

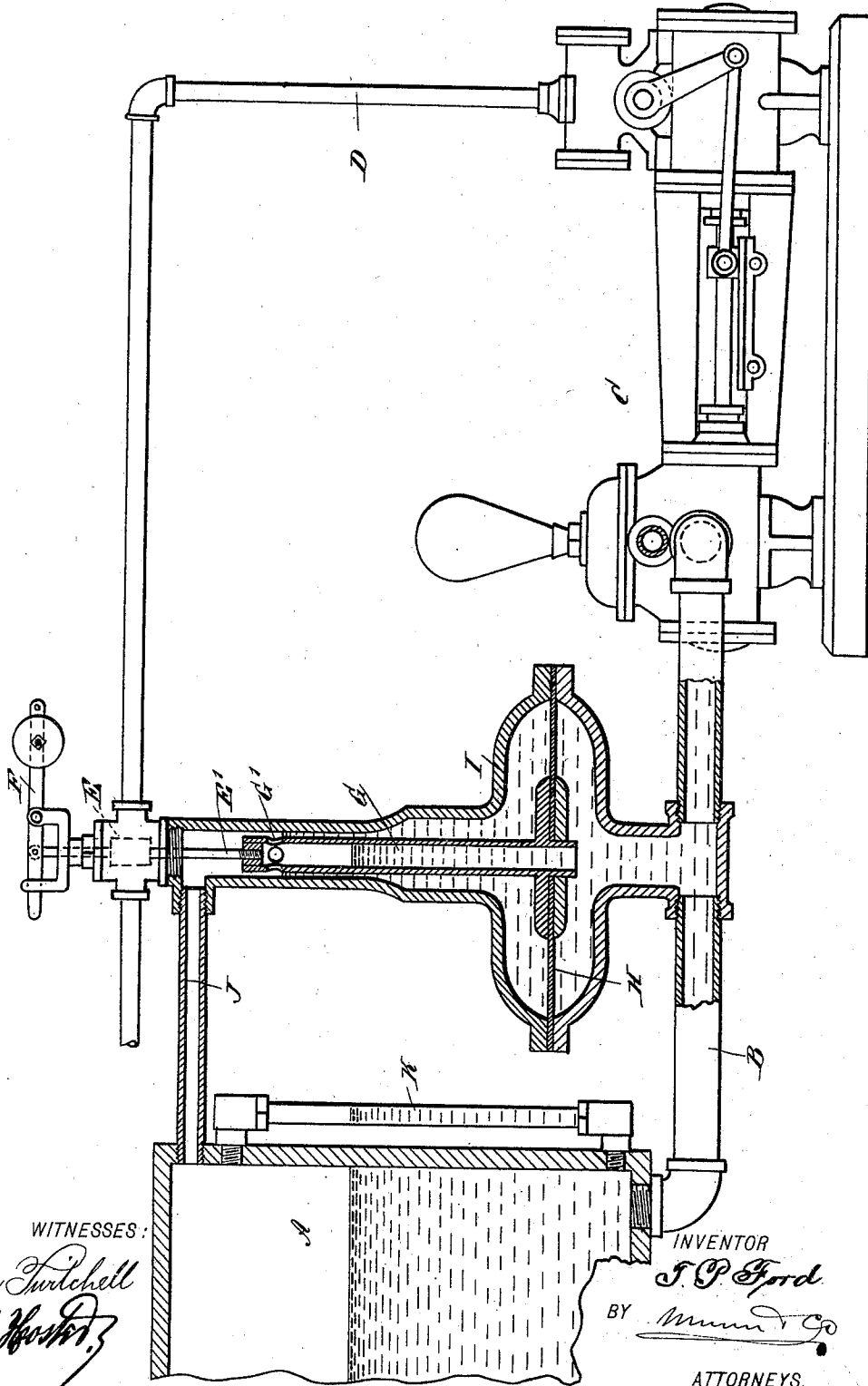
No. 624,779.

Patented May 9, 1899.

T. P. FORD.
PUMP GOVERNOR.

(Application filed July 18, 1898.)

(No Model.)



UNITED STATES PATENT OFFICE.

THOMAS P. FORD, OF NEW YORK, N. Y.

PUMP-GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 624,779, dated May 9, 1899.

Application filed July 18, 1898. Serial No. 686,252. (No model.)

To all whom it may concern:

Be it known that I, THOMAS P. FORD, of the city of New York, borough of Brooklyn, in the county and State of New York, have invented a new and Improved Pump-Governor, of which the following is a full, clear, and exact description.

The object of the invention is to provide a new and improved pump-governor which is simple and durable in construction, very effective and sensitive in operation, and more especially designed for use on steam, air, or other fluid pressure pumps employed for automatically and periodically emptying accumulated water and other liquids from tanks, reservoirs, or the like.

The invention consists of novel features and parts and combinations of the same, as will be fully described hereinafter and then pointed out in the claim.

Reference is to be had to the accompanying drawing, forming a part of this specification, in which the figure is a sectional side elevation of the improvement.

The tank, reservoir, or like receptacle A, in which accumulates the water or other liquid from a suitable source, is connected at its bottom by a pipe B with the suction of a pump C of any approved construction, the motive agent for driving the said pump passing to the same through a pipe D, leading to a suitable source of supply. In the pipe D is arranged a balance-valve E for controlling the motive agent passing through the pipe D to the pump C, and the valve-stem E' of the said valve is connected at its upper end to a weighted lever F and at its other end to the upper end of a tube G, secured to the middle of a diaphragm H, held in a suitable diaphragm-casing I, connected at its bottom with the pipe B. Thus the liquid as it accumulates in the tank A rises in the tube G correspondingly, so that the diaphragm H is influenced on its under side by the weight of the column of liquid contained in the tube G. A second column of liquid is held stationary in the casing I on the top of the diaphragm H, and this column of liquid is sufficient to hold the diaphragm H in such position that the valve E is normally held to its seat in a closed position against the weighted lever F, the tube G, and the pressure of the liquid against the under side

of the diaphragm. Now it is evident that when the liquid rises in the tank A it passes into and rises in the tube G until the weight of the column of liquid is sufficient for the weighted lever F to overbalance the weight of the stationary column on the top of the diaphragm, so that the tube G moves upward and the valve E is opened to allow the motive agent to pass to the pump C and actuate the same. When this takes place, the pump C pumps the liquid from the tank A, thus emptying the same, and as the level of the liquid in the tank A and the tube G falls the pressure against the under side of the diaphragm H is reduced until the weight of the column of liquid on the top of the diaphragm overbalances and moves the latter to its normal position, thus moving the tube G downward and closing the valve E.

The upper end of the tube G is provided with openings G', which open into the casing I, containing the stationary column of liquid, and the extreme upper end of the casing is connected by an equalizing-pipe J with the interior of the tank, so that the pressure is equal on the liquid in the tank A and that in the tube G and the upper portion of the casing I. A gage K indicates the level of the water in the tank A and the pipe G, as is plainly shown in the drawing.

It is evident from the foregoing that the diaphragm H is at one side under the influence of a stationary column of liquid, while the opposite side is under the influence of the liquid column rising and falling with the liquid to be pumped by the pump C. By shifting the weight of the lever F more or less liquid accumulates in the tank A before the valve E is opened.

In case the liquid in the upper part of the casing I partly evaporates or leaks out of the casing then the weight of the column of liquid on the top of the diaphragm is reduced correspondingly and the liquid rises higher in the tank A and tube G, and finally such a condition may be reached that the liquid in the tube G rises sufficiently high to pass through the openings G' to replenish the column of liquid in the upper part of the casing I and bring the apparatus back to its original condition.

Having thus fully described my invention,

I claim as new and desire to secure by Letters Patent—

5 A pump-governor, comprising a casing, a diaphragm held in the casing, the said casing having both an inlet and an outlet below the diaphragm and an inlet above the diaphragm, a tube extended through the diaphragm and projected upward in the casing and having an opening at its upper end, a controlling-

valve for a motive-agent supply, a connection between said valve and the tube, a lever on the top of the casing and with which the valve connects, and a weight adjustable on the lever, substantially as specified.

THOMAS P. FORD.

Witnesses:

THEO. G. HOSTER,
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