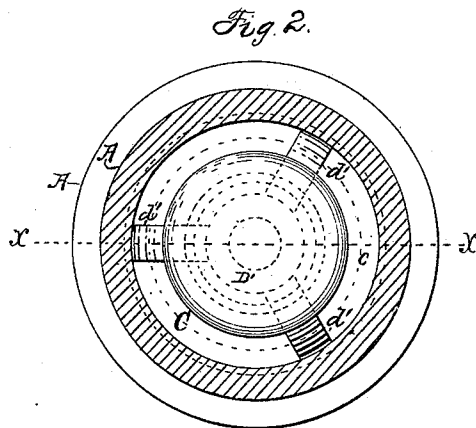
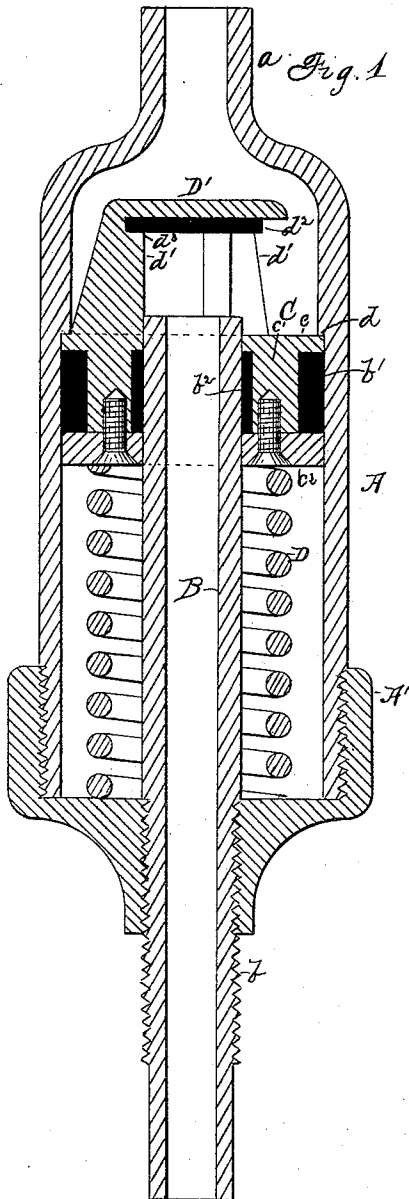


(No Model.)

R. W. F. ABBÉ.
PRESSURE REGULATOR.

No. 444,082.

Patented Jan. 6, 1891.



WITNESSES:
C. R. Ferguson
Wm. H. Schiff

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UNITED STATES PATENT OFFICE.

RICHARD W. F. ABBÉ, OF BELLEVILLE, NEW JERSEY.

PRESSURE-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 444,082, dated January 6, 1891.

Application filed April 15, 1890. Serial No. 348,071. (No model.)

To all whom it may concern:

Be it known that I, RICHARD W. F. ABBÉ, of Belleville, county of Essex, and State of New Jersey, have invented a certain new and useful Improvement in Pressure-Regulators, of which the following is a specification.

This invention relates to pressure-regulators for steam, water, or gas.

I will describe a regulator embodying my improvement, and then point out the novel features in the claims.

In the accompanying drawings, Figure 1 is a vertical section of a pressure-regulator embodying my improvement, taken through the line *x x* of Fig. 2. Fig. 2 is a top view of the valve and piston.

Similar letters of reference designate corresponding parts in both figures.

Referring by letter to the drawings, A designates a shell or cylinder threaded at one end to engage a threaded portion of a cap-nut A', and its opposite end *a* may be contracted to engage with an outlet-pipe in any suitable manner.

B designates a main pipe or tube extended into the cylinder A, and having an extended threaded portion *b* engaging with an interior thread of the cap-nut A'.

C is a piston-valve fitting within the cylinder A, and having a central opening through which the tube B extends. This piston-valve is designed to move lengthwise of the pipe B within the cylinder. The piston-valve C consists of a plate *c*, having an integral annular web *c'*, and a plate *c''*, secured to the web *c'* by means of screws or otherwise. A packing *b'*, of suitable material, is interposed between the outer face of the web *c'* and the interior wall of the cylinder, and a packing *b''* is inserted between the inner face of the web *c'* and the pipe B. By removing the plate *c''*, the packings *b'* and *b''* may be easily removed when it is desired to replace them by new ones. The piston-valve C normally abuts against an annular shoulder or stop *d* within the cylinder, and the opposite side of the piston-valve bears upon an adjustable tension D. This tension D, I have shown in the form of a coiled spring bearing at one end upon

the piston-valve and at the opposite end 50 upon the inner surface of the cap-nut A'. By adjusting the cap-nut lengthwise on the cylinder A and the pipe B the tension of the spring D upon the piston-valve against back-pressure may be varied to suit the require- 55 ments of the pressure-regulator.

D' is a valve-plate secured to legs *d'*, extending from the plate *c*, and *d''* is a yielding rubber or analogous disk removably secured against the inner face of the plate D'. I have 60 shown the disk *d''* as held against the plate D' by means of shoulders *d'''* in the legs *d'*.

It is evident that an abnormal back-pressure upon the plate D' and piston-valve will force the valve-plate toward the outlet of 65 the pipe B and diminish or entirely shut off the inflow of water, steam, or gas, and when the back-pressure is relieved the valve will approach or assume its normal position.

Having described my invention, what I 70 claim is—

1. In a pressure-regulator, the combination, with a shell having an interior annular shoulder or stop and a threaded end, a cap-nut having a threaded portion to engage the 75 threaded end of the shell, a main pipe extended into the shell and having an extended threaded portion engaging with an interior thread of the cap-nut, a piston-valve, substantially such as described, movable on the 80 main pipe within the shell, and a coiled spring bearing at one end upon the piston-valve and at the other end upon the inner surface of the cap-nut, whereby the spring may be varied by operating the cap-nut, substantially as speci- 85 fied.

2. In a pressure-regulator, the combination, with the cylinder having a threaded end, of a cap-nut engaging therewith, a main pipe extended into the cylinder and having an ex- 90 tended threaded portion to engage with the cap-nut, a piston-valve surrounding the main pipe within the cylinder, and a tension-spring bearing at one end against the piston-valve and at the other against the cap-nut and 95 variable by means of the cap-nut, substantially as specified.

3. In a pressure-regulator, the combination,

with the cylinder, the main pipe, and an adjustable tension, of the piston-valve surrounding the main pipe, comprising a plate having an annular web, a plate removably
5 secured to the web, the packing, a valve-plate secured to said piston-valve normally beyond the outlet of the main pipe, and a yielding

disk removably secured to the inner face of the valve-plate, substantially as specified.

RICHARD W. F. ABBÉ.

Witnesses:

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S. O. EDMONDS.