

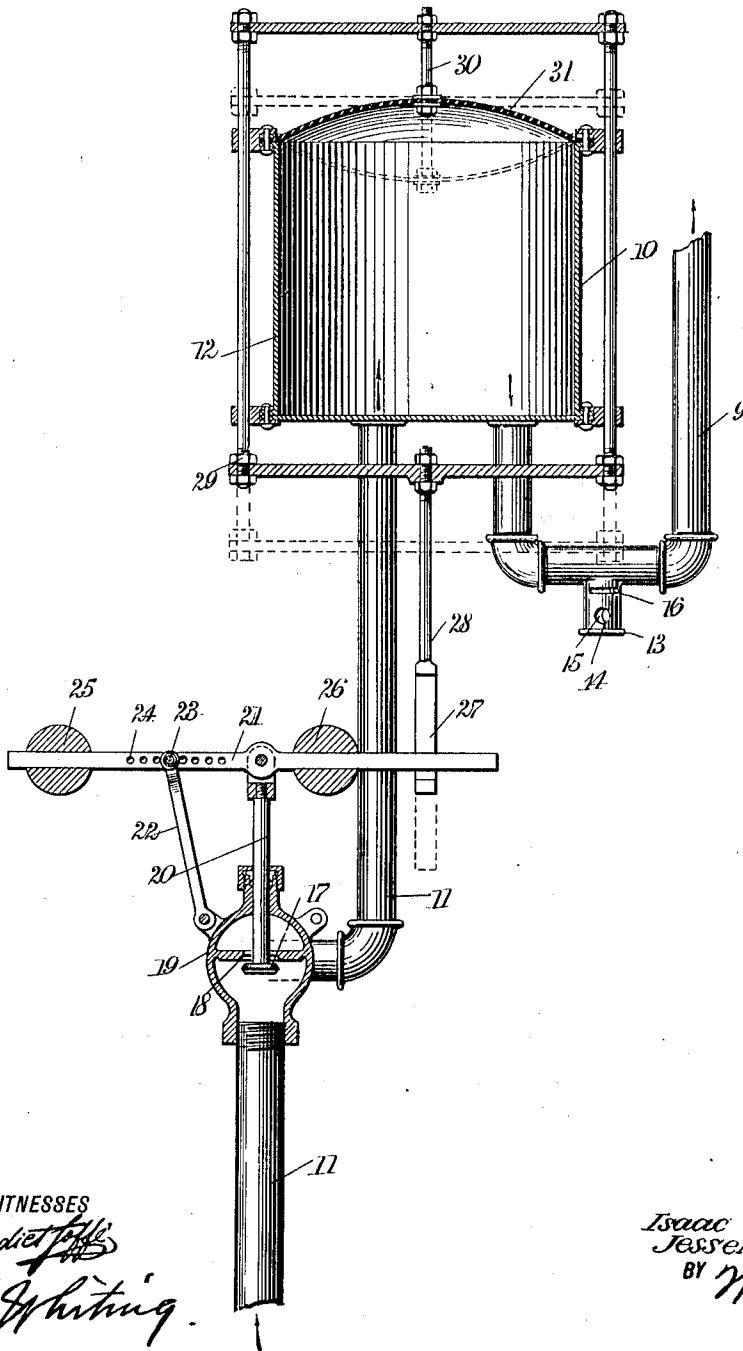
I. J. RALSTON & J. A. BRIGGS.

PRESSURE REGULATOR.

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1,020,369.

Patented Mar. 12, 1912.



WITNESSES
Benedict
N. Whiting.

INVENTORS.
Isaac J. Ralston
Jesse A. Briggs
BY *M. M. Co.*
ATTORNEYS

UNITED STATES PATENT OFFICE.

ISAAC J. RALSTON AND JESSE A. BRIGGS, OF KANE, PENNSYLVANIA, ASSIGNORS OF
ONE-THIRD TO HUGO J. WALTER, OF KANE, PENNSYLVANIA.

PRESSURE-REGULATOR.

1,020,369.

Specification of Letters Patent.

Patented Mar. 12, 1912.

Original application filed June 5, 1909, Serial No. 500,304. Divided and this application filed June 19, 1911.
Serial No. 633,920.

To all whom it may concern:

Be it known that we, ISAAC J. RALSTON and JESSE A. BRIGGS, both citizens of the United States, and resident of Kane, in the county of McKean and State of Pennsylvania, have invented a new and Improved Pressure-Regulator, of which the following is a full, clear, and exact description.

This invention relates to a new and improved pressure regulator, and is a division of our application for glass-drawing mechanism, Serial No. 500,304, filed June 5, 1909.

An object of this invention is to provide a new and improved pressure regulator whereby the pressure of the air or other fluid supplied to the interior of a cylinder or receptacle will be automatically regulated by the pressure in the cylinder or receptacle itself.

A further object of this invention is to provide an automatic pressure regulator, which will be simple in construction, inexpensive to manufacture, positive in its action, and adjustable, to vary the timing of its action.

These and further objects, together with the construction and combination of parts, will be more fully described hereinafter and particularly set forth in the claims.

Reference is to be had to the accompanying drawing forming a part of this specification, in which the figure is an elevation, partly in section, of the improvement.

Referring more particularly to the separate parts of this invention as embodied in the form shown in the drawing, 9 indicates a pipe reading from the bottom of the casing 12 and through which air is conveyed from the casing to a cylinder or receptacle. Adjacent the point where the pipe 9 enters the casing 10, there is provided a suitable vent pipe 13, which has an opening 14, closed in any suitable manner, as by means of a sliding sleeve 15, with a registering opening, operated by a pin 16 working in a slot in the vent pipe 13.

The air is supplied to the casing 12 through the main-supply pipe 11, from any suitable source, such as a blower, not indicated. The air coming through the pipe 11 is regulated before passing into the casing 12, by a control, which embodies an automatically-operated valve 17, which derives its movement by virtue of the change of

pressure in the casing 12 and thus in the interior of the cylinder or receptacle, which is connected to the casing 12. The valve 17 engages its seat 18 located in a valve casing 19 on the main-supply pipe 11. The valve 17 is pivotally connected by its spindle 20 to a lever 21, which is pivoted or fulcrumed on a link 22, which in turn is pivotally connected to the valve casing 19. The connection of the lever 21 to the link 22 is preferably adjustable, so as to vary the fulcrum point, as by means of a pin 23 engaging any one of a plurality of openings 24 on the lever 21. The lever 21 has slidably mounted thereon a plurality of weights 25 and 26, which, by adjustment on the lever, can vary the pressure at which the valve 17 will open and close, to a nicety. One end of the lever 21 engages in a slot 27 in a connecting rod 28. This slot permits a limited movement of the connecting rod relative to the lever before actuating the latter. The connecting rod 28 is secured to a frame 29, which is mounted to move slidably in any suitable manner, as by slidably engaging the casing 10. This frame 29 is adjustably connected in any suitable manner, as by means of a rod 30, to a flexible diaphragm 31, which forms one of the walls of the casing 10.

It will thus be seen that when the pressure in the cylinder or receptacle becomes greater than is desired, which amount can be regulated previously by an adjustment of the counterweights 25 and 26, the air or other fluid being used to create a pressure in the interior of the cylinder or receptacle, will back up into the casing 12 a sufficient amount to raise the diaphragm 31 more or less, so that its movement, after a limited movement with the rod 28 and the lever 21, will raise the lever 21 so as to bring the valve 17 closer or onto its seat 18. It will thus be seen that the air being supplied to the interior of the cylinder or receptacle will be cut off or diminished before it comes to the casing 12, whereby the pressure in the cylinder or receptacle will be diminished until it has reached such a degree as will permit the counterweights 25 and 26 to act so as to open the valve 17, by drawing down on the rod 28, so as to collapse the diaphragm 31.

While we have shown one embodiment of our invention, we do not wish to be limited

ited to the specific details thereof, but desire to be protected in various changes, alterations and modifications which may come within the scope of the appended claims.

5 Having thus described our invention, we claim as new and desire to secure by Letters Patent:—

1. A pressure regulator, comprising a casing having a flexible diaphragm forming the top thereof and provided with supply and discharge pipes, a frame mounted to slide on the casing, a rod connecting the frame with the diaphragm, a valve casing interposed in the supply pipe, a valve in the valve casing and having its stem projecting through the top of the same, a counter balanced lever to which the valve stem is pivoted, a link pivoted to the casing and upon which the lever is adjustably fulcrumed and a rod depending from the sliding frame and having a slot in its lower end through which one end of the said lever projects.

2. A pressure regulator comprising a casing having a flexible diaphragm forming one wall thereof and provided with supply and discharge pipes, a frame mounted to slide on the casing and connected with the diaphragm, a valve casing in the supply pipe, a valve in said casing and having its stem projecting through the same, a counter-balanced lever adjustably mounted on the valve casing and to which the valve stem is pivotally connected, and a rod carried by the sliding frame and provided with a slot through which the said lever projects.

3. A pressure regulator, comprising a casing having a diaphragm forming a wall thereof and provided with supply and discharge pipes, a sliding frame connected with the diaphragm, a valve casing in the supply pipe, a valve in the valve casing and having its stem projecting out through the same, a link pivoted to the casing, a counter-balanced lever adjustably fulcrumed on the link and to which the valve stem is pivotally connected, and a connection between the counter-balanced lever and the said sliding frame.

4. A pressure regulator, comprising a casing having a flexible diaphragm forming the top thereof and provided with supply and discharge pipes, a frame mounted to slide on the casing, a rod connecting the top of the frame with the diaphragm, a valve casing interposed in the supply pipe, a valve in the said casing having its stem projecting out through the same, a counter-balanced lever fulcrumed on the valve casing and with which the valve stem is pivotally connected, and a rod depending from the lower part of the frame and having at its end a slot through which the lever projects.

In testimony whereof we have signed our names to this specification in the presence of two subscribing witnesses.

ISAAC J. RALSTON.
JESSE A. BRIGGS.

Witnesses:

WM. BRIGGS,
H. J. WALTER.