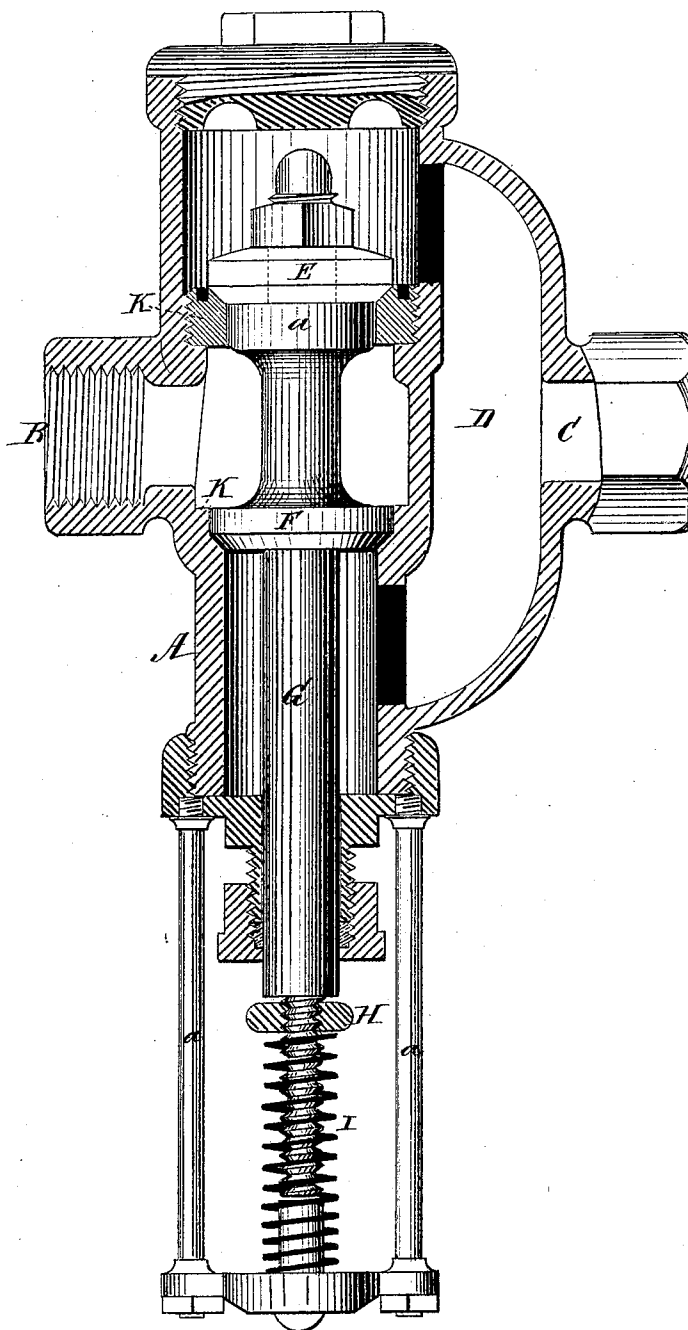


H. S. YOUNG & W. H. BERGER.
Pressure Regulators for Fluids.

No. 150,386.

Patented April 28, 1874.



WITNESSES:

Am. Cart.
G. Matthey.

INVENTOR:

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UNITED STATES PATENT OFFICE.

HARMON S. YOUNG AND WILLIAM H. BERGER, OF DANVILLE, PA.

IMPROVEMENT IN PRESSURE-REGULATORS FOR FLUIDS.

Specification forming part of Letters Patent No. **150,386**, dated April 23, 1874; application filed April 2, 1874.

To all whom it may concern:

Be it known that we, HARMON S. YOUNG and WILLIAM H. BERGER, of Danville, in the county of Montour and State of Pennsylvania, have invented a new and Improved Pressure-Regulator for Fluids; and we do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawing forming a part of this specification, in which is represented a sectional elevation of the regulator.

The invention relates to an improved device for regulating the pressure of gas, steam, air, water, or other fluids conveyed in tubes or pipes from one point to another. It consists in the construction and arrangement of valves, their containing case or shell, and an adjusting device, as hereinafter fully described.

The case or shell A of the regulator has an inlet-orifice at B and discharge-orifice at C, the latter communicating with the valve-chamber above and below the valve-seats by means of pipe D. The valves E and F are formed on, or attached to, the same stem G, and both seat downward, or in the same direction. The valve E has an elongated base, *a*, with vertical sides, which works steam or air tight in a correspondingly-shaped part of the shell A. The under side of the base *a*—i. e., the horizontal part immediately adjacent to and surrounding the stem—constitutes the only part of the valve E on which pressure can be exerted by the gas or other fluid when acting from below. The top area or surface of valve E is, however, greater, and also exceeds the area of valve F on either its upper or under side. The gas or other fluid passes into the pipe D only through

the lower valve-orifice, since the stem G is not allowed to rise sufficiently to lift the base *a* above its seat. It is, therefore, clear that if the back pressure of the fluid in pipe D sufficiently exceeds the forward pressure at the inlet B, the valve F will be pressed downward, or seated, since the pressure on the top of valve E will exceed that on the under side of base *a* by as much as its area is greater, the valve F being mainly a negative element in respect to such pressure. The said degree of pressure which is necessary to seat the lower valve is regulated by a spring, I, and nut H. The former, which is preferably of spiral form, encircles the threaded lower end of the valve-stem G, and presses upward against the nut working thereon, and downward against a cross-bar that joins the ends of rods *a a*, attached to the shell A. The lower valve is raised off its seat by screwing the nut down on the stem.

What we claim is—

In a pressure-regulator for fluids, the combination, with the case or shell A, provided with inlet and discharge orifices B C and tube D, arranged relative to the valve-seats as set forth, of the valves E and F on stem G, the top area or surface of the former exceeding that of its elongated base *a*, the spring I, and adjusting-nut H, all arranged to operate as shown and described.

HARMON S. YOUNG.
WILLIAM H. BERGER.

Witnesses:

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