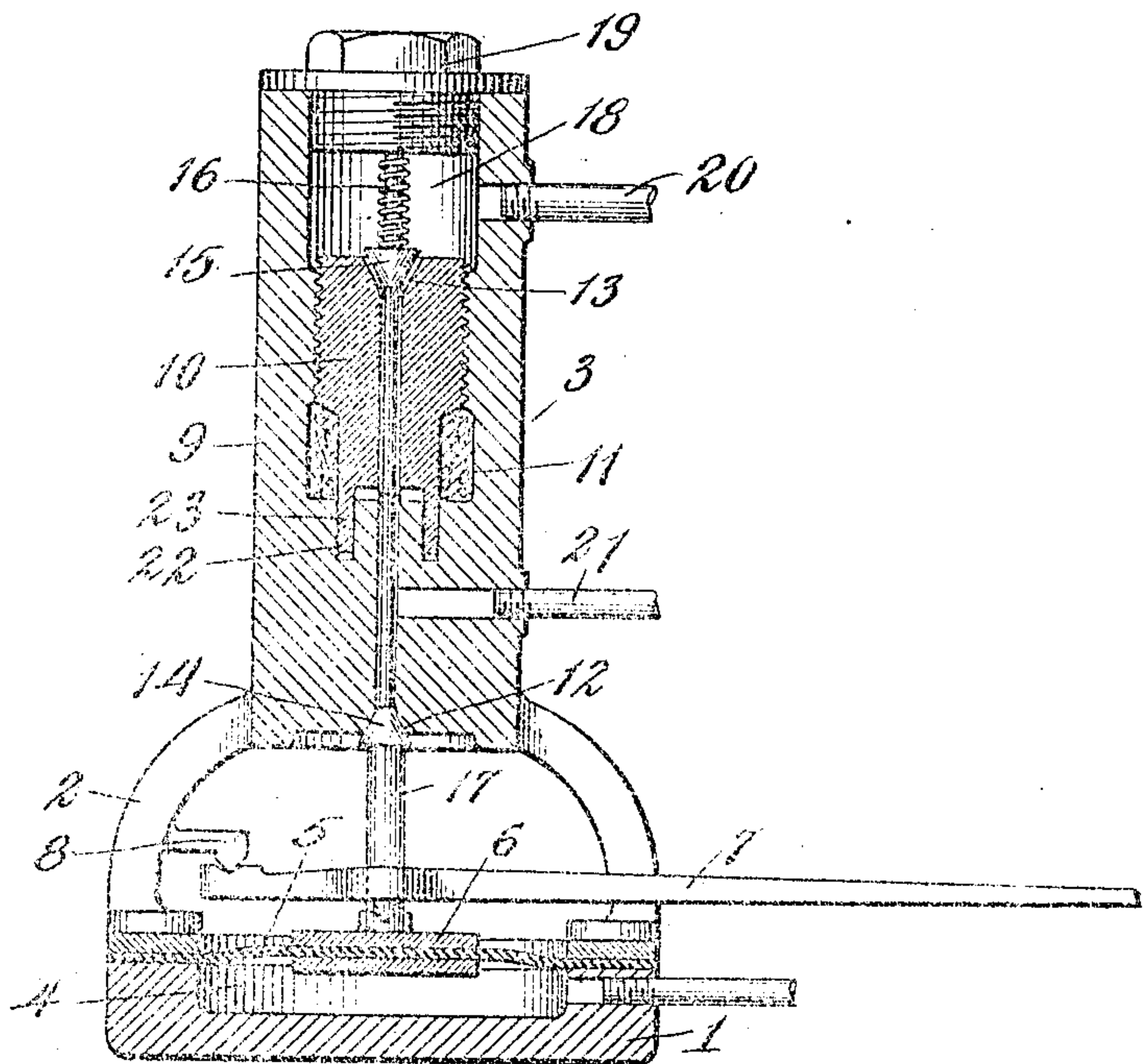


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PATENTED FEB. 5, 1907.

J. T. WADSWORTH.
VALVE MECHANISM.
APPLICATION FILED NOV. 10, 1905.



WITNESSES:

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VALVE MECHANISM.

No. 843,313.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JOSEPH T. WADSWORTH, a citizen of the United States of America, and a resident of Plainfield, county of Union, State of New Jersey, have invented certain new and useful Improvements in Valve Mechanism, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

My invention relates to improvements in valve mechanism, and particularly to improvements in valve mechanism employed in regulators.

Pressure and thermostatic regulators commonly employ opposed inlet and exhaust valves, and in the best forms means are employed for adjusting one of said valves with respect to the other; but to so adjust the valves it is usually necessary to remove one of the valves, and this makes accurate adjustment a somewhat difficult and tedious matter, because the adjustment must be made by guess while the valve is removed to be tested upon the return of the valve into position. In my present invention I employ an improved form of adjustment, whereby such adjustment may be made without removing the valves and extremely-accurate adjustment can be readily obtained in the least possible time. I attain this by providing means for adjustment between the portions which carry the seats for the two valves, and in so providing for this adjustment I provide special means for preventing the discharge of motive fluid past the joint which necessarily occurs between the two adjustable portions.

In order that my invention may be fully understood, I will describe an embodiment thereof with reference to the accompanying drawing, illustrating same, and will then point out the novel features in claims.

The drawing represents a view in central longitudinal section through a regulator employing a valve mechanism embodying my invention.

The regulator illustrated comprises generally a base 1, standards 2, and a valve-casing 3. The base 1 is recessed to form a pressure-chamber 4, the said pressure-chamber provided with a diaphragm 5, constituting a movable wall thereof, to which is secured a follower 6. A weighted lever 7 is fulcrumed

at 8 to one of the standards 2 of the device and bears upon the follower.

The valve-casing, which is designated as a whole by the reference character 3, comprises a main or body portion 9 and an adjustable portion 10. The adjustable portion 10 is screw-threaded into the main body portion 9, so as to permit of its adjustability, and between the two portions there is a recessed chamber 11, which may be filled with a packing material, so as to form a stuffing-box to pack the threaded joint. The main portion of the valve-casing has a valve-seat 12, facing downward and outward, and the adjustable plug 10 is also provided with a similar valve-seat 13 which faces outward and upward. Fitted to the valve-seats 12 and 13 are valves 14 and 15, respectively, the said valve 14 constituting an exhaust or discharge valve and the valve 15 an inlet-valve. The valves 14 and 15 are each provided with stems which project inwardly toward each other and have their ends in abutting relation. The valve 15 is pressed to its seat by means of a spring 16, while the valve 14 is engaged by a stem 17, secured to or formed as a part of the follower 6. The valve 14 is closed by upward movement of the weighted lever 7, under the influence of pressure within the chamber 4, and the valve 15 is forced open at the same time by reason of the abutting relation between the stems of the two said valves. The limit of movement for the valve 14 is of course reached in that direction when the valve engages its seat, and as this valve can move no farther the limit of opening movement will also be reached by the valve 15, so that the amount of the opening movement of the valve 15 will depend upon the difference in distance between the two valve-seats and the faces of the two said valves. This distance may be adjusted by adjustment of the portion 10, because adjustment of the portion 10 will move the valve-seats 12 and 13 toward and away from each other, as will be clearly understood.

In the device illustrated the valve 15 will be seen to open into a chamber 18, formed in the top portion of the main or body part 9 of the casing, the said chamber being closed by a cap 19, the spring 16 arranged to bear against the said cap. The inlet-pipe 20 ad-

mits motive fluid under pressure to the chamber 18, and a distributing-pipe 21, communicating with a point between the two valve-faces, acts as a conduit for conveying fluid
 5 toward a device to be operated (not shown) when the exhaust-valve 14 is closed and the inlet-valve 15 is opened and to return exhaust fluid for its discharge past the valve 14, when the said valve is opened and the inlet-
 10 15 valve is closed.

By inspection of the drawing it will be seen that I have provided the body portion 9 of the casing with an annular recess 22, leading into the chamber 11, and I have provided
 15 the part 10 with a corresponding annular flange 23, which is accurately fitted thereto. This construction performs three functions. First, it accurately centers the part 10 with respect to the part 9, so that even should the
 20 screw-threaded connection between the two parts tend to throw the part 10 slightly out of line the tendency will be corrected; second, the parts being closely fitted will, as well as the packing in the chamber, act to pre-
 25 vent loss of motive fluid, and, third, the packing in the chamber 11 will be properly confined within such chamber and prevented from getting into the space reserved for the valves and their stems.

30 With this construction it will be seen that I have provided an extremely simple means by which great accuracy of adjustment is obtained. In order to adjust the parts, it is not necessary to remove either of the valves,
 35 and the extent of the adjustment may therefore be carefully tested with the valves in place. There are no small screws to get lost and no delicate parts to get out of order. Furthermore, the device is inexpensive to
 40 build and to maintain.

It will of course be understood that I do not wish to be confined to the particular form of regulator shown, as obviously the mechanism is adapted for employment with other kinds of regulators, such regulator being
 45 shown only to illustrate one adaptation of my invention.

What I claim is—

1. In a valve mechanism, the combination with a valve-casing composed of two portions
 50 adjustably mounted with respect to each other, one of said portions-provided with a valve-seat opening outwardly, and the other portion provided with another valve-seat in line with the first valve-seat but opening in
 55 the opposite direction, said casing members provided, the one with an annular flange and the other with an annular recess for coaction therewith, of packing arranged between the two members, and oppositely-opening valves
 60 fitted to the two said valve-seats and provided with stems disposed in abutting relation.

2. In a valve mechanism, the combination with a valve-casing member 9 having a valve-seat 12 opening outwardly, and another cas-
 65 ing member 10 having a valve-seat 13 in line with the first said valve-seat, but opening in the opposite direction, said casing members provided, the one with an annular recess 22, and the other with an annular flange 23, sub-
 70 stantially as set forth, of oppositely-opening valves fitted to the two said valve-seats and provided with stems disposed in abutting relation.

In witness whereof I have hereunto set my
 75 hand this 24th day of October, 1905.

JOSEPH T. WADSWORTH.

Witnesses:

D. HOWARD HAYWOOD,
 LYMAN S. ANDREWS, Jr.