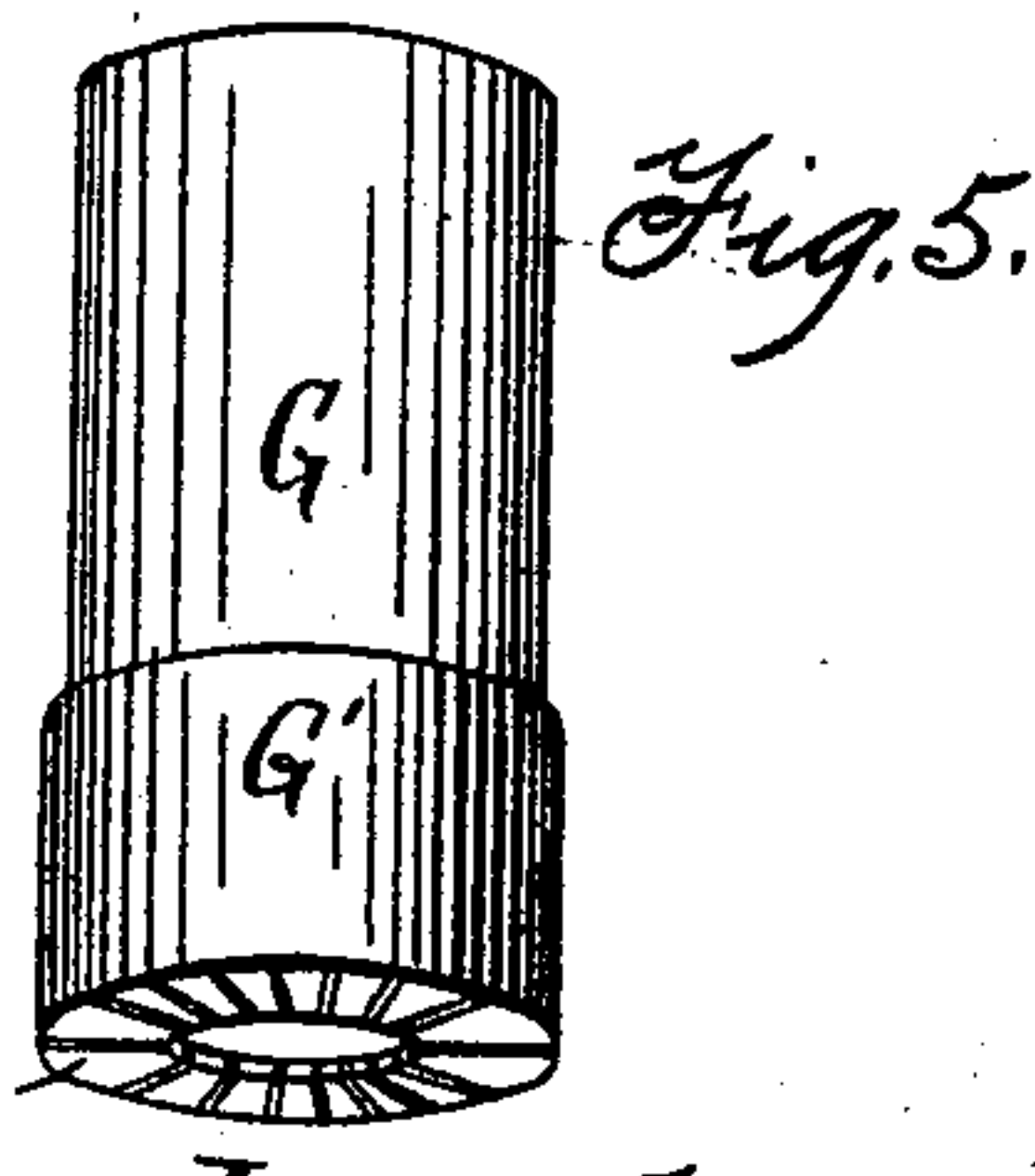
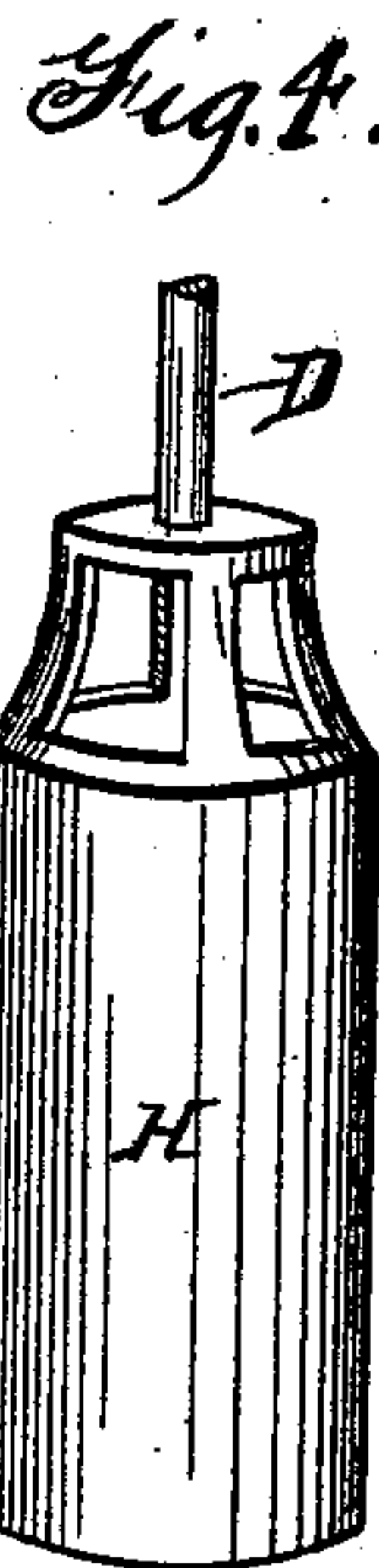
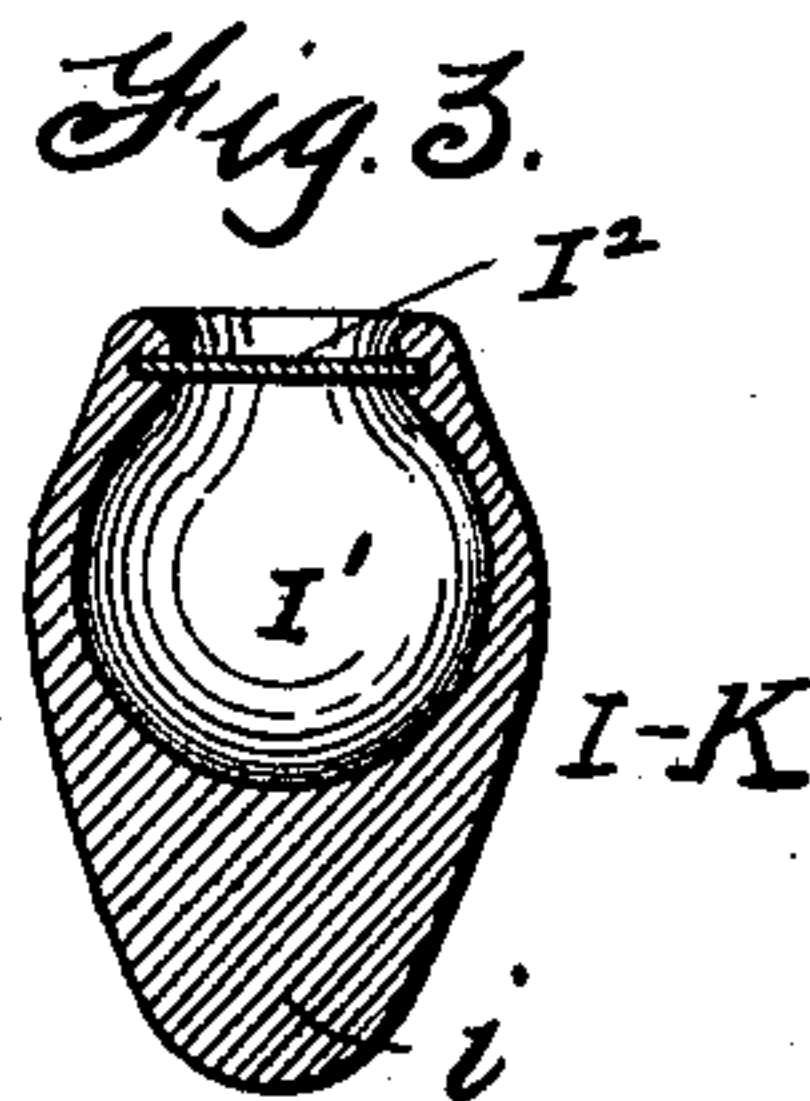
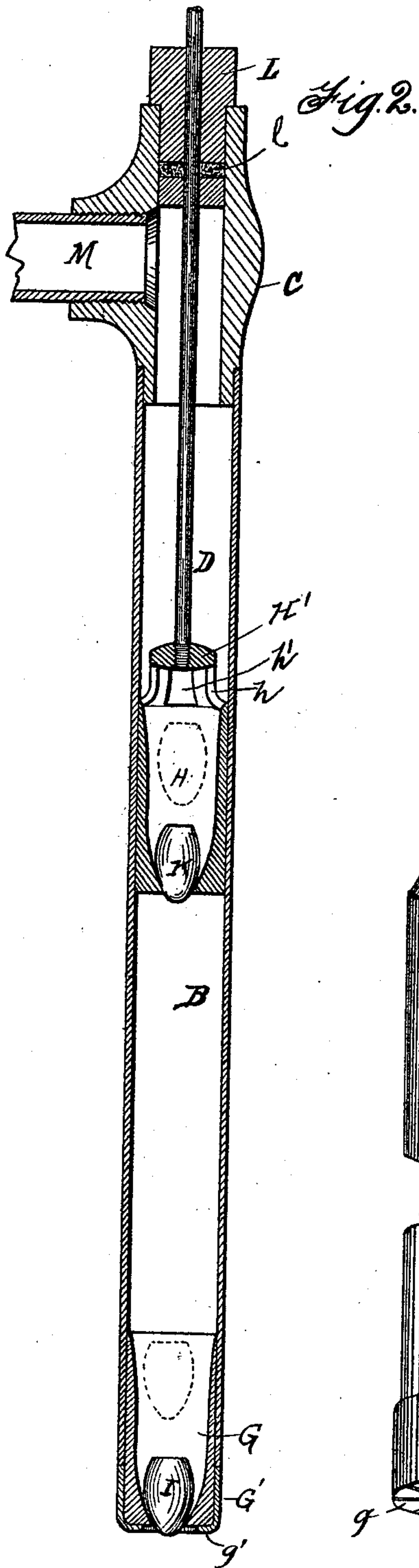
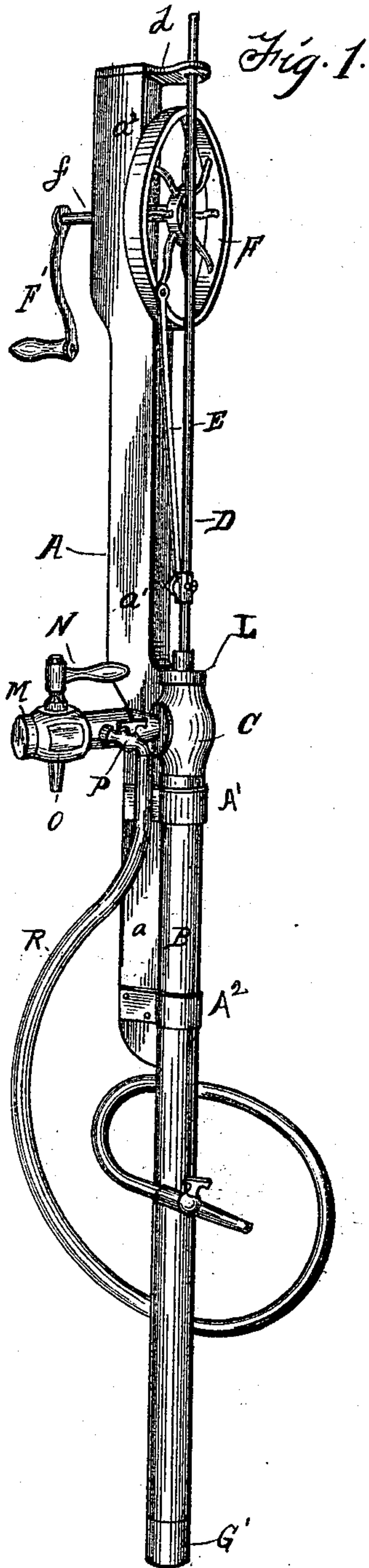


(No Model.)

J. H. STOLL.
FORCE PUMP.

No. 516,318.

Patented Mar. 13, 1894.



Witnesses:
M. P. Smith.
Maud Fitzpatrick.

Inventor:-
J. H. Stoll.
By Higdon & Higdon Attys

UNITED STATES PATENT OFFICE.

JOHN H. STOLL, OF HUTCHINSON, KANSAS.

FORCE-PUMP.

SPECIFICATION forming part of Letters Patent No. 516,318, dated March 13, 1894.

Application filed March 16, 1893. Renewed January 25, 1894. Serial No. 498,058. (No model.)

To all whom it may concern:

Be it known that I, JOHN H. STOLL, of Hutchinson, Reno county, Kansas, have invented certain new and useful Improvements in Force-Pumps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, forming a part hereof.

My invention relates to lift and force pumps of the simplest form, operated by hand to raise and force water for household purposes.

The object of my invention is to provide a pump of simple and inexpensive construction which is not liable to get out of order, may be easily taken apart for repairs or for removing any obstructions or accumulations in the pipes, and to so simplify the several details of construction that there will be little rust or wear upon the working parts, any of which may be obtained or made without sending a great distance to a factory.

In the accompanying drawings:—Figure 1. is a perspective of a pump embodying my invention. Fig. 2. is an enlarged vertical sectional elevation thereof. Fig. 3. is a still larger sectional detail of the valve. Fig. 4. is a perspective of the cup plunger employed, in detail, with the lower end of the pump rod secured thereto. Fig. 5. is a detail perspective view of the lower valve-cup and the cap at the lower end thereof.

The pump stock, A, is sawed out of a block in zig-zag form, the offset, a , receiving the upper end of the pump barrel, B, and cap elbow, C, which are bored centrally to receive the pump rod, D, the offset, a' , of the pump stock allowing space for the movement of the connecting rod, E, secured at its lower end to the piston rod, and the offset, a^2 , at the upper end of the stock giving space for the fly wheel, F, to which the upper end of the connecting rod is attached. The hub of the wheel, F, rests against the face of the upper offset, a^2 , the fly wheel axle, f , passes through the upper section of the pump stock, and a crank, F', secured to the outer end of the shaft may be fitted close to the outer side of the stock, as the outer offset of the upper section will allow the crank to be placed close to the side of the stock without interfering with the hand in turning it.

The pump barrel, B, is of ordinary metal

tubing, which extends to the bottom of the well and is closed at its lower end by a valve seat, G, and foot-valve, I, of novel construction. The valve seat, G, is of conoidal cup shaped form upon its inner surface, as shown in cross section, Fig. 2., and is formed with a central opening for the water to pass up into the pump barrel. The exterior of the valve seat, G, is truly turned to tightly fit the cylindrical lower end of the pump barrel, and its lower end is inclosed by a pipe section ring, G', of even size, radially serrated at its lower end, g' , and turned in to encircle the bottom of the valve seat, as shown in Fig. 5 thus giving the lower end of the pump barrel a smooth, unbroken surface, which may be fitted into any drive well tube if it be desired to make such connection, without interfering with the lower valve.

The pump plunger, H, and its valve, K, is a counter part of the cup valve seat and its valve, I, at the bottom of the pump barrel, except that its upper end is webbed at h to provide openings at h' for the passage of water through them, and for connecting the plunger by means of a cup disk, H', screw threaded, with the lower screw threaded end of the pump piston rod, D. The valves I and K are each of conoidal shape, rounded at their lower ends to closely fit the bottom of the similarly formed cup shaped valve-seats, and the valve I is made with a spherical cell or cavity, I', covered by a sheet metal diaphragm, I², leaving a plummet shaped lower extremity of solid metal, i , which will right the valve and cause it to descend truly to its cup shaped seat in the block. The valve K is similarly formed so that it will descend truly upon its seat in the valve-block. The valve is also lightened and given buoyancy, which will make it sensitive, and quick to respond to either the upward or downward currents of water, which operate it.

The stuffing box, or cap plug, L, has a packing, l , and is fitted securely into the upper end of the cup elbow, C, and serves to close the upper end of the elbow, and also provide a long bearing, packing and guide for the pump rod, the extreme upper end having an auxiliary guide bearing plate, d , at the top of the pump stock.

A spigot spout, M, is screwed into the el-

bow, C, and a spigot, N, with a hollow discharge plug, O, serves to deliver the water raised by the plunger from the spout when the discharge plug, O, is open. A faucet, P, set into the spout, M, has a hose, R, screwed upon it, and when the discharge plug, O, of the spout is closed and the plunger is working the pump will act as a force pump, and will discharge the water through the hose with a force equal to that of any ordinary force pump.

The parts are all simple, and easily taken apart. The pump barrel is held by metal straps, A' A², secured respectively to the upper and lower ends of the offset, *a*, of the pump stock, and may easily be withdrawn therefrom by removing the connecting rod, E, and plate, *d*, the parts being thus easily separable to be packed for shipment, or removed from place to place.

Having described my invention, I claim as new and desire to secure by Letters Patent—

In a pump, the combination with the barrel having a valve-seat provided with an opening at its lower end, and an egg-shaped valve adapted to close said opening, of a piston-rod and means to actuate the same, and an internally cup-shaped plunger at the lower end of said piston-rod, and having a valve-seat opening and an egg-shaped valve adapted to close said valve-seat opening provided with spherical cavity I' and a diaphragm *i*² closing said cavity, substantially as set forth.

In testimony whereof I affix my signature in the presence of two witnesses.

JOHN H. STOLL.

Witnesses:

WM. WIMPELBERG,
N. E. WILLIAMS.