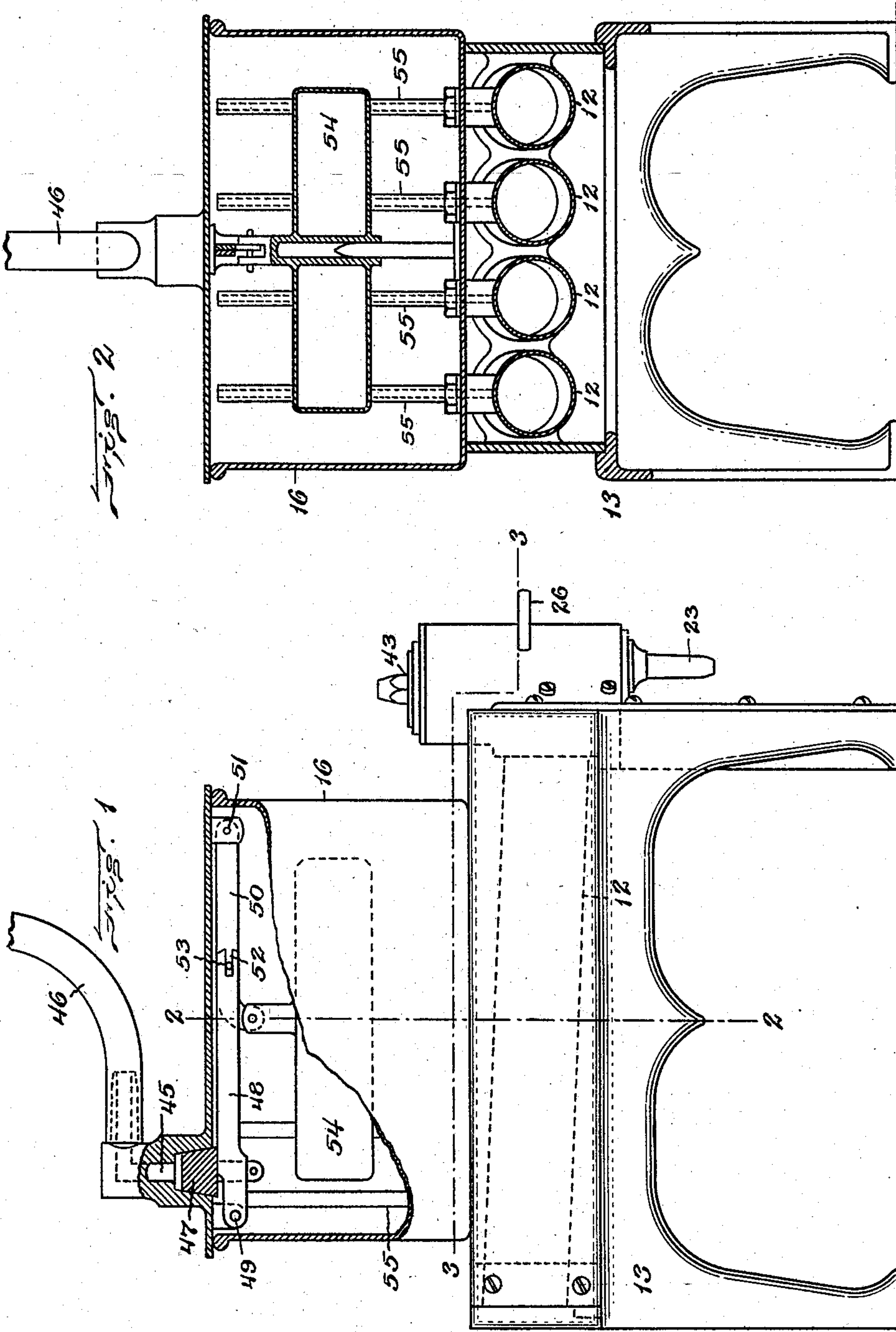


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APPLICATION FILED FEB. 5, 1908.

Patented Feb. 9, 1909.

3 SHEETS—SHEET 1.



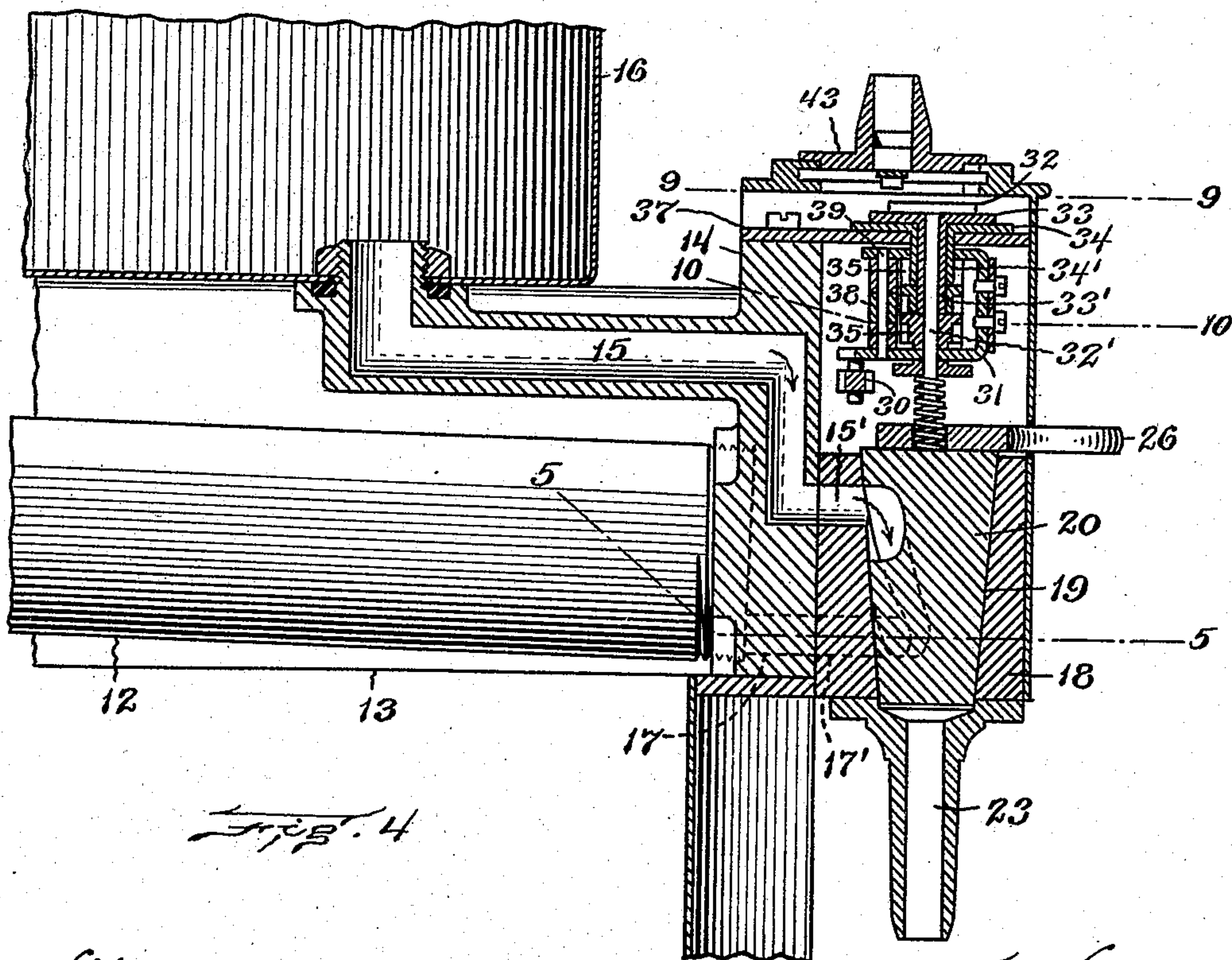
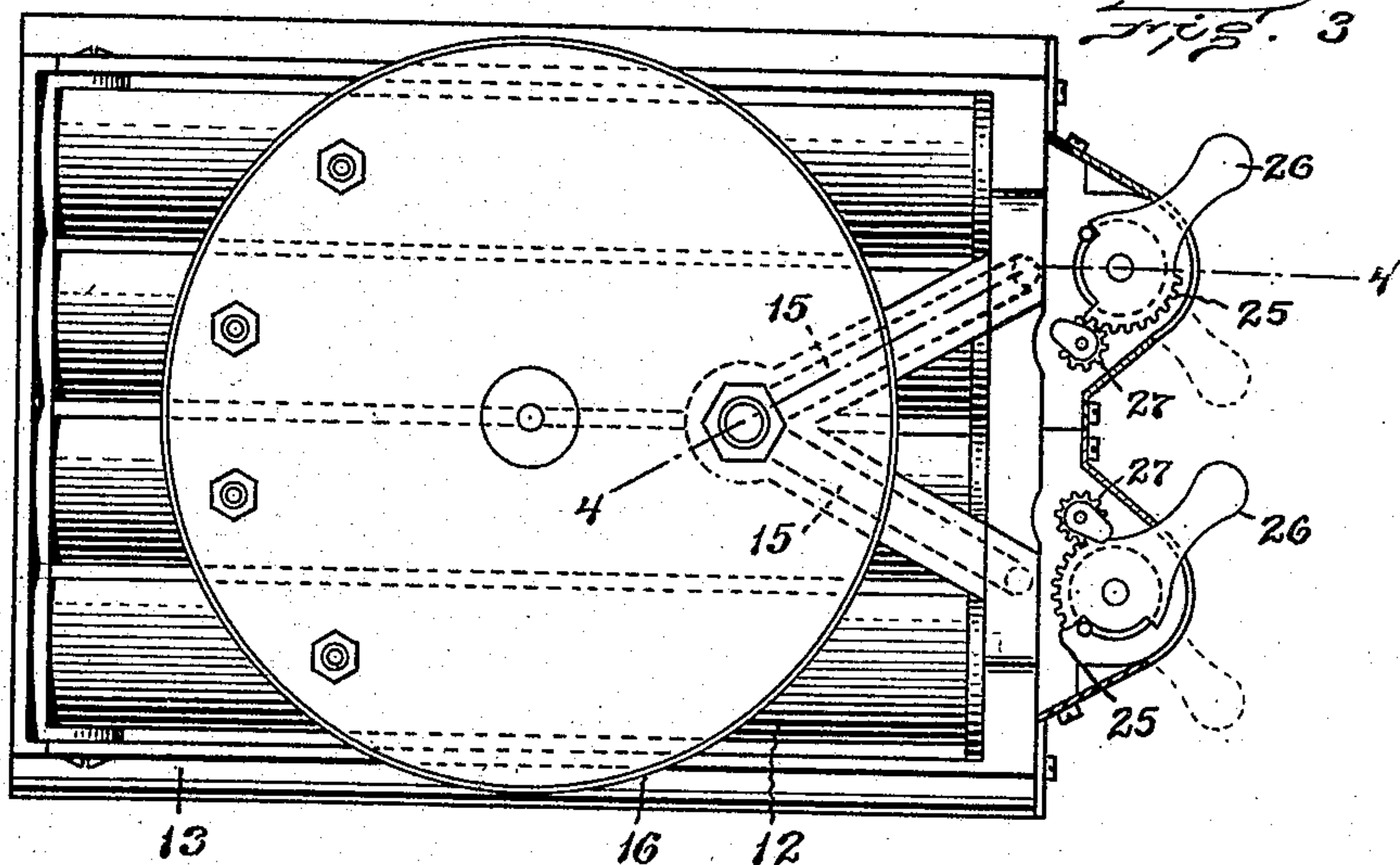
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3 SHEETS—SHEET 2.



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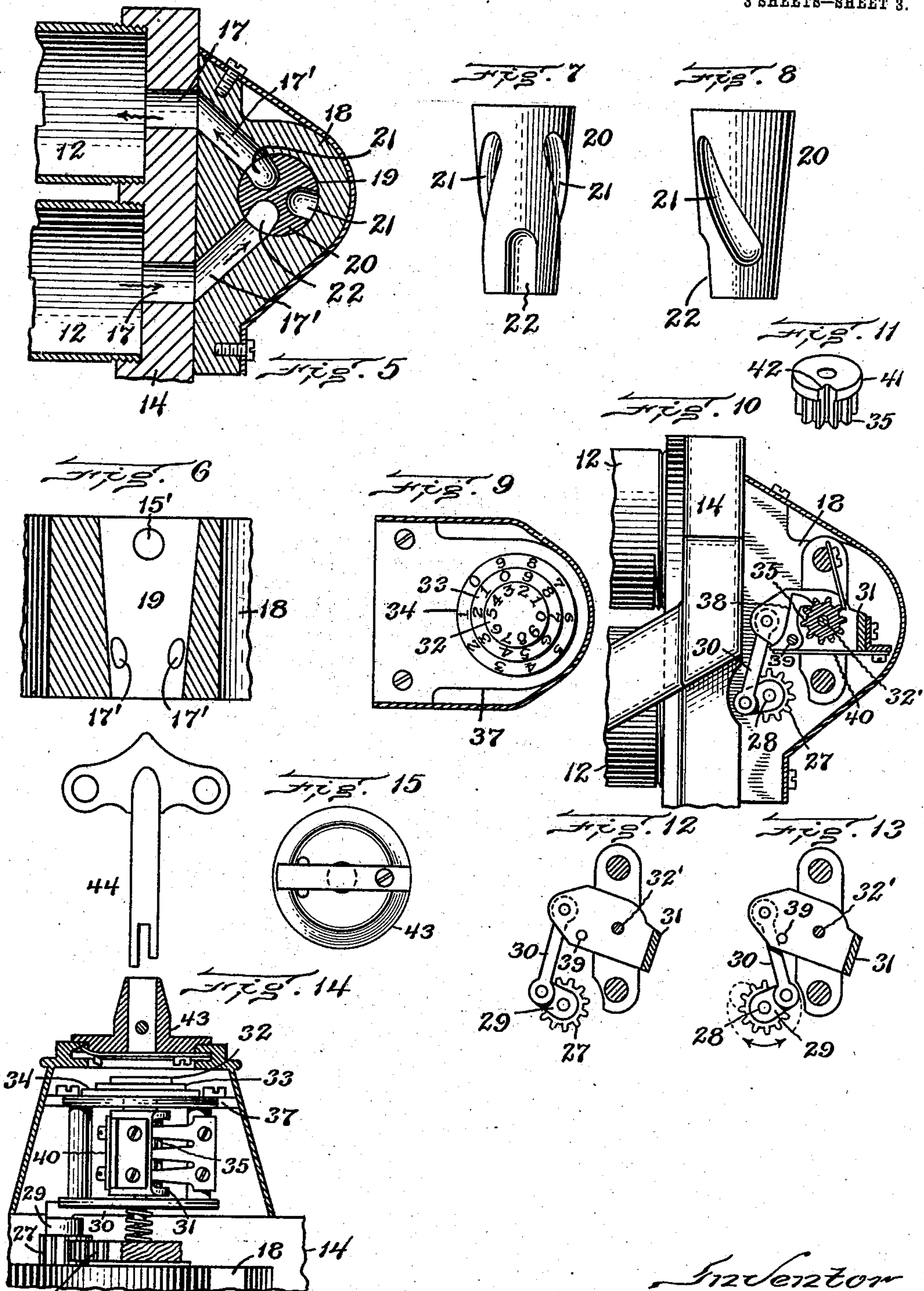
By *Edward Davis*
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

EDWARD DAVIS, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO CHARLES F. BROWN, TRUSTEE,
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DISPENSING APPARATUS.

No. 911,946.

Specification of Letters Patent.

Patented Feb. 9, 1909.

Application filed February 5, 1908. Serial No. 414,433.

To all whom it may concern:

Be it known that I, EDWARD DAVIS, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain new and useful Improvements in Dispensing Apparatus, of which the following is a specification.

This invention relates to apparatus for dispensing liquids in measured quantities or charges, and it has for its chief object to provide means whereby liquids may be conveniently dispensed and accurately measured, and also whereby the number of charges dispensed may be accurately registered to prevent fraud on the part of dishonest employees in the dispensing of liquids, and particularly spirituous and other beverages.

To this end, the invention consists in the improvements which I will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification,—Figure 1 represents a side elevation of a dispensing apparatus embodying my invention, a portion of the apparatus being shown in section. Fig. 2 represents a section on line 2—2 of Fig. 1, showing two pairs of receptacles. Fig. 3 represents a partial plan view of the apparatus, also showing two pairs of receptacles, portions of the casing thereof being shown in section on line 3—3 of Fig. 1. Fig. 4 represents a section on line 4—4 of Fig. 3. Fig. 5 represents a section on line 5—5 of Fig. 4. Fig. 6 represents a fragmentary sectional view of one of the valve casings, showing the preferred arrangement of liquid-conducting ports therein. Figs. 7 and 8 represent different side elevations of the liquid-controlling valve shown in section in Figs. 4 and 5. Fig. 9 represents a section on line 9—9 of Fig. 4. Fig. 10 represents a section of line 10—10 of Fig. 4. Figs. 11, 12, 13, 14 and 15 represent views of different parts of the registering mechanism.

The same numerals of reference indicate the same parts in all the figures.

The preferred embodiment of my invention includes two measuring receptacles 12, located side by side, and connected as hereinafter described, to constitute a pair, one receptacle of the pair being adapted to be charged while the other is being discharged. The receptacles are here shown as elongated cylinders supported by a suitable frame 13, each receptacle being somewhat

inclined, so that one end is lower than the other to permit the discharge of all the contents of the receptacle. The supporting frame includes a member 14, in which is formed a passage 15 communicating with a source of liquid supply, which is preferably the primary tank 16 hereinafter described, and two flow passages 17 17 which communicate with the lower portions of the reservoirs 12, each flow passage being adapted to conduct liquid into the accompanying receptacle to charge the same, and out of the receptacle to discharge it.

18 represents a frame member which is rigidly affixed to the member 14, and constitutes a valve casing having a valve chamber 19 in which is rotatably mounted a plug valve 20. The casing 18 has an inlet 15' which registers with the passage 15, and two flow ports 17' which register with the flow passages 17. In the periphery of the valve 20 are formed two oblique connecting passages 21, each of which is adapted to register at its upper end with the inlet port 15' and at its lower end with one of the flow ports 17', the arrangement being such that when the valve is turned to one position, one of the connecting passages 21 will connect the inlet port 15 with one of the flow ports 17', and permit the flow of liquid from the receptacle 16 to one of the measuring receptacles 12. When the valve is turned to another position, the other connecting passage 21 connects the inlet port 15' with the flow passage 17' leading to the other measuring receptacle. The valve 20 therefore has two connecting positions, one of which causes the filling or charging of one measuring receptacle, while the other causes the filling of the other measuring receptacle. The valve 20 is provided with a discharge passage 22, which is located between the lower ends of the connecting passages 21, and is arranged to coincide alternately with the flow ports 17', the lower end of said discharge passage communicating with a permanently open discharge spout or nozzle 23 at the lower end of the valve casing 18. The arrangement of the discharge passage 22 relatively to the connecting passages 21 is such that the discharge passage registers with one of the flow ports 17' when the valve is in each of its connecting positions, so that the measuring receptacle which has been previously charged and is not connected by a connecting

passage 21 with the inlet port, is connected by the outlet passage 22 with the permanent outlet 23, and is discharged while the other measuring receptacle is being charged. The operation of the apparatus may therefore be practically continuous; that is to say, the measured charges may be delivered through the outlet 23 in rapid succession, a filled measuring receptacle being ready for a discharge as soon as the companion measuring receptacle has been discharged.

An important feature of my invention consists in the utilization of the movable valve 20 as a member of a registering mechanism adapted to register or indicate the exact number of movements of the valve, and therefore the number of charges dispensed by the measuring receptacles. To the valve is rigidly affixed a gear segment 25 which moves with the valve, the latter being provided with a handle 26 here shown as formed in the same piece or part with the segment 25.

27 represents a pinion meshing with the segment 25, said pinion being mounted to rotate on a suitable fixed pintle 28 in the casing of the machine. The pinion is provided with a substantially integral crank arm 29, which is connected by a link 30 with a swinging U-shaped yoke 31.

32 33 34 represent numbered disks, which are arranged concentric with each other, and are rotatable independently, said disks being numbered as shown in Fig. 9, the disk 32 representing units; the disk 33, tens, and the disk 34, hundreds. To said disks are affixed, respectively, shafts 32' 33' 34', which are concentrically arranged as shown in Fig. 4, the shafts 33' 34' being tubular, while the shaft 32' passes through the inner tubular shaft 33. To each of said shafts is affixed a ratchet gear 35, there being three of said gears, and each being provided with ten teeth. The outer tubular shaft 34' is journaled in a fixed bearing in a plate 37 forming a part of a casing in which the registering mechanism is located, said tubular shaft 34' constituting a bearing for the tubular shaft 33', which in turn serves as a bearing for the shaft 32'. The upper arm of the yoke 31 is mounted to oscillate on the outer tubular shaft 34', while its lower arm is mounted to oscillate on the lower portion of the inner shaft 32'. The yoke is provided with dogs 38 engaging the ratchet gears 35, as shown in Fig. 10, there being one dog 38 for each gear, said dogs being mounted to oscillate upon a rod 39 affixed to the arms of the yoke 31. Springs 40 are provided for holding the dogs yieldingly in engagement with the ratchet wheels 35, as shown in Figs. 10 and 14. The units and tens gears are provided with a flange 41, which is of greater diameter than the teeth of the gear, and is provided between two gear teeth with

a notch 42 (Fig. 11). The described registering mechanism is so organized that each movement of the valve 20 imparts an oscillating movement to the yoke 31. From the yoke a step-by-step rotation is imparted to the units shaft 32'. After a complete rotation of this shaft, this movement is imparted through the described mechanism, to the tens shaft, which is moved one step. After the step-by-step movement of the tens shaft has resulted in a complete rotation thereof, it imparts in like manner a single step rotation to the hundreds shaft. Provision is thus made for registering any number of discharges up to one thousand, and it will be obvious that by increasing the number of elements of the registering mechanism, a larger number can be registered. The arrangement of the registering mechanism is such that the register operates before the valve reaches the position to discharge liquid, so that fraudulent discharge of liquid without operating the register is impossible. The register is inclosed in a suitable casing, which is provided with a removable cap or cover 43, which is automatically locked with the casing, and can only be unlocked by the employment of a special key 44 (Fig. 14), so that tampering with or unauthorized access to the register is prevented.

I have here shown the primary receptacle 16 provided with an inlet 45, which may be connected by a flexible or other tube 46 with a cask or other source of supply, and is provided with a valve 47. Said valve is supported on a member 48 of a compound lever, said member being fulcrumed at 49 in the receptacle 16. The other member 50 of said compound lever is fulcrumed at 51 in the receptacle, and is connected with the member 48 by a slot and pin connection 52 53. To one end of the lever member 50 is connected a float 54 adapted to rise and fall with the liquid in the receptacle 16. The arrangement is such that when the liquid falls in the receptacle below a given level, the valve 47 is opened, admitting more liquid, and when a sufficient quantity has been admitted, the valve 47 is raised to shut off the entrance of more liquid.

In Figs. 2 and 3 I have shown the invention embodied in an apparatus having four measuring receptacles arranged in pairs, but it is obvious that the number of receptacles may be varied to any extent required.

The measuring receptacles are provided with vent tubes 55, which extend upwardly into the upper portion of the primary receptacle 16, and permit the escape of air displaced by the liquid entering the measuring receptacles.

I claim:

1. A dispensing apparatus, comprising a pair of measuring receptacles, and means for charging and discharging the same, said

means including a valve casing having a liquid inlet, flow passages communicating with the measuring receptacles, and a discharge outlet, and a rotary plug valve having in its periphery connecting passages adapted to connect said inlet with each of the flow passages alternately, and an outlet passage located between the connecting passages and adapted to connect each flow passage alternately with the outlet.

2. A dispensing apparatus, comprising a pair of measuring receptacles, a source of liquid supply, a valve casing having an inlet port, a conduit connecting said port with the source of liquid supply, flow passages communicating with the measuring receptacles, and an outlet, and a rotary valve having in its periphery connecting passages adapted to connect the said inlet port with each of the flow ports alternately, and an outlet passage between said connecting passages adapted to connect each flow port alternately with the casing outlet.

3. A dispensing apparatus, comprising a pair of measuring receptacles, a source of liquid supply, a valve casing having an inlet port, a conduit connecting said port with the source of liquid supply, flow passages communicating with the measuring receptacles, and an outlet, a rotary valve having in its periphery connecting passages adapted to connect the said inlet port with each of the flow ports alternately, and an outlet passage located between the connecting passages and adapted to connect each flow port alternately with the casing outlet, and a register operated by movements of the valve.

4. A dispensing apparatus comprising a primary receptacle having an inlet, an outlet, means for supplying liquid to said receptacle, means for maintaining the liquid level in said receptacle below the top of the same to provide an air space above the liquid, measuring receptacles located below

the primary receptacle, vent tubes extending upwardly from the measuring receptacle into the air space in the primary receptacle, an intermediate valve casing having an inlet port communicating with the outlet of the primary receptacle, flow passages communicating with the measuring receptacles, and an outlet, and a rotary plug valve having in its periphery connecting passages adapted to connect said inlet port with each of the flow passages alternately, and an outlet passage located between said connecting passages and adapted to connect each flow passage alternately with the casing outlet.

5. A dispensing apparatus, comprising a primary receptacle having an inlet, an outlet, a float movable by liquid in the receptacle, an inlet valve, a compound lever, the members of which are separately fulcrumed in the receptacle, one of said members being connected with the float, and the other with the inlet valve, measuring receptacles located below the primary receptacle, vent tubes extending upwardly from the measuring receptacles into the primary receptacle and above the maximum liquid level thereof, an intermediate valve casing having an inlet port communicating with the outlet of the primary receptacle, flow passages communicating with the measuring receptacles, and an outlet, and a rotary valve having in its periphery connecting passages adapted to connect the said inlet port with each of the flow ports alternately, and an outlet passage located between said connecting passages and adapted to connect each flow port alternately with the casing outlet.

In testimony whereof I have affixed my signature, in presence of two witnesses.

EDWARD DAVIS.

Witnesses:

C. F. BROWN,
P. W. PEZZETTI.