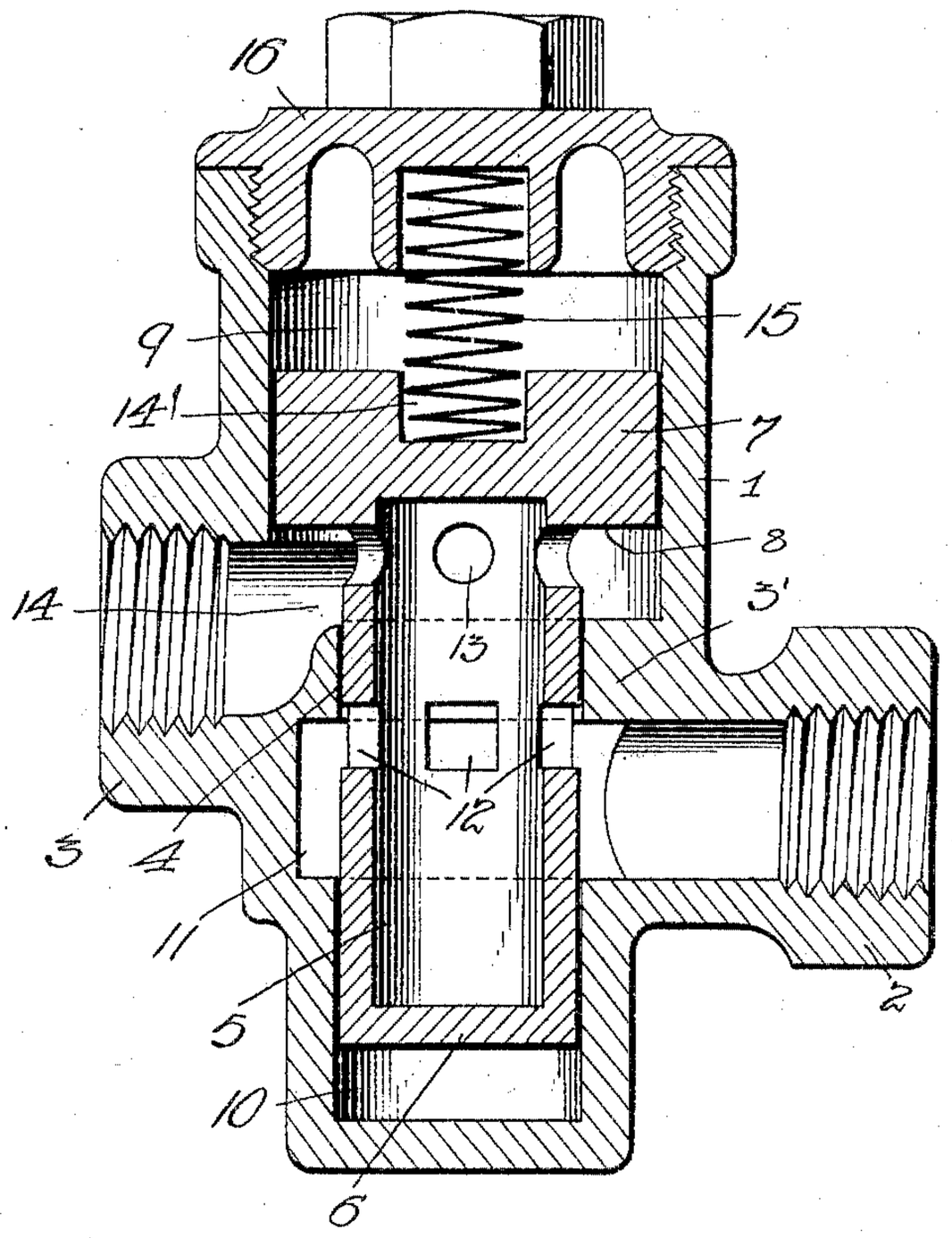
No. 776,839. PATENTED DEC. 6, 1904.

R. J. HOFFMAN.

PRESSURE REGULATOR.

APPLICATION FILED MAY 14, 1904.

NO MODEL.



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No. 776,839. Patented December 6, 1904.

UNITED STATES PATENT OFFICE.

ROSS J. HOFFMAN, OF BRADFORD, PENNSYLVANIA.

PRESSURE-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 776,839, dated December 6, 1904.

Application filed May 14, 1904. Serial No. 208,026. (No model.)

To all whom it may concern:

Be it known that I, ROSS J. HOFFMAN, a citizen of the United States, residing at Bradford, Pennsylvania, have invented certain new and useful Improvements in Pressure-Regulators, of which the following is a specification.

My invention relates to pressure-reducing valves; and it consists in the features and combination and arrangement of parts hereinafter described, and pointed out in the claim.

My object is to provide a valve of balanced form and of simple construction in which the pressure on the valve may be adjusted as desired and in which access to the valve may be readily had.

The invention is shown in the accompanying drawing, which illustrates a central section through the valve.

In the drawing, 1 indicates the valve-casing, having a nipple 2 for connection with the high-pressure pipe and a second nipple 3 for connection with the low-pressure pipe. These nipples are axially out of line with each other, but are located on opposite sides of the casing, though I do not confine myself in this regard. Within the valve-casing a partition 3′ extends transversely and horizontally, said partition lying between the inlet and outlet ports and having a vertical opening 4 therethrough, in which the pressure-reducing valve is located. This valve is hollow and of cylindrical form, as indicated at 5. Its lower end is closed by a head 6, and its upper end is provided with a head 7, which extends laterally beyond the sides of the cylindrical portion, forming a flange or head and providing a pressure-surface at 8 on the under side of the said flange. The casing has an enlarged chamber 9 at its upper end, in which the enlarged head 7 moves, while the cylindrical portion of the valve operates in a chamber 10 of substantially the same diameter as the opening in the partition 3. A channel 11 is formed in the wall of the lower chamber, entirely surrounding the valve and communicating with the inlet-opening. The valve has openings 12 in its wall adapted to afford communication from the annular channel 11 to the interior of the valve, and communication is also provided by openings 13 in the upper part of the cylindrical wall, which openings lead to the chamber 14, communicating with the outlet-opening. From this construction of the valve it will be noticed that it is balanced both laterally and longitudinally, the interior heads or surfaces at the ends of the valve being equal in area and the pressure being permitted to exert its force on all sides of the valve by means of the passage 11. The enlarged upper head is provided with a recess 14′, in which is seated a spring 15, the upper end of which bears in a recess in a cap 16, screwed into the upper end of the casing. By means of this spring the valve is placed under pressure, which resists its upward movement against the pressure of the fluid. As the pressure of the fluid increases on the high-pressure side the valve will rise against the pressure of the spring 15, and the size of the openings 12 available for the passage of the fluid will be reduced, and a reduced pressure will thereby exist on the low-pressure side in respect to the high-pressure side of the valve. When the pressure on the high-pressure side is reduced, the spring will force the valve downwardly, thus opening the port 12 to a greater extent, and thus the pressure on the low-pressure side will remain constant.

It will be noticed that the lower chamber in the casing is axially in line with the enlarged upper chamber, and these chambers may be conveniently made by reaming them out at one operation.

By removing the cap 16 the valve, with its spring, may be readily removed.

I claim as my invention—

In combination in a pressure-reducing valve, a casing having inlet and outlet openings with a partition between, a valve having an enlarged head and hollow portion of the same diameter throughout, and reduced in respect to the head, said reduced hollow por-

tion fitting in an opening in the said partition and fitting also the reduced lower portion of the casing, the said casing being enlarged around the periphery of the reduced portion of the valve, and said reduced portion having radially-extending openings above and below the partition, substantially as described.

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

ROSS J. HOFFMAN.

Witnesses:
EDWIN E. TAIT,
H. L. STONER.