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L. B. GRUMAN

PUMP

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Fig. 1.

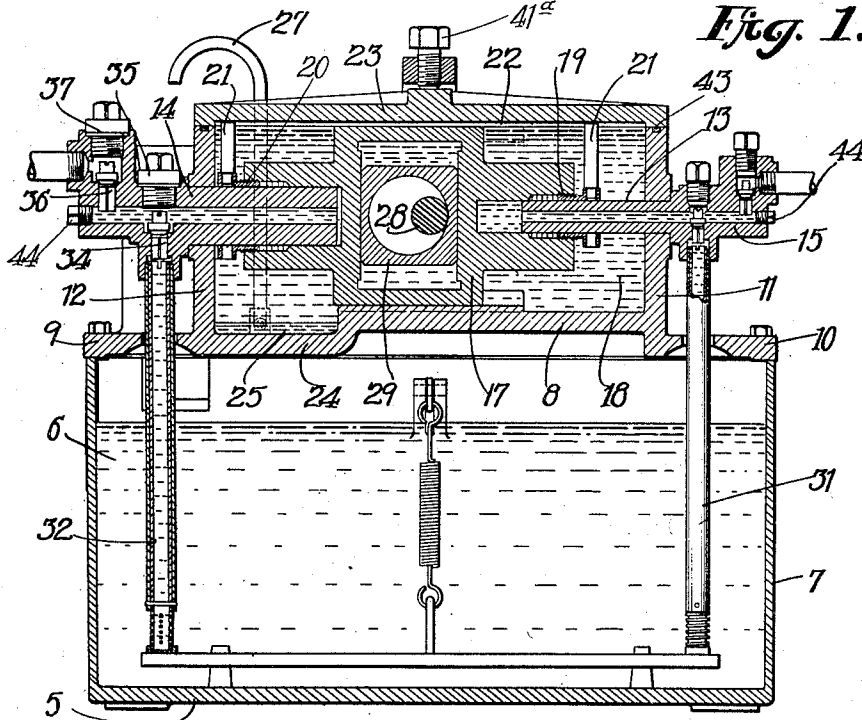
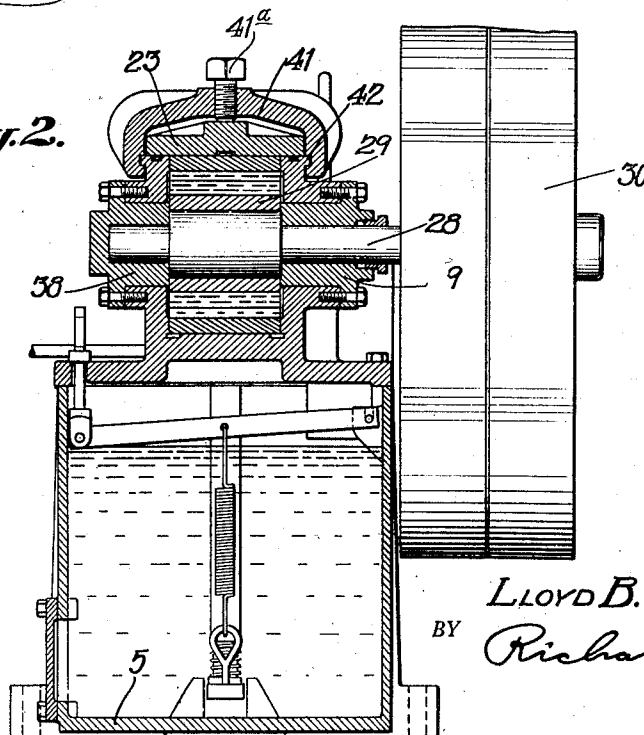


Fig. 2.



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To all whom it may concern:

Be it known that I, LLOYD B. GRUMAN, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Pumps, of which the following is a specification.

This invention relates to pumps and more particularly to a novel and improved reciprocating pump wherein the pump body is adapted to operate relatively to stationary plungers having suction and discharge valves, being a reversal of the well-known and standard type of pump.

One of the objects of my invention is to provide a stationary pump having a reciprocating pump body operable within a pump housing including stationary plungers, each having suction and discharge valves mounted within the plunger exteriorly of the pump housing.

To enable others skilled in the art to fully comprehend the underlying features of my invention that they may embody the same in the various modifications in structure and relation contemplated, drawings depicting a preferred form have been annexed as a part of this disclosure and in such drawings, similar reference characters denote corresponding parts throughout all the views, of which,

Figure 1 is a longitudinal, sectional view through the pump body housing and cistern.

Figure 2 is a sectional end view.

Referring now to the drawings, wherein like reference characters designate corresponding parts throughout all the views, 5 designates the bottom and 6, 7, the ends of a rectangular cistern in communication with any suitable source of supply, not shown. On the open top of the cistern there is mounted a pump housing, the bottom 8 of which is formed with end flanges 9, 10, whereby it may be seated on the cistern above referred to. The ends 11, 12, of the pump housing are drilled to receive stationary plungers 13, 14, each of said plungers having an enlarged head or body 15, adapted to accommodate a suction and discharge valve therein, subsequently to be referred to.

The pump body proper 17, within the oil or lubricating chamber 18, of the pump housing is recessed at its opposite ends and provided with packing glands 19, 20, said pump body being adapted to reciprocate with respect to the stationary plungers above re-

ferred to. Each packing gland is provided with a gland locking pin 21, the upper end of which operates in a groove 22, formed in the bottom of the cover plate 23.

Reference being had in particular to Figure 1 of the drawings, it will be seen that the bottom 8 of the pump housing is somewhat offset as at 24 to permit of the deposit and seepage of water as indicated at 25, which will eventually leak through the packing glands as they wear. In other words, if water is being pumped, it will in time leak through the glands into the chamber 18 and will eventually seek a lower level than the oil or lubricant within the pump housing. The pressure within the pump housing due to leakage through the packing gland will expel the liquid from the chamber 25 and to that end I have provided a pipe connection and conduit 27 in the nature of a vent pipe whereby the small amount of liquid may be withdrawn and will also indicate the condition of the glands.

The operation of the pump body is effected through the eccentric shaft 28 and eccentric bushing 29 operable by the pulley wheel 30 from any suitable source of power. Within the cistern is positioned the suction pipes 31, 32, connected to the head 15 of the respective stationary plungers, the suction valve 34 of each of the said conduits controls the passage of the liquid upon each suction stroke of the pump body. In order to gain access to the suction valve, I have provided a threaded plug 35 in the top of the stationary plunger, adjacent the ends 11, 12, of the pump housing. A discharge valve 36 is preferably offset from the suction valves and in this instance also, I have provided a threaded plug 37 whereby access may be had to said discharge valves to either replace or repair the same with facility and ease. As shown by Figure 2 of the drawings, the shaft 28 is provided with suitable end bearings 38, 39 to permit of the efficient operation of the mechanism.

The cover plate heretofore referred to by numeral 23 is preferably locked to the top of the housing by the yoke and yoke bolt 41, 41^a, it being observed that the arms of said yoke are grooved to accommodate the side flanges 42 and that the cover plate is also provided with a packing 43 between its bottom and the top of the said pump housing.

While I have illustrated and described my

mechanism with relation to the eccentric shaft and eccentric bushing, it will be readily recognized that the construction may be duplicated for the operation of a series of
 5 stationary plungers in which instance a crank shaft, suction and discharge valves would be necessary for the pump housing. The heads 15 of the stationary plungers are preferably sealed by threaded plugs 44 and
 10 direct communication may be had to the passage within the stationary plungers whereby the liquid may be pumped to suitable conduits, not shown, where desired. The valve trip mechanism shown, but not described or
 15 claimed in this application, constitutes the subject matter of another application based on this construction. All of the parts of the mechanism and particularly the valve and pump body are so arranged that access
 20 can be had to the interior of the pump for repair work and replacement without entirely dismantling the pump housing.

While I have shown and described my invention, what I claim as new and desire
 25 to secure by United States Letters Patent is:—

1. A pump of the class described comprising a housing, stationary plungers supported by the ends of the housing, a cross head interfitting with said stationary plungers,
 30 means for reciprocating said cross head relatively to the inner ends of the plungers, and suction and discharge means carried by said plungers outside the housing.

35 2. A pump of the class described comprising

a cistern and pump housing, opposed stationary plungers extending within the housing, a reciprocating pump body, an eccentric shaft and bushing for actuating said
 40 body relatively to the inner ends of said plungers, conduits connecting the plungers with the cistern and suction and discharge valves within the heads of the plungers outside the housing.

3. A pump of the class described comprising a cistern and pump housing, stationary
 45 plungers extending within the ends of the pump housing, conduits connecting the heads of the plungers with the cistern, suction valves within the conduits outside the
 50 housing, discharge valves within the plunger heads, a reciprocating pump body movable relatively to the inner ends of said plungers, a cover plate for the housing and
 55 means for locking said plate.

4. A pump of the class described comprising a cistern and pump housing, stationary
 plungers extending within the ends of the housing, conduits connecting the plungers
 60 with the cistern, suction and discharge valves in the conduits and plunger heads respectively, a pump body, an eccentric shaft and bushing for actuating said pump
 65 body relative to the plungers, packing glands within the pump body, a cover plate for said housing, and means for locking the said packing glands to the cover plate.

In testimony whereof I affix my signature.

LLOYD B. GRUMAN. [L. S.]