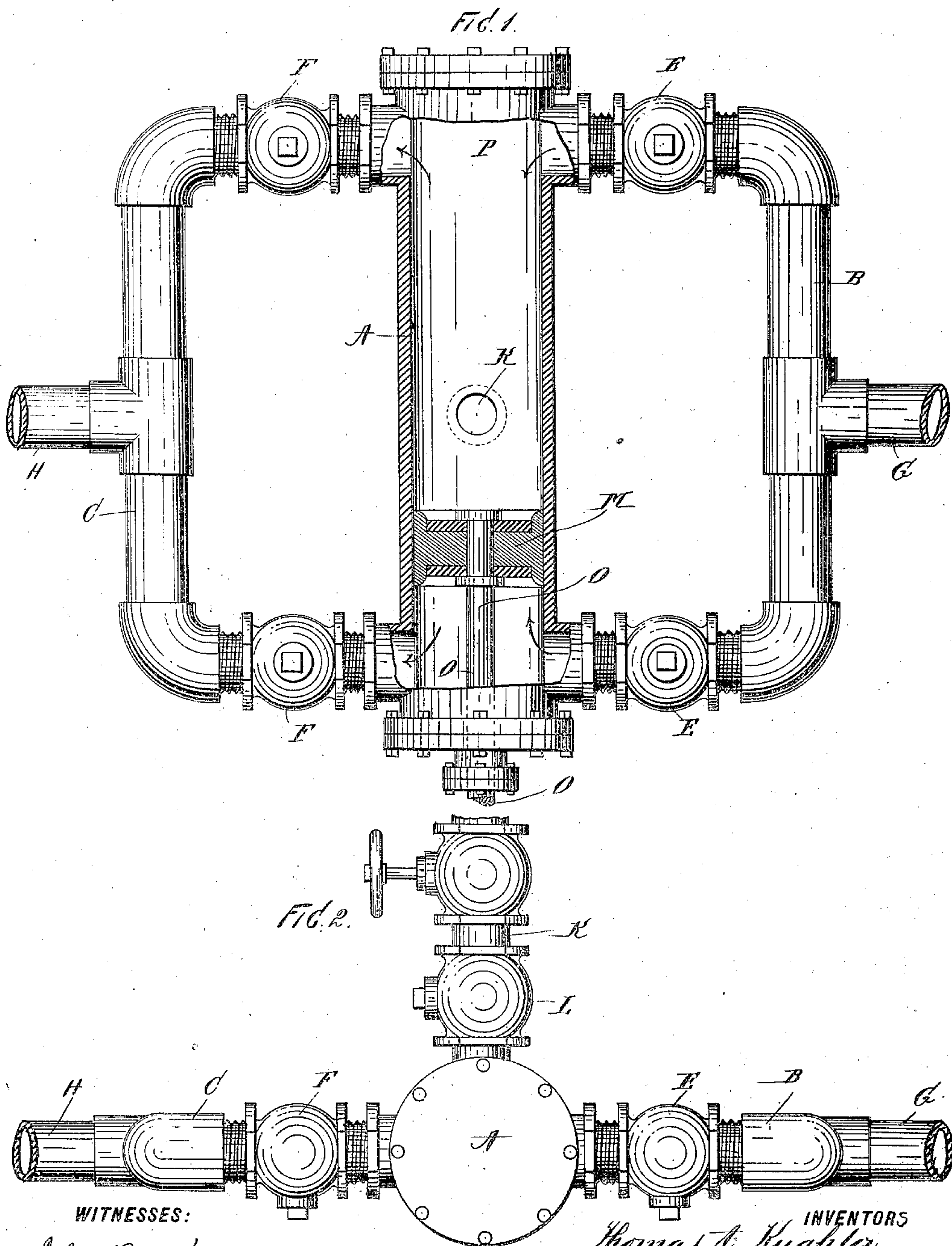


(No Model.)

T. A. KUGHLER & J. GOMES.  
HYDRAULIC PRESSURE PUMP.

No. 604,767.

Patented May 31, 1898.



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

THOMAS A. KUGHLER AND JOSEPH GOMES, OF NEW YORK, N. Y.

## HYDRAULIC-PRESSURE PUMP.

SPECIFICATION forming part of Letters Patent No. 604,767, dated May 31, 1898.

Application filed November 25, 1895. Serial No. 570,149. (No model.)

*To all whom it may concern:*

Be it known that we, THOMAS A. KUGHLER and JOSEPH GOMES, citizens of the United States, and residents of New York city, in the county of New York and State of New York, have invented certain new and useful Improvements in Hydraulic-Pressure Pumps, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof, in which similar letters of reference indicate corresponding parts.

This invention relates to hydraulic pumps, and particularly to that class thereof which are designed for use in connection with elevators; and the object of the invention is to provide a pump in which both air and water are drawn into the same cylinder and together forced into a pressure-tank such as is usually employed in connection with hydraulic elevators.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which—

Figure 1 is a plan view of our improved pump, the cylinder thereof and other parts being shown in section; and Fig. 2, a top plan view thereof.

In the practice of our invention we provide a pump-cylinder A, which is in communication at each end with pipes B at one side thereof and also at each end with a pipe C on the opposite side thereof, and the pipes B and C are arranged parallel with the cylinder A. We prefer to connect said pipes B together with a pipe G, which is connected with any suitable source of water-supply, and said pipes B are each provided with check-valves E, opening toward the cylinder A. We also prefer to connect said pipes C with a discharge-pipe H, by which the air and water are conveyed to any suitable pressure-tank (not shown) as discharged from said cylinder A, and said pipes C are each provided with check-valves F, which open outward from said cylinder A. All these features of construction are similar to those employed and form no part of this invention, and will be easily understood by those familiar with this class of devices and accustomed to the operation thereof.

In the construction of our invention we provide an air-pipe K, which communicates with

the cylinder A at the middle thereof, and said air-pipe is also provided with a check-valve L, and within the cylinder A is a double-acting plunger M, provided with a rod O, which extends through one of the heads of the cylinder and is operated in the usual manner.

The operation will be readily understood from the foregoing description when taken in connection with the accompanying drawings. At each backward and forward movement of the plunger water enters into the cylinder at one end thereof through the corresponding pipe B. As the plunger M passes the middle of the said cylinder A in either direction air is drawn in and above the water in said cylinder through pipe K, the check-valve L opening to permit the air to enter. On the return stroke of the plunger the water and air will be forced out of that one of the outlet-pipes C toward which the plunger is moving, the check-valve F on that outlet-pipe opening to permit the outflow of the air and water, while the aforesaid check-valve L closes to prevent the air and water from working back through pipe K, and check-valve E on that supply-pipe B toward which the plunger is moving closing to prevent the air and water from working back into the supply-pipe G.

Be it understood that the valves E are ordinary check-valves and open to permit the water, which is under no pressure, to enter the cylinder A and close so as to prevent the backward flow thereof, and the valves F are similar in construction and open so as to permit the water and air to be forced into pipe H, but close so as to prevent their return to the cylinder, and the valve L in said pipe K is also adapted to operate in the same manner as the valves E and F.

By means of this apparatus we are enabled to force both water and air into the pressure-tank, (not shown,) and by means of this operation we are enabled to maintain at all times the desired amount of pressure within said tank.

We do not limit ourselves to the exact form of apparatus herein shown and described, and we therefore reserve the right to make all such alterations therein and modifications thereof as fairly come within the scope of our invention.

We do not limit our improved apparatus for



use in operating elevators alone, as the same may be applied wherever hydraulic pumps or where hydraulic pressure or water and air pressure are required.

5 Having fully described our invention, its construction and operation, we claim it as new and we desire to secure our rights by Letters Patent thereon—

10 In a combined water-pump and air-compressor, the combination with the pump-cylinder of an air-inlet directly from atmosphere to a point midway of the length of the cylinder and above the water-level therein and adapted to form a layer of air above the water in said cylinder, a check-valve on the said  
15 air-inlet opening inward, an adjustable valve on the said air-inlet outside of the said check-

valve, a reciprocating plunger in said cylinder having a periphery broader than said air-inlet, supply connections near the ends of said pump-cylinder, check-valves thereon opening inward, independent discharge connections from the ends of the cylinder, and check-valves thereon opening outward, substantially as described. 20 25

In testimony that we claim the foregoing as our invention we have signed our names, in presence of the subscribing witnesses, this 21st day of November, 1895.

THOMAS A. KUGHLER.  
JOSEPH GOMES.

Witnesses:

C. GERST,  
F. V. KIRCHHOFF.