(No Model.)

H. A. STEARNS.

AUTOMATIC GAS VALVE.

No. 288,271. Patented Nov. 13, 1883.

Fig. 1.

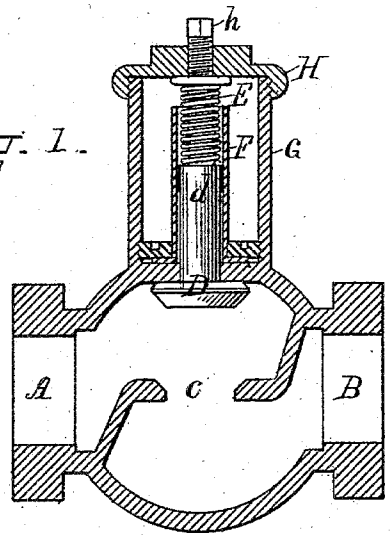
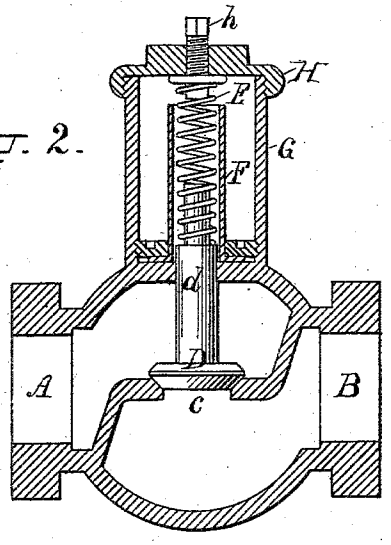


Fig. 2.



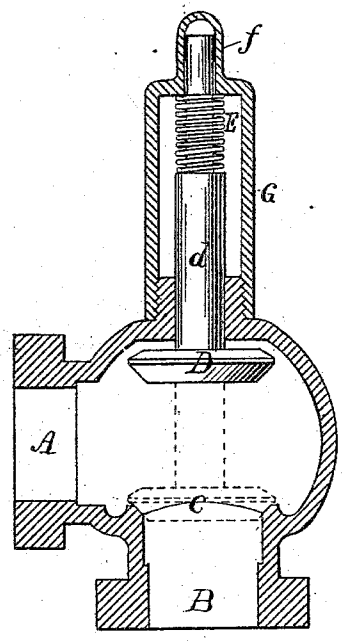


Fig. 3.

WITNESSES:

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UNITED STATES PATENT OFFICE.

HENRY A. STEARNS, OF LINCOLN, RHODE ISLAND.

AUTOMATIC GAS-VALVE.

SPECIFICATION forming part of Letters Patent No. 288,271, dated November 13, 1883.

Application filed January 22, 1883. (No model.)

To all whom it may concern:

Be it known that I, HENRY A. STEARNS, of Lincoln, in the county of Providence and State of Rhode Island, have invented a new and useful Improvement in Automatic Gas-Valves; and I hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming part of this specification.

This invention has reference to an improvement in valves for shutting off the gas automatically, in case of a fire, from the part of the building on fire, so as to prevent the loss of gas, as also the burning of the same.

The invention consists in the peculiar construction of a valve, by which the valve is kept open by securing the valve-stem with a solder fusible at a low temperature, and surrounding it with a coiled spring, by which the valve is forced to its seat when, on the breaking out of a fire, the solder melts, as will be more fully set forth hereinafter.

In manufacturing-establishments a large number of lights have to be used to light up the different floors or rooms. When a fire breaks out, the fittings, and often the pipes, are liable to break and allow the gas to escape, thus adding fuel to the flames, and also causing loss of gas before the same can be shut off at the meter. In many instances the gas cannot be shut off, as portions of a building must be lighted even while other portions may be in flames.

The object of this invention is to prevent the escape of gas, in case of a fire, automatically; and for this purpose I divide the whole system of pipes into independent sections and provide each section with my improved automatic gas-valve—that is to say, in a cotton-mill, for instance, of the usual construction, I would carry the rising gas-main up through the several floors and branch off to each side on each floor and place my automatic gas-valves at different points on the gas-supply main, so that at the breaking out of a fire on any portion of any floor the gas of the portion on fire would be shut off without affecting the other portions of the mill. In other establishments or buildings similar divisions would be made, which will readily suggest themselves to those skilled in the art to which it appertains.

Figure 1 is a sectional view of a globe-valve provided with my improvement, the valve being shown as held open. Fig. 2 is a sectional view of the same valve shown as closed. Fig. 3 is a sectional view of an angle-valve provided with my improvement.

In the drawings, A is the valve-inlet, and B the outlet. C is the valve-seat. D is the valve, and *d* the valve-stem. E is a spiral spring bearing against the valve-stem. F is a sleeve to which the valve-stem is soldered with a solder fusible at a low temperature, such as bismuth solder. G is a case inclosing the valve-stem and spring to protect the same against injury. H is a cap for closing the case G; but the case G may be placed over the stem, as shown in Fig. 3, and the sleeve *f* may extend above the case G, forming part of the case; or it may be a separate cap resting on the end of the case and have the stem secured by solder. *h* is a screw by which the tension of the spring E can be regulated.

The case G may have openings in its sides, so that the heated air can enter the case and reach the solder; or it may be closed.

Modifications may be made in various parts without changing the essential features of the invention, which consist in a valve acted upon by a coiled spring and supported in the open position by a solder fusible at a low temperature, so that on the breaking out of a fire the solder will be affected by the heat of the fire and the spring will close the valve, so as to prevent the escape of gas.

The valve may be placed into any desired position, as the spring will close the same as soon as the solder melts.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with an inlet and an outlet pipe and a conical valve seat or passage between the two, of a conical-faced valve, a valve-spindle, and a spring, arranged as described, for closing said valve, an inclosing cap or cover surrounding said spindle and spring, and a fusible solder for retaining the valve open against the pressure of the spring, substantially as described.

2. The combination of inlet, outlet, and valve-seat between the two, a valve, valve-spindle, and spring, operating as described, to

close the valve, retaining fusible substance to hold the valve against the pressure of the spring, a case inclosing the valve-stem and spring, and a screw-cap forming a cover to said cell, all the parts being arranged substantially as described.

3. In an automatic gas-valve, the combination, with the valve-case, of the valve D, held normally open, the stem *d*, spring E, arranged as shown, to close the valve when released by the melting of the solder, a sleeve to which the valve-stem is secured by solder, and the case G, constructed to protect the stem, as described.

In witness whereof I have hereunto set my hand.

HENRY A. STEARNS.

Witnesses:
J. A. MILLER, Jr.,
M. F. BLIGH.