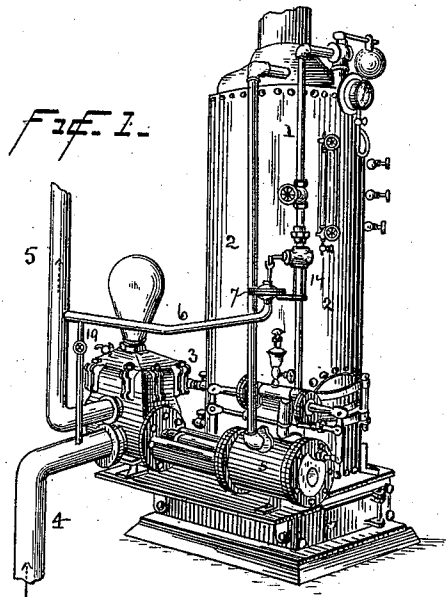
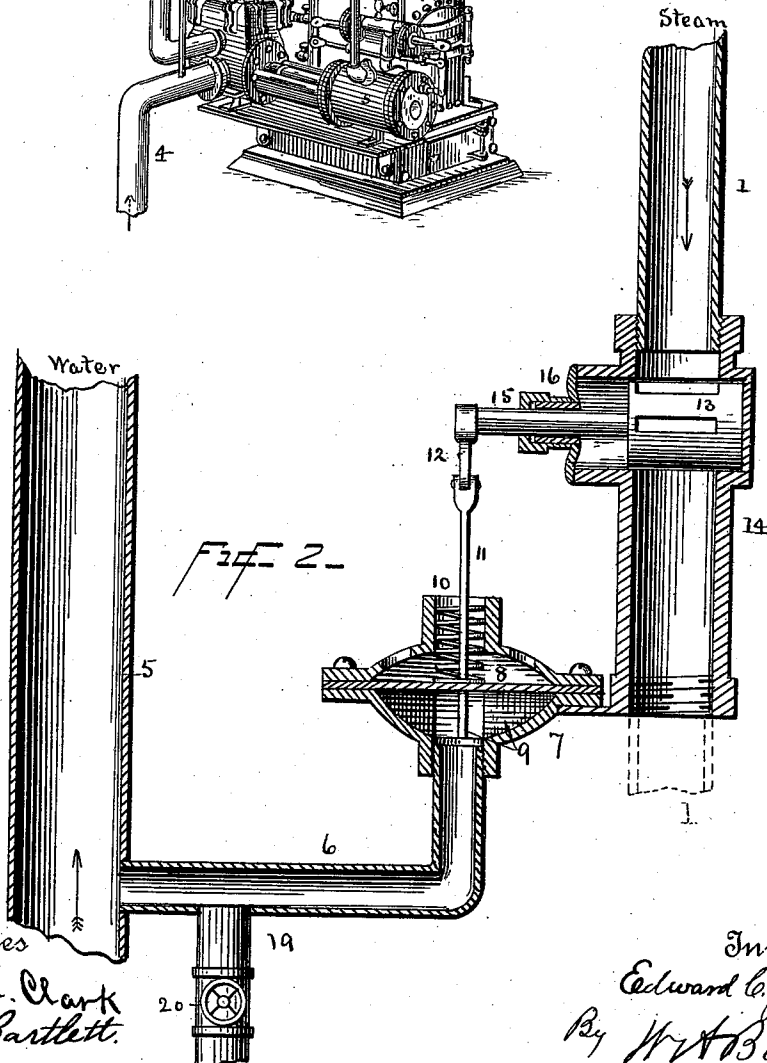


(No Model.)

E. C. JOHNSON.
GOVERNOR FOR STEAM PUMPS.

No. 429,570.

Patented June 3, 1890.



Witnesses
Norris A. Clark
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UNITED STATES PATENT OFFICE.

EDWARD C. JOHNSON, OF MACON, GEORGIA, ASSIGNOR TO TERESA M. JOHNSON, OF KEOKUK, IOWA.

GOVERNOR FOR STEAM-PUMPS.

SPECIFICATION forming part of Letters Patent No. 429,570, dated June 3, 1890.

Application filed March 5, 1889. Serial No. 302,021. (No model.)

To all whom it may concern:

Be it known that I, EDWARD C. JOHNSON, residing at Macon, in the county of Bibb and State of Georgia, have invented certain new and useful Improvements in Governors for Steam-Pumps, of which the following is a specification, reference being had therein to the accompanying drawings.

This invention relates to governors for steam-pumps in which the water-pressure is caused to regulate the supply of steam from the boiler to the pump.

The object of the invention is to render the delivery of water from the pump regular and to economize the use of steam.

The invention consists of certain constructions and combinations as hereinafter set forth.

Figure 1 is a perspective of a steam-pump and connections with my governor attached. Fig. 2 is a broken section of the governor and valve and pipe-connections by which the steam-supply is controlled.

The numeral 1 indicates a steam-supply pipe leading from boiler 2 to pump 3. Suction-pipe 4 conveys water to the pump, and delivery-pipe 5 leads the water away from the pump.

A branch 6 from the delivery-pipe leads to casing 7, which incloses a plate or diaphragm 8. Supporting ribs or brackets 9, attached to the casing, prevent this plate or diaphragm from becoming too much depressed by spring 10, which spring is seated in the casing, so as to press the central part of the diaphragm down. This spring has enough strength to move the valve, but is not intended as an equalizer to the water-pressure. A pitman 11 connects the central part of the diaphragm to crank 12, which crank is on the shaft of the valve 13. Valve 13 is seated in casing 14, which forms a section of the steam-pipe 1 between the throttle-valve and the pump. The valve-stem 15 passes through a stuffing-box 16 and the valve is preferably balanced.

With the construction described the water passing through pipe 5 will have access to branch 6. The water in this branch 6 will enter casing 7 and bear against diaphragm 8, thus flexing the diaphragm, and through the connections described moving the valve to wholly or partly close the steam-passage through pipe 1. When pressure is removed

from the diaphragm, the spring 10 will return to its normal position and open the ports of valve 13.

A water-pipe 19 leads from the pipe 6, either to the suction-pipe 4 of the pump or to other place of escape. When pipe or passage 19 is opened, the water from branch pipe 6 can escape therefrom, thus relieving the diaphragm 8 from pressure and leaving the governing device inoperative. Cock 20 may be opened a greater or less distance, thus reducing the pressure in pipe 6 and on the diaphragm below the pressure in pipe 5. Thus the relation between the pressure in pipe 5 and that on the diaphragm 8 will determine the admission of steam from the boiler to the pump.

The pump illustrated is merely typical. It is apparent that any usual form of pump and of boiler may be used; also, that other equivalent mechanism may be substituted for that shown for operating the steam-valve by means of water-pressure from the pump, as by the substitution of a piston for the diaphragm 8.

The cock 20 may be opened so as to permit any proportion of the water-pressure in pipe 5 to be applied to the diaphragm, and as this diaphragm-pressure determines the steam-supply to the pump such adjustment may be made as to best economize steam from the boiler. For example, suppose the capacity of the pump is two thousand gallons of water per hour and it is desirable to deliver only one thousand gallons. Then by regulating the cock 20 so as to admit the desired pressure to the diaphragm, the valve 13 will be partly closed by the water-pressure, and the desired work of the pump can be closely approximated without further attention.

What I claim is—

In combination, a steam-pump, a steam-pipe leading thereto, a valve in said pipe, a diaphragm controlling said valve, a branch from the water-delivery part of the pump leading to said diaphragm, and an escape-pipe from said branch controlled by an escape-valve, substantially as described.

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

EDWARD C. JOHNSON.

Witnesses:

W. A. BARTLETT,
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