

(No Model.)

J. R. NIXON.
STEAM PUMP GOVERNOR.

No. 528,483.

Patented Oct. 30, 1894.

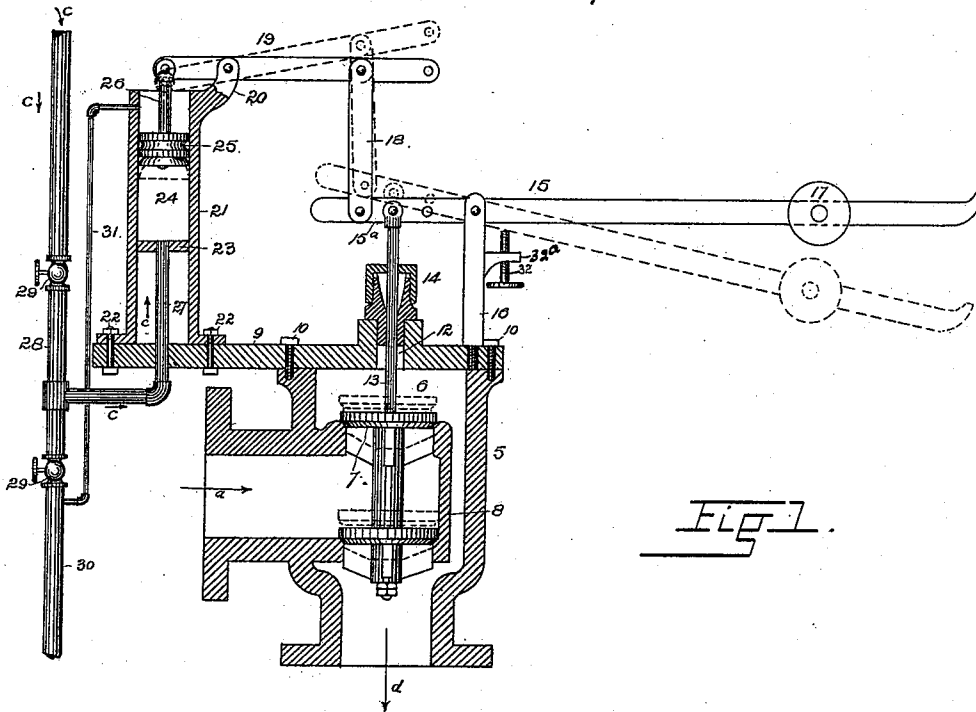


Fig. 1.

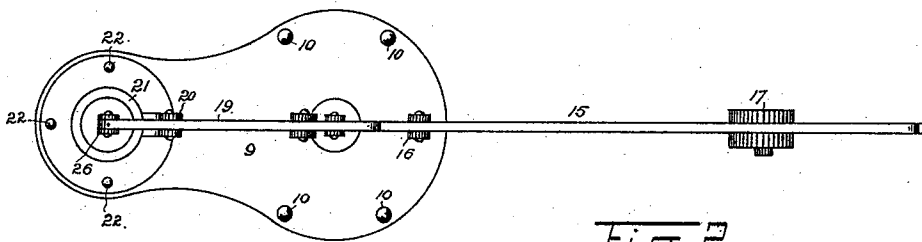


Fig. 2.

WITNESSES:

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JAMES R. NIXON, OF DENVER, COLORADO.

STEAM-PUMP GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 528,483, dated October 30, 1894.

Application filed April 18, 1894. Serial No. 508,063. (No model.)

To all whom it may concern:

Be it known that I, JAMES R. NIXON, a citizen of the United States of America, residing at Denver, in the county of Arapahoe and State of Colorado, have invented certain new and useful Improvements in Steam-Pump Governors; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

My invention relates to improvements in steam pump governors, and my object is to provide a device of this class, which, while being of simple and economical construction, shall be reliable, durable and efficient in use, and to this end, the invention consists of the construction hereinafter described and claimed, all of which will be fully understood by reference to the accompanying drawings in which is illustrated an embodiment thereof.

In the drawings, Figure 1 is a central vertical section taken through the mechanism. Fig. 2 is a top view of the governor in detail.

Similar reference characters indicating corresponding parts or elements in these views, let the numeral 5 designate the casing inclosing the chamber 6 of the throttle valve 7. This casing 5 is made fast to and supported upon the framework of the steam pump, (not shown.) The throttle valve 7 is a balance valve, and engages the seat 8 located within the casing 5.

Arrow *a* indicates the steam inlet from the boiler (not shown) to the valve chamber; and arrow *d*, the outlet from said chamber to the pump.

To the top of the valve casing 5, a horizontal plate 9 is attached by means of bolts 10. Through the aperture 12 in this top plate, passes the stem 13 of the valve 7. Surrounding the aperture 12 is a stuffing box 14 making the chamber 6 steam tight from above. The upper extremity of the stem 13 is pivoted to the arm 15^a of a lever 15. This lever is fulcrumed on a post 16 made fast to the top plate, and its arm 15^c is provided with an adjustable weight 17. As shown in the drawings, the arm 15^c is the longer arm of the lever,

and the weight 17 is of such gravity, and so adjusted, that the lever will normally occupy the inclined position indicated by dotted lines in Fig. 1. When the lever is in this position, the valve 7 will be open, or in the position indicated by dotted lines, allowing the steam to pass freely from the boiler to the pumping engine.

As shown in the drawings, the lever 15 is fulcrumed at a point located to the right of the point where the valve stem 13 is attached to the lever. To the left of the last named point of attachment, is pivoted the lower extremity of a link-arm 18 whose upper extremity is movably attached to the longer arm of a lever 19 fulcrumed on a projection 20 formed integral with a vertical cylinder 21 having its base flanged and secured to the top plate by bolts 22. The cylinder 21 is provided with an apertured partition 23 which forms the bottom of the chamber 24 in which is located the piston 25, whose stem or rod 26 is movably attached at its upper extremity to the short arm of the lever 19.

In the aperture of the partition 23 is inserted one extremity of an open-ended pipe 27 which communicates at its opposite extremity with a pipe 28. This last named pipe leads from the pressure tank (not shown) and is provided with two globe valves 29, one located above, and the other below the point where the pipe 27 enters pipe 28. The pipe 28 proper terminates at the lower valve 29 (referring to Fig. 1.) and extends upward therefrom. Below the lower valve 29 is located a section 30 of drain pipe to which leads a small pipe 31 communicating at its opposite extremity with the chamber 24 at a point above the piston 25. The function of the pipe 31 is to drain the water from the cylinder chamber above the piston, if any water shall work past the piston to the upper part of the piston chamber.

Hence, the operation of the governor, assuming that the lower valve 29 is closed and the upper valve 29 open, is as follows: The water from the pressure tank passes in the direction indicated by arrow *c* to the chamber 24 of the cylinder 21. When the pressure on this water in the tank is normal, or sufficient to do the work required, the water pressure will be sufficient to hold the piston 25,

and the levers 15 and 19, in the position shown in full lines in Fig. 1, the valve 7 being closed and the steam cut off from the pump. As soon, however, as this pressure is diminished or reduced below the normal, the gravity of the long arm of lever 15 is such that said arm will move downward, open the valve 7, and throw the other operating parts to the respective positions shown in dotted lines in Fig. 1. The valve 7 being now open, the steam passes to the pump, which immediately begins the work of pumping water into the tank, which operation is continued until the normal tank pressure is restored, when the water pressure exerted on the piston 25 will again raise the latter, and return the connected operating parts, to the full line position, the valve 7 being again closed and the steam cut off from the pump, which remains inactive until such time as the tank pressure is again reduced, when the operation of the parts heretofore described will be repeated.

If it should be necessary to limit the downward movement of the lever 15 to avoid opening the throttle valve too far, or to regulate the movement of said valve, a set screw 32 may be employed. This screw is inserted in a threaded aperture formed in a lug 16^a made fast to the post 16. The screw is inserted from the under side, and its upward projection may be regulated at will. It is located in the path of the lever 15, and its function

is to control the downward movement of the long arm of the lever.

Having thus described my invention, what I claim is—

The combination of the balance throttle valve and the valve casing having suitable inlet and outlet ports, a plate attached to the top of the casing, a cylinder made fast to the top of the plate, said cylinder being open at the top, a pipe leading from the pressure tank and opening into the cylinder below the piston, an open-ended tube communicating with the cylinder above the piston and leading downward to a train pipe, a lever fulcrumed on a projection made fast to the cylinder, its short arm being connected with the stem of the piston, another lever fulcrumed on a support attached to the top plate, its short arm being connected with the stem of the throttle valve, its long arm being provided with a suitable weight, a link connecting the long arm of the piston-lever with the short arm of the valve-lever, and a set screw or bolt for limiting the downward movement of the long arm of the valve-lever, substantially as described.

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

JAMES R. NIXON.

Witnesses:

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