

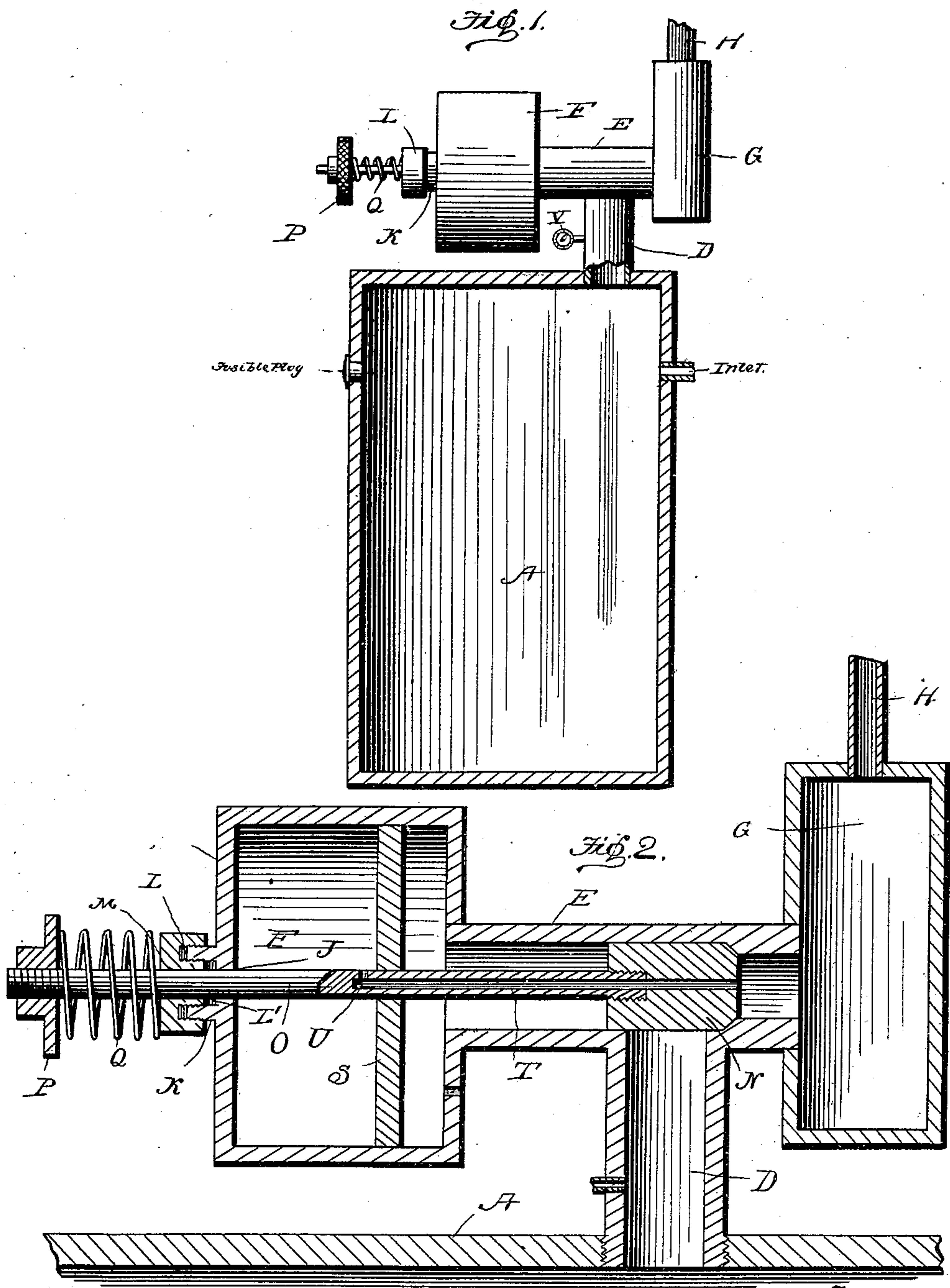
No. 673,732.

Patented May 7, 1901.

H. SHOEMAKER.  
PRESSURE REGULATOR.

(Application filed Jan. 12, 1901.)

(No Model.)



Witnesses

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# UNITED STATES PATENT OFFICE.

HARRY SHOEMAKER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO  
GUSTAVE P. GEHRING AND MARIE V. GEHRING, OF SAME PLACE.

## PRESSURE-REGULATOR.

SPECIFICATION forming part of Letters Patent No. 673,732, dated May 7, 1901.

Application filed January 12, 1901. Serial No. 43,036. (No model.)

*To all whom it may concern:*

Be it known that I, HARRY SHOEMAKER, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented certain new and useful Improvements in Pressure-Regulators, of which the following is a specification.

My invention relates to improvements in pressure-regulators—that is, a valve to automatically control the flow of gas from mains, meters, and compressed-gas tanks; and the main object of the invention is the provision of an expansion-valve which is adjustable so as to be manipulated to allow a certain pressure of gas to flow to the burners or supplies and after once set automatically adjusts itself when the pressure is too great or too small, thus regulating the flow.

Another object of my invention is the provision of a pressure-regulator which is very simple, durable, and cheap in construction and very practical and efficient in use.

To attain the desired objects, the invention consists of a pressure-regulating valve embodying novel features of construction and combination of parts, substantially as disclosed herein.

In the drawings, Figure 1 is a vertical central section of a compressed-gas tank with my invention in elevation applied thereto, and Fig. 2 is a sectional view of the regulator enlarged.

Referring to the drawings, A designates a gas-tank provided with an inlet-port and a fusible plug. Connected to the outlet-pipe D is a pipe E, which communicates with the large horizontal chamber F and the smaller vertical chamber G, out of which leads the exit-pipe H, which supplies the gas to the necessary points after the pressure has been reduced. Opposite the pipe E in the outer wall of the chamber F is an opening J, surrounded by the exteriorly-threaded collar K, which is adapted to receive the plug L and the washer or stuffing-box L', said plug and stuffing-box being provided with the channel M. Mounted in this channel and extending into the chamber and carrying the valve N is the valve-stem O, which carries the cap or milled nut P. Upon its outer end and be-

tween this cap and the plug is a coiled spring Q, which has a pushing tension, so that the valve is held the desired distance over the exit of the pipe D. A channel T is formed in the valve and valve-stem and is provided with the exit U. This channel causes communication between said chambers, and should the flow of gas become too great the surplus pressure causes the valve to be pushed forward, as the exit of the channel is to the rear of the disk or piston S, carried upon the valve-stem and slidable in the large chamber, thereby reducing the pressure. A gage V is connected with the pipe D, as shown.

The vertical cylinder or chamber G is for the purpose of holding a larger quantity of gas after it has been expanded by the action of the valve than would be held by a mere pipe connection to the pipe E. Therefore it prevents the slight fluctuations in the pressure from being noticeable upon the burners, as it has more capacity and gives a cushioning effect to produce a steady flow of gas.

From this description, taken in connection with the drawings, the operation of my pressure-regulating valve is readily understood and its numerous advantages fully appreciated; but briefly stated it is as follows: The valve is adjusted to allow a certain pressure of gas to pass freely to the desired points; but should the pressure become greater than necessary the surplus pressure enters the large chamber to the rear of the piston S, pushes the valve-stem and valve forward, and thus checks the flow and consequently the pressure of the gas automatically; but should the pressure fall below the proper degree the spring pushes the valve outward and opens the pipe D.

It is evident that I provide a pressure-regulating valve which is the embodiment of simplicity, durability, and inexpensiveness, thus producing a thoroughly practical and efficient valve.

I claim—

In combination with a gas-supply, of a pressure-regulator therefor, comprising an inlet-pipe, a short horizontal pipe at right angles thereto, a large horizontal chamber connected to one end of said short pipe, a smaller vertical chamber connected to the other end of

said short pipe, a valve fitting in the short  
pipe and adapted to slide over the exit of the  
inlet-pipe and provided with a channel the  
full length thereof, a collared bearing or open-  
5 ing in the outer wall of the large chamber, a  
valve-stem connected to the valve and jour-  
naled in and extending through said opening  
of the large chamber, a piston or disk car-  
ried by the stem and mounted in the large  
10 chamber, a channel provided in the stem reg-  
istering with the channel of the valve and  
terminating to the rear of the piston, a coiled

spring surrounding the extended portion of  
the stem, and an adjusting-nut carried upon  
the free end of the stem to regulate the ten- 15  
sion of the spring, substantially as described,  
and for the purposes set forth.

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

HARRY SHOEMAKER.

Witnesses:

GUSTAVE P. GEHRING,  
J. N. FORT, Jr.