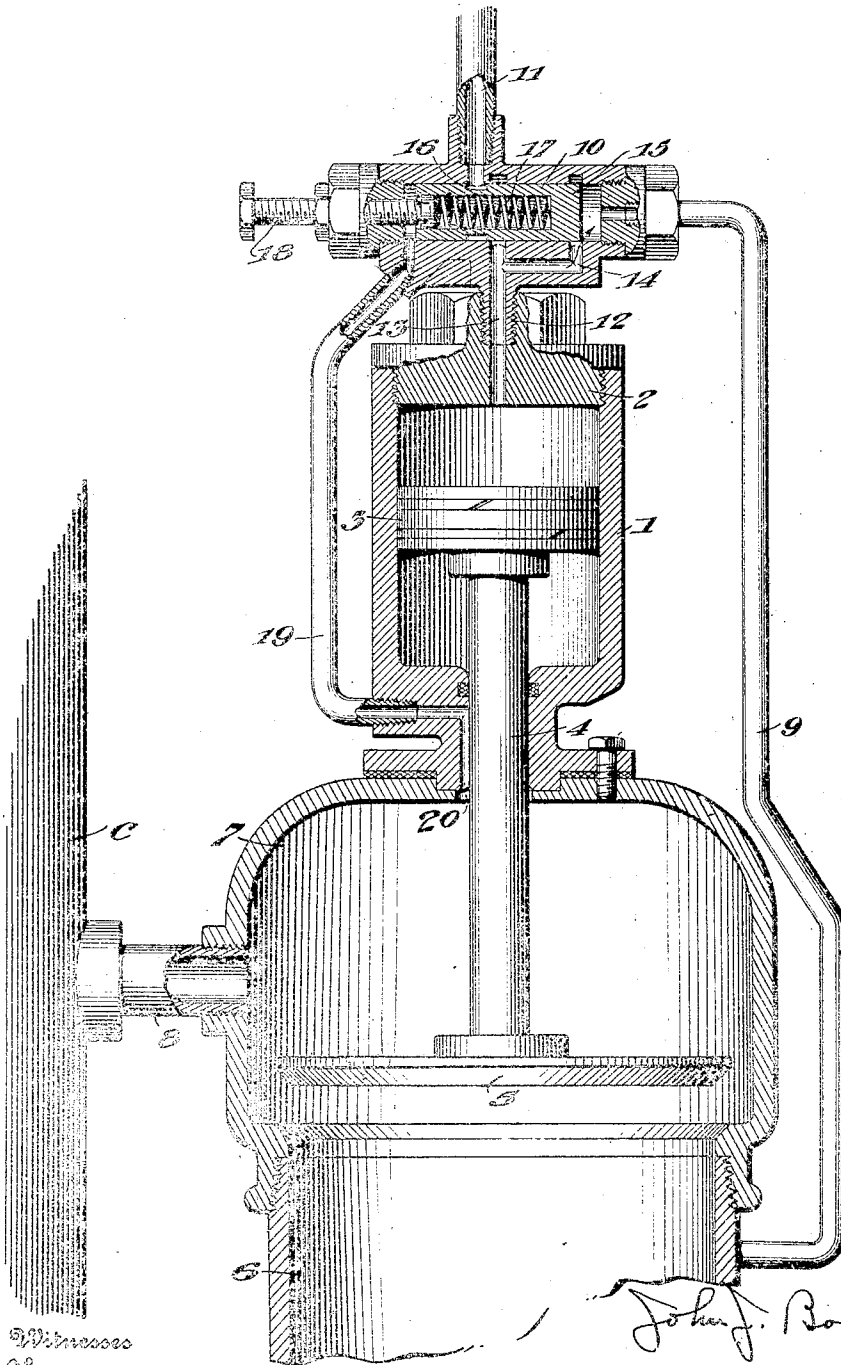


J. J. BODWIN.
 FLUID PRESSURE REGULATOR.
 APPLICATION FILED JAN. 27, 1911.

1,039,639.

Patented Sept. 24, 1912



Witnesses
 Lloyd W. Patch
 Elsie P. White

334

Inventor
 John J. Bodwin
 Vernon E. Hodges
 his Attorney

UNITED STATES PATENT OFFICE.

JOHN J. BODWIN, OF McKEESPORT, PENNSYLVANIA.

FLUID-PRESSURE REGULATOR.

1,039,639.

Specification of Letters Patent.

Patented Sept. 24, 1912.

Application filed January 27, 1911. Serial No. 605,051.

To all whom it may concern:

Be it known that I, JOHN J. BODWIN, a citizen of the United States, residing at McKeesport, in county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Fluid-Pressure Regulators, of which the following is a specification.

My invention relates to an improvement in fluid pressure regulators.

The object of this invention is to create and automatically control pressure in an exhaust pipe of a steam engine, for instance, on its way to the condenser, and the invention consists in certain novel features of construction and combinations of parts which will be hereinafter fully described and pointed out in the claims.

The accompanying drawing is a vertical sectional view through my improved fluid pressure regulator.

The numeral 1 represents a cylinder having a plug 2 screwed into its upper end. A piston 3 is fitted to the bore of this cylinder and carries a valve stem 4, which has a valve 5 on the lower end which controls the exhaust pipe 6. From the valve chamber 7 a pipe 8 leads to the condenser C. A by-pass 9 extends from exhaust pipe 6 to the distributing valve chamber 10, into which live steam is introduced through an intake 11. This chamber 10 has a hollow threaded stem 12, which is tapped into the plug 2, and through this plug and stem a port 13 extends from the distributing valve chamber 10 to the cylinder 1 and from the port 13 a port 14 leads to the end of said chamber. A distributing valve 15 is fitted to the bore of the chamber 10, it being provided with a circumferential port 16 adapted to normally register with the port 13, a spring 17 located in the bore of this valve 15 serving to retain the valve 15 in this normal position until it is forced out of registry by the pressure at the right hand end of the distributing valve chamber, and a screw 18 is provided for regulating the tension of the spring. A drain pipe 19 extends through chamber 10 to a duct 20 which leads to the valve chamber 7. Thus it will be observed that by tapping the exhaust by means of the by-pass 9 from pipe 6 and carrying it to the distributing valve chamber 10 where the distributing valve 15 is normally held open by the spring 17 which allows a certain quantity of live steam to enter the ports

16 and 13, it will actuate the piston 3 and consequently force the valve 5 down upon its seat and shut the exhaust off from the condenser. Then, as the pressure in the exhaust pipe 6 increases, this increased pressure will force the valve 15 back against the action of the spring to shut off the live steam through the ports 16 and 13, releasing the pressure on the piston 3, which in turn will lift the valve 5 and allow a larger quantity of the exhaust to escape into the condenser, thereby decreasing the pressure in the exhaust pipe. When this occurs, the live steam in the upper end of the cylinder exhausts through the ports 13 and 14, as indicated by the arrow, the latter being open when the valve 15 is forced back against the tension of the spring 17, thereby regulating the fluid pressure. It will be noted that the exhaust from cylinder 1 at this time will not be of sufficient pressure to overcome the pressure from the exhaust pipe 6. Thus it will be understood that as long as valve 15 is back far enough to open the port 14, the exhaust which is forcing valve 15 back will pass in the opposite direction of the arrow and enter the cylinder 1 through the ports 13 and 14, and cause a constant pressure from the exhaust pipe against the piston 3.

The regulating valve which controls the intake of live steam could be used as a steam regulator without the other parts of my invention, instead of operating as a live steam reducing valve, as I have illustrated in the drawing.

It is evident that more or less slight changes might be resorted to in the form and arrangement of the several parts described without departing from the spirit and scope of my invention, but:—

Having fully described my invention, what I claim as new and desire to secure by Letters Patent, is:—

1. In a fluid pressure regulator, the combination with a cylinder, a piston therein, a valve carried by the piston, and a fluid pressure pipe controlled by said valve, of a distributing valve chamber, a port leading from said chamber to the cylinder, a live steam intake discharging into said chamber, an automatic valve operating in said chamber and having means for controlling the supply and discharge of live and exhaust steam to and from the cylinder, and a by-pass leading from the fluid pressure pipe to said chamber.

2. In a fluid pressure regulator, the combination with a cylinder, a piston therein, a valve carried by the piston, and a fluid pressure pipe controlled by said valve, of a distributing valve chamber, a port leading from said chamber to the cylinder, a live steam intake discharging into said chamber, an automatic valve operating in said chamber and having means for controlling the supply and discharge of live and exhaust steam to and from the cylinder, a

spring for normally forcing the said valve in one direction, means for regulating the tension of the spring, and a by-pass leading from the fluid pressure pipe to said chamber. 15

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

JOHN J. BODWIN.

Witnesses:

J. D. YOAKLEY,
VERNON E. HODGES.