

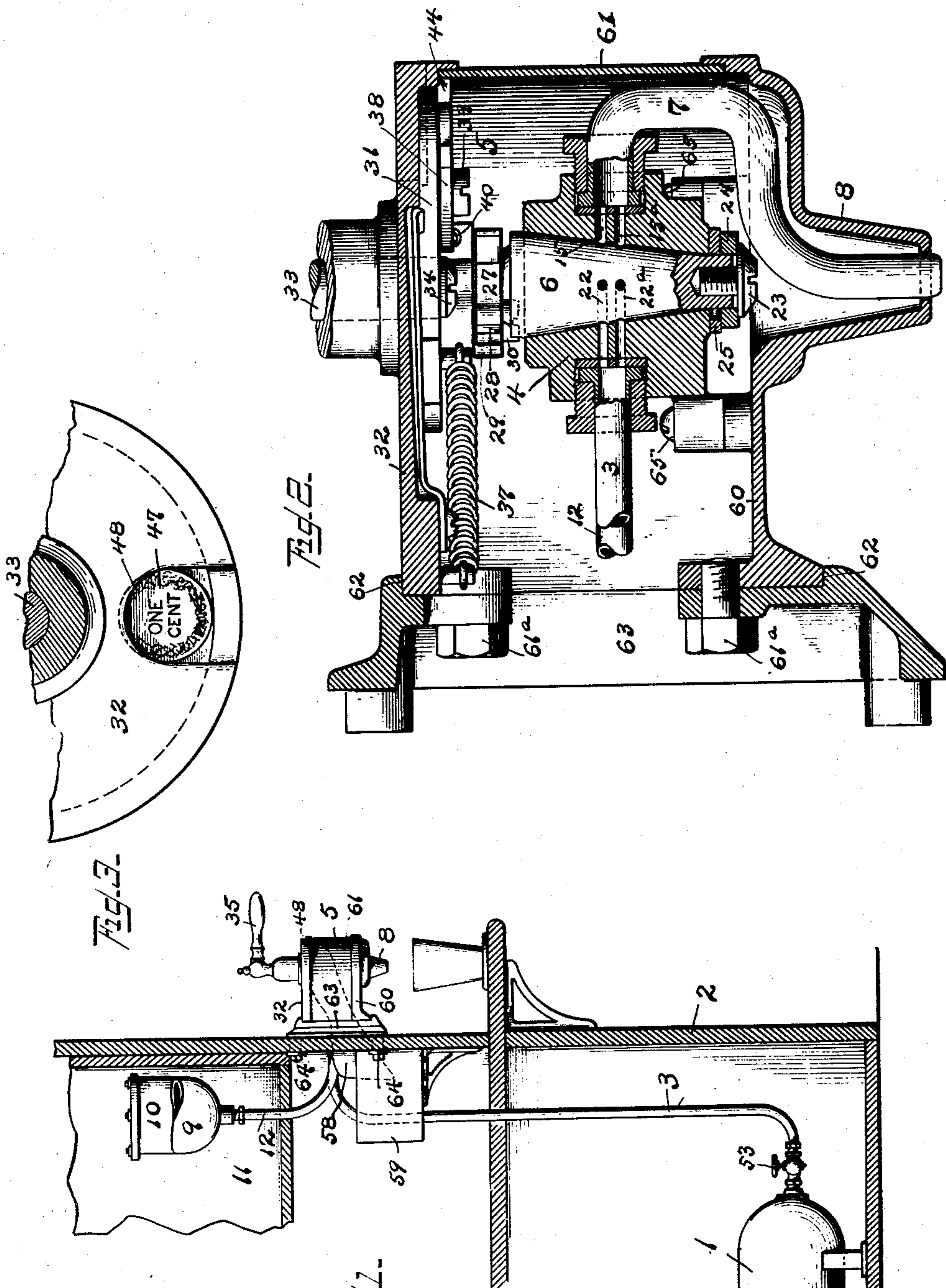
No. 842,207.

PATENTED JAN. 29, 1907.

J. A. KEYES.  
FLUID VENDING MACHINE.

APPLICATION FILED MAY 13, 1904.

2 SHEETS—SHEET 1.



Attest  
W. B. Guinier  
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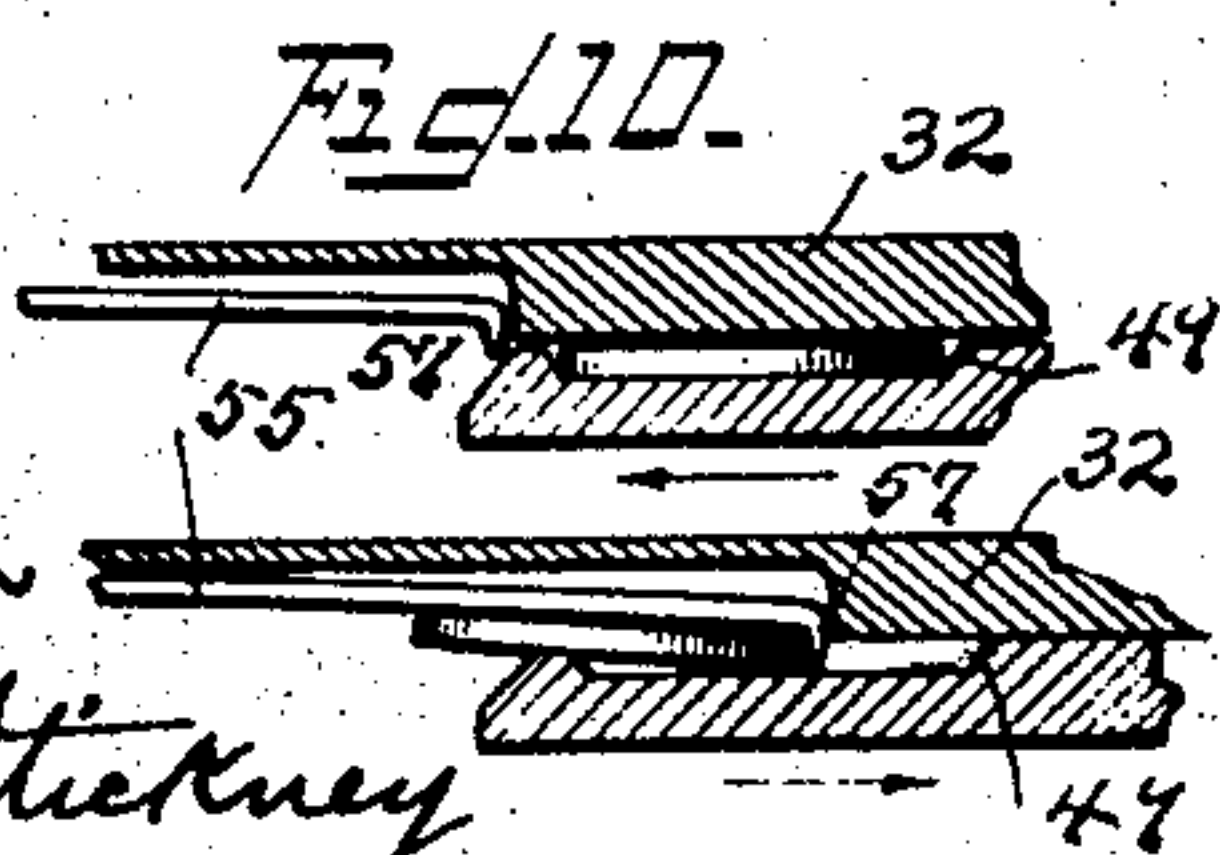
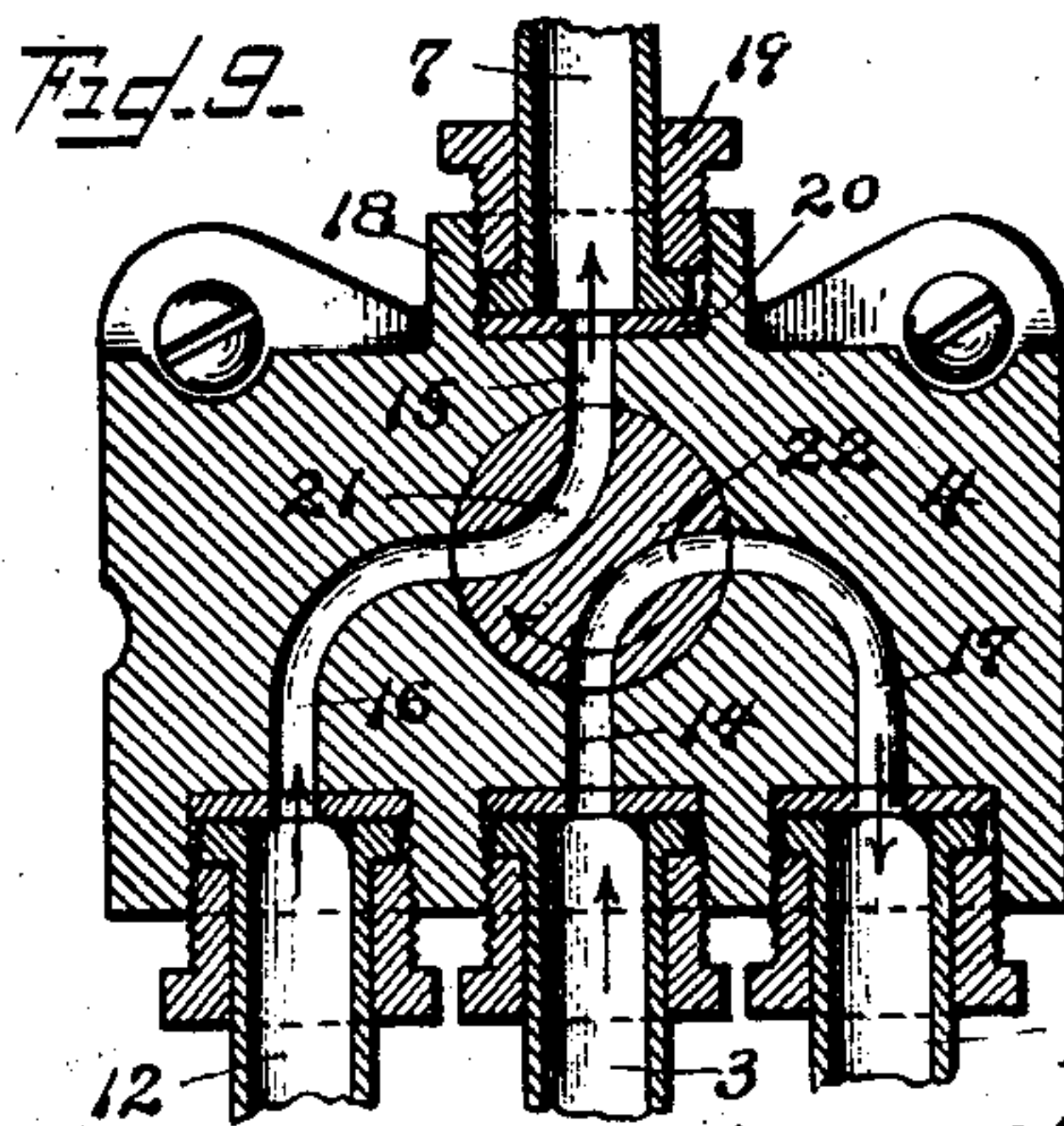
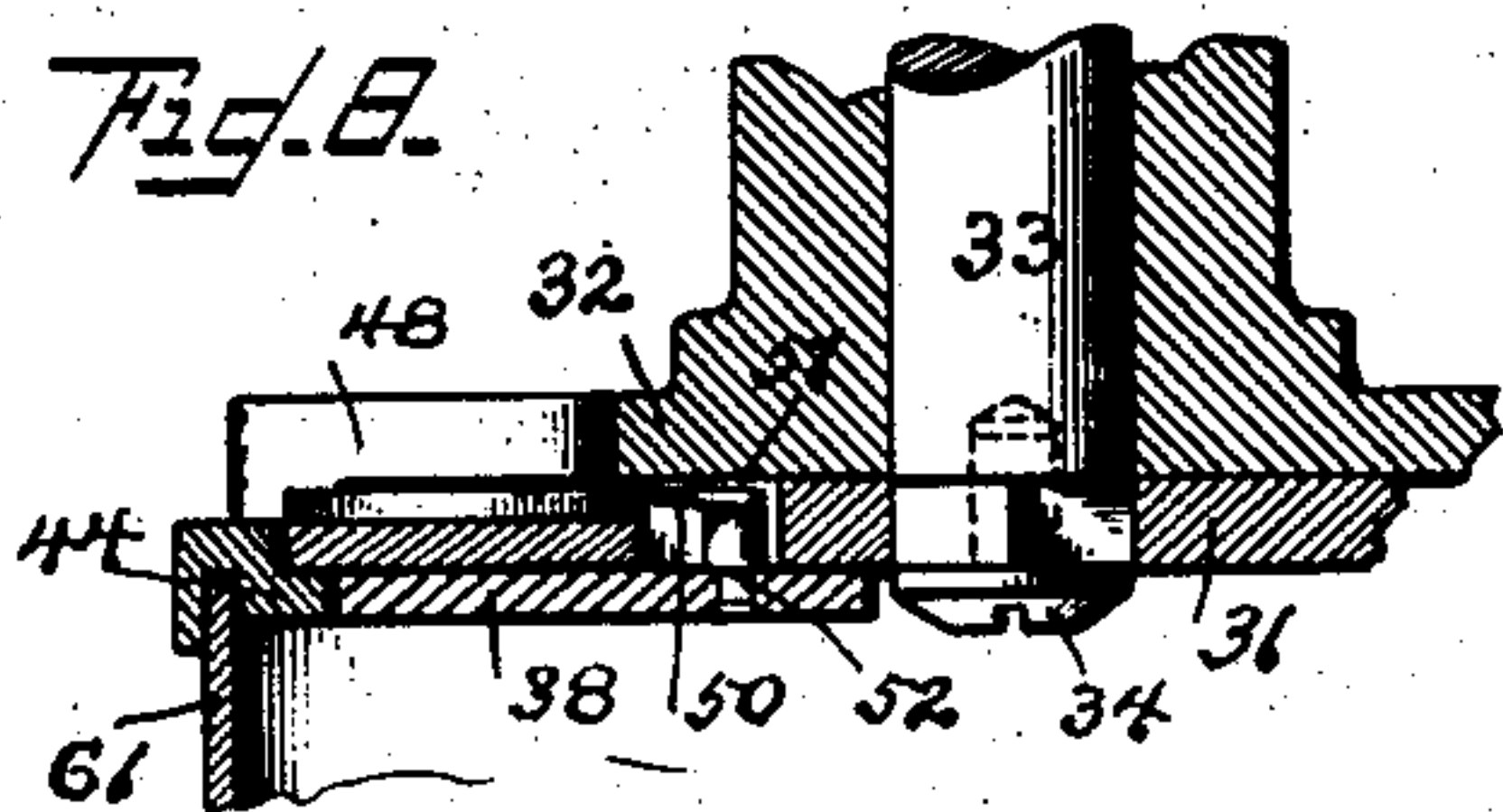
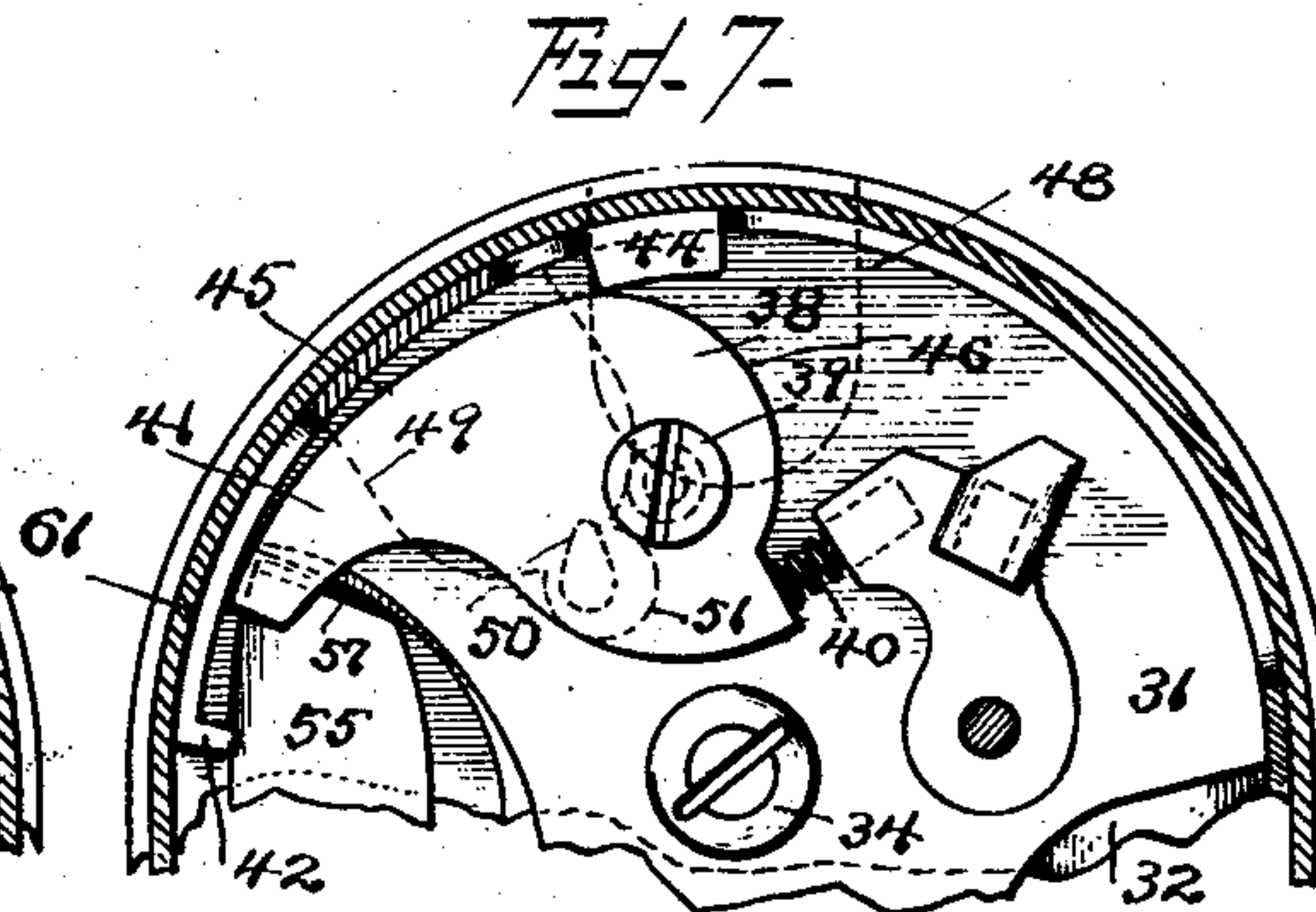
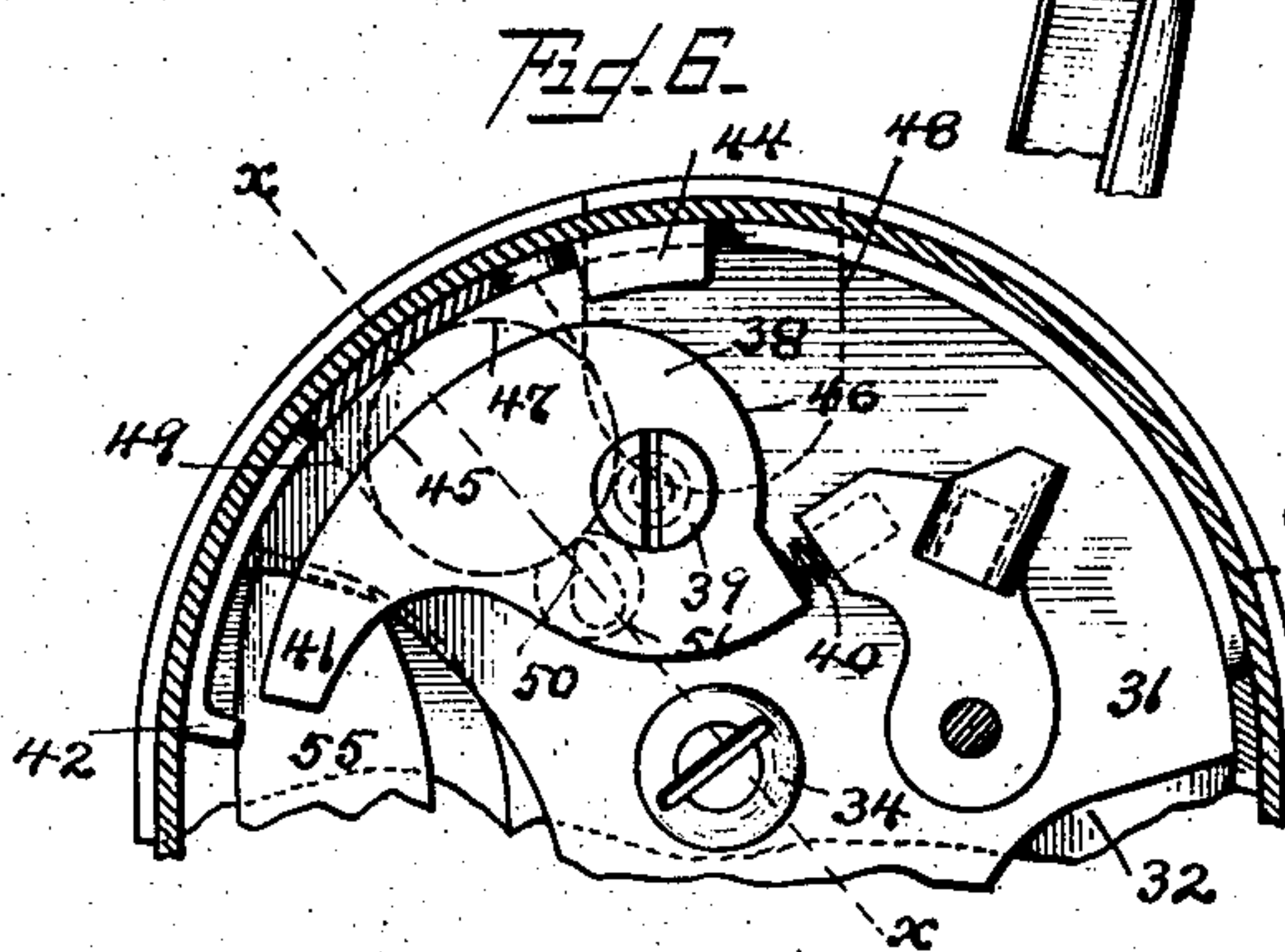
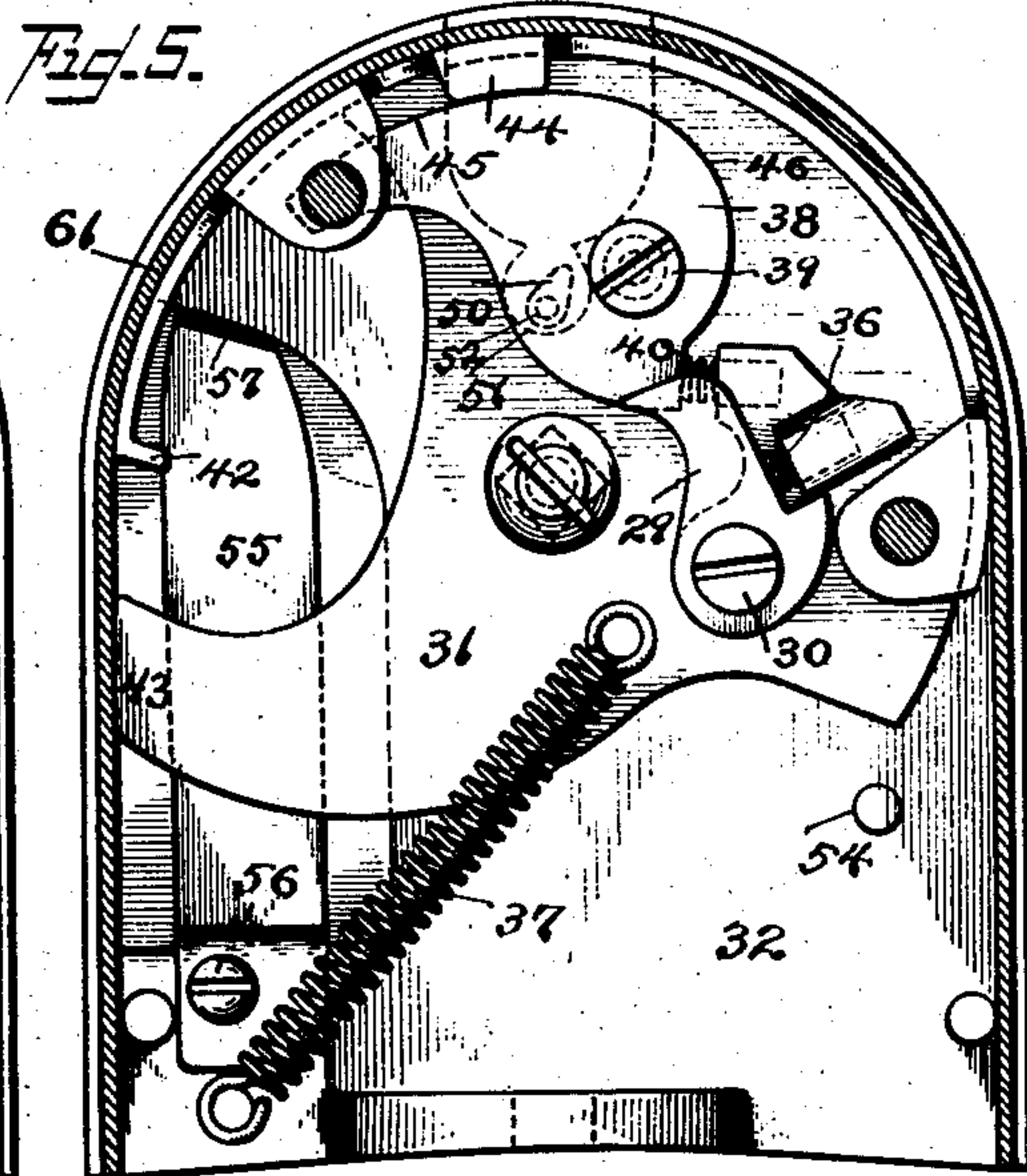
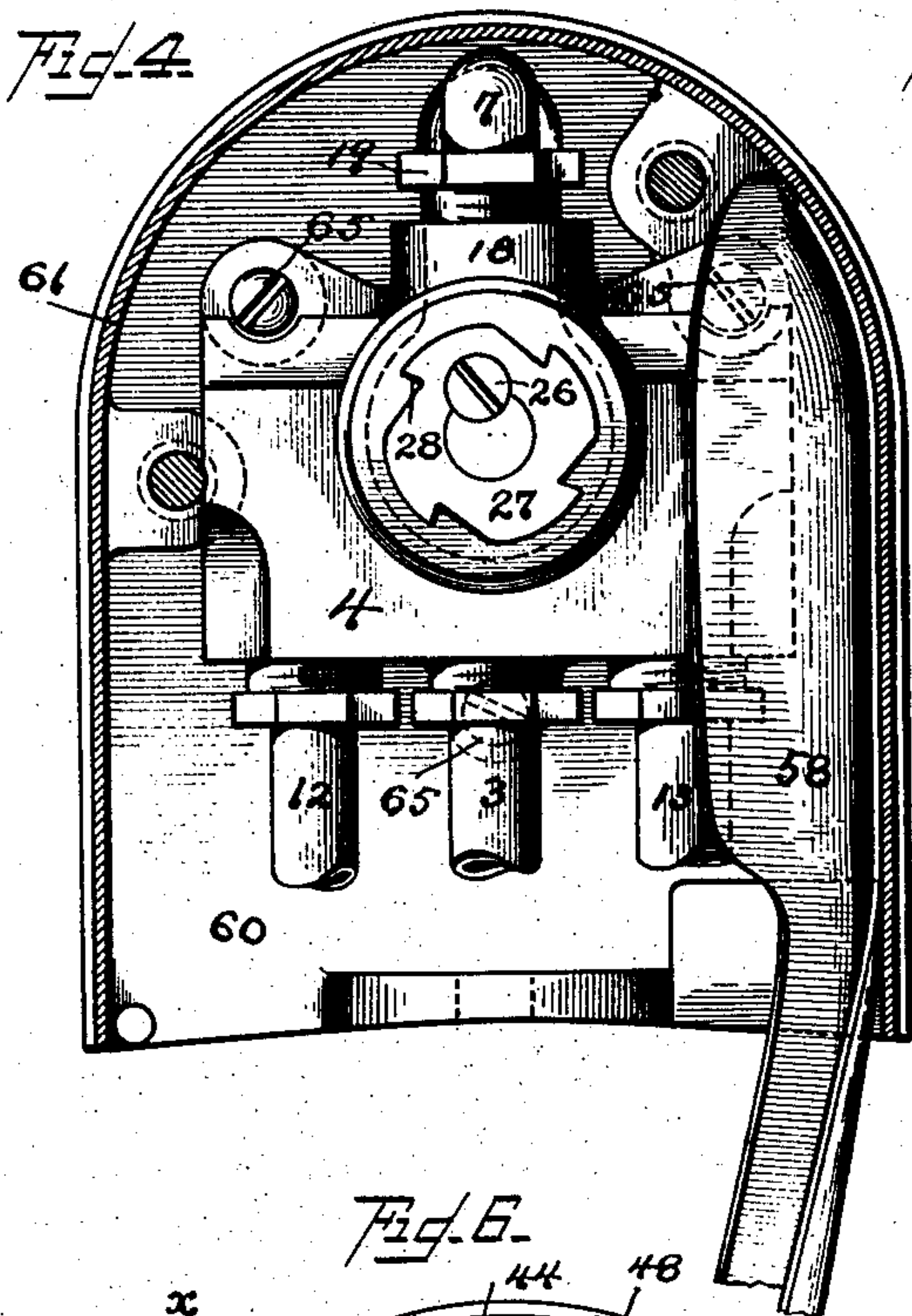
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2 SHEETS—SHEET 2.



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# UNITED STATES PATENT OFFICE.

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## FLUID-VENDING MACHINE.

No. 842,207..

Specification of Letters Patent.

Patented Jan. 29, 1907.

Application filed May 13, 1904. Serial No. 207,764.

*To all whom it may concern:*

Be it known that I, JAMES A. KEYES, a citizen of the United States, residing in the borough of Manhattan, city, county, and State of New York, have invented a certain new and useful Fluid-Vending Machine, of which the following is a specification.

This invention relates particularly to machines or apparatuses for vending liquids, such as soda-water and other light drinks, &c., although certain features of the invention may be employed in vending other commodities.

The liquid or fluid to be sold is contained in a tank or reservoir, and at the insertion of a coin and suitable manipulation of parts a quantity of the liquid is discharged into a glass or other vessel of the purchaser. It is necessary, of course, that the liquid so delivered shall be measured out, and it is with the measuring devices that my invention has largely to do.

One of the principal objects of my invention is to enable the liquid, correctly measured, to be discharged upon the initial stroke of a handle that controls the apparatus, so that it is only necessary to insert a coin and press the handle, whereupon the liquid is discharged immediately, and the operation may be repeated immediately, so that a large quantity of liquid may be dispensed in a short time, thereby enhancing the profitability of the apparatus.

In the preferred form of my invention I employ two measurers, which I contrive to connect alternately with the tank or source of supply, provision also being made for discharging each measurer while the other is filling, so that liquid may be delivered from the apparatus in measured quantities as fast as the coins may be inserted and the liquid drawn off. I use a four-way valve, which is operated by a coin-controlled handle, the valve preferably being given intermittent rotary movements by the handle and at each movement effecting connection between one of the measurers and the tank and between the other measurer and the discharge.

The valve-operating handle in my preferred construction is normally ineffective, being locked so that it cannot turn the valve, while the lock may be released by the insertion of a coin. The releasing device is so

formed and mounted that only a coin of a predetermined diameter and thickness is effective to release the handle.

In the accompanying drawings, Figure 1 is a sectional side elevation of a vending apparatus embodying my improvements. Fig. 2 is a central vertical section taken from front to rear of a casing containing the principal portion of the vending mechanism. Fig. 3 is a fragmentary plan of the casing, showing a coin inserted. Fig. 4 is a sectional plan showing the valve-head within the casing and connected parts. Fig. 5 is a sectional bottom view of the parts carried by the top plate of the casing, including coin-carrier, lock, &c., said parts being shown in normal position. Fig. 6 is a fragmentary view similar to Fig. 5, but indicating the lock as released by the insertion of a coin, the latter being shown by a dotted circle. Fig. 7 is a view similar to Fig. 6, but showing the lock as effective, no coin having been inserted. Fig. 8 is a fragmentary sectional elevation at the line *x x* of Fig. 6. Fig. 9 is a horizontal section taken through the valve-head, showing the relation of the ports and valve therein. Fig. 10 is a sectional detail illustrating successive positions of a coin-carrier and ejector.

In the several views like parts are identified by like signs.

The soda-water or other fluid or liquid to be sold may be contained in a tank 1, Fig. 1, arranged within a closet or chest 2, a pipe 3 leading from the tank to a valve-head or seat 4, contained within a casing 5, which is secured upon the wall of the closet or chest and contains the vending mechanism. A conical valve 6 is shown fitted in the head 4, and a discharge-pipe 7 leads from the head downwardly, terminating within a spout 8, provided upon the under side of the casing.

The liquid of course does not flow directly from the tank through the discharge-pipe, but is intercepted and measured, two measuring vessels 9 and 10 being provided within the chest, and preferably within a small compartment 11, adapted to contain ice for cooling the liquid to be sold. A pipe 12 leads from the head 4 to the measurer 9 and a pipe 13 from the head to measurer 10. The head 4 accordingly has four channels or ports—one for the supply, one for the discharge, and



two for the measurers. The supply-port is designated as 14 and is diametrically opposite the discharge-port 15. The port communicating with the measurer-pipe 12 is marked 16 and that associated with the measurer-pipe 13 is marked 17. It will be seen at Fig. 9 that the measurer-ports 16 and 17 are diametrically opposite and midway between the ports 14 and 15. For compactness and convenience, however, the ports 16 and 17 may be bowed, as illustrated, so that the pipes 12, 13, and 14 may range side by side. The discharge-pipe is secured by means of a flange 18, screw or gland 19, and packing-ring 20, and the other pipes may be similarly attached.

The valve 6 is of the four-way variety, being provided with a pair of channels 21, 22, out of communication with each other and each bowed so that its mouths are separated by ninety degrees, thus making four equidistant openings in the periphery of the valve to register with the ports in the head 4, as at Fig. 9. Either of the channels 21, 22 in the valve is capable of putting either of the measurer-ports 16, 17 into communication with either the supply-port 14 or the discharge-port 15. Moreover, when one measurer-port is in communication with the supply the other is in communication with the discharge. By giving the valve intermittent quarter-revolutions each measurer is accordingly filled and discharged in alternation, and while the discharge from the apparatus may be almost constant still each quantity discharged is measured before discharge, and no more than the measured quantity can be drawn off at a single operation.

At Fig. 9 the measurer 12 is shown in communication through the channel 21 with the discharge 7 and the measurer 13 through 22 with the supply 3. By turning the valve a quarter-revolution to the right, as indicated by the arrow, 12 will be put into communication through 22 with supply 3 and 13 through 21 with discharge 7. By giving the valve another quarter-turn the positions of the channels 21, 22 will be exactly the reverse of Fig. 9, but the effect will be the same as at Fig. 9, the channels being similar but oppositely disposed. The invention is not, however, limited to the use of a four-way valve in connection with the two measurers.

Upon the top of the valve, which may be of conical form and secured in its seat by a screw 23 and washers 24, 25, is secured by screw 26 a ratchet-wheel 27, having four equidistant teeth 28. A pawl 29, Figs. 2 and 5, in position to engage said teeth and rotate the valve, is pivoted by means of a screw 30 upon a horizontal plate-like member 31, which lies immediately beneath the top plate 32 of the casing 5 and turns about

a vertical axis or shaft 33, which is preferably concentric with the valve 6. Said plate 31 is fixed upon said shaft 33 by a screw 34, and from the upper end of the shaft or stem 33 projects a handle 35, whereby through the shaft, the plate, the pawl, and the ratchet-teeth the valve is operated.

The handle swings to and fro, one movement causing the pawl 29 to rotate the valve a distance of ninety degrees and the return movement of the handle being ineffective to turn the valve, the pawl slipping over the ratchet-tooth 28, being pressed into engagement with the succeeding tooth by a spring 36, Fig. 5. The return movement of the handle-plate 31 and pawl is effected by a spring 37. Thus by successive reciprocations of the handle the valve is given successive quarter-turns in a single direction, with the effect of discharging the measurers in alternation in the manner already set forth. The handle 35, however, is normally ineffective to turn said valve and can be rendered effective only by the insertion of a proper coin into the machine. A lock 38 is pivoted, by means of a screw 39, upon the under side of the plate 31 and is normally held by a spring 40 in such a position that its nose 41 engages a stop 42, fixed within the casing, as will be understood from Fig. 7, whenever an attempt is made to turn the handle without first inserting the coin, so that the handle cannot be swung sufficiently to operate the valve properly. When the parts are in normal position, a stop-arm 43, formed upon the plate 31, is held by the spring 37 against the inner wall of the casing, and the stop 38 is held by the spring 40 in contact with a bearer 44, fixed within the casing, the edge of the stop being curved at 45 concentrically with the axis 33 and resting against said bearer, but being rounded off at 46, so as to permit the lock to swing out to engage the stop 42, as at Fig. 7, at the initial portion of the movement of the handle 35. This lock is controlled by an inserted coin, which is designated as 47, Figs. 3 and 6, and is inserted through an aperture 48 in the top plate 32 into a pocket 49, formed in the top surface of the plate 31.

Against the inner edge of the coin bears a tongue 50, which is fixed upon the upper surface of the lock and occupies a recess 51 in the plate 31, the tongue being held against the coin by the spring 40. When the coin-pocket is unoccupied, there is nothing to prevent the tongue from projecting thereinto, as at Fig. 7, thus permitting the lock to swing out to engage the stop 42; but when the pocket is filled by a coin the movement of the lock is prevented, as at Fig. 6, and consequently said lock swings past the stop 42 and the handle 35 is permitted to make a full stroke, thereby operating the valve, giv-



ing the same a quarter-turn. As will be seen at Fig. 8, the tongue 50 is very thin and is formed upon the top of a rivet 52, whereby a space is left beneath the tongue into which an unduly thin coin or piece of metal may project, so that such thin metal or disk is ineffectual to unlock the handle. Moreover, a disk that is too small in diameter will also fail to hold the lock out far enough to pass the stop 42, while a disk that is too thick cannot be inserted into the pocket.

In operation the soda-water tank 1 is properly connected to the pipe 3 and the chest 11 is preferably supplied with ice. The valve 53 at the tank, Fig. 1, is opened, and the soda-water passes from the tank through pipe 3, port 14 in the valve-head 4, channel 22 in the valve, and port 17, to the measurer-pipe 13 and measurer 9, filling the same. A coin is inserted, as at Fig. 3, and the handle 35 is turned to the right as far as it will go, being arrested after making about a quarter-turn by any suitable means—as, for instance, a stop 54, Fig. 5, which is engaged by the edge of the stop-arm 43 of the coin-carrying plate 31. This movement of the handle through the pawl 29 and ratchet 27 gives the valve a quarter-turn, whereby the supply-pipe 3 becomes connected with the measurer 10 and the measurer 9 becomes connected with the discharge. The handle is held in this position until the fluid is all drawn off from the measurer 9. Then the handle 35 is released and returned to normal position by the spring 37, the pawl 29 riding over the ratchet-tooth 28.

At the initial movement of the handle a coin-ejector in the form of a spring-finger 55, attached by a screw 56 to the under side of the top plate 32, rides over the top of the coin, as will be understood from Fig. 10, but by means of a lip 57 hooks or engages said coin upon the return stroke of the coin-carrier 31 and ejects the same into a chute 58, which permits the coin to fall into a receptacle 59, Fig. 1. Upon the insertion of a fresh coin and operation of the handle the measurer 10 is drained, while 9 is filled, and the operation may be repeated until the tank is exhausted.

The channels or ports in the valve and valve-head are preferably duplicated, as at 22 22<sup>a</sup>, 15 15<sup>a</sup>, Fig. 2, said ports being of small diameter, so as to prevent too free escape of the soda-water and to effectually mingle the gas with the liquid. These duplicate ports are placed one above another, so as to register properly at the valve movements, and each of the packing-rings or washers 20 is of course formed with two apertures to match the ports.

The casing 5, it will be seen, comprises the top plate 32, a bottom plate 60, and a plate 61, curved to form side and front walls and

confined by the plates 32 and 60. These top and bottom plates are held by bolts 61<sup>a</sup> in recesses 62, formed in an open rectangular frame or base 63, which by screws 64 is attached to the wall of the chest 2, Fig. 1.

It will be observed that the casing may be very readily assembled and disassembled and also that the handle 35, being mounted in the top plate, is readily removable from the valve 6, which is mounted upon the bottom plate, or rather in the head 4, which is attached by screws 65 to the bottom plate. By simply taking out the screws 61 the casing and mechanism may be disassembled, so that all parts are readily accessible for inspection and repair.

Variations may be resorted to within the scope of my invention, and portions of my improvements may be used without others.

Having thus described my invention, I claim—

1. The combination of a casing, a handle mounted for a turning movement, a coin-carrier within the casing and connected to said handle to turn therewith, a lock pivoted upon said carrier and releasable by the insertion of a coin, and a fluid-controlling valve controlled by said handle.

2. The combination of a casing, a handle mounted for a turning movement, a carrier within the casing and rigid with said handle and provided with a coin-pocket, a lock pivoted upon said carrier and releasable by the insertion of a coin into said pocket, means for discharging said coin from said pocket, a coin-receptacle, and a fluid-controlling valve controlled by said handle.

3. The combination of a casing, a handle mounted for rotation, a carrier fixed to said handle and within said casing and provided with a coin-pocket, and a lock pivoted upon said carrier and provided with a spring and releasable by the insertion of a coin into said pocket.

4. The combination of a casing, a handle mounted for turning movement, a carrier within the casing and connected to the handle and provided with a coin-pocket, a lock movable upon said carrier and having a tongue projecting into said pocket, said tongue being so formed that it can be operated only by a coin of predetermined thickness and diameter, and a fluid-dispensing valve controlled by said handle.

5. The combination of a casing, a handle, a stem fixed to said handle, a coin-carrier fixed to said stem, a lock releasable by the insertion of a coin, and a coin-ejecting spring-finger mounted to engage the coin and eject the same during the return of the carrier to normal position, and a spring for returning said carrier.

6. The combination of a casing, a handle, a stem for said handle, a coin-carrier pro-



vided with a coin-pocket and mounted upon  
said stem within the casing, a lock pivoted  
upon the carrier and having a thin tongue  
projecting into said pocket, and a coin-  
5 ejector in the form of a spring-hook which  
rides over the face of the coin during the ini-  
tial movement of said handle, and upon the

return movement thereof falls behind the  
coin and ejects the same from the pocket.

JAMES A. KEYES.

Witnesses:

W. E. PEARSE,  
WILLIAM N. BREMER.