(No Model.)

J. F. MAXSON.

GAS REGULATOR.

No. 286,326. Patented Oct. 9, 1883.

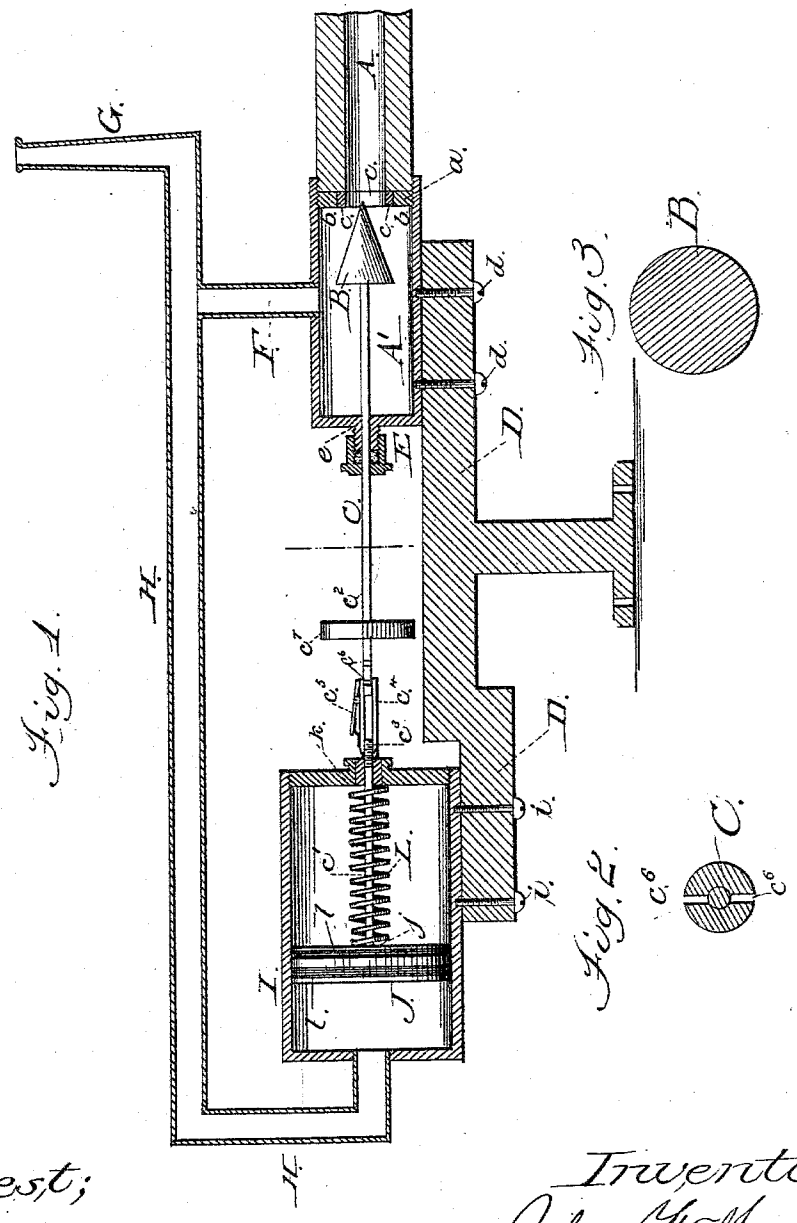


Fig. 1.

Fig. 3.

Fig. 2.

Attest;
T. Walter Fowler,
E. W. Johnson

Inventor;
John F. Maxson.
Atty.

N. PETERS. Photo-Lithographer, Washington, D. C.

UNITED STATES PATENT OFFICE.

JOHN F. MAXSON, OF PORTVILLE, NEW YORK.

GAS-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 286,826, dated October 9, 1883.

Application filed July 27, 1883. (No model.)

To all whom it may concern:

Be it known that I, JOHN F. MAXSON, a citizen of the United States of America, residing at Portville, in the county of Cattaraugus and State of New York, have invented certain new and useful Improvements in Gas-Regulators; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters or figures of reference marked thereon, which form a part of this specification.

My invention relates to fluid-pressure regulators; and it consists of the improved construction, fully described hereinafter, whereby the gas-supply is positively regulated and controlled and any increase in the volume thereof speedily checked.

In the accompanying drawings, Figure 1 is a longitudinal section of a fluid-pressure regulator having my invention embodied therein; and Figs. 2 and 3 represent transverse sections, respectively, of the cone-valve and piston-rod.

A indicates the inlet-passage for supplying the fluid to a chamber, A′, to which it connects by a threaded connection, *a*, and forms at its end a shouldered valve-seat, *b*, provided with an annular packing-ring, *c*, and adapted for the reception of a conical valve, B, secured to a rod or spindle, C, which plays through a stuffing-box, E, formed on the end *e* of the chamber A′. The chamber A′ is bolted on a table or support, D, by bolts *d*. Pipes F G convey the fluid to the point of consumption, the pipe G being of smaller diameter than the pipes A or F, so as to deflect a large volume of the fluid around through a pipe, H, communicating with a cylinder, I, at the rear thereof. The cylinder I is also bolted to the table or support by means of bolts *i*. A piston-head, J, moves within the cylinder I, and is connected to the end *j* of the piston-rod C, which plays through an opening formed in the head *k* of the cylinder I. The piston-head J is provided with suitable packing-rings, *l*, and an expanding coiled spring, L, encircles the said piston-rod, and bears at its respective ends against the face of the piston-head J and the inner face of the cylinder-head *k*.

The piston-rod C is preferably made in two sections, c' c^2, connection being made by screwing the threaded end c^3 of the section c' in a threaded coupling-socket, c^4, said socket c^4 carrying at its end a spring-dog, c^5, adapted to enter a groove, c^6, formed in the face of the section c^2, for a purpose to be hereinafter explained. A hand-wheel, c^7, is mounted on and turns with said section c^2.

The valve B is conical in shape, as shown in the accompanying drawings.

The operation of the device is as follows: The amount of pressure at which it is desired the valve shall check the flow of fluid is regulated by revolving the section c^2 by turning the hand-wheel c^7, so that the coupling-socket c^4 is also revolved by means of the spring-dog c^5, resting in one of the grooves of the section c^2, the movement of the threaded coupling-socket causing the threaded end c^3 of the rod-section c' to advance or recede from said socket, reducing or increasing the contraction of the coiled spring L, and consequently the movement of the piston J. By having the spring-dog c^5 bear in one of the grooves of the section c^2 aforesaid, any movement of said coupling-socket independent of the sections c' c^2 is prevented, and the connections are not liable to become unscrewed. By having the pipe G contracted or of smaller diameter than the other pipes of the regulator, the flow of fluid is more or less throttled as it reaches said pipe, and a large proportion of the same thereby deflected through the pipe H, to operate upon the piston in the cylinder I when the pressure of said fluid becomes excessive. As the piston is moved by the excessive pressure of the fluid the cone-valve is forced on its seat *b c* by means of its rod-connections with said piston, and reduces the supply of fluid from the passage A.

From the foregoing description it will be apparent that a pressure-regulator constructed in accordance with my invention is reliable and automatic in operation, simple in construction, and effective for regulating the supply of fluid at different degrees of pressure.

I claim—

1. The combination, in a fluid-pressure regulator, of a supply-pipe communicating with a chamber or larger pipe, a valve-seat therein, a conical valve playing within said cham-

ber, and attached to a rod carrying at its outer end a piston moving within a cylinder, the rod being composed of two sections, c' c^2, connected together by means of an interiorly-threaded coupling-socket, c^4, having the spring-dog c^5, adapted to engage with grooves formed in the section c^2, substantially as and for the purpose set forth.

2. The combination, in a fluid-pressure regulator, of the pipes A F G, communicating with the chamber B, a valve-seat and conical valve therein, a piston-head, J, in a cylinder, I, on a rod, C, the other end of which carries the valve b, a spring, L, interposed between the piston-head J and the head k of the cylinder I, a pipe, H, communicating with the cylinder I, and pipe G, contracted for the purpose described, and devices for regulating the piston to move the same at different pressures of the fluid, substantially as set forth.

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

JOHN FRANK MAXSON.

Witnesses:

H. L. RICE,

L. D. WARNER.