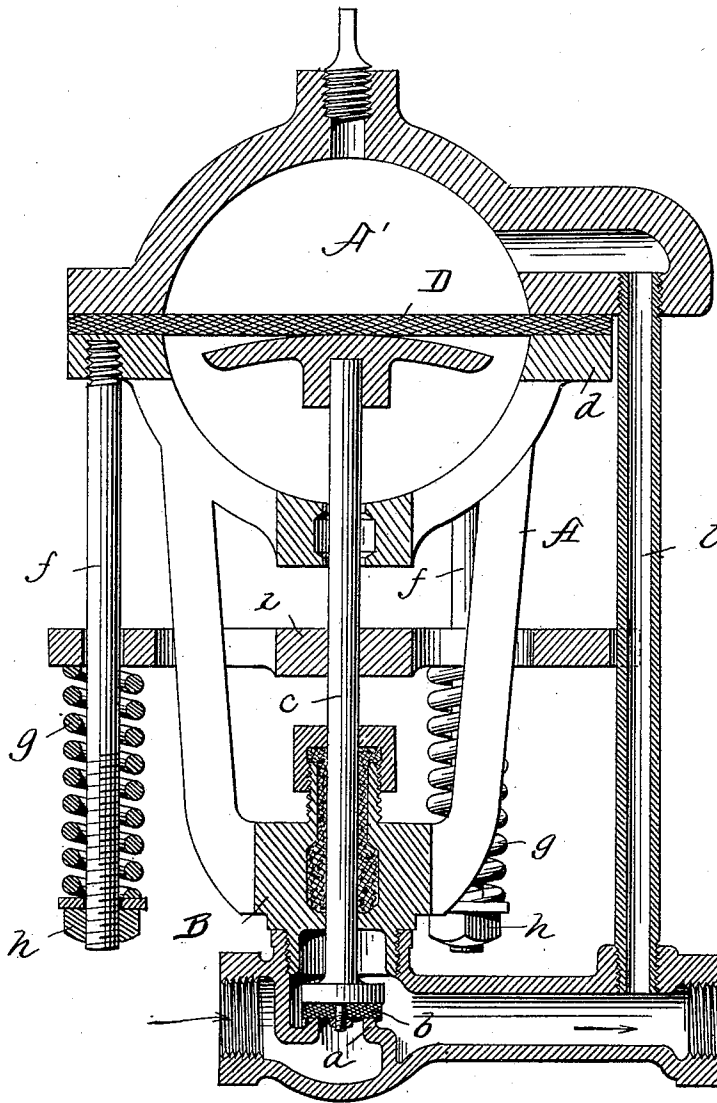


(No Model.)

J. H. WERNER & S. FLORY.
PRESSURE REGULATOR.

No. 465,956.

Patented Dec. 29, 1891.



Witnesses

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Inventors -

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UNITED STATES PATENT OFFICE.

JOHN H. WERNER AND SAMUEL FLORY, OF BANGOR, PENNSYLVANIA.

PRESSURE-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 465,956, dated December 29, 1891.

Application filed February 7, 1891. Serial No. 380,610. (No model.)

To all whom it may concern:

Be it known that we, JOHN H. WERNER and SAMUEL FLORY, citizens of the United States of America, residing at Bangor, in the county of Northampton and State of Pennsylvania, have invented certain new and useful Improvements in a Pressure-Regulator, of which the following is a specification.

Our invention relates to a pressure-regulator of that class in which the regulator is automatic; and it consists in the details of construction hereinafter referred to and claimed.

Our main object is to simplify the construction of the regulator without impairing its efficiency in any way.

In the accompanying drawing we have shown our invention in section, some of the parts being in side elevation.

In the drawing, A represents a casting or frame-work of any suitable construction or configuration adapted to support the operating parts. From a projecting nipple on the lower end of this casting is supported a coupling B, to which is secured the inlet-pipe upon one side and the outlet-pipe upon the other. This coupling is provided with a valve-seat *a*, which receives the face of a valve *b*, carried upon a stem *c*, which passes through a stuffing-box on the lower end of the casting A. This valve controls the passage between the inlet and outlet and is operated, as hereinafter described.

Depending from the circular flange *d* of the main casting are rods *f*, which carry upon their lower ends springs *g*. These springs are held by nuts *h* and a cross-bar *i*, which is connected to the stem of the valve. The tendency of these springs is to keep the valve raised from its seat, leaving the passage normally open, and the pressure exerted by these springs may be varied by adjusting the nuts *h* at the lower ends of the springs, the rods which support the nuts being screw-threaded for this purpose. The casting A is made in two parts, the upper part A' being a shell which fits down over the corresponding part of the cast-

ing A, a diaphragm of suitable material, as at D, being interposed between the two. A substantially spherical chamber is formed by the two parts of the casting intersected by the diaphragm D. The stem of the valve passes up into the lower part of this chamber and carries upon its end a plate having a curved upper face, which is in contact with the under face of the diaphragm; but when the valve is open by reason of the pressure of the springs this plate will press the diaphragm upward. In order that the pressure may be kept uniform and automatically close the valve when any excess of pressure is present we connect the chamber above the diaphragm with the coupling by means of a pipe *l*, and thus when the pressure exceeds a determined amount for which the springs have been set to keep the valve open this excess of pressure will operate upon the diaphragm and be sufficient to overcome the pressure of the springs by reason of the greater surface exposed by the diaphragm than by the valve, and thus the valve will be closed or partially closed, and in this way the pressure will be maintained.

We claim as our invention—

In combination with the casting A, a coupling carried thereby, inlet and outlet openings, a valve extending into said coupling, a cross-bar connected to the valve-stem, depending rods provided with springs in contact with said cross-bar, means for adjusting the tension of the springs, a chamber provided with a diaphragm, the valve-stem extending into said chamber and provided upon its end with a plate having a curved upper face in contact with the diaphragm, and a pipe connection between the coupling and the upper part of the chamber, substantially as described.

In testimony whereof we affix our signatures in presence of two witnesses.

JOHN H. WERNER.
SAMUEL FLORY.

Witnesses:

ADAM H. BRUCH,
JOHN HOUSER.