

No. 688,466.

Patented Dec. 10, 1901.

J. GRIBBEL.

PREPAYMENT SALE AND DELIVERY MECHANISM.

(Application filed Jan. 7, 1901.)

(No Model.)

5 Sheets—Sheet 1.

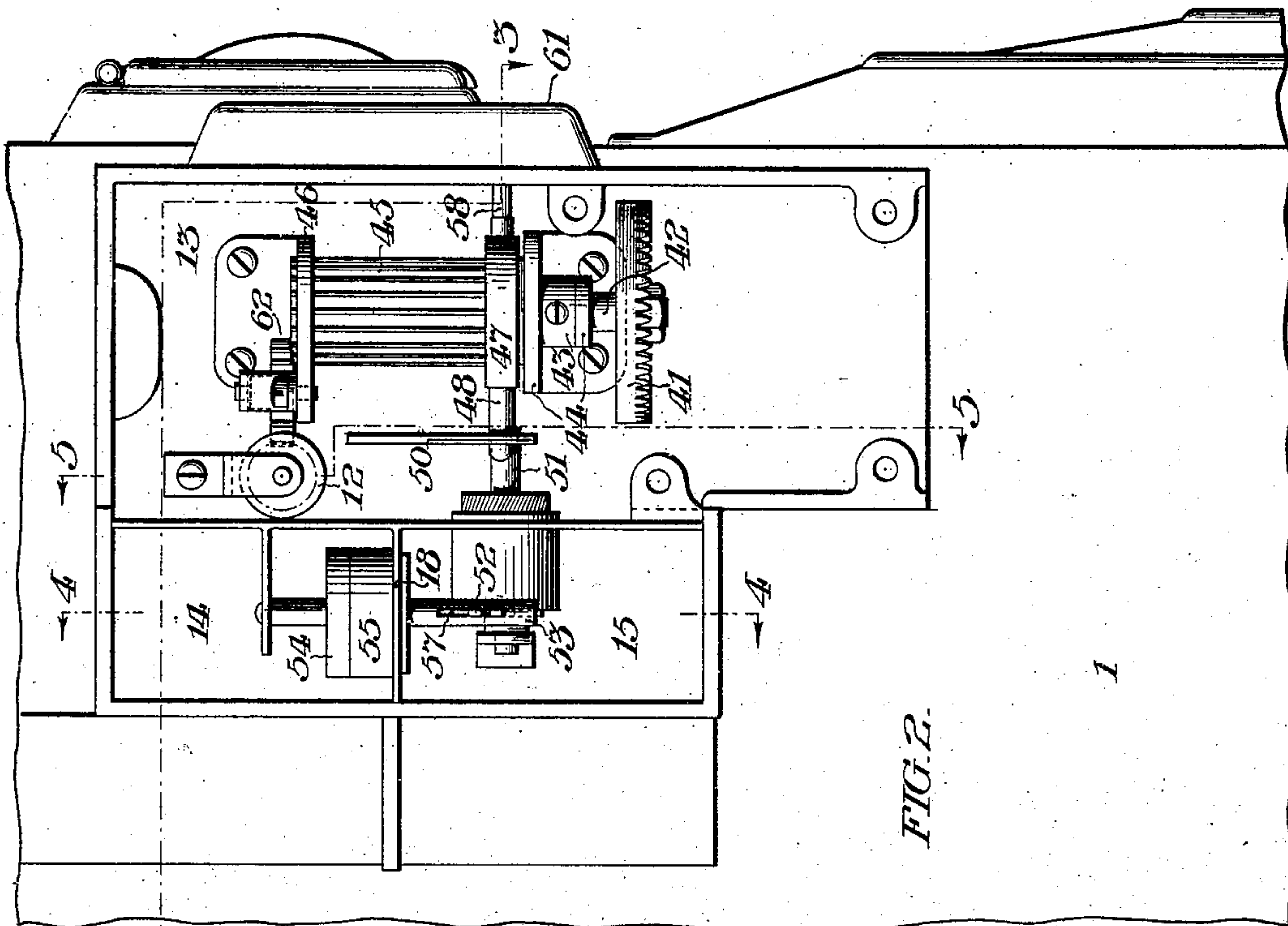


FIG. 2.

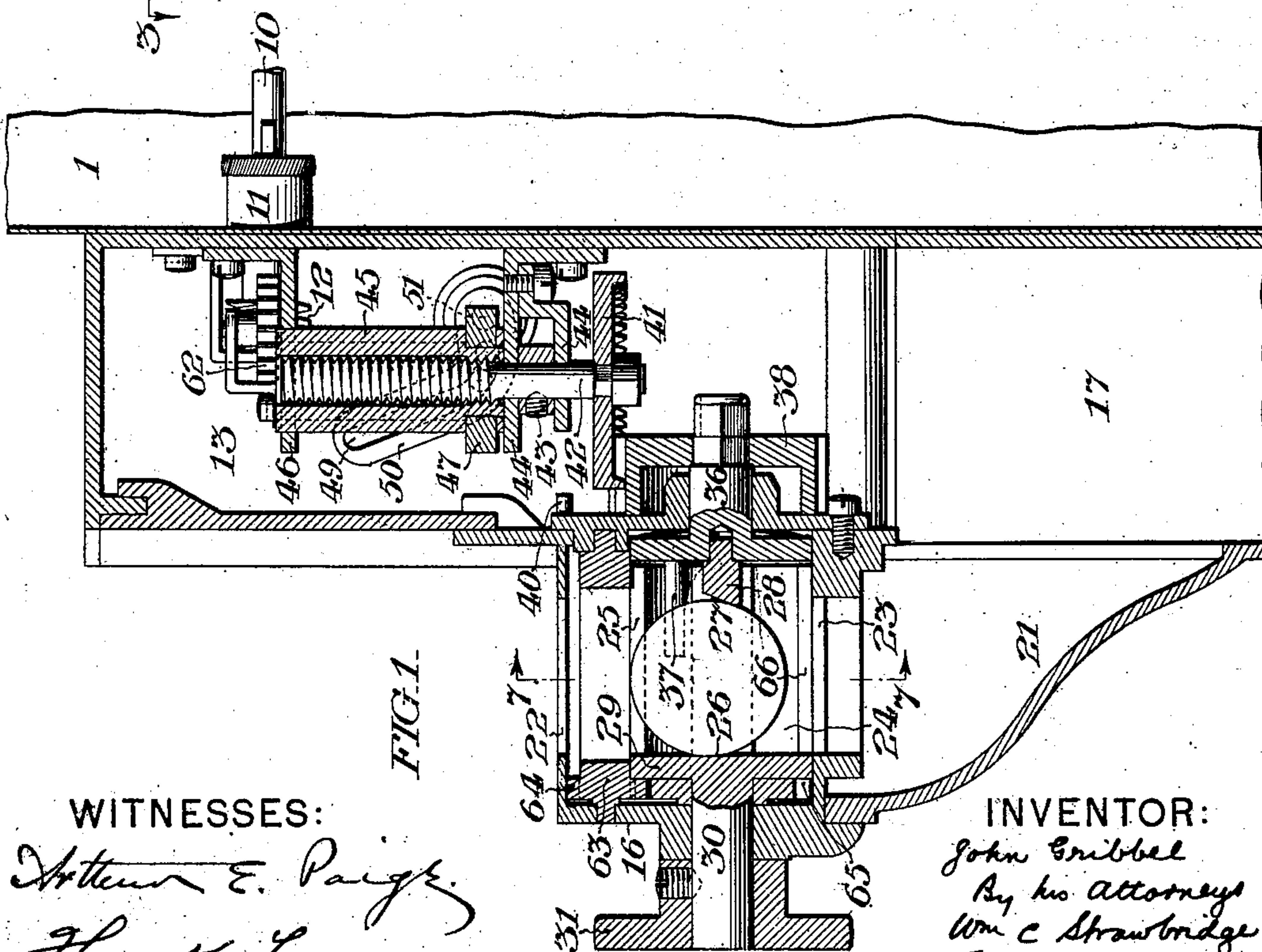


FIG. 1.

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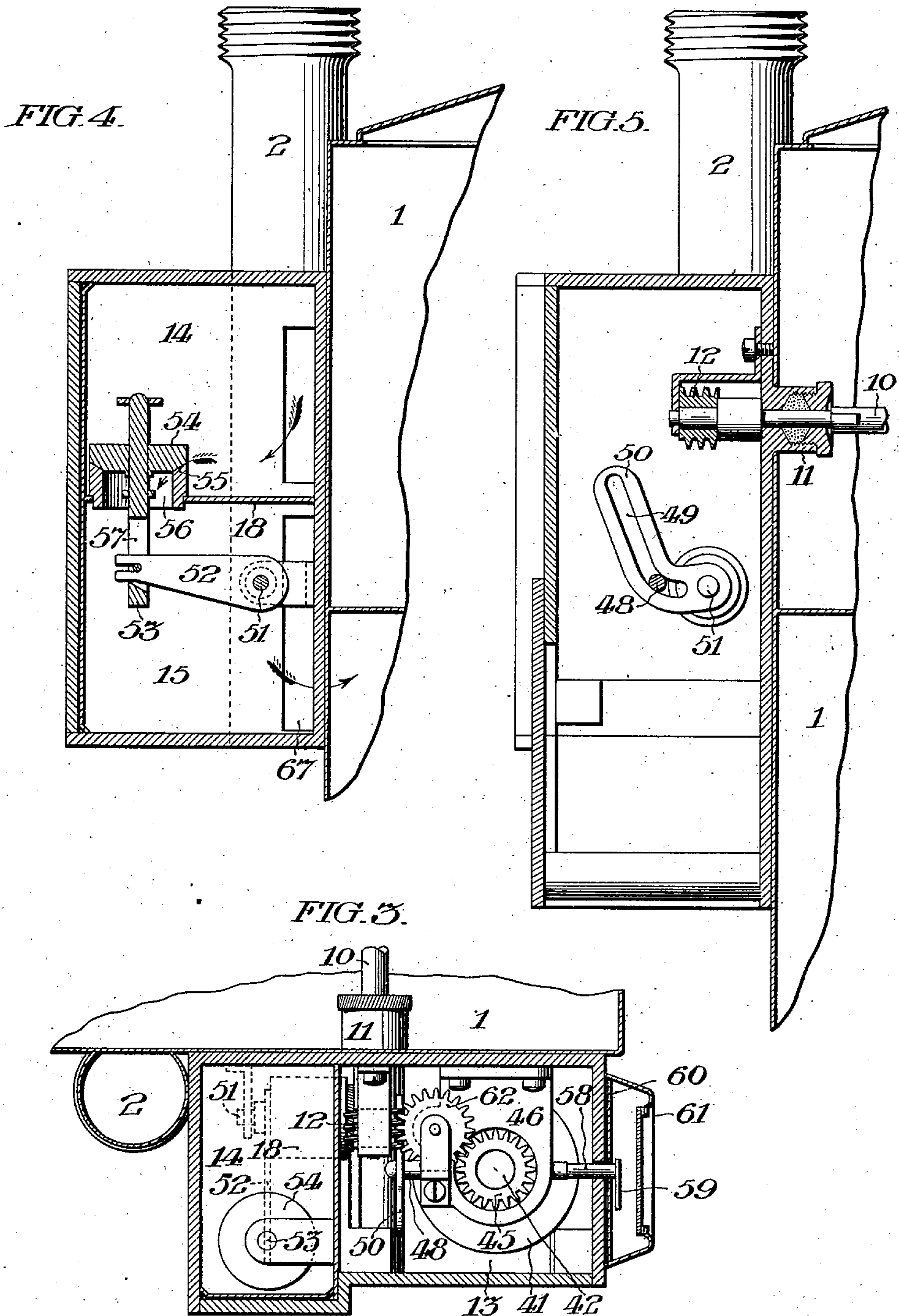
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5 Sheets—Sheet 2.



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FIG. 6.

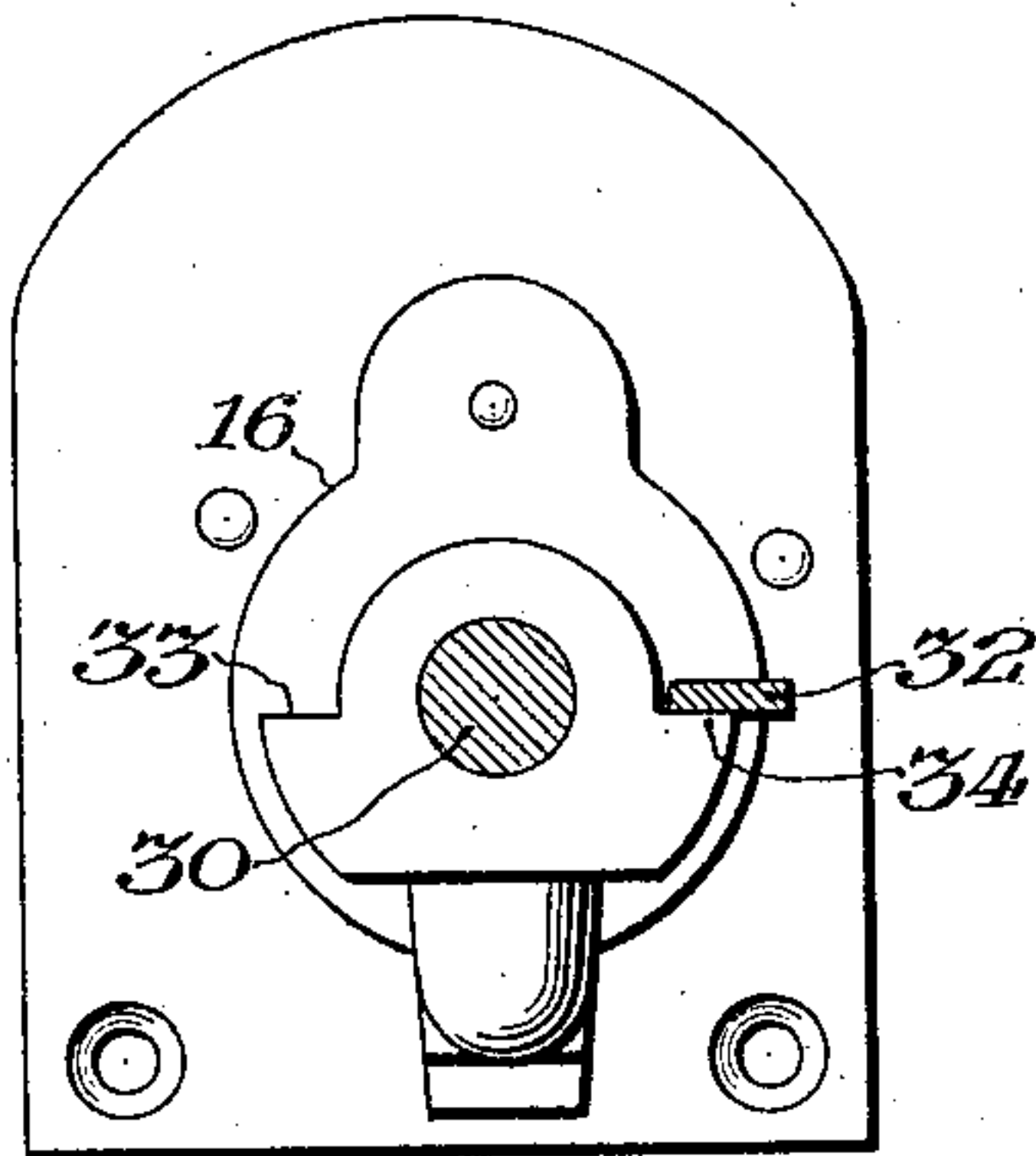


FIG. 7.

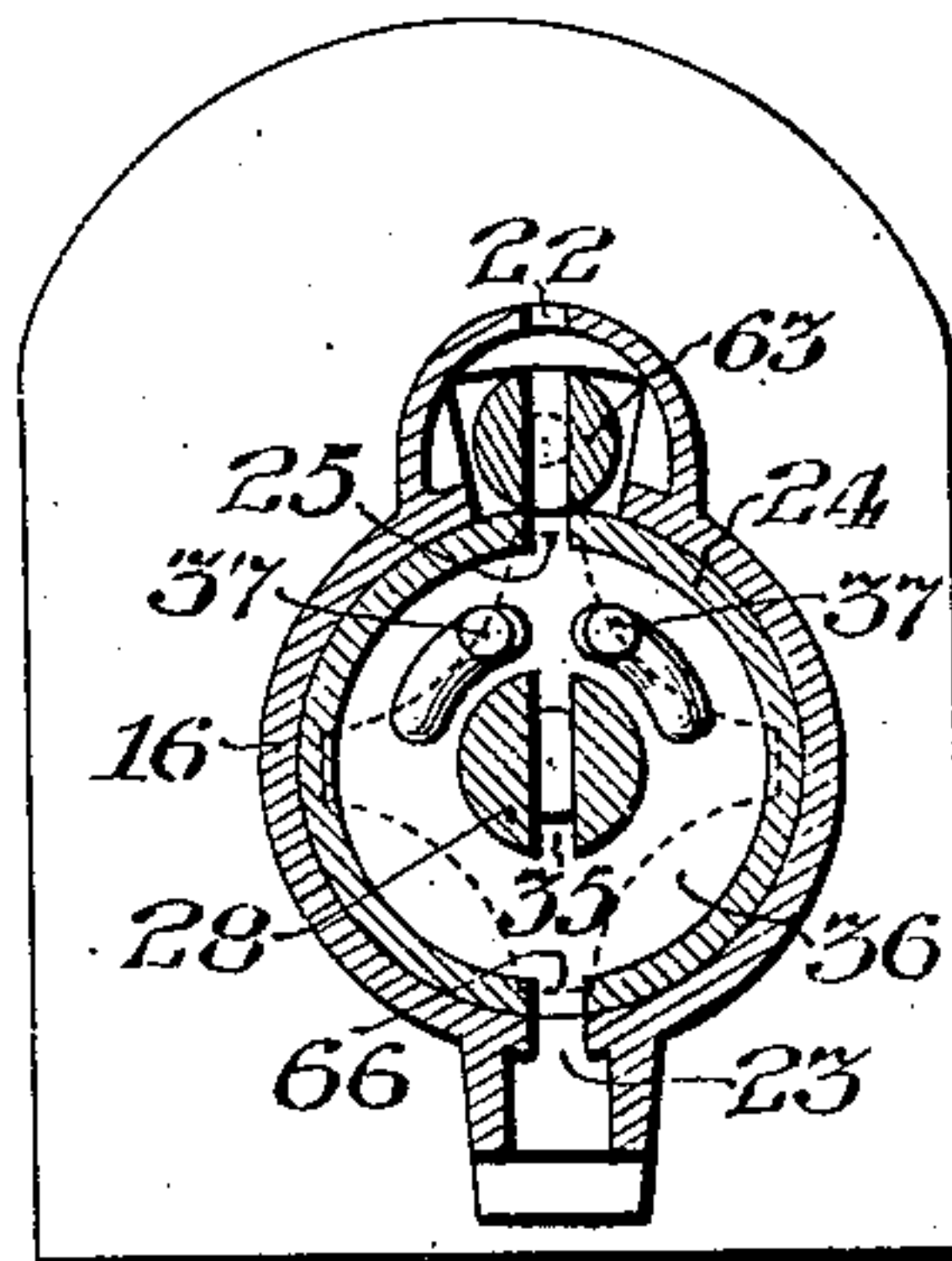


FIG. 8.

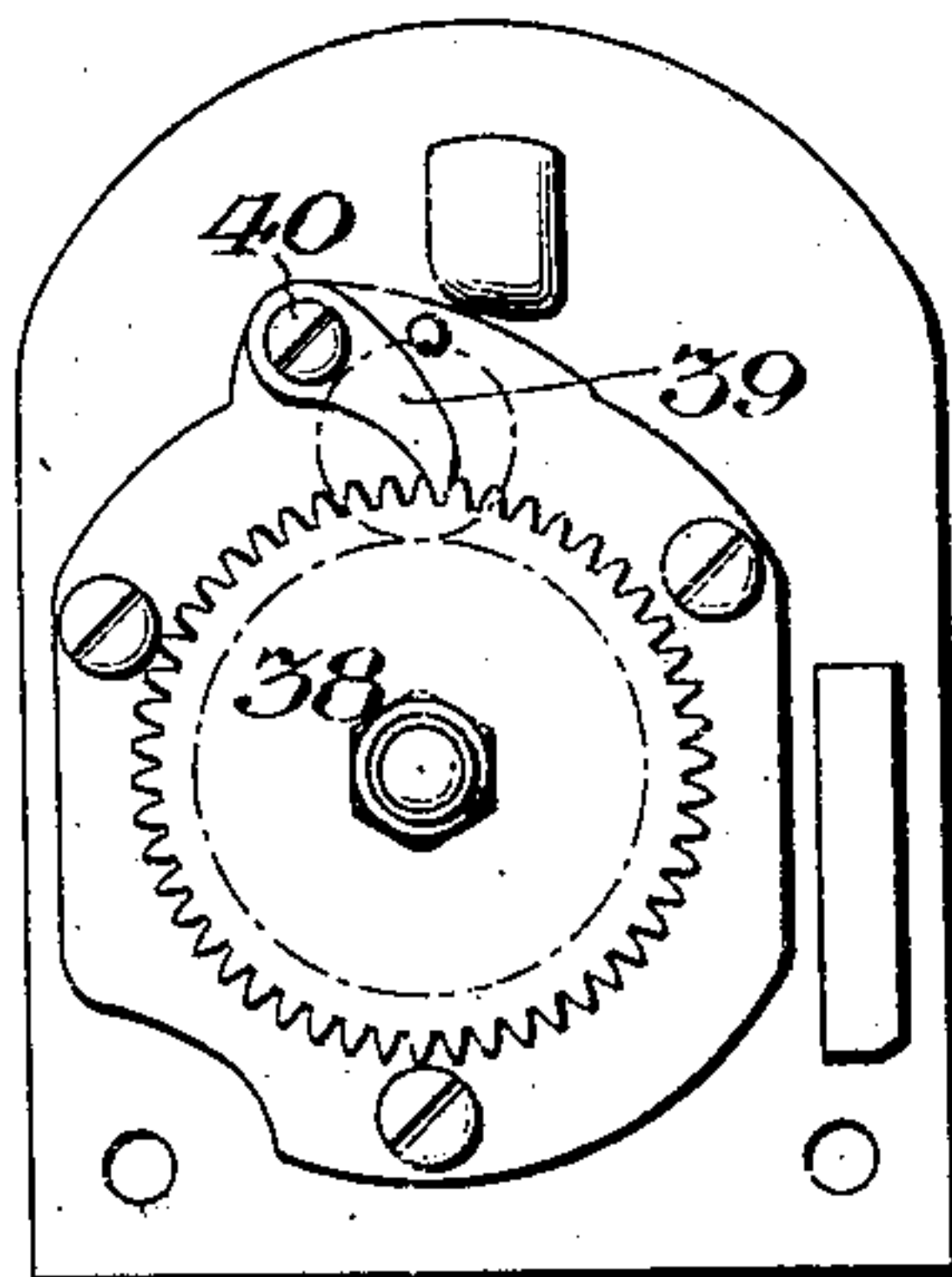
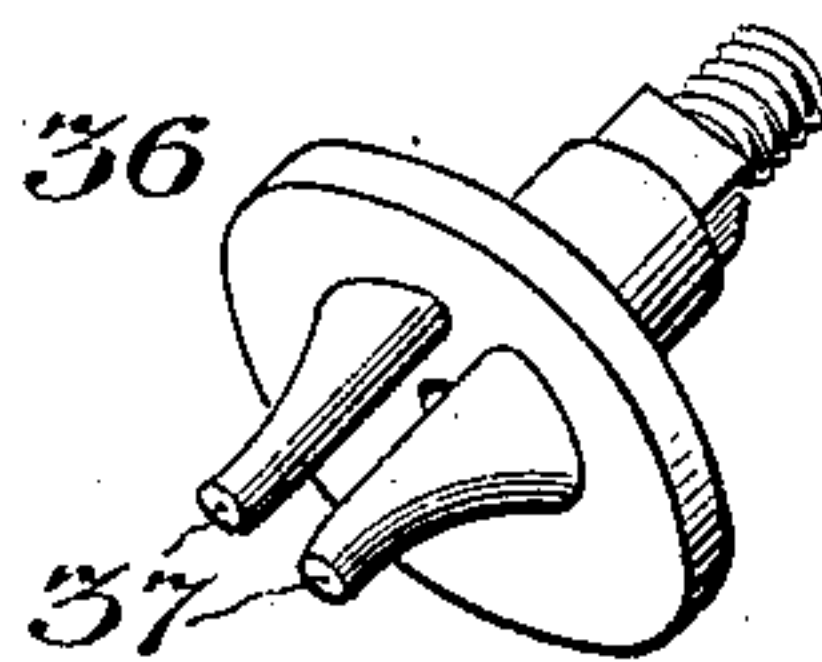


FIG. 9.



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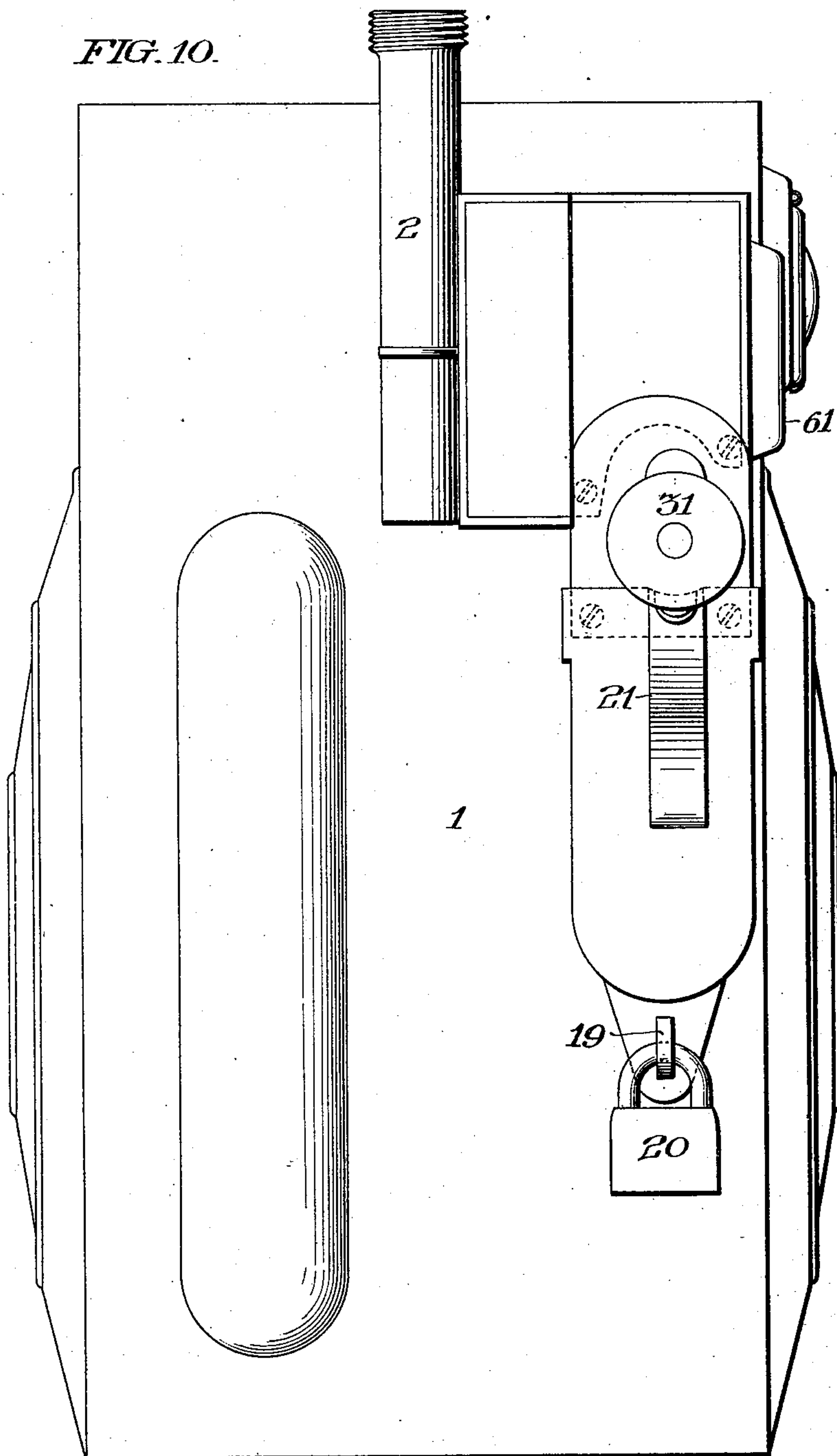
PREPAYMENT SALE AND DELIVERY MECHANISM.

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5 Sheets—Sheet 4.

FIG. 10.



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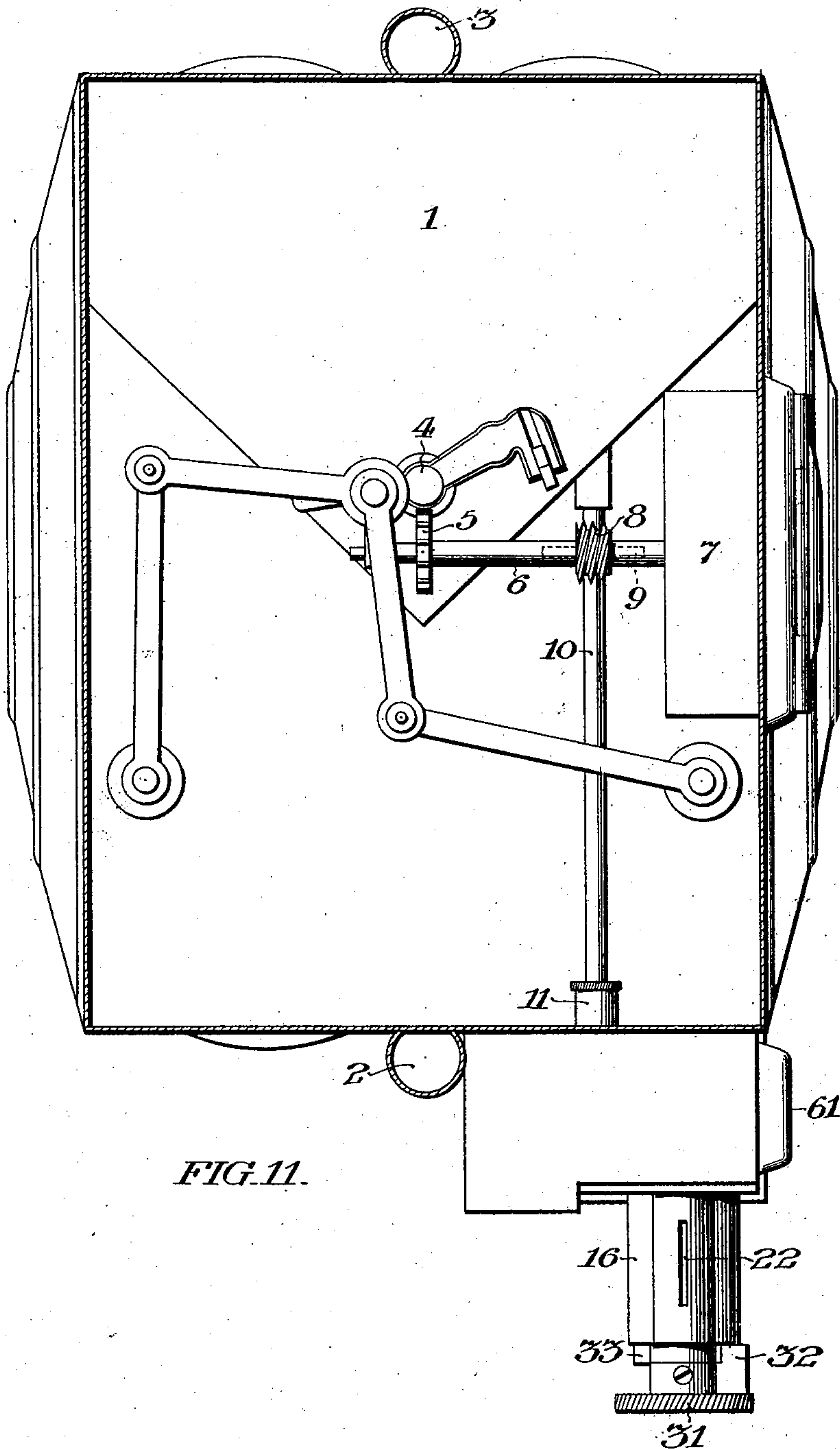


FIG. 11.

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# UNITED STATES PATENT OFFICE.

JOHN GRIBBEL, OF WYNCOTE, PENNSYLVANIA.

## PREPAYMENT SALE AND DELIVERY MECHANISM.

SPECIFICATION forming part of Letters Patent No. 688,466, dated December 10, 1901.

Application filed January 7, 1901. Serial No. 42,305. (No model.)

*To all whom it may concern:*

Be it known that I, JOHN GRIBBEL, a citizen of the United States, residing at Wyncote, Montgomery county, in the State of Pennsylvania, have invented certain new and useful Improvements in Prepayment Sale and Delivery Mechanisms, of which the following is a specification.

My improvements relate to mechanisms adapted upon the insertion of a coin of given dimensions, to be manually set in position to deliver a predetermined quantity of a vendible commodity, and relate especially to that particular class of such mechanisms as are arranged for operation in connection with the delivery of fluids, such as illuminating gas.

It is the object of my invention to provide a very simple, compact, and efficient, mechanism of the foregoing character; especial objects had in view being to devise such an arrangement of the parts of the mechanism that it may be applied to gas meters of usual and well known forms, as an addition, without requiring modification in the methods of manufacture and assemblage of the usual operative parts of such meters; that the parts shall be free and smooth in their working and not liable to bind or jam and that adequate protection against withdrawal of inserted coins or surreptitious manipulation will be afforded.

In the accompanying drawings I show, and herein I describe, a good form of a convenient embodiment of my invention, the particular subject-matter claimed as novel being hereinafter definitely specified.

In the drawings,

Figure 1 is a vertical, sectional, elevation of my apparatus, the line of section being central of the coin carrier and operative parts adjacent thereto.

Figure 2 is a view in front elevation of mechanism of my invention, the view being assumed taken from the left hand side of Figure 1, and the coin carrier and the front plate of the auxiliary casing being supposed removed.

Figure 3 is a sectional plan on the dotted line 3-3 of Figure 2.

Figure 4 is a sectional elevation on the dotted line 4-4 of Figure 2.

Figure 5 is a sectional elevation on the dotted line 5-5 of Figure 2.

Figure 6 is a view in front elevation of the coin carrier casing, the operating knob on the operating shaft being supposed removed and the operating shaft being in section.

Figure 7 is a sectional elevation of the coin carrier, section being supposed on the dotted line 7-7 of Figure 1.

Figure 8 is a view from the interior of the auxiliary casing of the inner end of the coin carrier casing.

Figure 9 is a view in perspective of the following.

Figure 10 is a view in side elevation of a meter of ordinary construction provided with devices embodying my invention.

Figure 11 is a top plan view of a meter of ordinary construction provided with devices embodying my invention, the top plate of said meter being supposed removed.

Similar letters of reference indicate corresponding parts.

In the accompanying drawings,

1 is the body of the casing of the meter, the same being of any usual construction and arrangement and provided with the usual inlet pipe 2 and the usual outlet pipe 3.

In the operation of the meter, an upwardly projecting stud 4, shown in Figure 11, and which is caused to rotate as the gas passes through the meter, is provided with a worm which works in a worm gear 5 on a dial arbor 6, said arbor being extended into the dial box 7, where mechanism, arranged to take its motion from said arbor, indicates by suitable hands exposed to view upon the exterior of the meter the quantity of gas which has passed through it.

The arbor shaft 6 is provided with a worm 8 working in a worm gear 9, (shown in dotted lines in Figure 11) which worm gear is mounted upon what I term the connecting shaft 10, which connects the working parts of the meter with the prepayment mechanism, the outer end of which shaft passes through a stuffing box 11 in the wall of the meter casing and into the interior of the auxiliary casing where it is, as shown in Figure 3, provided with a worm 12, whereof hereinafter.

The auxiliary casing is a boxing of strong



construction and compact form containing all the operative parts of my improved prepayment mechanism, said casing being mounted and secured upon the side of the meter conveniently in proximity to the inlet as opposed to the outlet conduit of the same, but in such position that, as explained, the extended end of the shaft 10 projects into its interior to make connection with its operative parts.

10 The said casing may be treated as composite of the mechanism chamber 13, the valve chambers 14-15, the coin receiver casing 16, and the coin depository 17.

15 The valve chambers are arranged at one side of the mechanism chamber, both being conveniently formed in one main chamber and separated from each other by a suitable partition 18, as shown in Figure 4.

20 The coin depository is arranged beneath the mechanism chamber and is, as shown in Figure 10, conveniently formed as an independent casting, and its upper end arranged to take over the lower end of the coin receiver casing and the casing of the mechanism chamber, while its lower end is provided with a recess which takes over the staple 19 projecting from the body of the main meter casing, through which staple may be inserted the arm of any suitable padlock or other fastening 20.

30 Said coin depository casing, is provided with a spout-like extension 21 on its front face through which coins descending from the coin carrier pass into the body of said depository.

35 The coin carrier casing or chamber, designated 16, is mounted upon the front of the boxing in which the mechanism chamber is formed.

40 The casing 16, which is of cylindrical outline in transverse section, is provided with an upper or inlet slot 22 and a lower or discharge slot 23 and with a coin carrier consisting of a cylindric shell 24 provided with the two coin slots 25, 26, at diametrically opposite points and with a central recessed member 28 serving as a coin holder proper, and referred to as a holder bar, between the two opposing engaging faces 26, 27, of which a descending coin of proper dimensions will, when the parts are in proper position, be caught and held.

50 The coin carrier cylindric shell and the coin carrier holder are alike supported on, and conveniently formed integral with, a plate 29, mounted upon an operating shaft 30, journaled for rotation in the front plate of the coin carrier casing, said shaft being in turn provided with an operating knob 31, and said knob, in turn, being provided with a projection 32 (see Figure 6), adapted to make alternate contact with the two shoulders 33, 34, which limit the movement of said knob and the parts connected therewith to half rotations.

65 The holder bar or member 28 is in the form shown provided with a coin slot or recess 35 in alignment with the slots 25, 26, the ends of said slot 35, however, being separated by

a space slightly less than the diameter of the coin to be employed, and one of said end faces being conveniently slightly inclined as shown in Figure 1. One mouth of said slot 35 is, therefore, larger than the other.

70 The inner end of the holder bar or member is provided with a short stud or axle which extends within a suitable opening in the follower, this stud or axle and said opening serving as a bearing for the coin carrier and as a means whereby the coin carrier and the follower are maintained in accurately centered relation to each other.

80 The follower 36 itself is a rotatable structure, being in the form shown composite of a disk which faces the inner end of the coin carrier and a shaft extending rearwardly from said disk,—said shaft being mounted in a suitable bearing formed in a boss on the rear plate of the coin carrier casing and provided to the rear of said bearing with a squared portion or shank, and said disk being shown as provided as to its face with a pair of follower pins 37 spaced apart at such distance as to allow the deposit of a coin between them.

90 Mounted upon the squared portion of the shaft of the follower and secured in place thereon by a nut, as shown in Figure 1, is a driving gear 38, the inner face of which is recessed to afford space for the boss on the rear face of the inner plate of the coin receiver casing, said driving gear 38 being engaged by a pawl 39, as shown in Figure 8, (said pawl being for clearness of illustration omitted from Figure 1) mounted upon a stud 40, the arrangement of the ratchet being such as, while allowing rotation of said driving gear and the follower with which it is engaged, to the left, to prevent such rotation to the right.

105 41 is a crown wheel engaged with the driving gear 38 and employed as a driven gear, said wheel being mounted upon the squared lower extremity of a controller screw shaft 42, arranged in vertical position within the mechanism chamber, and so mounted as to be maintained free for rotation but held against longitudinal movement, said shaft, to such end, extending through aligned openings in two horizontally extending supporting brackets 44, between which brackets it is provided with a fixed collar 43.

110 45 is an elongated hollow pinion within the bore of which the controlling screw shaft extends, said elongated pinion being adapted for both longitudinal and rotative movement, its upper end extending through a suitable opening in a guiding and supporting bracket 46, and its lower end being provided as to its bore with a thread in engagement with the thread of the controller screw shaft, as shown particularly in Figure 1.

120 The external teeth of said elongated pinion are arranged in parallelism with its axis and extend almost from end to end of its length.

125 Within a suitable annular recess in the external face of said pinion and in the vicinity of the lower end thereof is mounted a collar



or finger carrier 47 which participates in the longitudinal movements of the elongated pinion but does not participate in the rotation thereof.

5 Said collar is provided with an actuating finger 48, as shown, particularly in Figures 2, and 3, the outer end of which is, as shown in Figure 5, engaged in a slot 49 formed in a rock arm 50 mounted upon a rock-shaft 51 which  
10 extends through the intervening wall and a suitable stuffing box, into the valve chamber 15 and is therein provided with a valve arm 52 engaged with the stem 53 of a valve 54 adapted to a valve seat 55 through which ex-  
15 tends a channel 56 for the passage of the gas from the chamber 14 to the chamber 15.

The connection between the valve arm 52 and the valve stem 53 is conveniently effected by engaging the bifurcated end of the arm  
20 52 in a longitudinal slot 57 formed in said stem, a pin extending across said slot engaging in the bifurcation of the arm.

Connected with the collar 47 is what I term a guide and indicator pin 58 which projects  
25 through a vertical slot in the wall of the casing and is equipped as to its outer end with a hand or pointer 59, which as the collar moves in a vertical direction is carried across the face of a dial 60 inclosed within a glass  
30 fronted casing 61.

The hand or pointer last referred to indicates to the observer the amount of gas for which payment has been made, and which the machine will deliver. Said second finger  
35 and said slot constitute a guide which prevents the finger carrier from being rotated with the pinion.

The worm 12 on the outer end of the shaft 10 hereinbefore described, is engaged with  
40 an idler worm gear 62 mounted upon the bracket 46 engaged in turn with the teeth of the elongated pinion 45.

Within the upper portion of the coin carrier casing and between its entrance slot 22  
45 and the coin carrier and, in the embodiment of my invention illustrated, directly beneath said slot, and in axial parallelism with it, is mounted for rotation a cut off bar, as I term it, 63, the respective ends of which are jour-  
50 naled in suitable bearings in the coin carrier casing.

The cut off bar is, as shown in Figures 1 and 7, a solid bar provided with a coin slot of such size as to allow the free passage through it of  
55 a coin of the proper dimensions to occasion the actuation of the prepayment mechanism.

One end of said bar is provided with a driven gear 64 engaged with a driving gear 65 conveniently mounted on the shaft 30 of  
60 the coin carrier, as a result of which arrangement, of course, the rotation of the coin carrier in either direction will occasion the corresponding rotation of said bar.

The operation of my apparatus will be readily understood.

When the parts are in the position shown in Figure 1, and the slot of the cut off bar in

registry with the entrance slot 22 of the coin carrier casing and the slot 25 of the coin carrier, upon the insertion of a coin of the ap-  
70 propriate proportions through the slot 22, said coin will descend through the slot of the cut off bar and the uppermost slot of the coin carrier, and will pass into the slot of the holder bar of the coin carrier where it will be  
75 arrested in its descent and maintained in the position shown in Figure 1, in which its upper portion will exist between the pins 37 of the follower.

The knob 31, which is at this time in the  
80 position shown in Figure 11, is then manually rotated to the left until its projection 32 encounters the shoulder or stop 33, at which time said knob and the coin carrier will have  
85 completed exactly a half revolution, and the slot 25 of the coin carrier through which the coin entered will occupy its lowermost position, that is to say, in registry with and in close proximity to the discharge slot 23 of the  
90 coin carrier casing, with the result that the coin will descend by gravity through said slot 23 into the coin depository.

In the half rotation thus imparted to the coin carrier the follower has participated because locked to the carrier through the agency  
95 of the inserted coin, that is to say, the coin, held, as shown in Figure 1, in position in the holder 28, projects within the space between the pins 37 of the follower.

In the rotation of the coin carrier to the  
100 left, the driving gear 38 has also participated, and consequently the driven gear 41 and the controller screw shaft 42 have been rotated.

This rotation of the controller screw shaft 42 operates by reason of the engagement of  
105 the thread of said controller screw shaft with the thread in the bore of the elongated pinion, to occasion the elevation of said pinion, which is held against joining in the rotation of the screw shaft by its engagement with the  
110 idle gear 62 which is in turn engaged with the worm 12.

In the elevation of the elongated pinion the collar 47 has also, of course, participated, with the result that the finger 48,—which, when  
115 the parts are in the position shown in Figure 1, occupies a position in the curved portion at the inner end of the slot 49 of the arm 50,—being elevated with said collar, travels out from the curved portion of the slot into the  
120 straight portion of the slot, thereby occasioning the throw of the arm 50, the rotation of the rock shaft 51, and the elevation of the lever arm 52 in the valve chamber 15, with the result that the valve 54 is elevated from  
125 its seat 55 and gas within the upper portion of the inlet conduit 2 and the valve chamber 14 passes down into the valve chamber 15, and through the opening 67 (Figure 4) into the body of the meter through which it passes  
130 and from which it is conveyed through the outlet conduit 3 to the place of consumption.

As the gas thus passes into and through the meter it, of course, occasions the opera-



tion of the usual meter mechanism and consequently the rotation of the stud 4 (Figure 11) and through the devices described the shaft 10 and the worm 12.

5 The rotation of the worm 12 transmitted through the idler 62 to the elongated pinion 45 causes the rotation of said pinion and in such rotation said pinion by reason of the  
10 engagement of its internal thread with the thread of the controller screw shaft propels itself down said shaft and in so doing carries the finger 48, back into the curved end of the slot 49, thereby rocking the rock arm 50, rotating the shaft 51, and occasioning the con-  
15 sequent descent of the valve arm 52 to replace the valve 54 upon its seat and shut off the supply of gas to the meter.

The proportions of the parts and the curvature of the slot 49 is, of course, such that the  
20 finger 48 reaches that point in the curved end of the slot which occasions the actual closure of the valve 54 just at the time the amount of gas calculated to be delivered has been delivered.

25 To return to the description of the coin carrier and follower: After a half rotation to the left is given as described to the coin carrier, in which half rotation, as described, the follower participates, the pins 37 will occupy a  
30 position down between the slot of the holder 28 and the outlet or discharge slot 23 of the coin carrier casing.

When next a coin is to be inserted in the carrier,—whether immediately after the in-  
35 sersion of the first coin and in order to occasion the further elevation of the elongated pinion so that a considerable amount of gas may be consumed before further payments are necessary, an operation which may be re-  
40 peated a number of times and until the elongated pinion reaches the limit of its upward movement, or whether said insertion is made after the gas paid for by the first coin has been consumed,—the knob 31 of the coin carrier is rotated to the right to bring it again  
45 to the position shown in Figure 1, such rotation being limited at the proper point by the encounter of the projection 32 with the shoulder 34 so that precisely a half rotation will  
50 be made.

In such rotation to the right the follower does not participate, nor are the parts connected with the follower moved. When, however, the next coin is inserted, said coin,  
55 when arrested in the coin holder bar 28, makes engagement through its projecting lower edge portion between the pins 37, which are then, as explained, below the holder 28, and the knob 31, being thereupon rotated  
60 again to the left as first described, the coin carrier and the follower, locked together by the coin, are rotated as a unit, and the movement transmitted through the gears 38, 41, and connected devices, as already explained.

65 In the half rotation last given to the coin carrier and follower the large mouth of the slot in the holder 28 is rotated until it is op-

posite the discharge slot 23, whereupon the coin, as before explained, drops through said discharge slot and descends to the coin de- 70 pository, the pins 37 of the follower having, in such half rotation, been restored to their first position, that is to say, the position shown in Figure 1.

The coin carrier, it will now be understood, 75 to receive the coin must be in the position shown in Figure 1, with the large mouth of the slot in device 28 uppermost; after the insertion of the coin the carrier is first rotated to the left to occasion the movement of the 80 follower and connected parts and discharge the coin within the coin depository, and then rotated to the right without occasioning movement of the follower, the carrier being thus restored to the position shown in Fig- 85 ure 1.

The insertion of the proper coin always locks the follower fast to the coin carrier, so that in all of the half turns to the left made by the carrier the follower participates, but in the 90 return movements or half turns of the coin carrier to the right to restore it to the position shown in Figure 1, the follower does not participate; consequently when the first coin is inserted the pins 37 will occupy the posi- 95 tion shown in Figure 1 and be engaged by the upper edge portion of the coin,—when the second coin is inserted, (after the return movement to the right of the carrier), said pins will occupy a corresponding position below 100 the holder bar 28 and the lower edge of the second coin will engage between said pins,—and at the time the third coin is inserted, the pins 37 will occupy the position shown in Figure 1, and the upper edge portion of the coin 105 will, as in the case of the first coin, engage between the pins 37, and so on.

The rotation of the coin carrier, as explained, occasions the rotation of the cut off bar, and the relation between the carrier and 110 the cut off bar established by the respective sizes of their intermeshing gears is such that when the coin carrier is rotated to the position shown in Figure 1, being the only posi- 115 tion in which a coin of proper size can be inserted in operative position, the slot of the cut off bar is in registry between the slot 22 and the slot 25, with the result that the coin descends freely through the three slots.

When, then, rotation is imparted to the coin 120 carrier, a corresponding rotation is, of course, imparted to the cut off bar, the latter in rotating, presenting alternately its imperforate side faces and the openings of its slot to the inlet slot 22, but when the half turn to the 125 left has been given to the coin carrier and the smaller and not the larger mouth of the slot of the holder bar 28 is uppermost, the imperforate side face of said cut off bar is presented to the slot 22, closing it so that a coin can- 130 not be inserted.

By reason, therefore, of said cut off bar rotating proportionately three times or five times to one rotation of the coin carrier, it



results that whenever the slot 66 is uppermost, in which position the insertion of a coin would be objectionable, because such coin could not descend sufficiently far into the slot of the holder 28,—the said cut off bar precludes the entry of said coin, but when the slot 25 is uppermost, as explained, the slot of the cut off bar registers with it. The cut off bar, therefore, is automatic in its action.

Although in the rotation of the coin carrier the slot of the cut off bar from time to time comes into registry with the inlet slot 22 at times when the slot 25 is not in registry with said slot 22, a coin cannot then be inserted, because its advance edge which would pass through the slot 22 and the slot of the cut off bar, would find its further progress precluded by contact with the side face of the coin carrier.

The slot 66 might under some circumstances be dispensed with, as it plays no part in the normal operation of the apparatus. Its presence is useful, however, as it enables a coin of less than the required size, dropped by accident or with fraudulent intent through the slot 22 and into the coin receiver, to descend directly through the mechanism and enter the coin depository.

Having thus described my invention, I claim—

1. In a prepayment sale and delivery mechanism, in combination, a knob on the exterior of the apparatus, valve controlling mechanism, a rotatable coin carrier and a rotatable follower, one of said devices being operatively connected to said knob, and the other being operatively connected to said valve controlling mechanism, said coin carrier being provided with a cylindrical shell embodying a coin slot, and with a coin holder bar embodying a recess in alinement with said slot and adapted to support a coin received within it, in such position that a part of said coin extends above and another part below said bar, and said follower being provided with a pair of pins projecting into the space within the cylindrical shell of the coin holder and alternately existing, in the operation of the apparatus, above and below the coin holder bar and in either set in position to engage upon opposite sides of an edge of a coin as first received within the holder, substantially as set forth.

2. In a prepayment sale and delivery mechanism, a casing having a coin entrance slot, a manually rotatable device disposed within said casing, a rotatable cut off bar, having a coin slot or recess the respective ends of which appear upon opposite sides of said bar so that an inserted coin passes directly through said slot or recess, said bar being located in position to control said coin entrance slot, and gearing connective of said rotatable device and said cut off bar, substantially as set forth.

3. In a prepayment sale and delivery mechanism, a casing embodying a slot, a rotatable cut off bar mounted beneath said slot, a man-

ually rotated coin carrier supported in said casing beneath said bar, and gearing composed of gears of dissimilar size connecting said manually rotating body and said cut off bar, substantially as set forth.

4. In a prepayment sale and delivery mechanism for gas, in combination with a meter, a controlling shaft, an elongated pinion mounted on and in threaded engagement with said shaft, one of said members being held against longitudinal movement and the other free for such movement, means adapted to be operated from a moving part of a meter to rotate one of said members, devices through which manual rotation may be imparted to the other of said members, a non rotating collar mounted on the longitudinally movable member, a rock arm, a valve and valve arm connected with said arm, and a sliding connection between said collar and said rock arm, substantially as set forth.

5. In a prepayment sale and delivery mechanism for gas, in combination with a meter, a controlling shaft, an elongated pinion mounted on and in threaded engagement with said shaft, one of said members being held against longitudinal movement and the other free for such movement, means adapted to be operated from a moving part of the meter to rotate one of said members, devices through which manual rotation may be imparted to the other of said members, a non-rotating collar mounted on the longitudinally movable member, a finger projecting from said collar, and a slotted valve controlling rock arm in the slot of which said finger engages, substantially as set forth.

6. In a prepayment sale and delivery mechanism for gas, in combination with a meter, a controlling shaft, an elongated pinion mounted on and in threaded engagement with said shaft, one of said members being held against longitudinal movement and the other free for such movement, means adapted to be operated from a moving part of the meter to rotate one of said members, a non-rotating collar mounted on the longitudinally movable member, a valve controlling rock arm with which the collar is engaged and along which said collar slides, and a guide finger projecting from said collar and engaged in a guide, substantially as set forth.

7. In a prepayment sale and delivery mechanism for gas, in combination with a meter, a controlling shaft, an elongated pinion mounted on and in threaded engagement with said shaft, one of said members being held against longitudinal movement and the other free for such movement, means adapted to be operated from a moving part of the meter to rotate one of said members, means through which manual rotation may be imparted to the other of said members, a non-rotating collar mounted on the longitudinally movable member, a finger projecting from said collar, a slotted valve controlling rock arm in the slot of which said finger engages, a second



finger projecting from said collar and a guide on which said last named finger rides, substantially as set forth.

5 8. In a prepayment sale and delivery mechanism for gas, in combination, a controlling shaft mounted in a suitable casing and held against longitudinal movement, a knob upon the exterior of the casing, means through which an inserted coin engages said knob with  
10 said shaft, an elongated pinion mounted on and in threaded engagement with said shaft, a worm engaged with said pinion and adapted to be rotated by or from a moving part of a meter mechanism, a collar swiveled on said  
15 pinion, and valve controlling mechanism adapted to be operated by the movement of said collar, substantially as set forth.

9. In a prepayment sale and delivery mechanism for gas, in combination, a controlling  
20 shaft mounted in a suitable casing which casing has a slot and is provided with indicating

figures near said slot, a knob upon the exterior of the casing, means through which an inserted coin engages said knob with said shaft, an elongated pinion mounted on and  
25 in threaded engagement with said shaft, a worm engaged with said pinion, a collar swiveled on said pinion, a slotted rock arm, a valve which is opened and closed by the movement of said rock arm, a pin projecting from said  
30 collar and engaged in the slot of said arm, a second pin projecting from said collar and engaged in the slot in the casing and having a pointer or finger in the vicinity of the indicating figures, substantially as set forth. 35

In testimony that I claim the foregoing as my invention I have hereunto signed my name this 26th day December, A. D. 1900.

JOHN GRIBBEL.

In presence of—

S. SALOME BROOKE,

THOS. K. LANCASTER.