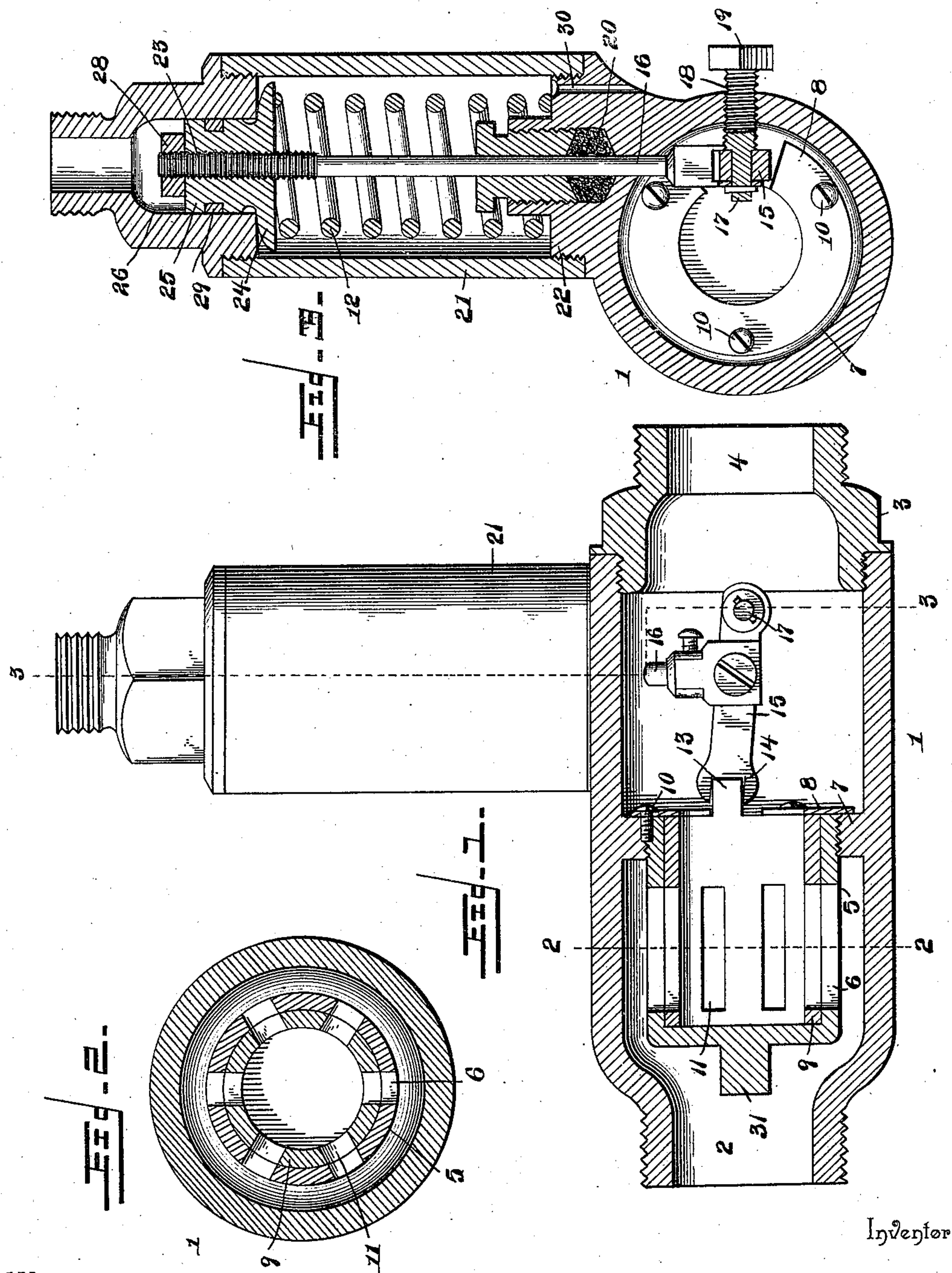


(No Model.)

G. F. WENTZ.  
AIR PUMP GOVERNOR.

No. 574,648.

Patented Jan. 5, 1897.



Inventor

Witnesses

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# UNITED STATES PATENT OFFICE.

GEORGE FRANKLIN WENTZ, OF COLORADO SPRINGS, COLORADO.

## AIR-PUMP GOVERNOR.

SPECIFICATION forming part of Letters Patent No. 574,648, dated January 5, 1897.

Application filed February 10, 1896. Serial No. 578,773. (No model.)

*To all whom it may concern:*

Be it known that I, GEORGE FRANKLIN WENTZ, a citizen of the United States, residing at Colorado Springs, in the county of El Paso and State of Colorado, have invented a new and useful Air-Pump Governor, of which the following is a specification.

My invention relates to governors for air-pumps used in connection with fluid-pressure brake mechanisms; and the object in view is to provide a simple, inexpensive, and efficient construction and arrangement of parts whereby the pump employed for supplying air to the train-pipe of the brake mechanism is controlled by pressure in the train-pipe or other part of the mechanism to prevent the pressure from exceeding a predetermined limit.

Further objects and advantages of this invention will appear in the following description, and the novel features thereof will be particularly pointed out in the appended claims.

In the drawings, Figure 1 is a longitudinal section of a governor constructed in accordance with my invention. Fig. 2 is a transverse section on the line 2 2 of Fig. 1. Fig. 3 is a transverse section on the line 3 3 of Fig. 1.

Similar numerals of reference indicate corresponding parts in all the figures of the drawings.

The valve-casing 1 is provided at one end with an inlet-port 2 and at the opposite end with a cap 3, having an outlet-port 4, said inlet-port being adapted to admit steam from the boiler or other source, and the outlet-port being adapted for communication by means of a suitable pipe or conductor (not shown) with the pump for the control of which the improved governor is designed. Arranged concentrically within the casing 1 is a tubular valve-seat 5, provided with lateral openings or slots 6, said seat being of smaller diameter than the casing, whereby it is exposed at all sides to the steam-pressure admitted through the inlet-port 2. The valve-seat is supported in the desired position in the casing by means of an annular collar 7, preferably formed integral with the casing, one end of the seat being threaded therein. An annular securing-plate 8 is secured to one side of the collar 7 and projects inwardly to over-

hang the bore of the valve-seat, whereby the rotary tubular valve 9 is held in operative position in the seat. Said securing-plate is fastened by means of suitable screws 10.

The valve is provided with openings 11 similar to the openings 6 in the valve-seat, and the valve is normally held in such a position as to align said openings, or is held in its open position by pressure-resisting devices, including an actuating-spring 12 and connections between said spring and a terminal lug 13 on the open end of the valve. In the construction illustrated this lug is engaged by the notched end 14 of a lever 15, which is mounted in the casing 1 and is connected to the inner extremity of a stem 16, actuated by said spring 12. The lever is preferably fulcrumed upon a pin 17, carried by a set-screw 18, inserted from the outside of the casing and provided with a head or wrench-seat 19, and the stem 16 enters the casing 1, through a stuffing-box 20, from a spring-casing 21, which is preferably threaded upon a boss 22, formed integral with the main casing.

The upper extremity of the stem 16 is threaded, as shown at 23, for engagement by an adjustable collar 24, adapted to be arranged in different positions upon the stem to vary the tension of the actuating-spring 12, and this collar or seat 24 for the upper end of the spring has formed integral therewith a piston-head 25, operating in an air-pressure cylinder 26, preferably formed in the removable cap of the spring-casing 21. In order to prevent accidental change in the position of the seat 24 and piston-head 25, a jam-nut 28 is threaded upon the extremity of the stem. The piston is preferably provided with a packing-ring 29.

The air-pressure cylinder 26 is exposed to fluid-pressure in the brake mechanism, and it will be seen that when the pressure in said brake mechanism is in excess of the tension of the actuating-spring 12, whereby the valve is normally held open, the piston 25 will be depressed and the valve will be closed more or less, according to the extent of the excess of pressure in said cylinder. By adjusting the collar or seat 24 the tension of the spring may be varied to provide for the closing of the valve at any desired pressure in the brake mechanism. A drain-passage 30 communi-



cates with the bottom of the spring-casing to carry off moisture which may gain access thereto.

As above described, the valve-seat is threaded into the annular collar 7, and in order to facilitate the engagement of the interlocking threads on the seat and collar I provide the closed end of the valve-seat, which, as shown in the drawings, is in the form of a cage, with a wrench-seat 31, which is accessible through the inlet-port of the main-valve casing.

From the above description it will be seen that in addition to including the minimum number of parts for accomplishing the desired operation the improved governor is especially adapted for use in connection with a valve-casing having opposite alined inlet and outlet ports, where it is impossible to connect the governing devices to the extremity of the spindle of the valve.

It will be seen that no portion of the bearing of the valve shown in the drawings is exposed, and hence dust is entirely excluded and the efficiency of the valve is greatly increased. Furthermore, by arranging the lever within the casing of the valve it is protected from accumulations of dust, and yet the reduction of pressure by leakage is prevented by reason of the stuffing-box through which the stem operates.

All of the parts of the improved governor are accessible to provide for necessary cleaning or adjustment, and it is obvious that various changes in the form, proportion, and the minor details of construction may be resorted to without departing from the spirit or sacrificing any of the advantages of this invention.

Having described my invention, what I claim is—

1. An air-pump governor having a casing exposed to fluid-pressure, and a rotary valve seated in the casing, a lever inclosed in the

casing and operatively connected with the valve, a stem connected at one end to the lever within the casing and extending through a stuffing-box in the side of the casing, a piston secured to the outer end of the stem and arranged in a pressure-cylinder exposed to fluid-pressure, and yielding means connected with the stem for normally holding the valve open, substantially as specified.

2. An air-pump governor having a main casing provided with an interior annular collar 7, a tubular valve-seat threaded at one end in said collar and provided at the other end with a wrench-seat which is accessible through the inlet-port of the main casing, a rotary valve mounted in said seat, and yielding means for holding the valve open, said means including a piston exposed to fluid-pressure, substantially as specified.

3. An air-pump governor having a main casing exposed to steam-pressure and a rotary valve seated in the casing, a lever provided at one end with a notch engaging a lug on said valve, a stem arranged at one end within the casing and connected to said lever, a spring-casing removably secured to the main casing and inclosing the exposed portion of said stem, a cap removably fitted in the outer extremity of the spring-casing and forming a pressure-cylinder exposed to fluid-pressure, a piston adjustably mounted upon said stem and operating in the pressure-cylinder, a collar carried by the piston, and a spring arranged in the spring-casing and seated at one end upon said collar to normally hold the valve open, substantially as specified.

In testimony that I claim the foregoing as my own I have hereto affixed my signature in the presence of two witnesses.

GEORGE FRANKLIN WENTZ.

Witnesses:

WALTER C. FROST,  
D. C. MILLARD.