

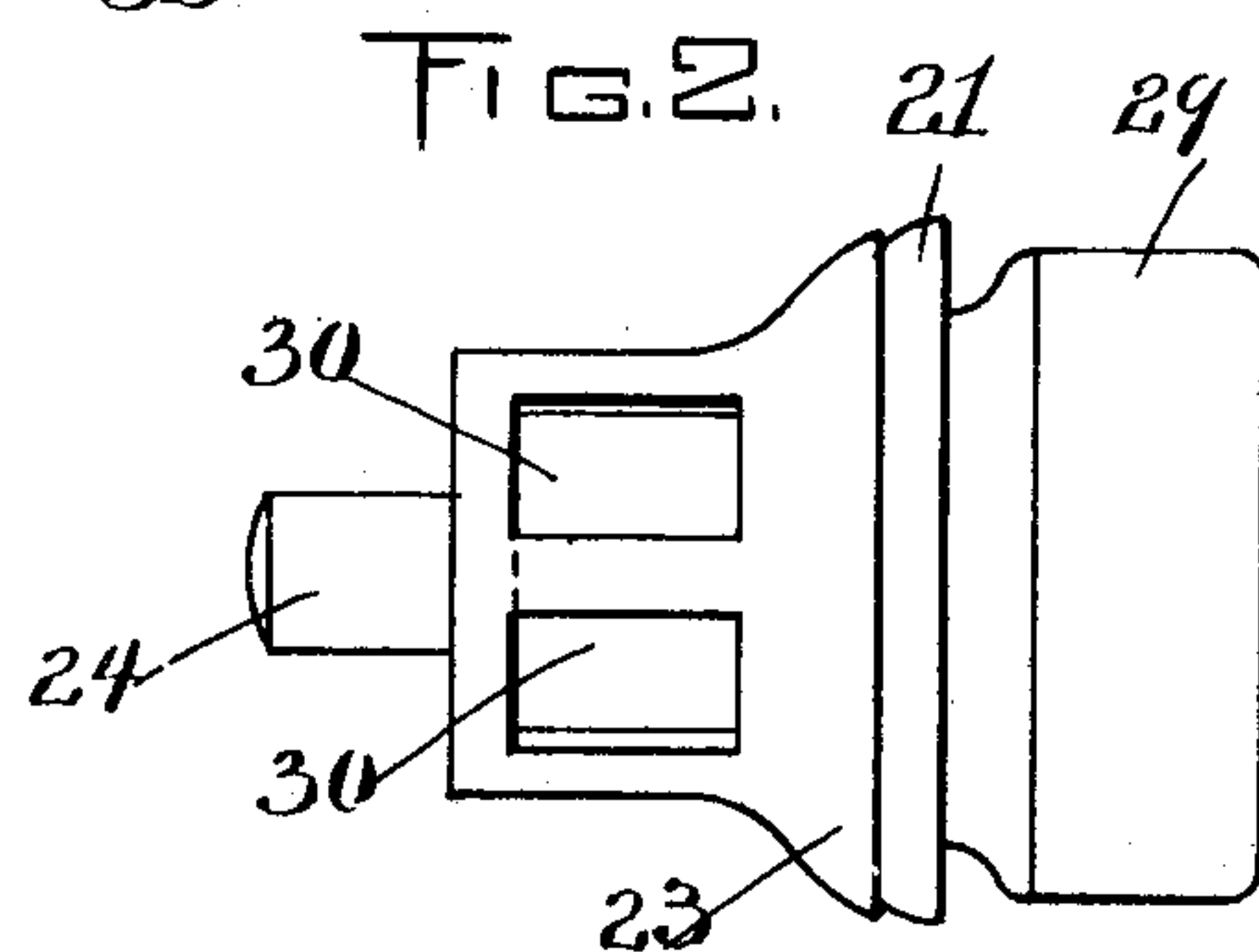
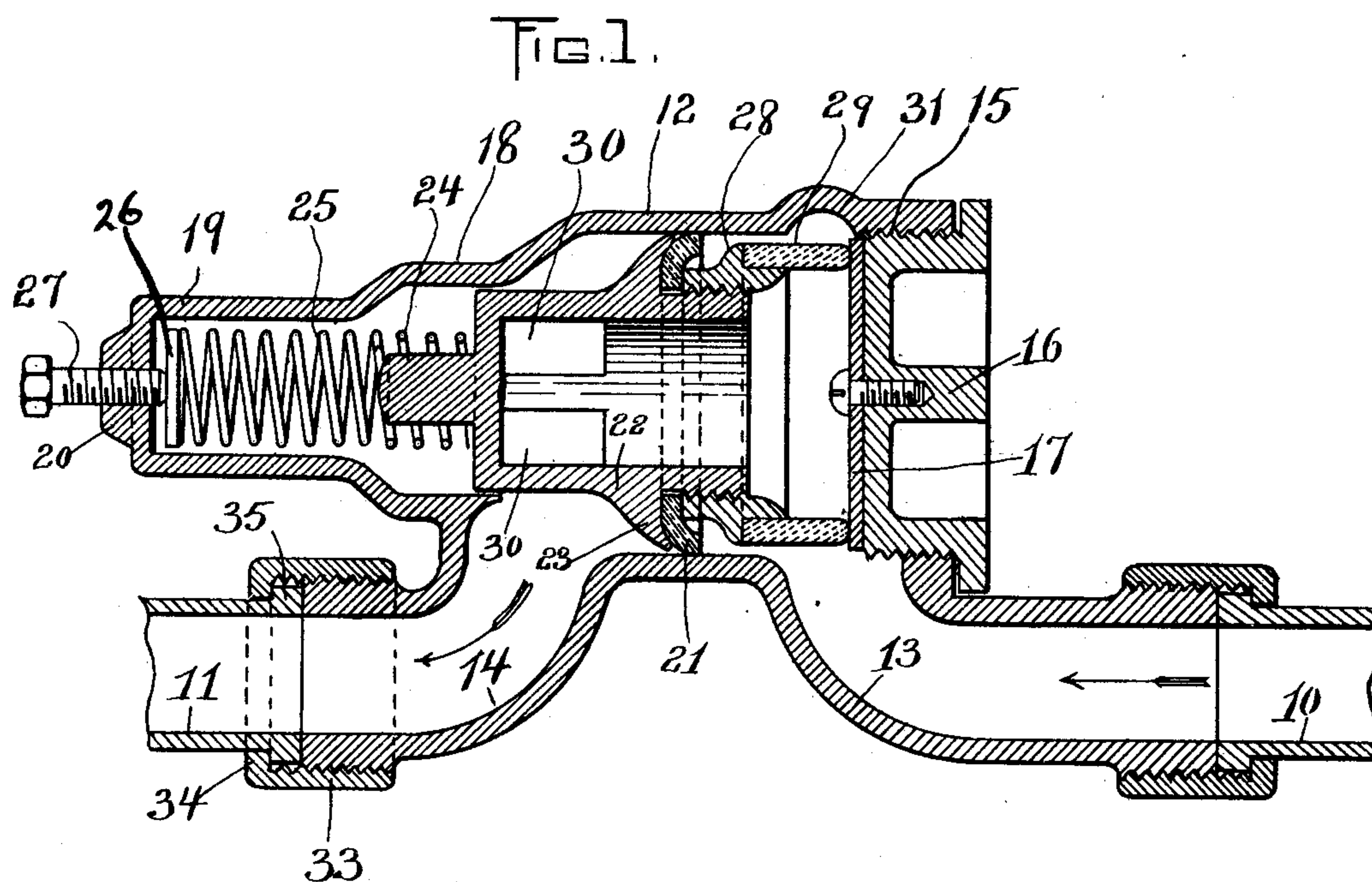
No. 675,854.

Patented June 4, 1901.

V. J. EMERY.
PRESSURE REGULATOR.

(Application filed July 28, 1900.)

(No Model.)



WITNESSES:
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UNITED STATES PATENT OFFICE.

VICTOR J. EMERY, OF WOLLASTON HEIGHTS, MASSACHUSETTS.

PRESSURE-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 675,854, dated June 4, 1901.

Application filed July 28, 1900. Serial No. 25,119. (No model.)

To all whom it may concern:

Be it known that I, VICTOR J. EMERY, of Wollaston Heights, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Pressure-Regulators, of which the following is a specification.

This invention has relation to regulators for reducing the pressure in the service-pipes when the water is not being drawn therefrom; and the object of the invention is the provision of a device of the character referred to which may be inserted at any suitable or accessible point in the pipe connecting the main with the service-pipes in the house, which may be cleaned or repaired without disconnecting it from the pipe, and which is simple in construction and efficient in operation.

To these several ends the invention consists of a regulator having certain improved features of construction and arrangement, as illustrated upon the accompanying drawings, described in the following specification, and pointed out in the appended claims.

Referring to the drawings, Figure 1 represents in longitudinal section a regulator embodying my invention. Fig. 2 represents the valve detached.

On the said drawings, 10 11 indicate the sections of a pipe, which are arranged in alinement and between which my regulator is placed. Said regulator comprises a casing 12, which is arranged out of alinement with the sections 10 and 11, but which communicates therewith by means of the curved inlet 13 and the curved outlet 14. Preferably the main body portion of the casing 12 is cylindrical, one end being open, as at 15, and being internally threaded to receive a removable plug 16, having on its inner face a disk 17, of suitable material, to serve as a seat for the valve, which I shall subsequently describe. The other end of the casing is reduced, as at 18, to receive the end of the valve, and is further reduced at 19 to receive a spring, all as will be explained, the end of the reduced portion 19 being closed, as indicated at 20. The inlet 13 leads into one end of the casing, while the outlet 14 leads from the other end, and between the inlet and the outlet is placed a diaphragm, which in the present case is in

the nature of a cup-washer 21. Said washer is placed around a cylindrical tubular valve 22, which is provided with the peripheral flange 23, against which the diaphragm or cup-washer 21 is seated. The face of said flange against which the washer bears is concave, as illustrated. One end of the valve slides in the reduced portion 18 of the casing, and it is formed with a stud 24, around which is coiled a circular spring 25, the latter projecting into the portion 19 of the casing and abutting against a disk 26. The latter in turn bears against an adjusting-screw 27, passed through the ends 20 of the casing. The other end of the valve is externally threaded to receive an annulus 28, on which is fitted an annular glass face 29, adapted to bear against the seat 17.

The valve 22 is provided at the end opposite the annular face 29 with a plurality of openings 30, whereby fluid may pass through the valve. At 31 the casing is provided with an internal annular groove communicating with the inlet 13. It will be observed that the valve (except for the diaphragm or cup-packing 21) fits loosely within the casing, so that fluid is free to flow from the inlet to the space surrounding the valve inclosed by the diaphragm or cup-packing. The spring 25 holds the valve with its annular face fitting closely against the seat 17.

When the flow of water through the outlet is cut off, the back pressure, together with the pressure of the spring 25, is sufficient to force the annular face 29 firmly against the outlet, while, on the contrary, when water is permitted to flow through the outlet the pressure of the water on the inlet fills the annular space 31 and bearing against the cup-packing forces the valve longitudinally to separate the annular face 29 from the seat 17, whereupon the water immediately flows through the valve and through the openings into the outlet 14.

It will be observed that all of the movable parts of the mechanism—to wit, the valve and the spring 25—may be removed through the open end of the casing when the plug 16 has been unscrewed without disconnecting the casing from the sections 10 11 of the pipe, so that they may be repaired or cleansed as occasion may require.

I have stated that the annular face 29 of the valve is of glass, and I prefer to use that material, since it does not corrode and is not eaten away by the water.

5 From this description it will be obvious that the invention is simple in construction and is easy of attachment to the house connections leading from the main to the service pipes.

10 Any suitable form of device may be employed for coupling the regulator to the sections of the pipe. For instance, in the drawings I have shown a coupling consisting of a sleeve 33, having a shoulder 34 to engage a
15 shoulder 35 on a section of the pipe and also having threads to engage similar threads upon the ends of the inlet or outlet pipes.

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

1. A device of the character referred to comprising a casing having an inlet and an outlet, and also having a valve-seat, a tubular valve in said casing adapted to engage said seat and cut off the passage of fluid through the said valve, and a diaphragm connected to
30 said valve and interposed between the inlet and outlet of said casing, whereby when the pressure of fluid against said diaphragm is sufficient to move said valve from its seat, the fluid passes freely through the valve.

35 2. A device of the character referred to, comprising a casing having an inlet and an outlet, a valve-seat at one end of said casing, a tubular valve having an annular face adapted to engage said seat, a spring for holding said
40 face against said seat, and a diaphragm connected to said valve and interposed between said inlet and outlet.

3. A device of the character referred to, com-

prising a casing having an inlet and an outlet, and also having an open end closed, a removable end plug which forms a valve-seat, a tubular valve adapted to pass through said open end and having an annular face to engage the seat, and a cup-packing encircling the valve at a point between the said outlet
50 and inlet and closing the space between the valve and the wall of the casing.

4. A device of the character referred to adapted for connection with the sections of a pipe, comprising a tubular valve, a diaphragm
55 connected with said valve, and a casing shaped substantially to receive the valve and the diaphragm and having a removable end plug, said casing having an offset inlet and an offset outlet, whereby the valve is accessible
60 without disconnecting said casing from said sections of pipe.

5. The combination with a casing having a valve-seat, of a valve having a removable annulus, and an annular face carried by said
65 annulus, and formed of glass or equivalent material.

6. The combination with a casing having one end closed and the other end open, a removable plug closing said open end, inlet and
70 outlet pipes communicating with the interior of said casing, a tubular valve in said casing having an annular face to engage the plug which constitutes a seat therefor, a spring arranged between the valve and the closed end
75 of the support, and a cup-packing encircling the valve and filling the space between said valve and the wall of the casing, said cup-packing being between the inlet and outlet.

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

VICTOR J. EMERY.

Witnesses:

M. B. MAY,
PETER W. PEZZETTI.