No. 623,935. Patented Apr. 25, 1899.

G. T. WILSON & E. WEBB.

REGULATOR VALVE.

(Application filed June 8, 1898.)

(No Model.)

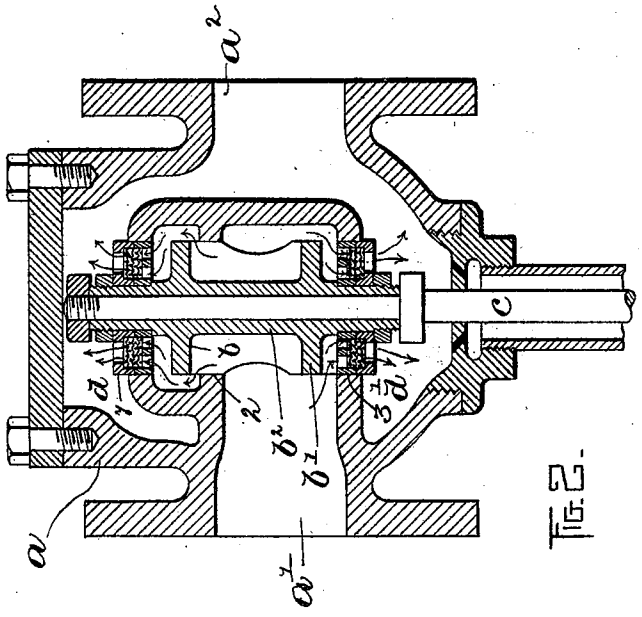


FIG. 2.

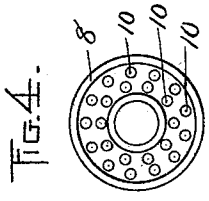


FIG. 4.

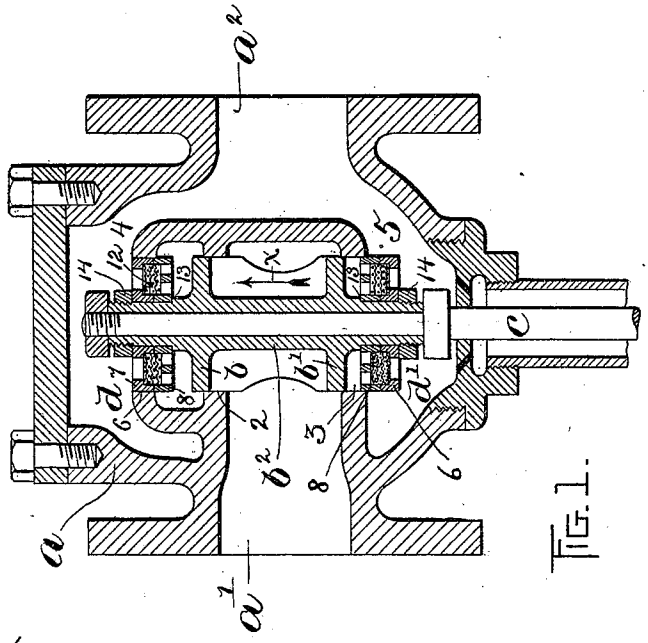


FIG. 1.

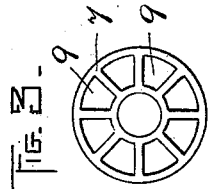


FIG. 3.

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UNITED STATES PATENT OFFICE.

GEORGE T. WILSON, OF SOMERVILLE, AND EDWARD WEBB, OF READING, MASSACHUSETTS, ASSIGNORS TO SAID WEBB, AND JULIAN D'ESTÉ AND MARY L. D'ESTÉ, OF SALEM, MASSACHUSETTS.

REGULATOR-VALVE.

SPECIFICATION forming part of Letters Patent No. 623,935, dated April 25, 1899.

Application filed June 8, 1898. Serial No. 682,948. (No model.)

To all whom it may concern:

Be it known that we, GEORGE T. WILSON, of Somerville, and EDWARD WEBB, of Reading, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Regulator-Valves, of which the following is a specification.

This invention relates to valves which are used to regulate the passage of steam or other fluid under pressure through a conduit, the valve being adapted to regulate the volume of fluid, so that a greater or less volume can be supplied at a given time, the conduit being contracted to decrease the volume and enlarged to increase it. When the conduit is contracted to a considerable extent, so that the fluid under pressure passes through a very narrow orifice, its passage is liable to be attended with a disagreeable noise. Our invention has for its object to overcome this objection; and it consists in the improvements which we will now proceed to describe and claim.

Of the accompanying drawings, forming a part of this specification, Figure 1 represents a longitudinal section of a fluid-regulator embodying our invention, the valve being closed. Fig. 2 represents a similar view showing the valve opened. Figs. 3 and 4 represent views of the parts or sections of the muffler hereinafter described.

The same letters and numerals of reference indicate the same parts in all the figures.

In the drawings, *a* represents a casing, through which extends a conduit for steam or other fluid under pressure, *a'* being the inlet end of said conduit, and a^2 the outlet end. In the embodiment of our invention here shown the casing is provided internally with two valve-ports 2 3, which communicate with two divisions 4 5 of the conduit leading to the outlet end a^2. The casing is also provided at a point adjacent to the valve-port 2 with a muffler-port 6, through which the fluid that passes through the port 2 is obliged to pass on its way to the branch 4 of the conduit. The internal construction of the casing is such that all the fluid passing through the casing necessarily passes through the ports 2, 3, and 6, the ports being of circular form.

b b' represent two valve-heads connected by a tubular shank b^2 and affixed to a rod or stem *c*, said ports constituting a double or two-headed valve. The head *b* is formed to enter the valve-port 2, while the head *b'* is formed to enter the valve-port 3, said heads when in the said ports, as shown in Fig. 1, closing the same practically steam-tight. The relative arrangement of the ports and the valve-heads is such that when the valve is moved in the direction of the arrow *x* from the position shown in Fig. 1 the valve-ports 2 and 3 will be open to an extent determined by the extent of movement of the valve. Suitable automatic means may be employed to move the valve, and thus regulate the volume of fluid passing through the casing, and said automatic means may be, for example, such as are shown in our application for Letters Patent of the United States for a fluid-actuated regulator, filed January 28, 1898, Serial No. 668,268, said application showing the valve rod or stem connected with a flexible diaphragm located in a chamber and operated by varying degrees of pressure in such chamber.

It will be seen that when the valve-heads *b b'* are raised to form openings between their peripheries and the walls of the ports 2 and 3 the fluid will pass through said ports on its way to the outlet a^2.

To prevent the noise which would otherwise attend the passage of the fluid when the valve-heads are separated from their ports by relatively narrow crevices, as when the valve has only a minimum opening, we provide two mufflers *d* and *d'*, which are attached to the valve at points adjacent to the outer sides of the heads *b b'*. The muffler *d* is arranged to move in the muffler-port 6, while the muffler *d'* is arranged to move in the valve-port 3, the said mufflers being formed to closely fit said ports, so that no fluid can pass except through the noise-quieting parts of the mufflers hereinafter described. Each muffler is preferably composed of two parts or sections 7 8. These sections are provided with continuous circular margins or peripheries, and their body portions are provided with perforations for the passage of steam. The sec-

tions are placed in contact with each other on extensions of the shank b^2, and their adjacent sides are recessed to form chambers for the reception of muffling material 12. Said material may be a plurality of rings of wire cloth or gauze superimposed within the chamber and arranged to extend across the perforations 9 and 10. The perforations 10 in the inner sections 8 are preferably smaller than the perforations 9 in the outer sections, as shown in Figs. 3 and 4. The sections are secured between shoulders 13 and nuts 14 on the shank b^2. The mufflers are arranged so that the ports 3 and 6 will always be obstructed by them whatever may be the position of the valve, so that no steam can pass through said ports excepting through the mufflers, as clearly indicated in Fig. 2. It will be seen, therefore, that all the steam or other fluid that passes through the casing necessarily passes through the mufflers, so that its passage is not attended with disagreeable noise.

We do not limit ourselves to the form and relative arrangement of parts here shown and may variously modify the same without departing from the spirit of our invention.

Having thus explained the nature of our invention and described a way of constructing and using the same, although without having attempted to set forth all the forms in which it may be embodied or all the modes of its use, we declare that what we claim is—

1. A regulator comprising a casing having a fluid-conduit, a valve movable in said conduit, and a muffler movable with the valve and interposed between the valve and the outlet end of the conduit, the conduit being suitably formed to coöperate with the valve and muffler in regulating the volume of fluid passing through the conduit, and in causing the passage of the fluid through the muffler after it passes the valve.

2. A regulator comprising a casing having a fluid-conduit containing two valve-ports interposed between the inlet and outlet ends of the conduit, and a muffler-port interposed between one of said valve-ports and the said outlet end, a valve comprising two connected heads formed to fit said valve-ports, and two muffler-heads attached to the valve and arranged to coöperate with two of said ports, as set forth.

3. A muffler-head comprising two circular sections having a continuous or imperforate periphery, and perforations extending through their body portions, said sections being recessed to form an annular chamber between their perforated portions, and suitable muffling material contained in said chamber, the sections being formed for application to a valve rod or stem.

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

GEORGE T. WILSON.
EDWARD WEBB.

Witnesses:
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A. D. HARRISON.