

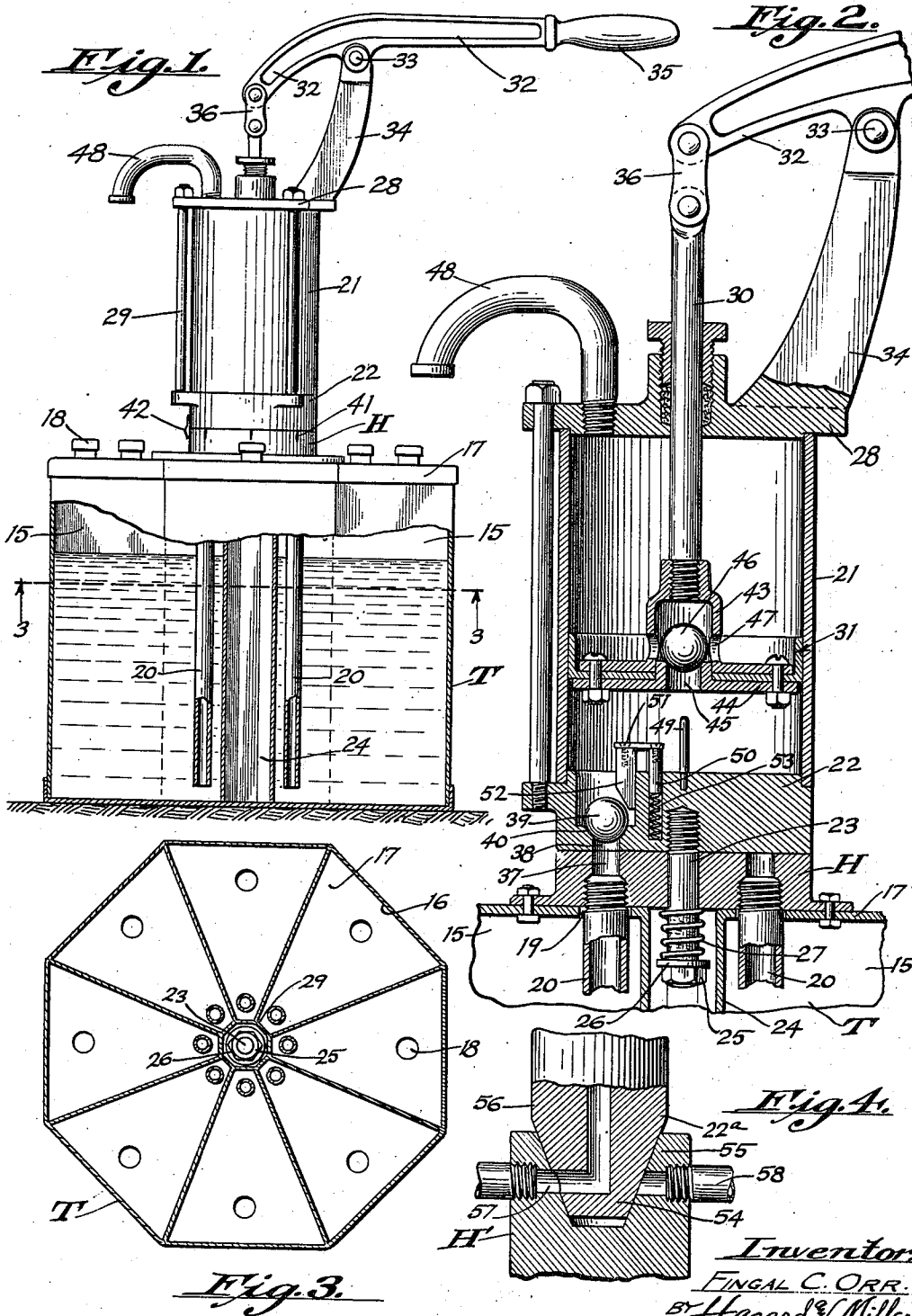
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LIQUID DISPENSING APPARATUS

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UNITED STATES PATENT OFFICE.

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LIQUID-DISPENSING APPARATUS.

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To all whom it may concern:

Be it known that I, FINGAL C. ORR, a citizen of the United States, residing at Burbank, in the county of Los Angeles and State of California, have invented new and useful Improvements in Liquid-Dispensing Apparatus, of which the following is a specification.

My invention relates to dispensing apparatus for liquids, and a purpose of my invention is the provision of a dispensing apparatus which is particularly adapted, although not necessarily, for the dispensing of lubricating oils at gasoline and oil supply stations, and the invention consists in a plurality of tanks or compartments, each containing a different brand or quality of oil, and a pump movably mounted to associate its inlet port with any one of the tanks or compartments to effect, when operated, the dispensing of oil from any one of the several tanks or compartments.

It is also a purpose of my invention to provide a liquid dispensing apparatus including a pump which functions to effect drainage of the liquid content between its periods of operation, so that at each shifting and pumping operation the new oil introduced into the pump will not be contaminated by the oil of the other tanks.

I will describe one form of liquid dispensing apparatus embodying my invention, and will then point out the novel features thereof in claims.

In the accompanying drawings,

Figure 1 is a view showing in side elevation and partly in section one form of liquid dispensing apparatus embodying my invention;

Figure 2 is a fragmentary vertical sectional view of the apparatus shown in Figure 1;

Figure 3 is a transverse sectional view taken on the line 3—3 of Figure 1;

Figure 4 is a fragmentary sectional view showing a modified form of pump and tank connection embodying my invention.

Referring specifically to the drawings, in which similar reference characters refer to similar parts, my invention, in its present embodiment, comprises a tank designated generally T and preferably of polygonal form, as shown in Figure 3, to render it compact and of ornamental appearance. By means of radially arranged partitions 15, the

tank T is divided into a plurality of compartments 16, and all of the compartments are provided with a common cover plate 17 formed with intake ports 18 and dispensing ports 19, through which dispensing pipes 20 are extended. As clearly shown in Figure 1, the lower ends of the pipes 20 terminate at points spaced from the bottom of the tank T, while their upper ends are threadedly fitted within a common head H bolted or otherwise secured to the cover 17.

As clearly shown in Figure 2, the liquid dispensing apparatus also includes a pump comprising a cylinder 21, the lower end of which is normally closed by an integrally formed head 22, mounted for rotational movement on the head H by means of a rod 23 threadedly fitted in the head 22 and extending loosely through the head H with its lower end extending into a sleeve 24, where it is provided with a nut 25 and a washer 26, the latter bearing against a coiled expansible spring 27 for normally urging the rod and, consequently, the head 22, downwardly toward the head H. The sleeve 24 constitutes the axis of the tank T and provides means for rigidly sustaining the inner ends of the partitions 15 in the manner clearly shown in Figure 3. The upper end of the cylinder 21 is closed by a head 28 secured to the cylinder by means of bolts 29 and formed with an axial opening which slidably receives the rod 30 of a piston 31. The piston 31 is mounted for sliding movement within the cylinder 21 and movement of this piston is effected through the medium of a lever 32 fulcrumed at the point indicated at 33 upon an arm 34 fixed to or formed integral with the head 28. The lever 32 is provided at one end with a handle 35, while its opposite end is curved downwardly, as clearly shown in Figure 1, and operatively connected to the upper end of the rod 30 by means of a link 36. By this arrangement, it will be seen that rocking movement of the lever 32 effects a reciprocating movement of the piston 31.

As clearly shown in Figure 2, the head H is provided with a plurality of ports 37, one for each pipe 20, and as there is only one pipe for each of the compartments 16, it will be clear that there is only one port 37 for each compartment. The port 37 is in communication with the corresponding pipe 20 at its lower end, and is adapted to com-

communicate at its upper end with an intake port 38 controlled by a ball valve 39, which normally rests on a seat 40 to close the port 38. The port 38 is formed with a head 22 and at such a point therein that when the cylinder 21 is rotated it will successively register with all of the ports 37. By this arrangement the port 38 can be moved into registration with any one of the ports 37 by imparting a rotational movement to the cylinder 21, and to visibly indicate the exact position of the port 38 with respect to the ports 37, the periphery of the head H is formed with graduations indicated at 41, with one graduation for each of the ports 37. The head 22 carries upon its periphery a pointer or indicator 42 which is adapted to co-act with the graduations 41 to visibly and definitely indicate the position of the port 38, thus facilitating the registration of such port with any desired port 37.

As shown in Figure 2, the piston 31 includes a hollow hub portion 43 and head portion 44 provided axially thereof with a port 45 controlled by a ball valve 46 mounted within the portion 43 to normally close such port. The hub portion 43 is formed with openings 47 which work in conjunction with the port 45 to effect communication from the lower side of the piston 31 to the upper side thereof. The oil is discharged from the cylinder 21 through a spout 48 threadedly fitted in the head 28 and having its discharge end offset with relation to the cylinder 21.

For the purpose of effecting the drainage of liquid from the pump during the periods in which it is not in use, the head 22 is provided axially thereof with an upstanding pin 49 which, in the lowermost position of the piston 31 is adapted to extend through the port 45 so as to unseat the valve 46. A stud 50 is slidably fitted within the head 22, and supported upon this stud by means of an arm 51 is a lug 52 tapered at its lower end and adapted to engage the ball 39 for unseating the latter. The stud 50 and, consequently, the lug 52 are urged upwardly by means of a spring 53 so that the lug normally disengages the ball 39. However, with the piston 31 in its lowermost position, it engages and depresses the arm 51 against the action of the spring 53, thereby lowering the lug 52 and causing it to displace the valve 39 from its seat 40.

The operation of the apparatus is as follows: When it is desired to dispense oil or any other liquid from a particular compartment 16, the cylinder 21 is rotated until the indicator 42 coincides with the corresponding graduation 41, thus indicating that the port 38 is in registration with the corresponding port 37. By rocking the lever 32, the piston 31 is reciprocated within the cylinder 21 and under the action of the valves

39 and 46 oil is drawn into the lower part of the cylinder on each upstroke of the piston and simultaneously dispelled therefrom through the spout 48, it being understood that the oil leaves the corresponding compartment through the pipe 20. Before dispensing oil from another compartment, it is necessary that the piston 31 be moved to its lowermost position to unseat the valves 39 and 46, thereby effecting communication between the upper and lower sides of the piston through the ports 45 and 47, and effecting communication between the lower end of the cylinder 21 and the corresponding pipe 20 through the ports 38 and 37. This obviously allows the oil above and below the piston 31 to drain into the pipe 20 and ultimately into the corresponding compartment.

Referring to Figure 4, I have here shown a modified means for rotatively sustaining the head 22 upon the head H. In this embodiment of my invention, the head designated at 22^a is provided with a tapered extension 54 which fits in a correspondingly shaped socket 55 in the head H'. Both of the heads 22^a and H' are relatively attenuated with respect to the heads 22 and H, the extension 54 serving to rotatively sustain the heads and, consequently, the entire pump upon the tank. The head and the extension are both formed with a duct 56 adapted to communicate at its lower end with any one of a plurality of ducts 57. A pipe 58 communicates with each of the ducts 57 and this pipe is designed as an extension of the pipe 20 to provide means for conveying oil from the corresponding compartment to the head H'.

From the foregoing construction, it will be clear that by rotational movement of the head 22^a any duct 57 can occupy a communicating position with respect to the duct 56, so that with the upper end of the latter provided with a valve 39 as in Figure 2 operation of the pump will effect the withdrawal of the oil from the corresponding compartment into the cylinder of the pump.

Although I have herein shown and described only one form of liquid dispensing apparatus embodying my invention, it is to be understood that various changes and modifications may be made herein without departing from the spirit of the invention and the scope and spirit of the appended claims.

I claim as my invention:

1. A liquid dispensing apparatus comprising a plurality of compartments and a pump, outlets for each of the compartments, a common means movable to communicate with any one of the outlets for effecting a withdrawal of the liquid content of the corresponding compartment, and means operating to allow a drainage of the liquid content of the pump into a compartment when the pump is inactive.

2. A liquid dispensing apparatus comprising a plurality of compartments having outlet ports, and a pump having an inlet port and movably associated with the compartments to allow said port to be moved into registration with any of the outlet ports, a discharge port in the cylinder and a piston movable within the cylinder and operating to withdraw the liquid from a compartment and to expel same from said discharge port.

3. A liquid dispensing apparatus comprising a plurality of compartments having outlet ports, and a pump having an inlet port and movably associated with the compartments to allow said port to be moved into registration with any of the outlets, a valve controlling said port, a piston movable within the cylinder and having a port therein, a valve controlling the piston port, a discharge port for the cylinder, and means for actuating the piston.

4. A liquid dispensing apparatus comprising a plurality of compartments having outlet ports and a pump having an inlet port and movably associated with the compartments to allow said port to be moved into registration with any of the outlets, a valve controlling said port, a piston movable within the cylinder and having a port therein, a valve controlling the piston port, a discharge port for the cylinder, means for actuating the piston, and means for maintaining said valves in open position when the piston is in one extreme position to allow of a drainage of the liquid content from the cylinder.

5. A liquid dispensing apparatus comprising a plurality of compartments, an outlet for each of the compartments, a pump comprising a cylinder rotatably sustained and having an intake port adapted to register with any one of the outlets, a piston movable within the cylinder and having a port there-

in, a discharge port for the cylinder, and valves for controlling the intake and piston ports in such manner that when the piston is reciprocated within the cylinder the liquid within any one of the compartments will be drawn into said cylinder and discharged therefrom through said discharge port.

6. A liquid dispensing apparatus comprising a plurality of compartments, an outlet port for each compartment, a cylinder mounted for rotational movement and including an intake port arranged to register with any of the outlet ports, a discharge port for the cylinder, a piston movable within the cylinder and having a port formed therein, valves for controlling said intake and piston ports, means for reciprocating the piston, and means co-acting with the piston to effect an unseating of said valves when the piston is in its lowermost position.

7. A liquid dispensing apparatus comprising a plurality of compartments, an outlet port for each compartment, a cylinder mounted for rotational movement and including an intake port arranged to register with any of the outlet ports, a discharge port for the cylinder, a piston movable within the cylinder and having a port formed therein, valves for controlling said intake and piston ports, means for reciprocating the piston, means co-acting with the piston to effect an unseating of said valves when the piston is in its lowermost position, said means comprising a pin adapted to engage the piston valve, and a lug normally urged to a disengaging position with respect to the valve of the intake port and adapted to engage and unseat the latter when said piston is in its lowermost position.

In testimony whereof I have signed my name to this specification.

FINGAL C. ORR.