

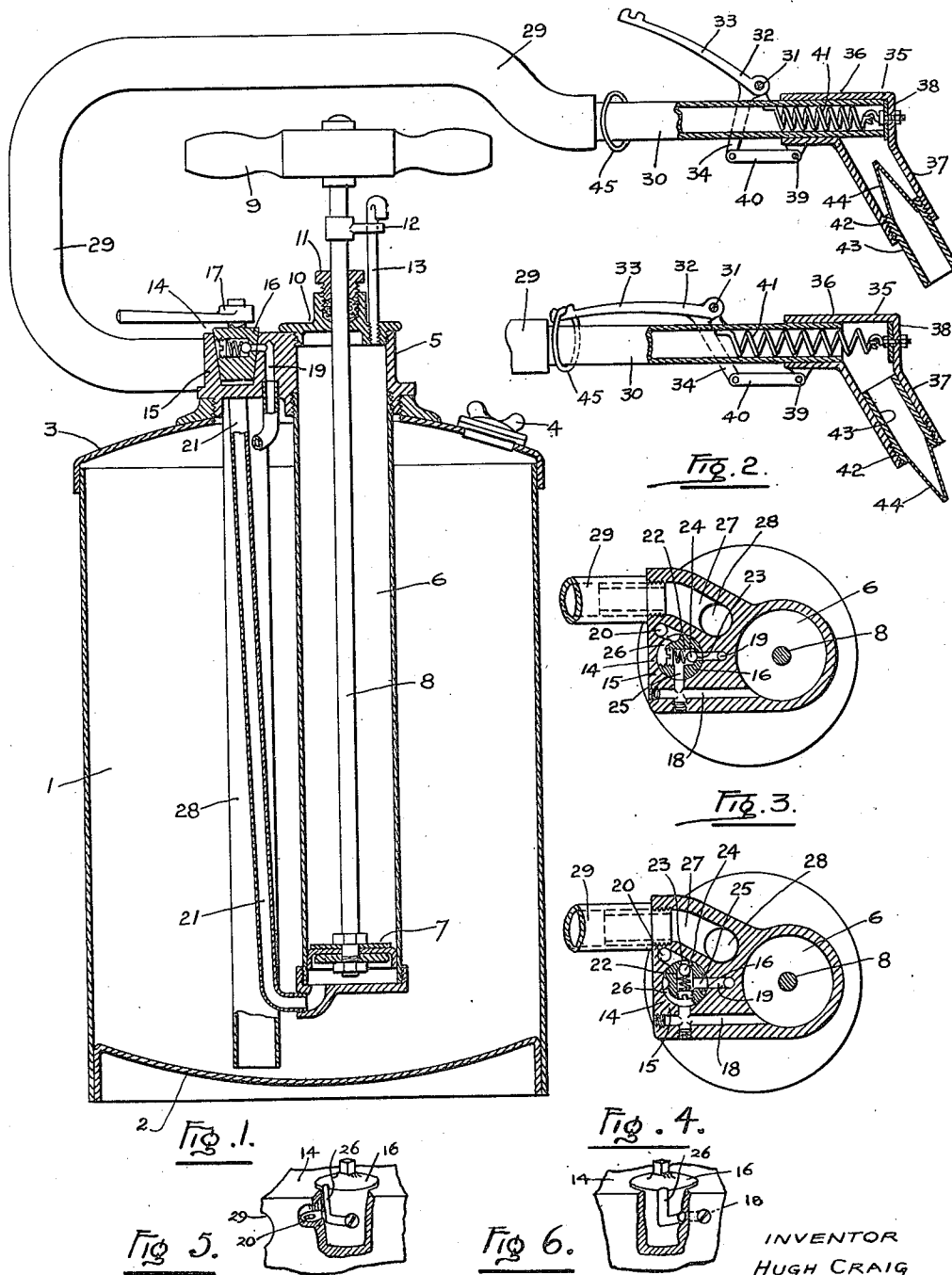
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FILLER TANK

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UNITED STATES PATENT OFFICE.

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FILLER TANK.

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To all whom it may concern:

Be it known that I, HUGH CRAIG, a subject of the King of Great Britain, and a resident of the city of Calgary, in the Province of Alberta, Canada, have invented certain new and useful Improvements in Filler Tanks, of which the following is a specification.

My invention relates to improvements in filler tanks and the object of the invention is to provide a pump by which gasoline or other liquid may be drawn, or discharged from a sealed tank through a single flexible connection and to provide a readily transportable filler tank for automobile garages, field or factory, which can be conveniently filled from an oil drum situated at a similar level to that of the tank. My invention consists essentially of a sealed tank having a single acting air pump disposed therein by which a pressure or vacuum is produced and to which is fitted a flexible hose and a combined delivery and suction nozzle through which fluid is adapted to be strained, as will be more fully described in the following specification.

Fig. 1 is a sectional view of my invention showing the valve in vacuum position and the nozzle closed.

Fig. 2 is a sectional view showing the nozzle open.

Fig. 3 is a sectional plan view of the valve in vacuum position.

Fig. 4 is a sectional plan view of the valve in pressure position.

Fig. 5 is a perspective detail of my valve showing the valve case broken away and the parts in the vacuum position.

Fig. 6 is a similar view to Fig. 5 showing the parts in the pressure position.

In the drawings like characters of reference indicate corresponding parts in each figure.

The numeral 1 indicates a tank having a bottom closure 2 and a top closure 3, 4 is a filler plug through which the tank may be filled from any suitable source of supply if desired without the use of the air pump. 5 indicates generally a single acting air pump of which 6 is the barrel extending into the tank 1. 7 is a plunger. 8 is a plunger rod and 9 an operating handle. 10 is a top closure for the pump barrel 6 in which is provided a packing gland 11 by which the upper end of the pump is rendered airtight. 12 is a projecting lug upon the upper end

of the plunger rod 8. 13 is an upstanding hook rotatably mounted in the top closure 10 which is adapted for engagement with the lug 12 so as to permit the securing of the plunger in depressed position that the tank may be conveniently carried by the handle 9. The numeral 14 indicates generally, a valve (see Figs. 3 and 4) of which 15 is the valve body, 16 the valve plug and 17 a handle by which the valve is turned. 18 is a port leading from the upper end of the pump barrel 6 into the valve 14. 19 is a port leading from the top of the tank to the valve. 20 is a further port by which connection is established through a tube 21 (see Fig. 1) from the lower end of the pump barrel 6 to the valve. It will be noted that the ports 18 and 20 enter the valve 180 degrees apart and that the port 19 enters at an angle of 90 degrees from both. The valve plug is provided with a port 22 of which 23 is the entrance end, 24 is a ball valve to close against a return flow there-through. 25 is the outlet to the port 22 and 26 is a groove cut vertically downwards in the face of the plug from its upper end to the level of the port 22 where it follows the periphery of the plug for 90 degrees terminating at a point diametrically opposite the ball valve 24 to register as desired (see Figs. 3 and 4) with the port 20 or 18.

The numeral 27 (see Figs. 3 and 4) is a fluid passage leading to and from the tank 1 to which is connected a pipe 28 (see Fig. 1) extending downwards in the tank to a point adjacent the bottom closure 2. 29 is a flexible hose pipe leading to the outer end of the passage 27. The numeral 30 indicates a tube attached to the outer end of the hose 29 which is provided intermediate its length with an upstanding hinge pin 31 upon which is fulcrumed a bell crank lever 32 having a leg 33 and a leg 34.

The numeral 35 indicates generally, an angular nozzle having a leg 36 and a further leg 37, the leg 36 forms a sleeve having a closure 38 slidable upon the tube 30 and is provided with a hinge member 39 by which connection is made to the outer extremity of the leg 34 of the bell crank lever 32 by a link 40, whereby the sleeve is moved outwards along the tube 30 to open the outer end thereof. 41 is a tension spring connected at its inner end to the tube 30 and at its outer end to the closure 38 whereby the sleeve is held in normally closed position upon the

tube. The leg 37 of the nozzle is internally threaded at its outer end as at 42 and is fitted with a tube 43 threaded to engage the outer end of the leg 37, the threaded end of the tube being provided with a conical strainer 44, the strainer being used in the manner shown in Fig. 1 when discharging from the tank and as shown in Fig. 2 when drawing liquid into the tank.

The numeral 45 indicates a ring freely movable along the tube 30 which is adapted to engage the outer end of the leg 33 of the bell crank 32 to hold the nozzle in extended or open position upon the tube 30.

Having thus described the several parts of my invention I will now briefly explain the manner in which liquid is drawn into and discharged from the tank.

To draw liquid into the tank the nozzle is set in open position and is inserted into the drum to be drawn from, and valve 16 set in the position shown in Fig. 3, on the down stroke of the pump air is drawn from the tank through port 19 into port 22 past the ball valve 24 and through port 18 into the top of the pump barrel 6. The air which is below the plunger 7 is forced through the tube 21 into port 20 and discharges to the atmosphere through the groove 26 of the valve plug 16 causing a rarefied air condition in the tank which produces suction at the nozzle to draw the liquid through the hose, the passage 27 and down the pipe 28 into the tank.

To discharge liquid from the tank the valve is set in the position shown in Fig. 4, when on the downward stroke of the pump, air is drawn from the atmosphere along the groove 26 of the valve plug 16 through port 18 and into the pump barrel, the air below the plunger 7 being forced through the tube 21, the port 20 of the valve body, the port 22 of the valve plug past the ball valve 24 and through port 19 into the top of the tank, developing therein an air pressure by which the liquid is forced upwards through the pipe 28, the hose 29 and the nozzle 35.

What I claim as my invention is:

1. A filler tank comprising a sealed tank body, a single co-acting air pump mounted within the tank, a pipe adapted to serve either as an inlet or outlet communicating with the bottom portion of the tank, and means co-acting with the pump for increasing or decreasing at will the air pressure in the upper portion of the tank.

2. A filler tank comprising a tank body, a

pipe adapted to serve either as a fluid inlet or outlet communicating with the bottom portion of the tank, an air pump mounted in the tank, and means for directing the air discharged from the lower end of the pump either to the atmosphere or into the top of the tank.

3. A filler tank comprising a tank body, a pipe adapted to serve either as a fluid inlet or outlet communicating with the bottom portion of the tank, an air pump mounted in the tank, an air discharge pipe leading from the bottom of the pump cylinder through the tank wall, and valve controlled means for directing the discharged air either to the atmosphere or into the top of the tank.

4. In a filler tank, the combination with the tank body, provided with a fluid passage serving as an inlet or discharge, an air discharge pump and air discharge pipe leading from the bottom of the pump cylinder through the wall of the tank, of an air pipe serving as an inlet or outlet to the top of the tank, and a valve adapted to direct the air from the discharge pipe either to the atmosphere or to the air pipe serving as an inlet.

5. In a filler tank, the combination with the air discharge pipe of the pump and air discharge pipe of the tank, of a valve casing, and plug provided with ducts and ports to either direct the air from the tank top into the top, of the pump cylinder and from the bottom of the pump cylinder to the atmosphere or from the bottom of the pump cylinder into the top of the tank, and from the top of the pump cylinder to the atmosphere.

6. A filler tank comprising a sealed tank having a top closure, a single acting pump projecting through the top closure into the tank, a valve body having three ports communicating respectively with the top and the bottom of the pump and the interior of the tank adjacent the top closure, a valve plug alternately connecting the ports of the valve body to lead to the bottom of the pump cylinder and the top of the pump cylinder to the atmosphere, and alternately connecting the top and bottom of the pump cylinder to the tank.

Dated at Calgary, Alberta, this 4th day of April, 1923.

HUGH CRAIG.

Witnesses:

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