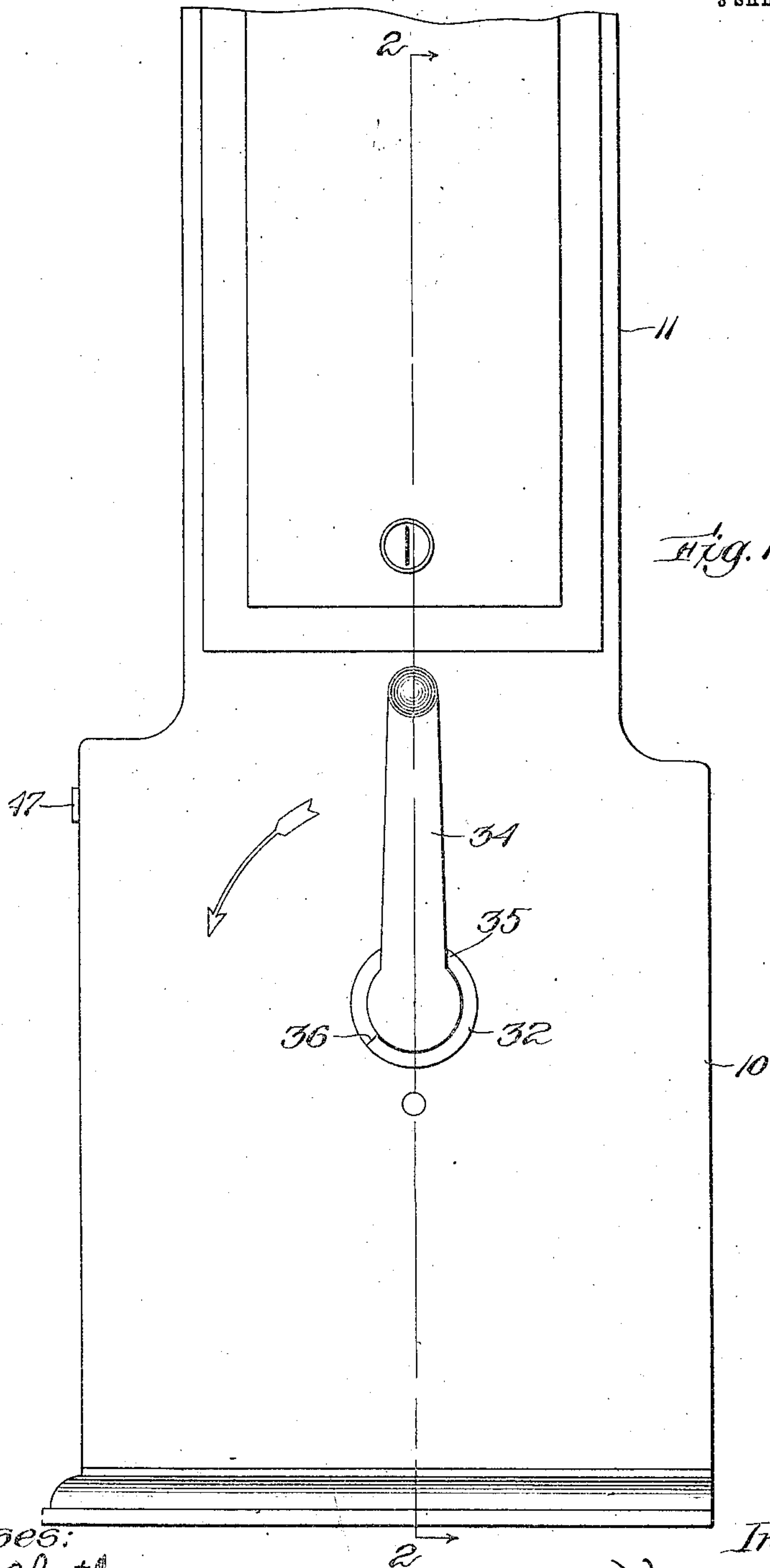


H. J. POTTER.
VENDING APPARATUS.
APPLICATION FILED MAR. 24, 1909.

925,595.

Patented June 22, 1909.

3 SHEETS—SHEET 1.



Witnesses:
Joseph A. Gately
James E. Lynch.

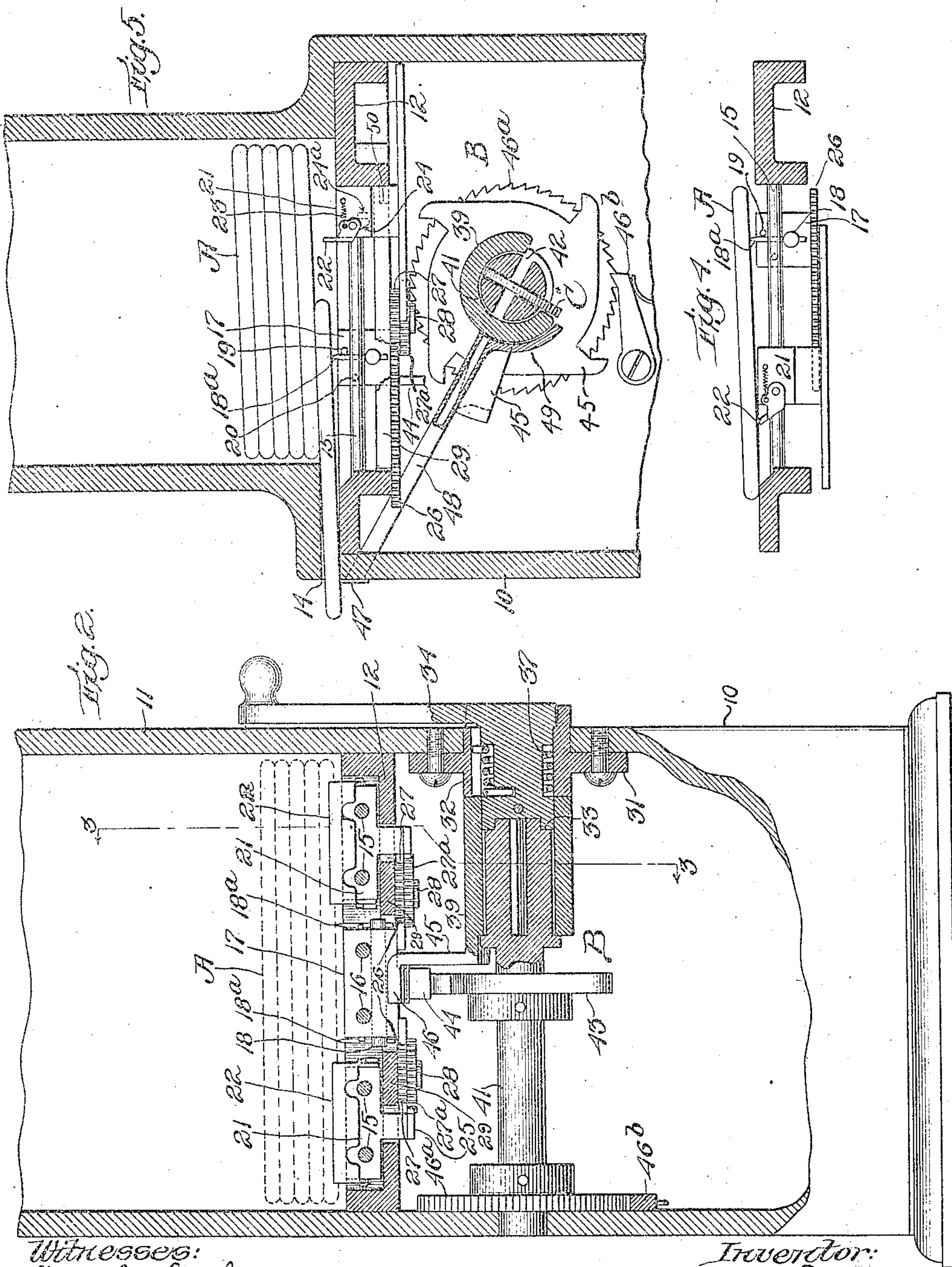
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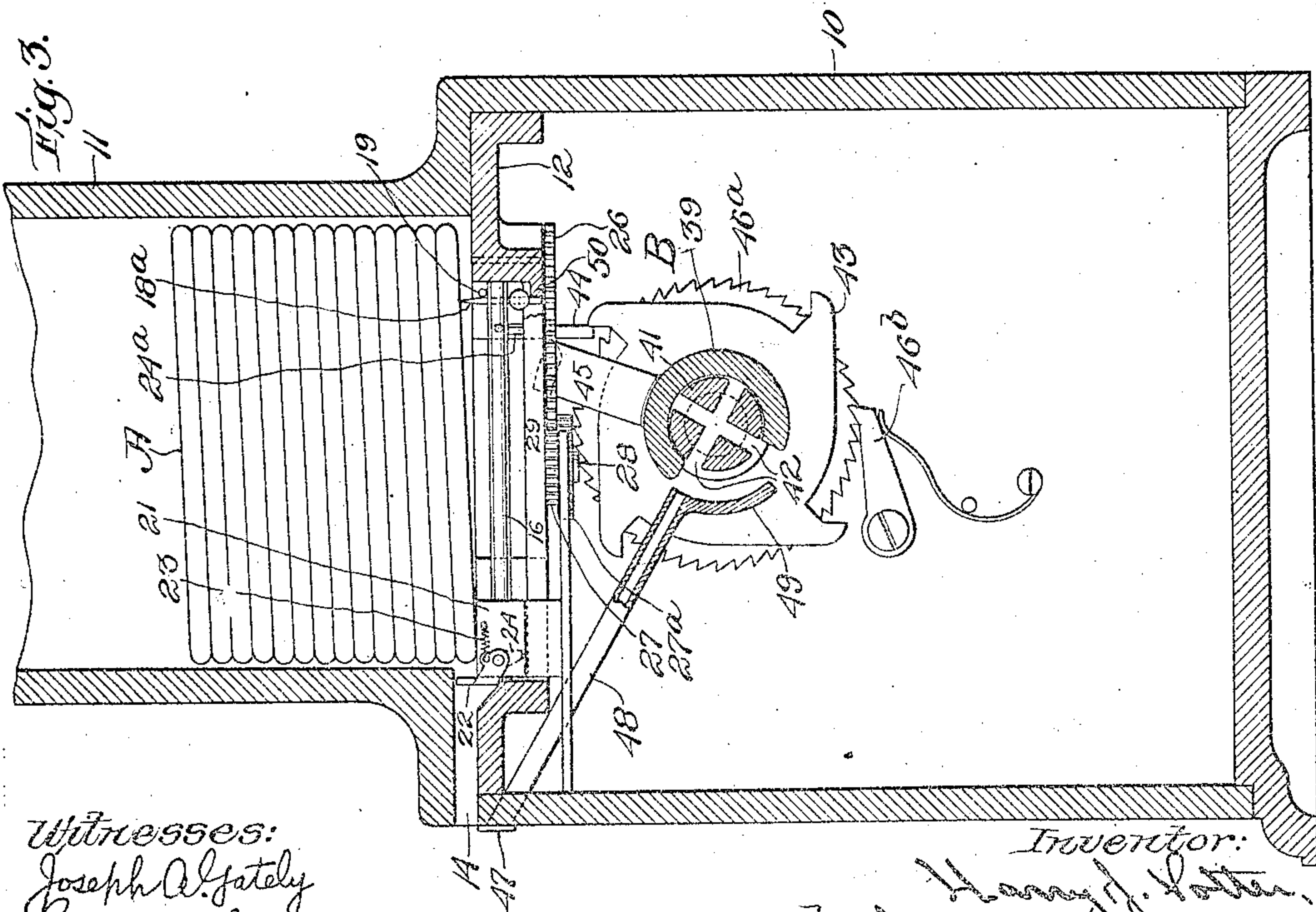
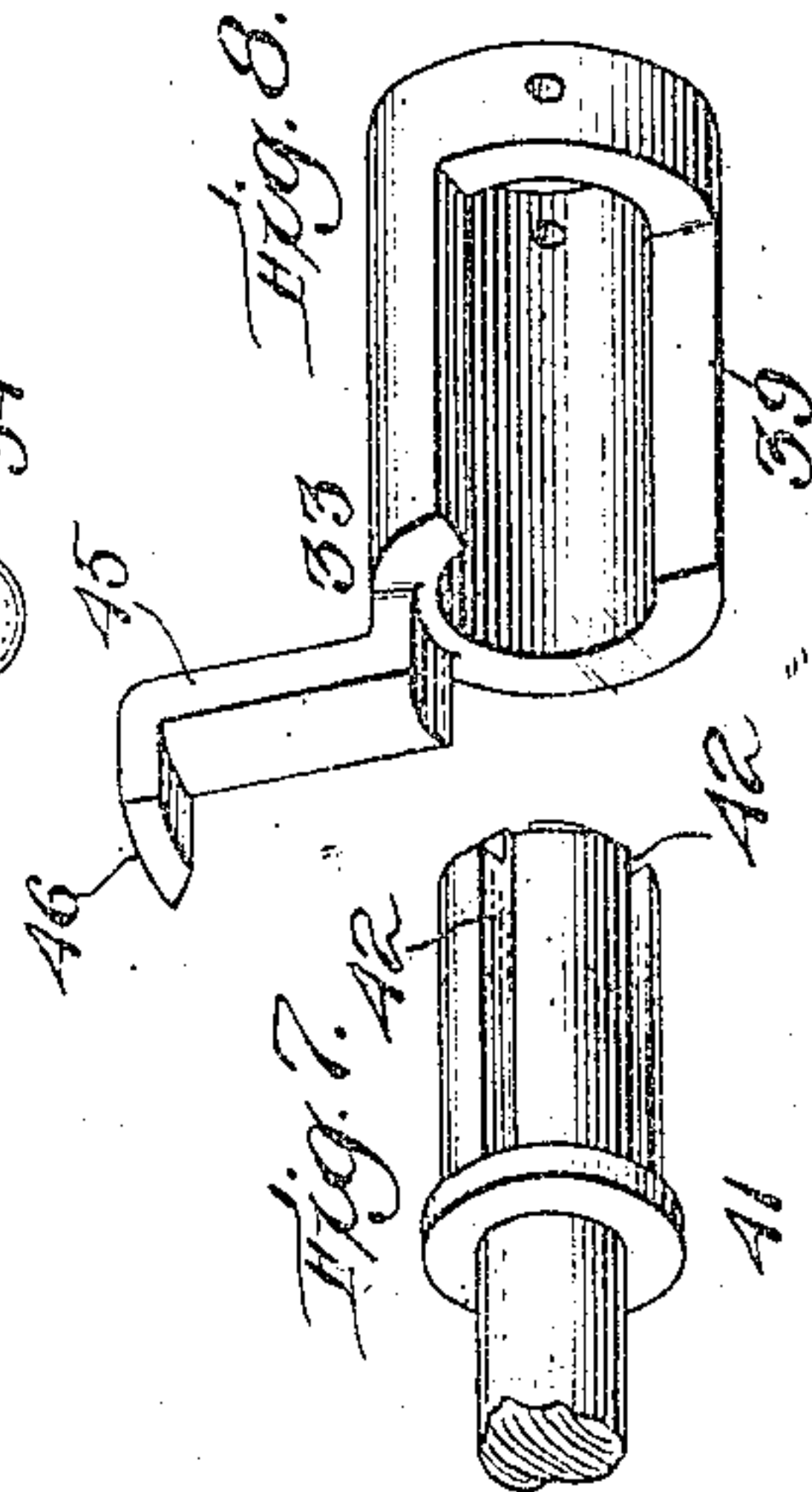
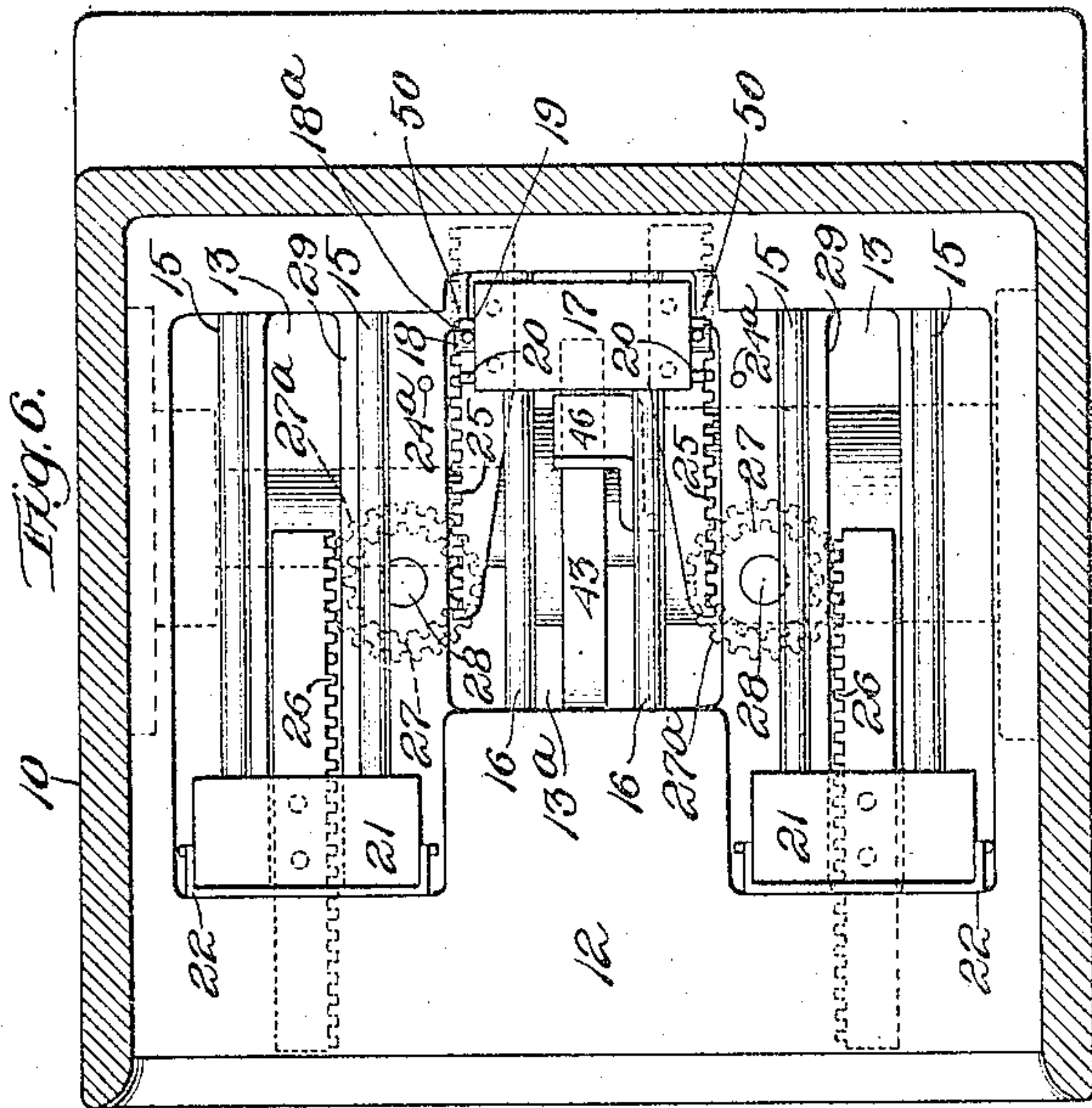
Inventor:
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H. J. Potter.
By
James E. Lynch.

UNITED STATES PATENT OFFICE.

HARRY J. POTTER, OF WATERTOWN, MASSACHUSETTS.

VENDING APPARATUS.

No. 925,595.

Specification of Letters Patent.

Patented June 22, 1909.

Application filed March 24, 1909. Serial No. 485,533.

To all whom it may concern:

Be it known that I, HARRY J. POTTER, a citizen of the United States, residing at Watertown, in the county of Middlesex and State of Massachusetts, have invented a new and useful Vending Apparatus, of which the following is a specification.

This invention relates to apparatus for dispensing flat articles, and more especially to vending machines in which the article delivered is inclosed in an envelop or otherwise formed into a package presenting an irregular feeding surface.

As its principal objects the invention provides simple means to effect certain delivery and to guard the articles in the machine against removal, unless it is operated in a proper manner.

Other objects and the manner in which all are attained will hereinafter appear.

In the annexed drawings, forming a part of this specification: Figure 1 is a side elevation of one embodiment of my invention, the upper portion of the package-receiver being broken away; Fig. 2 is a partial vertical section on the line 2—2 of Fig. 1; Fig. 3 is a full vertical section on the line 3—3 of Fig. 2, showing the elements of the apparatus in their normal position; Fig. 4 is a sectional detail illustrating the feeding elements after the advance of a package has begun; Fig. 5 is a view similar to Fig. 3 with the elements in the position assumed at the completion of the primary feed; Fig. 6 is a bottom plan view of the reciprocatory delivery means; and Figs. 7 and 8 are details in perspective of cooperating members of the coin-controlled mechanism.

Similar characters are applied to like parts throughout the several figures of the drawings.

The apparatus is provided with an inclosing casing having a base portion 10, which contains the feeding or delivery mechanism and a chamber serving as a bank or repository for the checks or coins through which the machine is to be operated, and an upper portion 11, rising above the base for a considerable distance, to furnish a receiver for the articles which are to be dispensed. These articles may be, for example, folded drinking cups contained in square envelopes A, which are of such transverse dimensions as to substantially fill the receiver horizon-

tally, but of comparatively slight thickness, so that a considerable number may be stored within it. At the bottom of the receiver, separating it from the chamber in the base portion, is a horizontal plate 12 in which is an opening having side portions 13, 13 and an intermediate portion 13^a of less width than the side portions. Through this opening the feed mechanism operates. In the front of the casing just above the surface of the plate 12 is a slot 14 providing a throat of some length through which the packages are delivered. Situated in proximity to the plate-opening are guide members, which may be conveniently in the form of rods, of which two pairs 15, 15 extend across the portions 13, 13 of the opening-wall, while a third pair 16 spans the portion 13^a (Fig. 6). These extend in the direction of the delivery-slot but are in a plane below and parallel to it.

Upon the guide-rods 16 slides a carrier 17 having pivoted upon it, by means of a transverse shaft 18, two pivoted primary feeding members or spurs 18^a, which may either occupy an erect position in contact with stop-pins 19 and with their points extending into the receiver intersecting the plane of the delivery-opening, or which may be inclined toward and below the delivery-opening resting upon stop-pins 20. In the first instance they will engage, through the opening at 13^a, the lowermost package in the receiver and upon forward movement will advance it toward the delivery-opening, while in the second they will slide idly beneath such package.

Upon the rods 15, 15 are mounted carriers 21, 21 having pivoted upon them gates 22, 22, which normally occupy a vertical position at the inner end of the delivery-slot and are provided with extended front contact faces furnishing a closure for all but the central portion thereof. They tend at all times to assume this erect position through the tension of comparatively light springs 23, which draw the gates against the vertical forward edges of the carriers 21; and at times in the operation of the apparatus they may be forced upwardly by the contact of depending arms 24 with pins 24^a rising from the plate 12.

The carrier 17 receives motion from what is here shown as coin-controlled mechanism.

B, which will be later described, while it causes the travel of the carriers 21 through gearing, which may consist of rack-teeth 25 and 26 projecting from the adjacent sides of the carriers 17 and 21, respectively, and lying in different horizontal planes, these having meshing with them pairs of pinions 27, 27^a of different diameters, the upper pinion of each pair, cooperating with the racks 25, being smaller. These pinions are rotatable about shafts 28 secured to bars 29 extending across the opening 13—13^a. Considering the size of the pinions and noting that the racks with which they cooperate lie upon their opposite sides, it will be evident that the carriers 21 will be moved in the opposite direction to that in which the carrier 17 travels and at a greater speed.

Secured to the inner wall of the base portion 10 of the casing, by a flange 31, is a short sleeve 32 in which is rotatably mounted an actuating member 33, including a crank 34 fixed to the member 33 outside the casing and being adapted for manual operation. The throw of the crank is limited by an extension of the sleeve outside the casing, one stop-face 35 cooperating therewith in its normal or idle position, and an opposite face 36 determining the extreme forward travel during delivery. A spring 37 is preferably attached to the actuating member and to the sleeve 32, it lying within an annular recess within the former and exerting its tension to force the crank against the stop-face 35. The inner end 39 of the actuating member is partially cylindrical, extending circumferentially through somewhat less than 270°, and this furnishes a bearing for one end of a shaft 41, the opposite end of which is journaled in the wall of the casing. The portion of the shaft within the member at 39 is provided with two intersecting slots 42, 42 symmetrically arranged at angles of 90° with one another, the relation of the elements being such that when the crank is in contact with the face 35 two of the ends of these slots will be just outside or clear of the ends of the partially cylindrical portion 39, as most clearly appears in Fig. 3 of the drawings. Fixed to the shaft below the portion 13^a of the opening in the bottom of the receiver is a four-armed cam or contact member 43, each arm during its revolution being adapted to contact with a projection 44 depending from the carrier 17, and then to clear said projection leaving a space through which it may return to cooperate with the succeeding arm of the cam. Extending from the end of the actuating member is an arm 45 having a finger 46 lying just in front of the carrier-projection 44. The shaft 41, adjacent to the wall of the casing in which it is journaled, has fixed to it a ratchet-wheel 46^a which is engaged by a pawl 46^b pivoted upon the casing. This limits the rotation of the shaft to

one direction, and also retains the shaft-slots in their proper relation to the actuating member and other elements of the apparatus.

In the front of the base portion 10 of the casing is a slot 47 which will just admit a check or coin of the size by which it is desired the apparatus shall be operated. From the slot a chute 48 is inclined downwardly toward the actuating member and cooperating end of the shaft, it terminating in proximity to the former and opposite one of the slots 42 in the latter in its normal position. From the underside of the inner extremity of the chute a guard member 49 encircles the actuating member to a point nearly opposite the edge of the second slot 42, the lower extremity of which is left open. It should be observed that the normal relation of the coin-controlled mechanism to this chute and guard, and of the cam 43 to the carrier-projection, is positively maintained, the position of the actuating member being fixed by the contact of the stop-face 35 with the crank, and that of the shaft and cam by the engagement of the ratchet and pawl.

The package-receiver being supplied with the articles to be dispensed, when a coin C of the proper denomination or check of the correct size is introduced into the slot 47, it slides down the chute and enters that slot in the end of the shaft which is in alignment therewith. The proportions of this controlling mechanism are such, that when the coin has seated itself in the slot with its lowermost edge in contact with the encircling wall of the actuating member, its upper edge projects beyond the slot into the path of the end of said actuating member. Therefore, when the crank is turned from against the stop-face 35, in the direction indicated by the arrow in Fig. 1, the actuating member striking the coin will be locked to the shaft, causing these elements to rotate as a unit. This brings one of the cam-arms, which is lying directly behind the projection 44 of the carrier 17, against said projection advancing it in the direction of the delivery-opening, while the finger 46, which is fixed to the actuating member, moves in front of said projection. At the end of the previous operation of the apparatus the spurs of the carrier 17 were erected by contact of their portions below the pivots with the stop-faces 50 on the plate 12 or other relatively fixed portions of the apparatus into engagement with the bottom package in the receiver, and consequently upon the forward travel this package is slid beneath that next above it toward the delivery opening. The movement of its companions in the same direction is prevented by the wall of the receiver, since the slot 14 is of such vertical width that but one package can pass through it at a time. As soon as this feeding action of the spurs 18 has begun (Fig. 130

4), the travel of their carrier is communicated to the carriers 21 but in the reverse direction, these moving rearwardly and withdrawing the gates from the delivery-opening, the latter as soon as they pass out of contact with the wall of the casing being forced into an inclined position by the package and sliding beneath it without appreciable resistance. This primary feeding movement continues until the parts have assumed the position illustrated in Fig. 5, at which time the actuating crank will have been stopped by engagement with the sleeve-face 36. Now the package is projected for a short distance through the delivery-slot, so that it may be, if desired, grasped by the operator of the machine and withdrawn. In this case the pull upon the package tilts the spurs toward the slot so that they no longer have any active engagement with said package. If instead of thus withdrawing the package the user of the apparatus releases the crank, it will be returned to its initial position by the spring 37. The gates when they pass beyond the end of the package, in their rearward movement, are erected by their springs and by contact with the pins 24^a, so that their upper edges lie at the back of the package being delivered and beneath the next package at points not very far from its center. This inward travel of the carriers 21 and the gates is more rapid and of greater extent than that of the carrier 17, to insure said gates wholly clearing the package being operated upon. The reverse rotation of the actuating member, under the influence of the spring, brings the finger 46 against the projection 44 of the carrier 17, the actuating member being now permitted to move independently of the shaft, since when the latter had finished its forward throw the slot 42 containing the coin has rotated through 90°, so that said coin passes the guard 49 and falls from the mechanism B into the bank below. Until the completion of the primary feed, the coin is positively retained in the shaft-slot by the guard. The pressure of the finger 46 against the carrier-projection moves it rearwardly and through the gearing advances the gates, which, contacting with the end of the partially ejected package, continue its delivery until they arrive at their normal or slot-closing position. The gates thus act as secondary feeding members, moving alternately with and in the opposite direction to the primary feeding members. All the elements have now been restored to their initial positions except the shaft 41, which has brought the second coin-receiving slot 42 opposite the end of the chute and the succeeding cam-arm into cooperation with the carrier projection.

In addition to their closure of the delivery-opening and their secondary feeding function, the gates also serve to support the stack of packages above that which is being delivered,

for suppose that the user of the apparatus, as first described, withdrew the package partially fed, retaining his hold upon the crank. The gates being withdrawn from the delivery opening would leave this clear, so that with a hooked instrument a second package might be extracted, were it not for the fact that the balance of the stack falling upon the tops of the erect gates is held above the slot, and this support continues effective until said gates reach the delivery-opening. As they now render the illicit withdrawal of the package impossible, on account of their closing all but the contracted central portion of the slot, the packages may safely fall into the position shown in Fig. 3, where they are engaged by the spurs of the primary feed, ready for the next operation of the apparatus.

I claim:

1. A vending apparatus comprising a casing having a delivery-opening, means for feeding articles toward the delivery-opening, means for further feeding articles through the opening, and means for alternately moving the feeding means in opposite directions.

2. A vending apparatus comprising a casing having a delivery-opening, means for feeding articles toward the delivery-opening, means for further feeding articles through the opening, and means for alternately moving the feeding means in opposite directions at different speeds.

3. The combination with an article-receiver provided with an opening, of a gate cooperating with the opening and being mounted to travel within the casing, and means for imparting a feeding movement to the gate, the gate in said movement passing beneath and being adapted to serve as a support for the articles in the receiver.

4. The combination with an article-receiver provided with an opening, of a member for closing the opening, and means for moving the member from the opening into cooperation with the side of the article farthest removed from said opening.

5. The combination with a casing adapted to receive a stack of articles and being provided with an opening, of means for feeding the lowermost article of the stack through the opening, and means acting both as a closure for the casing-opening and as a support for the articles above that which is being fed.

6. The combination with a casing adapted to receive a stack of articles and being provided with an opening, of means for feeding the lowermost article of the stack through the opening, and a closure for the opening movable to the rear of the articles being thus fed.

7. The combination with a casing adapted to receive a stack of articles and being provided with an opening, of means for feeding

the lowermost article of the stack through the opening, a tilting closure for the opening movable beneath the article being fed, and means for erecting the closure at the rear of said article.

8. A vending apparatus comprising an article-receiver, primary feeding mechanism for the articles, means for alternately moving said primary feeding mechanism in opposite directions, secondary feeding mechanism for the articles, and means for transmitting movement from the primary to the secondary feeding mechanism.

9. A vending apparatus comprising an article-receiver, primary feeding mechanism for the articles, secondary feeding mechanism for said articles, and means for transmitting movement from the primary to the secondary feeding mechanism in a reverse direction.

10. A vending apparatus comprising an article-receiver, primary feeding mechanism for the articles, secondary feeding mechanism for said articles, and means for transmitting movement from the primary to the secondary feeding mechanism in a reverse direction and at an increased speed.

11. A dispensing apparatus comprising a package-receiver provided at its bottom with an opening, a plurality of carriers movable across the opening, a member pivoted upon one of the carriers and having a package-engaging spur, and a member pivoted upon another of the carriers and being provided with an extended contact face.

12. A dispensing apparatus comprising a package-receiver provided at its bottom with an opening, a plurality of carriers movable across the opening, members pivoted upon the carriers and being adapted to extend through the opening, and a gearing connecting the carriers.

13. A dispensing apparatus comprising a package-receiver provided at its bottom with an opening, a plurality of carriers movable across the opening, package-engaging members mounted upon the carriers, teeth pro-

jecting from the carriers, and pinions meshing with the teeth.

14. A dispensing apparatus comprising a package-receiver provided at its bottom with an opening, a plurality of carriers movable across the opening, package-engaging members mounted upon the carriers, a rack upon each carrier, a shaft situated between the carriers, and pinions of different diameters upon the shaft and meshing with the racks of adjacent carriers.

15. The combination with a package-receiver, of feeding mechanism for the packages, an actuating member for the feeding mechanism, and means whereby movement of the actuating member effects a portion of the delivery of a package and a reverse movement completes said delivery.

16. The combination with a package-receiver, of feeding mechanism for the packages, an actuating member the feeding mechanism manually movable in one direction, a spring for moving the actuating member in the opposite direction, and means whereby the manual movement of the actuating member effects a portion of the delivery of the package and the movement under influence of the spring completes said delivery.

17. A dispensing apparatus comprising a package-receiver provided at its bottom with an opening, a carrier movable across the opening, a feeding member pivoted upon the carrier, an actuating member adapted for manual operation, a contact member which may be moved by the actuating member to cause the travel of the carrier, said actuating member being also movable independently of the contact member, and a member fixed to the actuating member and cooperating with the carrier to cause reverse movement.

Signed at Boston, in the county of Suffolk and State of Massachusetts, this 13th day of March, 1909.

HARRY J. POTTER.

Witnesses:

SYLVANUS H. COBB,
CHARLES A. GRANT.