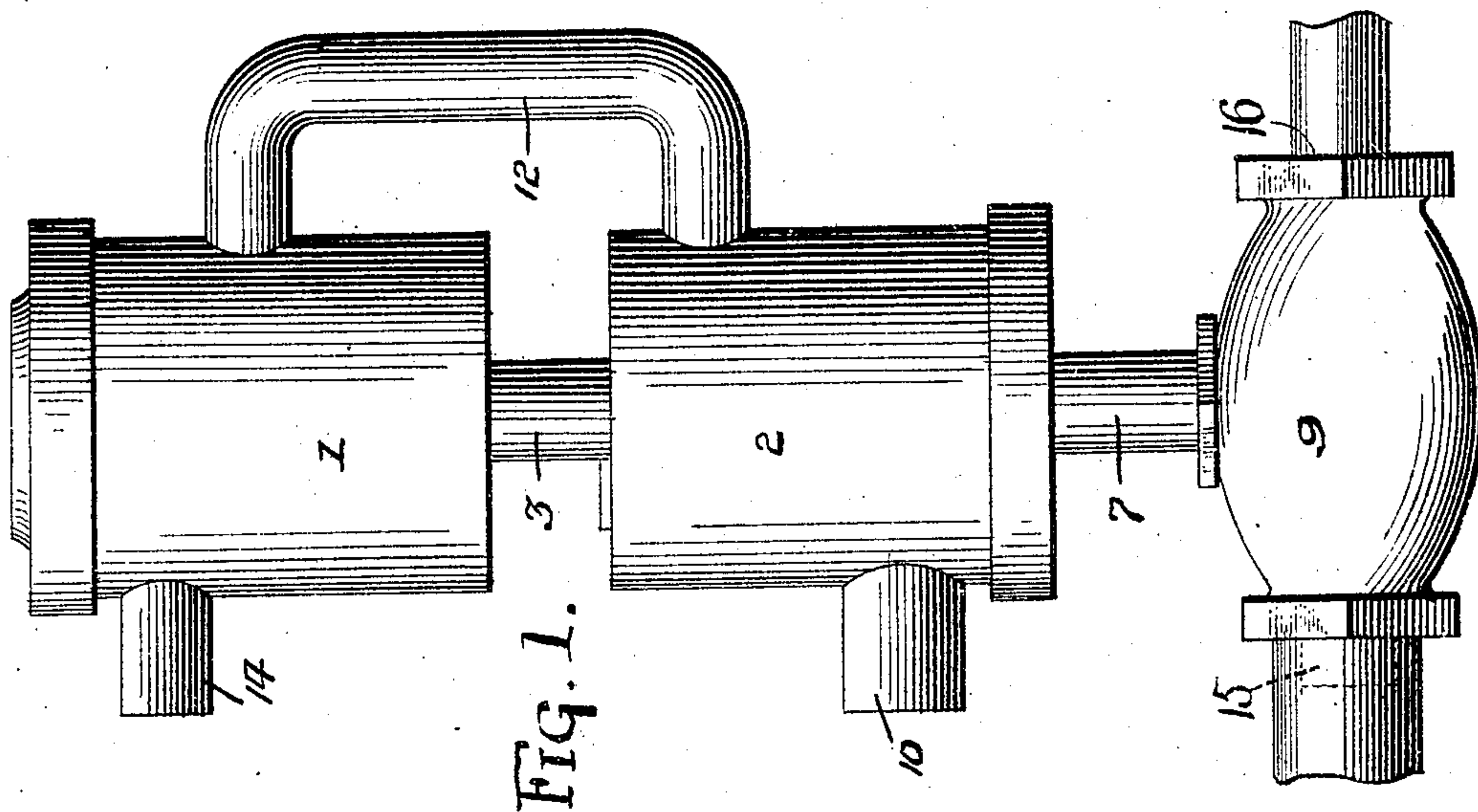
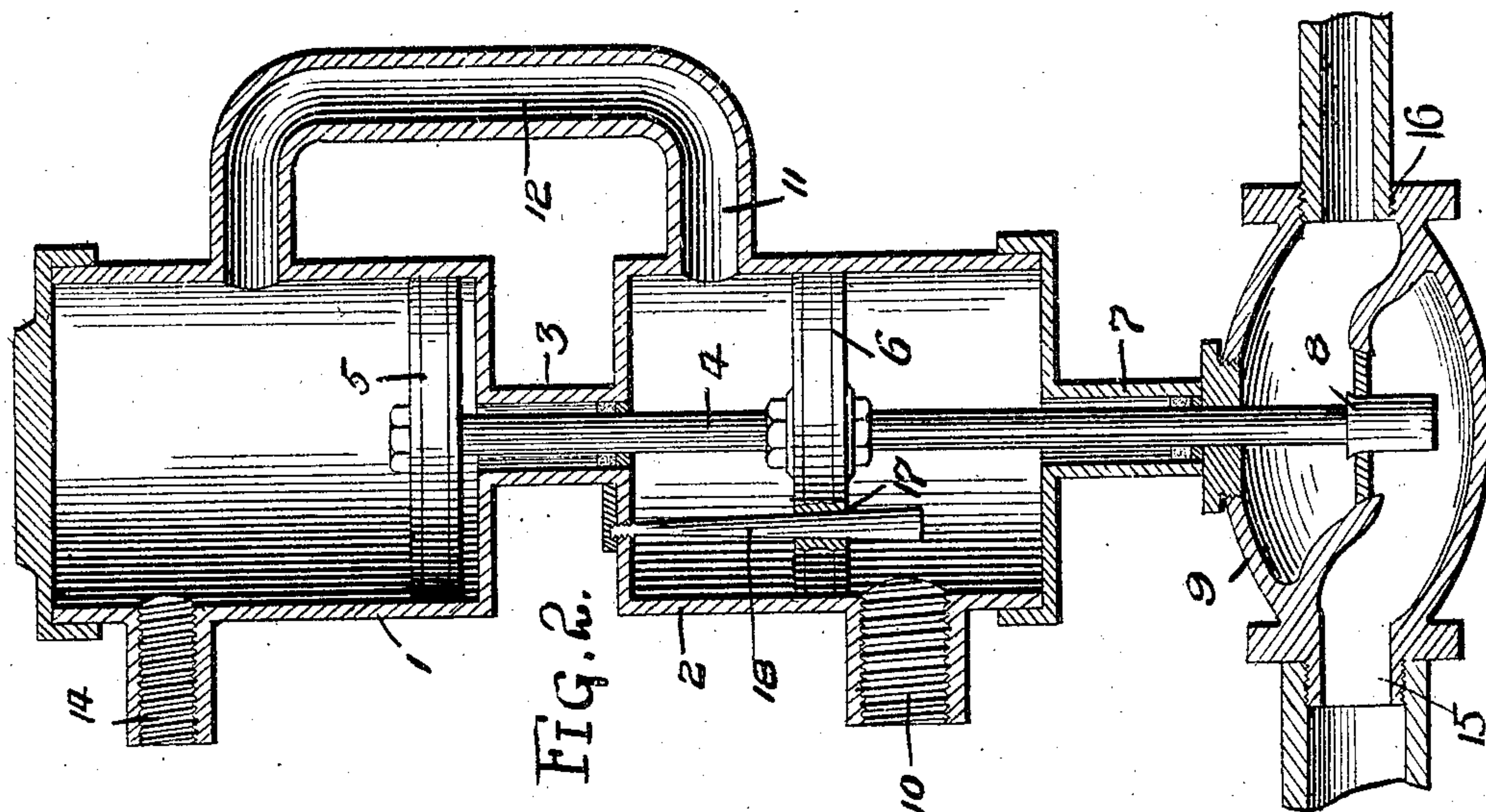


No. 847,104.

PATENTED MAR. 12, 1907.

G. PARGE.
HOT WATER REGULATOR.
APPLICATION FILED MAR. 29, 1906.



Witnesses:

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UNITED STATES PATENT OFFICE.

GEORGE PARGE, OF ALLEGHENY, PENNSYLVANIA.

HOT-WATER REGULATOR.

No. 847,104.

Specification of Letters Patent.

Patented March 12, 1907.

Application filed March 29, 1906. Serial No. 308,719.

To all whom it may concern:

Be it known that I, GEORGE PARGE, a citizen of the United States of America, residing at Allegheny, in the county of Allegheny and State of Pennsylvania, have invented certain new and useful Improvements in Hot-Water Regulators, of which the following is a specification, reference being had therein to the accompanying drawing.

This invention relates to certain new and useful improvements in hot-water regulators; and the invention has for its primary object to provide a regulator which will be positive in its action, simple in construction, and free from all danger of being injured by constant use.

My invention aims to provide a regulator which will be entirely governed by the pressure of water within the same, the pressure of water being adapted to actuate means to regulate the supply of gas to the heater-coil, through which the water passes to be heated.

To this end my improved regulator comprises two cylinders, which are connected together by a pipe, and in the cylinders are mounted two piston-heads, which are connected together by a common stem, said stem carrying a valve which is adapted to control the passage of gas to a valve-body secured to one of said cylinders. The entrance of water to one of said cylinders elevates the pistons, permitting water to pass through the two cylinders to a suitable heating-coil, this operation also opening the gas-supply to the heater-burner. The back pressure within the cylinders serves to close the gas-supply, also the water-supply, to said cylinders when the use of the hot water is discontinued.

The construction entering into my improved regulator will be hereinafter more fully described, and then specifically pointed out in the claims, and referring to the drawing accompanying this application, like numerals of reference designate corresponding parts throughout the several views, in which—

Figure 1 is a side elevation, and Fig. 2 is a vertical sectional view.

To put my invention into practice, I employ two cylinders 1 and 2, which are arranged one above the other and have their confronting ends connected together by a sleeve 3, through which passes a piston-rod 4, carrying heads 5 and 6, which operate in the cylinders 1 and 2, respectively. The piston-rod 4 passes downwardly through a sleeve

7, carried by the cylinder 2, the end of the piston-rod being provided with a valve 8, adapted to seat in a valve-body 9, carried by the cylinder 2. The cylinder 2 is provided with a water-inlet 10 and with a water-outlet 11. The water-outlet 11 is formed in the cylinder 2 above the inlet 10, and said outlet communicates with the cylinder 1 by a pipe 12. The cylinder 1 has an outlet 14, adapted to connect with the heater-coil of tubing, (not shown,) through which the water is adapted to pass while being heated. To heat the coil of tubing, a conventional form of burner is employed, which is supplied with gas that passes through the valve-body 9, the reference-numeral 15 designating the inlet of said valve-body, while the numeral 16 designates the outlet.

My improved regulator is adapted to be used in connection with heaters of that type commonly known as "instantaneous" hot-water heaters, wherein the withdrawing of the water from the heater-coil of tubing regulates the burner thereof and heats the cold water passing through the tubing.

The operation of my improved regulator is as follows: The normal position of the pistons 5 and 6 is illustrated in Fig. 2 of the drawing, this position being assumed when water is not being removed from the cylinder 1. Should the water be withdrawn from the cylinder 1 the pressure below the piston-head 6 will elevate the piston until the head 6 has been elevated sufficiently to permit the water to pass through the outlet 11 and pipe 12 to the cylinder 1, where its flow to the heater-coil of tubing is continuous while the water is being used. Simultaneous with the elevation of the piston-head 6 the valve 8 is elevated through the medium of the piston-rod 4 to permit of the gas-supply passing through the valve-body 9 to the burner of the heater-coil. Should the use of the hot water be discontinued the back pressure upon the piston-head 5 within the cylinder 1 will lower the piston-head 6, closing off the water-supply to the outlet 11, and to overcome the pressure on the lower side of the piston-head 6 I have provided said piston-head with a tapering port 17, and protruding into said port is a tapering stem 18, said stem being supported from the top of the cylinder 2. The port 17 tends to equalize the pressure upon both sides of the piston-head. When the water-supply has been cut off, the

gas-supply passing through the valve-body is also shut off by the valve 8 being lowered to its seat.

In providing the tapering stem 18 and the recessed valve 8 I simply use a sufficient quantity of gas to heat the water admitted to the coil from the outlet 14 of the cylinder 1. When the pressure above the head 6 is released by withdrawing the water from the heating-coil, a certain quantity of water will pass through the opening 17 of the head and through the pipe or by-path 12 to the cylinder 1, consequently causing so much water from said cylinder to enter the heating-coil. As the head 6 will be partially raised by a small withdrawal of water from the heating-coil the valve 8 will be partially raised, allowing a small quantity of gas to pass to the burner sufficient to heat the amount of water which has entered the heating-coil. In this manner the overheating of the heating-coil is dispensed with.

I preferably construct my improved regulator of strong and durable metal and while I have not illustrated the same in connection with a coil of tubing of a burner it is obvious that the regulator may be readily used in connection with a conventional form of heater.

It will be noted that various changes may be made in the details of construction without departing from the spirit and scope of the invention.

What I claim, and desire to secure by Letters Patent, is—

1. In a device of the class described two cylinders of equal size and a valve-body spaced apart, said cylinders closed at the

ends and said valve-body having an internal valve-seat and inlet and outlet pipes, a piston-rod common to both of said cylinders and extending into said valve-body, a valve carried by said rod and adapted to engage said valve-seat, piston-heads carried by said rod and operating respectively within said cylinders, an inlet leading into one of said cylinders and an outlet leading from the other of said cylinders, and a pipe connecting said cylinders and serving to conduct the liquid from one to the other.

2. A device of the character described, comprising a plurality of cylinders and a valve-body, said cylinders having inlet and outlet ports, a piston-rod slidably mounted in said cylinders and common to all, a piston-head carried by one extremity of said rod and slidable in one of said cylinders, a second piston-head carried intermediate the extremities of said piston-rod and slidable in the other of said cylinders and adapted to open and close the outlet-port thereof, means comprising a valve carried by the other extremity of said piston-rod and adapted to seat within said valve-body, said second-named piston-head being provided with a tapering port, a tapering stem carried by one end of said second-named cylinder and arranged within said tapering port, substantially as described.

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

GEORGE PARGE.

Witnesses:

E. E. POTTER,
H. C. EVERT.