July 30, 1929. J. W. GURLEY 1,722,289

PUMP

Filed Sept. 10, 1928

Fig. 1.

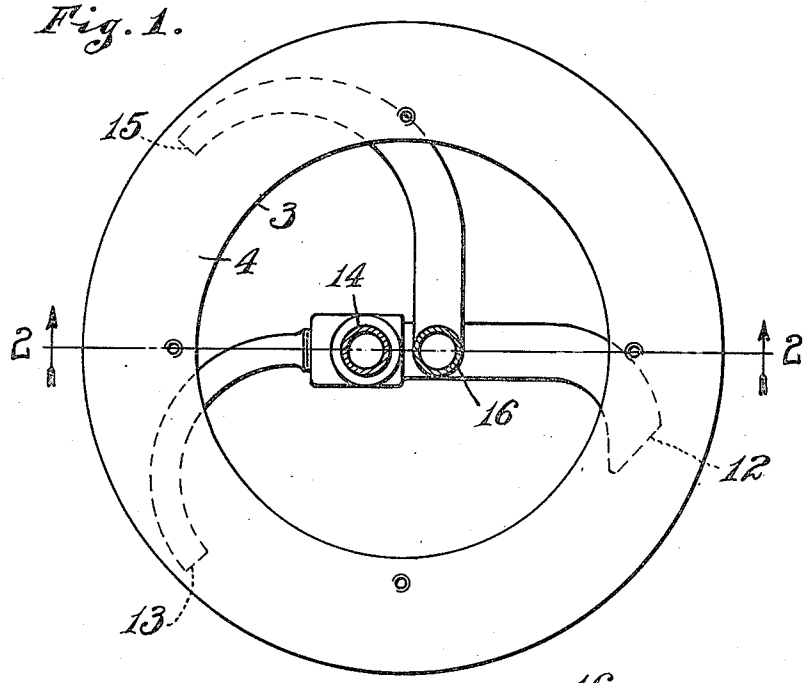
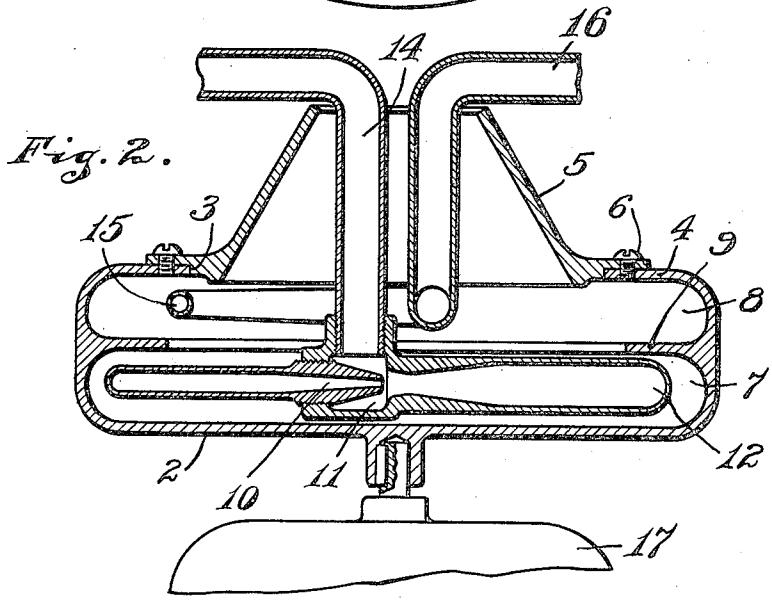


Fig. 2.



INVENTOR.
John W. Gurley,
BY
Hood + Hahn.
ATTORNEYS

Patented July 30, 1929. 1,722,289

UNITED STATES PATENT OFFICE.

JOHN W. GURLEY, OF INDIANAPOLIS, INDIANA.

PUMP.

Application filed September 10, 1928. Serial No. 304,864.

My invention relates to improvement in pumps and has for one of its objects to provide a highly efficient pump in which the number of parts is reduced to a minimum, valves are eliminated and packing glands are discarded.

It is a further object of my invention to provide a pump which while being efficient in operation may be produced at a minimum cost.

For the purpose of disclosing my invention I have illustrated one embodiment thereof in the accompanying drawings in which

Fig. 1 is a plan view of the pump with the top throat removed;

Fig. 2 is a vertical section of the pump taken on the lines 2—2 of Fig. 1.

In the embodiment of the invention illustrated I provide a rotatable body or container having a closed bottom 2, and a top opening 3 therein. The top of the container is drawn inwardly far enough to form an annular flange 4 within which the inlet opening 3 is formed. This opening preferably has fitted therein a cone-shaped projection 5 which may be bolted as at 6 or otherwise secured in position. The interior of the container is divided into upper and lower annular chambers 7 and 8 by means of an annular fin or ledge 9. In the structure illustrated the body portion is shown as being formed of a single piece of material. If desired, however, it may take any form and be made up in sections. Mounted within the lower part of the body is an injector having a discharge nozzle 10 which discharges into the chamber 11 of the injector casing, which chamber is connected with a discharge conduit 12 discharging into the chamber 7 at a point opposite the intake throat 13 of the injector. This injector is connected by an intake pipe 14 with the source of liquid to be displaced or moved. The injector and pipe are stationarily supported relatively to the body by any suitable means. A discharge nozzle 15 is arranged in the chamber 8 and communicates with the outlet pipe 16. It will be noted that both the discharge nozzle 15 and the injector are arranged transversely to the axis of rotation of the body. This pump body may be rotated in any suitable manner and I have illustrated the same as being keyed directly to the shaft of an electric motor 17 and mounted in a position to rotate on a vertical axis. The chamber 7 communicates with the chamber 8 through the central opening in the flange 9.

In operation priming water or other liquid to be moved is placed in the bottom of the container to such a level that when the container is rotated at high speed the water will substantially fill the chamber 7. The rotation of the container sets up a circular movement of the water at a high speed and due to the fact that the intake throat 13 is faced in a direction opposite to the direction of rotation or movement of water, the water is driven through the injector nozzle 10, thereby drawing the water from the source of supply through the intake pipe 14 and delivering the same through the outlet opening of the conduit 12 into the chamber 7. As the chamber 7 becomes filled with the additional water the excess overflows over the edges of the flange 9 and into the chamber 8 where it likewise assumes a circular movement at high speed and as the nozzle 15 is faced in a direction opposite to the movement of the water, the water is driven through the nozzle 15 and out through the delivery pipe 16.

I claim as my invention:

1. In a pump the combination with a container having an annular liquid chamber therein and adapted to be rotated to cause the liquid to attain a circular movement in said chamber, of a stationary injector adapted to be connected with the source of liquid supply and having its inlet in the path of said moving liquid to cause said liquid to pass through said injector and a stationary discharge nozzle arranged in said chamber in the path of said moving liquid to cause said liquid to discharge through said nozzle.

2. In a pump the combination with a container having an annular liquid chamber, of an injector in said chamber and a discharge nozzle also therein, said container being relatively rotatable with respect to the injector and nozzle to cause the liquid in said chamber to pass through said injector and to discharge through said nozzle.

3. In a pump the combination with a container having a liquid chamber divided into two annular compartments communicating with one another, of an injector arranged in one of said compartments and a discharge nozzle arranged in the other of said compartments, said container being rotatable relative to said injector and nozzle to cause the liquid in said container to pass through said injector and be discharged through said nozzle.

4. In a pump the combination with a rotatable body having an annular liquid cham-

ber, of a stationary injector in said chamber and a stationary discharge nozzle in said chamber, each disposed at an angle to the axis of rotation of said body to cause the liquid in said chamber to pass through said injector and to be discharged through said nozzle.

5. In a pump the combination with a container having an annular inlet chamber, and an annular discharge chamber connecting with one another, of an injector disposed in said inlet chamber at an angle to the axis of rotation of the body and a discharge nozzle disposed in said discharge chamber at an angle to the axis of rotation of said body and means for rotating said body to cause a circular movement of the liquid adapted to be contained therein to cause the liquid in said inlet chamber to pass through said injector and the liquid in the other of said chambers to be discharged through said nozzle.

6. In a pump the combination with a rotatable container having an annular intake chamber and an annular discharge chamber communicating with one another, the rotation of said body setting up a circular movement of the liquid in both of said chambers, of an injector stationarily mounted in said inlet chamber and having its intake throat disposed in the path of movement of the liquid, and a discharge nozzle stationarily disposed in said outlet chamber and having its intake disposed in the path of movement of the liquid therein to cause the liquid in said inlet chamber to pass through said injector and the liquid in the other chamber to discharge through said nozzle.

In witness whereof, I JOHN W. GURLEY have hereunto set my hand at Indianapolis, Indiana, this 23rd day of August, A. D. one thousand nine hundred and twenty-eight.

JOHN W. GURLEY.