G. W. MANN.

PRESSURE REGULATOR.

APPLICATION FILED MAR. 14, 1918.

1,337,248.

Patented Apr. 20, 1920.

Fig. 1.

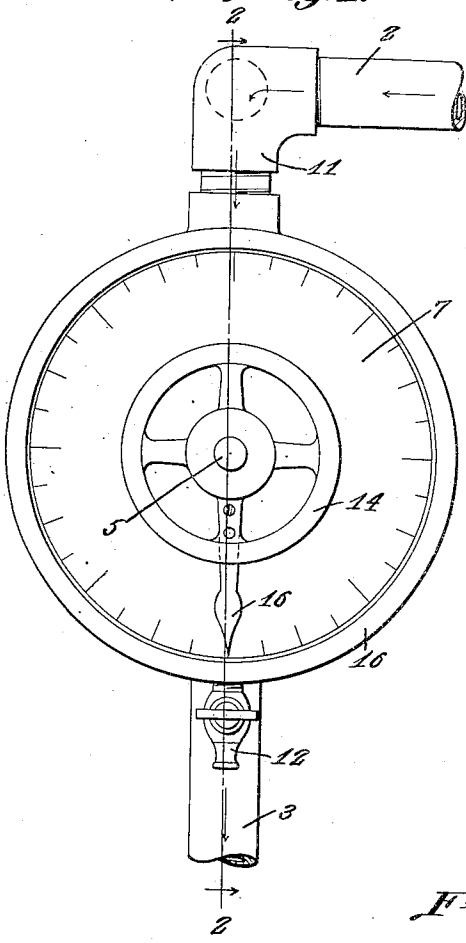


Fig. 2.

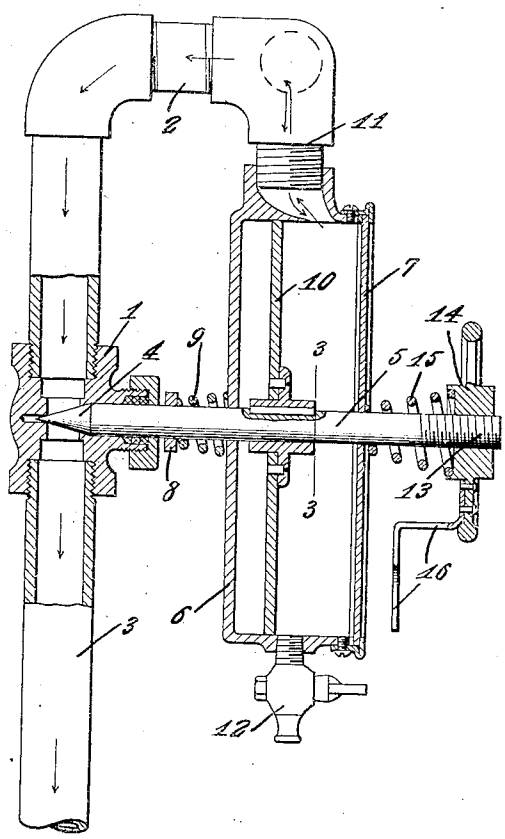
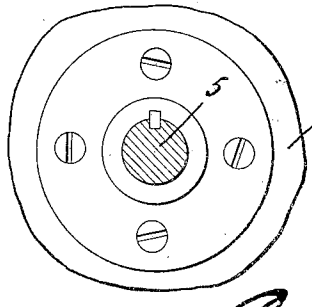


Fig. 3.



Witness

J. C. Tomeis

G. W. Mann, Inventor

By C. A. Snow & Co.

Attorneys

UNITED STATES PATENT OFFICE.

GEORGE W. MANN, OF PIERCE CITY, MISSOURI.

PRESSURE-REGULATOR.

1,337,248. Specification of Letters Patent. Patented Apr. 20, 1920.

Application filed March 14, 1918. Serial No. 222,403.

To all whom it may concern:

Be it known that I, GEORGE W. MANN, a citizen of the United States, residing at Pierce City, in the county of Lawrence and State of Missouri, have invented a new and useful Pressure-Regulator, of which the following is a specification.

This invention relates to a pressure regulator for steam pumps, one of its objects being to provide means whereby the supply of steam to the pump will be increased or reduced automatically thus to maintain the operation of the pump uniform in spite of any variations in pressure in the boiler.

With the foregoing and other objects in view which will appear as the description proceeds, the invention resides in the combination and arrangement of parts and in the details of construction hereinafter described and claimed, it being understood that changes in the precise embodiment of the invention herein disclosed can be made within the scope of what is claimed without departing from the spirit of the invention.

In the accompanying drawings the preferred form of the invention has been shown.

In said drawings:—

Figure 1 is a front elevation of the governor;

Fig. 2 is a vertical transverse section on line 2—2 of Fig. 1, portions of the pipes being shown in elevation; and

Fig. 3 is enlarged section on line 3—3 of Fig. 2.

Referring to the figures by characters of reference, 1 designates a valve casing into which opens a steam supply pipe 2 and a steam outflow pipe 3. A valve 4 is slidably mounted in the casing, its stem 5 extending through the center of a cylindrical governor casing 6 one face of which is provided with a dial, as indicated at 7. A collar 8 is secured to the stem 5 and a spring 9 bears at one end on this collar and at its other end against the casing 6, thus to hold the valve 4 normally upon its seat.

A piston 10 is secured to the stem 5 and divides the interior of the casing 6 into two compartments. One of these compartments is designed to receive steam under pressure through a branch pipe 11 from the pipe 2. A drain cock 12 may be employed whereby condensed steam can be drawn off from the casing.

The forward end of the stem 5 is screw-threaded, as indicated at 13 and mounted on this threaded portion is the hand wheel 14. A spring 15 is interposed between the hand wheel and the dial 7 so that, when the hand wheel is turned in one direction, said spring will be placed under increased compression and, as the spring 15 is stronger than the spring 9, the valve 4 will thus be unseated. An index 16 is secured to the hand wheel and is adapted to work over the dial 7.

It will be apparent that under normal conditions, with the hand wheel 14 at its outermost position, the spring 9 will overcome the spring 15 and cause the valve 4 to be seated so that pressure cannot pass from pipe 2 to the pipe 3 through the valve casing 1. When the hand wheel 14 is rotated in one direction, the spring 15 is placed under increased compression, thus overcoming the tension of the spring 9 and causing the valve 4 to open. This will allow the steam under pressure to pass from pipe 2 to pipe 3. Should the pressure in the pipe 2 and, likewise, in the casing 6, become reduced, the pressure against the piston 10 will likewise become reduced so that the spring 15, which is under compression, will pull the piston 10 to the right, in Fig. 2, thus increasing the flow of steam through the valve casing 1. Should the pressure increase, the piston 10 will be moved toward the left in Fig. 2 thus to partly or entirely cut down the flow of steam through the valve casing 1. In view of this arrangement it will be seen that the pump or other machine operated by the steam under pressure will be driven at a uniform speed independent of any variation of pressure in the boiler. The index 16 coöperates with the dial 7 to indicate the position of the valve 4 relative to its seat.

What is claimed is:—

The combination with a valve casing and a cylindrical governor casing arranged side by side, of a piston mounted to slide within the governor casing, a stem secured to the piston and slidably mounted within the two casings, a valve at one end of the stem and within the valve casing, a hand wheel adjustably mounted on the other end of the stem, a spring interposed between the two casings and engaging the stem for holding the valve normally in closed position, a spring interposed between the governor cas-

ing and the hand wheel for overcoming the tension of the first named spring, said hand wheel being revoluble to vary the compression of the spring engaging it, coöperating means upon the hand wheel and the governor casing for indicating the degree of compression, a pressure supply pipe, an outflow pipe extending therefrom and intersected by the valve casing, and a branch pipe extending from the supply pipe to the governor casing.

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

GEORGE W. MANN

Witnesses:
WM. H. RHEA,
A. F. KEY.