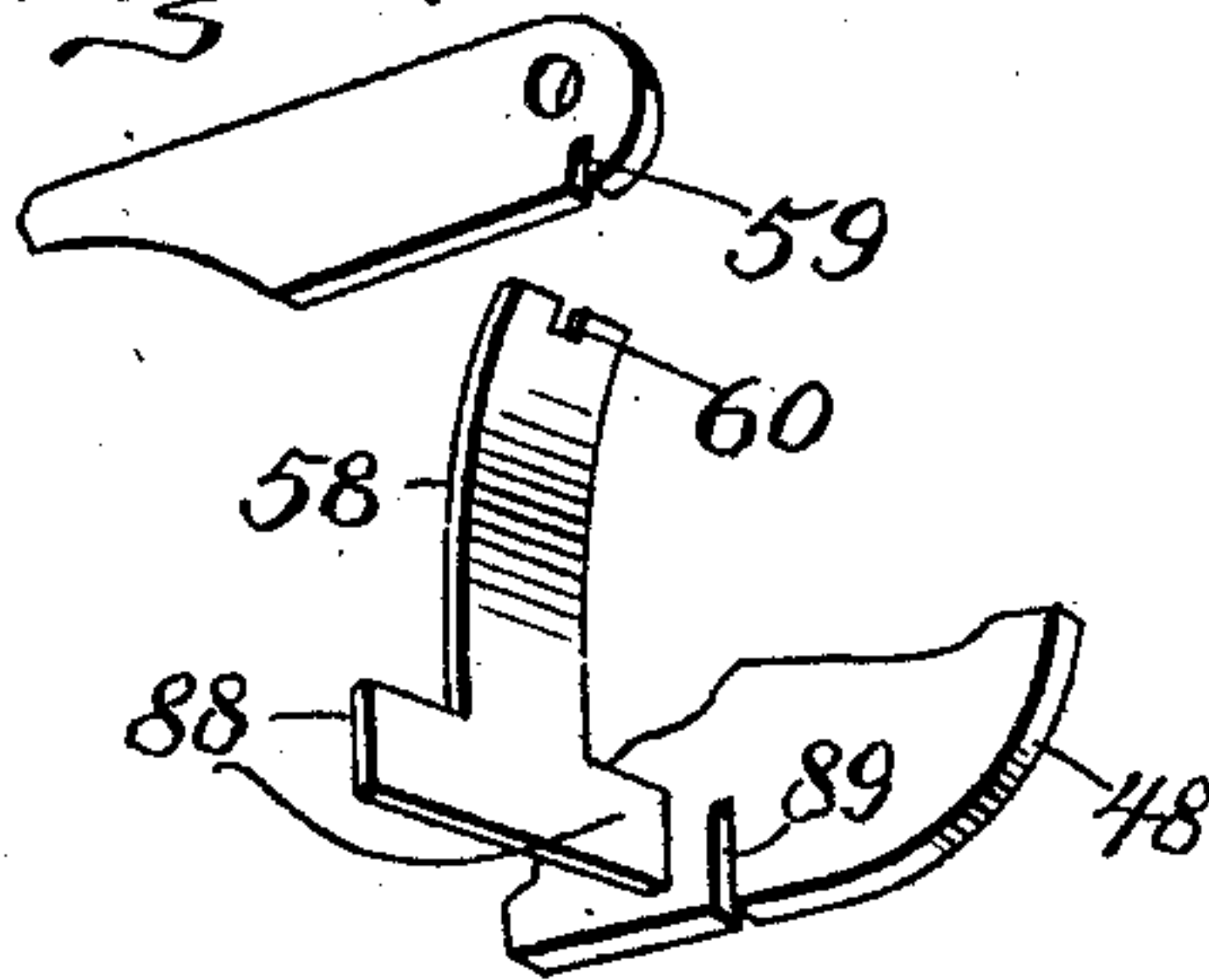


Fig. 7.

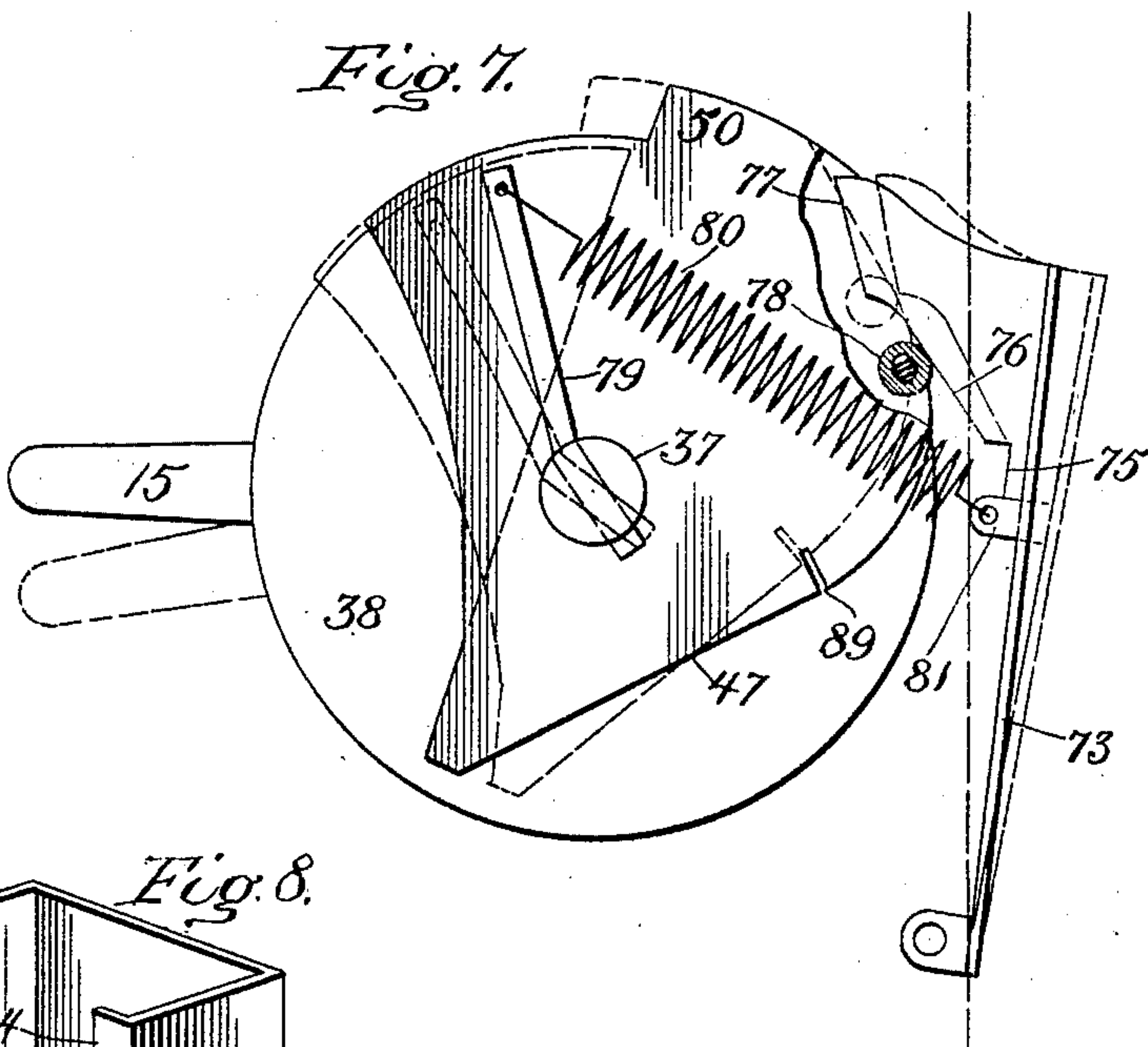


Fig. 8.

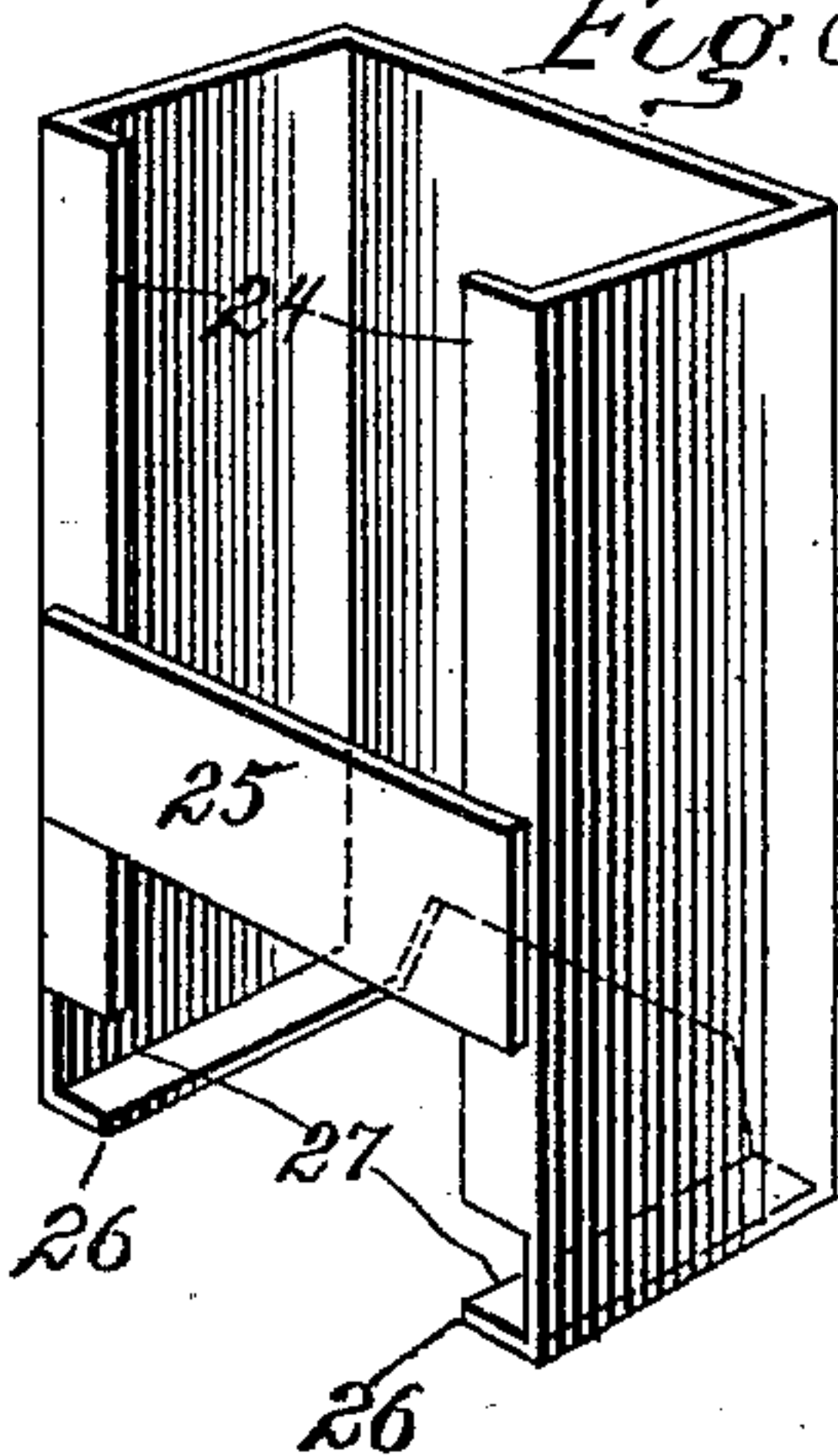
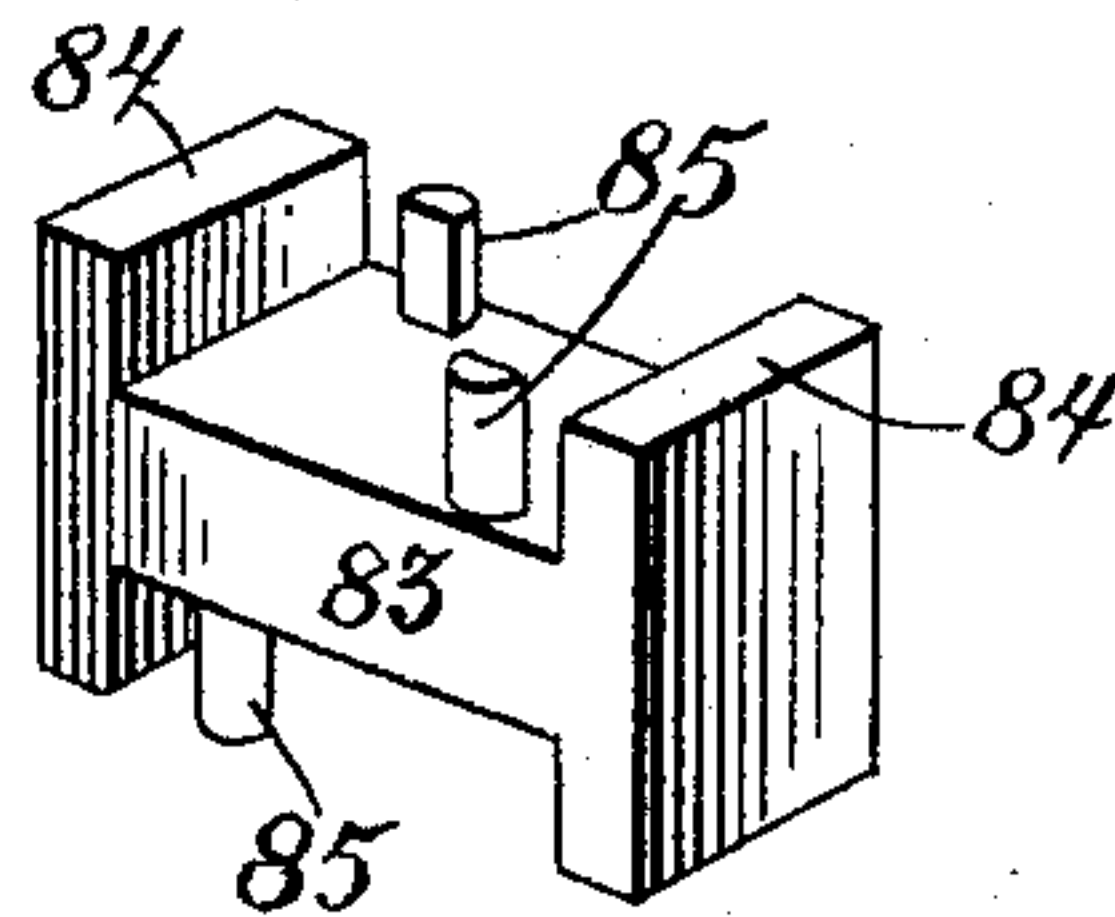


Fig. 9.



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UNITED STATES PATENT OFFICE.

JOHN A. WILLIAMS, OF BROOKLYN, NEW YORK, ASSIGNOR TO UNITED STATES SLOT MACHINE COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

VENDING-MACHINE.

SPECIFICATION forming part of Letters Patent No. 716,507, dated December 23, 1902.

Original application filed December 16, 1897, Serial No. 662,132. Divided and this application filed May 16, 1902. Serial No. 107,664. (No model.)

To all whom it may concern:

Be it known that I, JOHN A. WILLIAMS, a citizen of the United States, residing at Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Vending-Machines, of which the following is a specification.

My present invention relates to improvements in coin-controlled vending-machines, the construction and advantages of which will be hereinafter set forth, reference being had to the annexed drawings, wherein—

Figure 1 is a perspective view of the machine, the front door of the case or frame being shown removed; Figs. 2 and 3, vertical sectional views of the operative mechanism shown in different positions; Fig. 4, a detail perspective view; Fig. 5, a similar view showing the relation of the parts when the machine is locked out of action; Fig. 6, a detail perspective view of the washer-catcher and its spring; Fig. 7, a side elevation of a portion of the operative mechanism, showing the movement and operation of the mainspring; Fig. 8, a detail perspective view of the lower end of the compartment or reservoir for holding the articles to be vended, and Fig. 9 a perspective view of the weight used to keep the goods in place and to lock the machine out of operation when empty.

The object of the present invention is to provide a simple and efficient machine of its class—one easy of manipulation and certain in its operation.

The invention has for its further object the construction of the apparatus in such manner as to render it proof against surreptitious manipulation by the introduction of spurious coins, tokens, washers, and the like.

The present invention is designed to be an improvement upon the machine set forth in my application filed on or about the 16th day of December, 1897, Serial No. 662,131.

Referring particularly to Fig. 1, 1 denotes the frame or casing, preferably oblong in form, the sides 2 of which are cut away or recessed at their forward edge, forming a slot 3 for the reception of the door or cover 4. The door is provided with two downwardly-ex-

tending arms or members 5, having pins 6 mounted in the lower ends thereof designed when the door is in place to enter holes or openings 7 in the bottom of the case. A block 8 is designed to fit between and be held by the arms 5, said arms, as shown, being provided with channels or grooves 9, while the block is provided with tongues 10 to fit into said grooves when the parts are in position. Pins 11 also extend from the lower edge of the block and enter holes or openings 12 in the base.

In assembling the parts the operative mechanism and the compartment for holding the goods are secured in place, as will be hereinafter set forth, and the block 8 is set in position on the base of the casing, the pins 11 entering the openings or holes 12. The door 4 is then put in place, the arm 5 on the right being passed down back of the operating-lever, the tongues 10 entering the groove 9 and the pins 6 the openings 7. When the ends of the arms come against the base, the top of the door is pushed in, the door and arms seating themselves in the recess 3. The bolt of a lock 13, carried by the upper end of the door, is then caused to engage a recess 14 in the top of the casing, thus securely holding the door in place. The opening formed by the block 8, arms 5, and the cross-bar of the door is closed by one face of the frame, which carries the operative mechanism, the coin-slot 87 and the operative handle or lever 15 being upon this side of the frame, and consequently brought into proper position for use. The operative mechanism is mounted and held within a frame comprising the sides 16, 17, and 18, the latter being the side which is exposed to view, and, as shown in Figs. 1 and 5, is shorter than the other two sides, affording access to the bottom of the case when the block 8 is removed. To hold the frame in place, a pin or stud 19 is secured in the rear wall of the frame and projects out over the upper edge of the side 16, while a lock or latch 20, pivoted on the side of the casing, engages the upper edge of wall 17, as shown in Fig. 1. The latch consists of a pivoted cam-plate 21, to which is secured a lip 22, said lip extend-

ing down and against the inner face of the side 17 and bent out, as shown, forming a handle 23. When the frame is in place, with the pin 19 extending over the side 16, the latch 5 is turned down, the cam-plate bearing on the upper edge of side 17, while the lip 22 holds it against any forward or tipping movement.

The reservoir or compartment for holding the articles to be vended is preferably made of sheet metal and is of the form indicated in Figs. 1 and 8. It comprises a rectangular compartment, open at its upper end at one side, preferably at that next to the coin-slot, and also open at the bottom. The open side 15 is defined by the narrow projecting wings 24, connected near their lower ends by a cross-bar 25, the wings stopping short of the bottom, as shown in Fig. 8. The lower ends of these wings form, with the inwardly-turned ends 26 of the sides, openings 27, through which the packages are ejected, the lowermost package resting on the inturned ends 26. To suspend and hold the compartment in place, a pin 28 is secured in the back of the casing and extends through an opening formed near the upper end of one of the side walls of the compartment, as shown in Fig. 1. The bottom of the compartment rests upon a cross-plate 30, the upturned sides 31 of which carry cross-bars 32, the bars bearing against the sides of the compartment, as shown in Figs. 2 and 3. To the side bar 32 there is pivoted a gate 33, the gate inclining back, as shown in Figs. 2 and 3, toward the reservoir, closing the openings 27, through which the packages are ejected. The rearward inclination of the gate renders it quite difficult, if not impossible, to open the same from without by means of a wire or the like. Plate 30 is extended forwardly and downwardly, the extended portion 34 fitting closely between the walls 16 and 18 and terminating at the opening 35, formed in the side of the case for the passage of the goods therefrom. The opening is lined all around with metal plates, so as to prevent destruction of the case. The lower plate 36 extends out from the casing, its end being upturned, forming a stop for the goods within easy reach of the purchaser.

A main operating-shaft 37 is journaled in the walls 16 and 18, said shaft extending through wall 18 and having secured thereto the operating-lever 15. Fastened upon said shaft and working next to the inner face of wall 18 is a disk 38, provided with a slot 39, designed to register with slot 87, formed in the side wall 18 of the casing when the parts are in the positions indicated in Fig. 2 or ready to receive a coin or token. A sleeve 40, having a collar 41, is secured to the shaft, the collar in turn being fastened to the disk 38 in order to insure a firm connection between the parts. To further aid in this idea, a slot or opening 42 is formed in the wall 18, and a post 43, secured to the disk, extends out through said opening and is connected to the operating-lever. The ends of the slots also

serve as stops and in conjunction with post 43 limit the throw of the lever in both directions. A cross-bar 43^a connects the forward ends of the walls 16 and 18, and the edge of the disk passes into a reduced portion 43^b thereof next to the side wall 18. Secured upon the shaft and designed to move therewith are two arms or wings 44, between which is fixed a cam 45. A pin 46 is passed through and carried by the wings, the ends projecting beyond the side faces thereof, the pin being indicated in dotted lines in Figs. 2 and 3. An ejector-frame 47 is loosely mounted upon the shaft, said frame consisting of the side walls 48, connected by the front plate or face 49. The upperends of the walls 48 extend up beyond the face 49, forming projections 50, which are designed when the frame is oscillated to pass up and through the slotted openings 51, formed in plate 30. At the forward end of each of the slots I provide depending lugs or lips 52, which project down, or nearly so, to a curved guard 53, which is secured to and carried by the upper end of the front plate 49. When the parts are in their normal position—that indicated in Fig. 2—the guard 53 and the depending lugs 52 prevent any access to be had to the packages from beneath. Front plate 49 is formed with a long slot or opening 54, which extends lengthwise thereof throughout a greater portion of its length, while at each side of said opening, near its upper end, is formed an opening 55.

A magnet 56 is pivoted between the side plates 48, and its poles extend into the openings 55, the poles being ground off flush with the surface of the front plate. The magnet-poles normally rest at the bottom of the openings 55, and the pin 46 bears upon the under face of each arm, so that when the shaft is turned and the frame is not moved therewith the pin will elevate the magnet-poles, causing them to traverse from the lower end of the slots to the upper. An arm 57 is also pivoted between the side plates 48, its pivot being above the axial line of the shaft, the arm inclining downwardly and extending forward between the wings 44 and over the cam 45 into the slot or opening 54. The forward end of the arm is cut away, as shown in Figs. 2 and 3, and rests at such cut-away portion upon the shaft 37. The forward end is sharp, and its point lies in the opening flush with the face of the front plate 49. A flat spring 58 of the form shown in Fig. 6 is employed for keeping the forward end of the arm normally depressed. Said arm is notched, as at 59, and the spring is notched at its upper end, as at 60, the parts locking together when placed in position. The lower end of the spring is formed with wings 88, which fit into recesses 89, cut in the lower edges of the side plates 48, the edges of the recesses being slightly upset to hold the parts in position after the spring is inserted.

At a point below the shaft 37, assuming the parts are in their normal positions, Fig.

2, there is pivoted between the side plates 48 a lever or arm 61, the forward end of which extends forwardly through the lower end of slot 54, while its rear end, which is broadened, 5 bears against the under edges of the wings 44. This member 61 serves to dislodge the coin from its position and also to lock the frame 47 to the shaft when the return movement of the mechanism is first begun, as will 10 be presently explained.

Connected to that side of the frame 47 which is next to disk 38 is a plate 62. (Best shown in Figs. 4 and 5.) The plate is formed with a section or portion 63, which extends 15 out beyond the front plate 49 and stands at right angles thereto. Above the section 63 and forming a continuation thereof is a lip 64, which inclines upward and terminates at a point slightly below the slot 39. (See Fig. 20 2.) The upper end of the plate is bent at right angles to the body thereof, forming a projection 65, its forward edge 66 being flush with the front plate 49, while the intermediate edge 67, between said projection and lip 25 64, is slightly back of the plate 49. The lip 64 forms the support for the lower edge of the coin as it passes into its proper position, while the edge 66 is the surface against which the face of the coin rests as it moves into the 30 machine. A second plate 68 is secured to the opposite side of the frame 47, and each of the plates 63 and 68 is provided with gage projections 69 and rounded studs or posts 70 immediately in front thereof. The projections 35 gage the width of the coin, and the studs hold the coin in its place. At the upper end of the front plate and beneath the guard 53 there is secured an overhanging lip 71, which forms a guide for the upper edge of the coin. 40 A flange or rib 72 is secured to the side wall 48 above the projection 65, but slightly in rear of the front edge 66 thereof. This rib not only serves to prevent the coin from leaving its proper course, but also lends rigidity 45 to the parts and assists in throwing out coins held by strings, as will presently appear.

Rigidly secured to the bottom of plate 30 and extending down therefrom is a projecting arm 72^a, formed, as shown, with the face 50 72^b, which is in line with the forward edges of the slot 39. The lower edge 72^c of the arm inclines away from the slot, and the point formed by the junction of this face and the face 72^d almost comes into contact with the 55 lip 64. The object of this arm will be presently brought out.

To the rear plate 17, near its lower end, is pivoted an arm 73, carrying at its upper end a cam 74, provided with three working faces 60 75, 76, and 77. A roller 78, journaled between the rear ends of the plates 48, works against the cam. An arm 79 is secured to shaft 37 and extends upwardly therefrom to quite a distance. A coiled spring 80 connects the upper end of the arm to a lug 81, 65 secured to arm 73, the lug being below the axial line of the shaft 37. Normally the

spring tends to keep the parts in the relation shown in Fig. 2—that is, the face 75 bears upon the roller 78, holding the frame 47 back 70 and acting on the shaft through arm 79 serves to hold the disk 38 and the operating-handle back also.

A pin 82 is carried by one of the projections 50, and said pin is designed to be engaged by a stud carried upon a follower or 75 weight 83 (shown in detail in Fig. 9) when the machine is empty. Said weight is of such length and width as to fit within the reservoir holding the goods. It is formed with 80 projections 84 at each end upon each of its upper and lower faces, and intermediate these projections are studs 85. The studs, as shown, are offset with reference to each other, and that face which comes in contact 85 with the pin 82 is flattened in order to afford better engagement between the parts. Fig. 5 illustrates the engagement of the weight with the operative mechanism for locking the machine out of action when it becomes empty. 90 It will thus be seen that no matter which side up the weight is placed in the compartment for holding the goods one of the studs 85 will always come in contact with the pin 82 after the last piece of goods has been 95 ejected from the machine. The relation of the parts in this position is shown in Fig. 5.

Assuming now that the parts are in the relation shown in Fig. 2, in which position the machine is ready to be operated upon the 100 deposit of a proper coin or token, the purchaser inserts the coin through the slots 87 and 39 and it passes onto the lip 64, bearing at its face against the edge 66 of the projection 65. It passes down the lip 64. The top 105 edge comes into engagement with or under the overhanging lip 71 as it passes onto the face-plate 49. The coin then drops down in between the gage projections 69, by which it is supported, and behind the studs or posts 110 70 immediately in front thereof. The operator now depresses the handle or lever 15, which will first through the motion imparted to the shaft 37 cause the through-pin 46 to elevate the magnet-poles. A further rotation 115 of the shaft will cause the cam 45 to act upon the arm or finger 57, elevating it slightly and exerting a pressure upon the rear of the coin, forcing the same against the rounded projections or studs 70. If the coin be a proper 120 one, movement will now be imparted to the ejector-frame 47 by reason of the arm 57 being locked against further upward movement, which of necessity will cause the frame and shaft to rotate as one. The first independent 125 movement of the shaft will put the spring 80 under a slight tension, and as the carrier-frame and shaft begin to move forward the roller 78 will move off of the face 75 onto the face 76, and as the lever is carried farther 130 downward the roller acting on said face 76 will force the arm 73 back into a recess 90, formed in the case. It will be seen that so long as the roller 78 works upon the face 75

the tendency of the cam is to draw the ejector-frame back into its first position, and as this movement continues the spring is stretched from both ends until the roller moves onto the face 77, when the cam-plate will impart a quick forward movement to the ejector-frame, causing the projections 50 to pass up through openings 51 and acting on the lowermost package force the same out through the openings 27, elevating the gate 33 and permitting the package to pass down out through the opening onto the shelf 36. The forward movement of the ejector-frame will be arrested by the projections 50 coming in contact with the forward ends of the slots 51, as indicated in Fig. 3. When the parts reach this position, the lever is free to be moved down independently of the carrier-frame or into the position indicated by the lower dotted lines. (Shown in Fig. 3.) The lever is then released, and as it comes back the first part of its movement is independent of the carrier-frame, which still remains in its forward position. As the shaft rotates back the rear face of the wings or arms 44 comes in contact with the tail of lever 61 and causes it to assume the position shown in dotted lines in Fig. 3. This movement is quite quick, and the forward end of the lever 61 moves up in the slot 54 to a position nearly between projections or rounded studs 70, striking the coin from below and throwing it off of the carrier-frame. When said lever 61 comes into this position, it bears directly on the shaft 37 and being held by the wings 44 at its opposite end locks the shaft and the ejector-frame together, so that the spring will now act to return both the carrier-frame and the shaft to their original positions. It will be noted that during the forward movement of the shaft until roller 78 comes upon the face 77 the spring 80 is being put under tension at all times, so when the roller 78 passes onto the face 77 the forward movement imparted to the carrier-frame is quite sudden and the spring exerts its full strength. Upon the return movement of the parts the first independent movement of the lever and shaft gives to those parts a certain impetus, which not only serves to more positively dislodge the coin, but also assists in throwing the carrier-frame back, so that the roller 78 will pass from the surface 77 onto the surface 76. So soon as the roller 78 comes onto the surface 76 the cam being drawn in by the spring tends to draw the ejector-frame back independently of the parts of the mechanism. If a washer be inserted into the machine and is of the proper diameter, it will pass onto the face-plate and be supported as will a coin; but the first forward movement of the handle will cause the elevation of the forward end of the arm 57, the point of which will enter the opening in the washer and elevate the same from between the projections 70, the wings 44 then protruding and wiping the washer

from off the arm 57. If a magnetic disk be inserted, the first movement of the lever will cause the elevation of the poles of the magnet, which will raise the magnetic disk from its seat, and the wings 44 will dislodge it from the magnet upon a further downward movement of the shaft. If a disk of flexible material be inserted, the arm 57 as the lever is forced down will bow or press the material out, causing it to jump or become dislodged from between the projections 70. If the material be of a brittle character—as, for instance, glass—it will be unable to withstand the pressure which is exerted upon it by the arm 57. When the last package of material has been sold, the weight, as before stated, will descend, and one of the studs thereof, 85, will come into contact with the pin 82, as shown in Fig. 5. This will hold the carrier-frame forward and prevent the ejector-frame from returning to its normal position, while the lever may rise to its highest elevation. The lever may then be moved down without operating any of the parts. The coin-slots 87 and 39 are of course in alinement when the lever is elevated, even if the ejector-frame is locked out of operation; but it will be noted that no coin can be inserted through the slots, for the reason that the projection 65 stands across the slots and prevents the insertion of any coin. If a coin is inserted, it will simply come against the edge of the projection 65 and if forced will upset the penny or coin and not damage the machine. Should a penny be inserted with a string attached to it for the purpose of beating the machine, it will be found next to impossible to cause the coin to again lodge between the gages 69. If the coin be first used to operate the machine and the string be drawn up to again bring the coin in place, the string will pass over the downwardly-inclined edge of the plate 63, in between the disk 38, lip 64, and projecting arm 72^a. Owing to the slight distance between said disk 38 and the lip and projection, the coin can only be drawn up flatwise, and even should it be drawn up past these parts projection 65 and rib 72 would prevent it from passing down onto the front plate 49. The parts are so arranged that even with a string extending through the slots the disk may be turned without cutting the string. It is therefore manifest that the only thing to be done is to break the string or let the coin draw it in. I find it better not to make the parts so that the string will be cut, for the reason that the lint or detached parts are held between the parts of the device and absorb moisture, causing the machine to rust.

This application is a division of my former application, Serial No. 662,132, for an improvement in vending-machines, filed on or about December 16, 1897.

Having thus described my invention, what I claim is—

1. In combination with the casing of a vend-

ing-machine; a frame for carrying the operative mechanism; a pin extending from one wall of the casing engaging one wall of the frame; and a latch pivoted to the casing for
5 holding another side of the frame.

2. In a vending-machine, the combination of a frame or casing; a plate 30 secured to the upper end thereof and provided with slots 51; side walls or flanges 31 connected by cross-
10 bars 32; a pivoted gate 33 carried by the forward one of said cross-bars; lugs 52 extending downwardly from the plate 30 at the forward end of said slots 51; an ejector-frame, the upper ends of which are designed to work
15 in said slots 51; and a curved guard 53 carried by the upper forward face of said ejector-frame.

3. In combination with the casing of a vending-machine; a frame for carrying the operative mechanism; a pin extending from one wall of the casing engaging one wall of the frame; and a latch pivoted to another wall of the casing, comprising a cam-plate 21 and a depending lip 22, substantially as described.
25

4. In a vending-machine, the combination of an upright case; a frame secured therein for holding the operative mechanism; and a removable compartment for holding the goods, said compartment being suspended at
30 its upper end from a pin secured to the casing, and held at its lower end by cross-bars secured to the frame holding the operative mechanism.

5. A weight or follower for locking out the operative portions of a vending-machine, comprising a main body having upwardly-projecting ends 84, and a pair of pins, as 85, extending out from the opposite sides of the main body intermediate the projecting ends,
40 the pins of each pair being offset, substantially as and for the purpose described.

6. In a vending-machine, the combination of an operating-shaft; an ejector-frame journaled thereon; a pin or stud carried by said
45 ejector-frame; and a weight mounted in the machine designed to come in contact with said pin when the last package of goods has been delivered, and to lock the said frame out of operative position.

7. In a vending-machine, the combination of a shaft; an ejector-frame journaled thereon; an arm extending up from said shaft; an arm pivoted in the casing below said shaft; a cam carried by the upper end of said arm
50 and designed to act upon the ejector-frame; and a spring connecting the arm carried by the shaft and the pivoted arm, substantially as described.

8. In a vending-machine, the combination of a shaft provided with an upwardly-projecting arm; an ejector-frame mounted on said shaft; an arm pivoted in the casing below the shaft; a cam carried at the upper end of the arm provided with faces 75, 76 and 77;
65 a roller journaled in the rear of the ejector-

frame; and a spring connecting the arm upon the shaft and the pivoted arm.

9. In a vending-machine, the combination of a shaft provided with an upwardly-extending arm; an ejector-frame; an arm pivoted
70 in the casing below the shaft; a cam carried by the arm designed to act upon the ejector-frame; and a spring connecting the end of the arm carried by the shaft and the pivoted arm, whereby as the shaft and its arm are
75 moved forward, the pivoted plate is first caused to move backward and the spring is put under quick tension during the first part of the movement, and as the motion is continued the pivoted plate is caused to move
80 forward and impart a sudden impulse to the ejector-frame.

10. In a vending-machine, the combination of a frame or casing; a cross-plate secured to the upper end thereof and provided with
85 slots or openings 51; an operating-shaft; and an ejector-frame mounted in said shaft and provided with extensions designed to pass up through said slots and force the lowermost package of material out of the machine.
90

11. In a vending-machine, the combination of a frame or casing; a plate secured to the upper end thereof provided with upwardly-extending side walls or flanges; cross-bars connecting said flanges; and a compartment
95 resting upon said plate and held between the cross-bars.

12. In a vending-machine, the combination of a frame or casing; a cross-plate 30 secured to the upper end thereof provided with slots
100 or openings 51; an operating-shaft; and an oscillating ejector-frame mounted upon said shaft, the upper ends of which lie in a plane beneath the upper face of the cross-plate but pass up and through said slots 51 when the
105 machine is operated.

13. In a vending-machine, the combination of a frame or casing; a plate 30 secured to the upper end thereof and provided with slots
110 51; a projection 34 extending forwardly and downwardly from said plate; and lugs 52 formed at the forward end of the slots and depending from the plate.

14. In a vending-machine, the combination of a frame or casing; a plate 30 secured to the
115 upper end thereof and provided with slots 51; a shaft; an ejector-frame mounted on said shaft, the upper ends of which are designed to pass through said slots; lugs 52 extending down from the plate at the forward
120 end of the slots; and a curved guard 53 carried at the upper forward end of the ejector-frame.

In testimony whereof I have signed my name to this specification in the presence of
125 two subscribing witnesses.

JOHN A. WILLIAMS.

Winnesses:

HORACE A. DODGE,
FANNIE WISE.