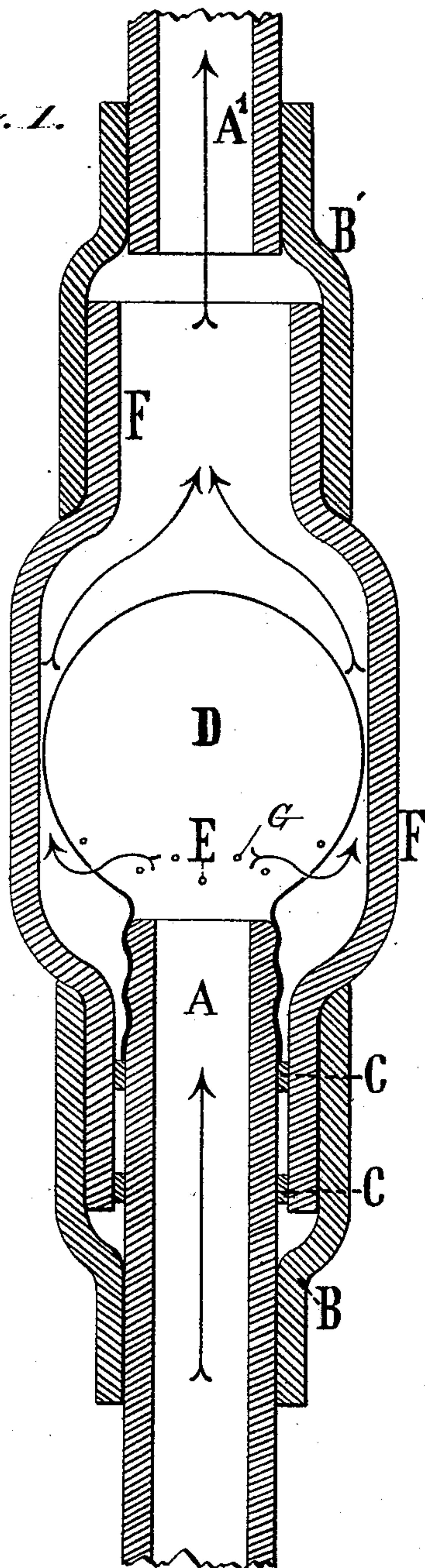


J. W. EICHLER & H. HARTIG.  
Gas-Regulator.

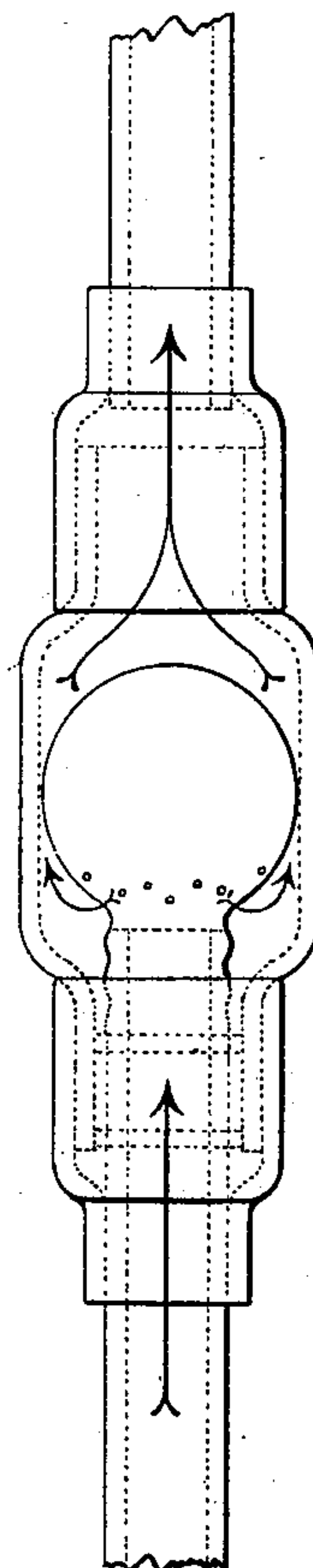
No. 217,784.

Patented July 22, 1879.

*Fig. 1.*



*Fig. 2.*



Witnesses:

*Eduard Reiche.*  
*Julius Grofman.*

Inventors:

*F. Wilhelm Eichler*  
*Heinr. Hartig*



# UNITED STATES PATENT OFFICE.

JULIUS W. EICHLER AND HEINRICH HARTIG, OF STUTTGART, GERMANY.

## IMPROVEMENT IN GAS-REGULATORS.

Specification forming part of Letters Patent No. 217,784, dated July 22, 1879; application filed June 18, 1879; patented in Germany, November 6, 1878.

*To all whom it may concern:*

Be it known that we, JULIUS W. EICHLER and HEINRICH HARTIG, of Stuttgart, Empire of Germany, have invented certain new and useful Improvements in Gas-Regulators, of which the following is a specification.

This invention has for its object to produce a simple, cheap, and effective gas-regulator, by means of which a regular flow of gas may be secured at the burners and a steady flame produced, and by means of which any defect in the distributing-pipes leading from the regulator to the burner will be indicated, as more fully hereinafter specified.

To this end our invention consists of a tubular chamber having its walls composed wholly or partly of transparent material, and adapted to be interposed between the service-pipe and the distributing pipe or pipes leading to a gas-burner or series of burners, said chamber being secured to the ends of the service and distributing pipe by means of suitable gas-tight connections, the end of the service-pipe projecting into the chamber, and having secured to it a flexible sac or bag, capable of expanding into a globular, or approximately globular, form, and perforated near its juncture with the end of said service-pipe, as and for the purposes more fully hereinafter specified.

In the accompanying drawings, Figure 1 represents a sectional view of our improved regulator secured to the ends of the service and distributing pipes, and Fig. 2 an elevation of the same.

The letter A indicates the eduction end of the service-pipe, and A' the induction end of the distributing-pipe.

The letter F indicates a chamber, of any suitable form, being tubular in the present instance. Said chamber is constructed, preferably, of glass, in order that its interior may be readily inspected; but it may be constructed of any other suitable material, and provided with suitable apertures, covered with transparent material, by which its interior may be inspected. The said chamber is contracted at both ends, one of which ends sets over and is secured to the service-pipe A by means of a caoutchouc or other suitable connection, B, packing-rings C being interposed between the chamber and service-pipe to insure a gas-tight joint.

The opposite end of the chamber is secured to the distributing-pipe A' by means of a caoutchouc or other gas-tight connection, B', similar to the connection B.

To the end of the service-pipe A is secured by any suitable gas-tight connection a sac or bag of caoutchouc or other equivalent material, the connection in the present case consisting of a continuation of the said bag or globe extending from the mouth of the same, in the form of a tube, which is sprung over the end of the service-pipe, and is held tightly thereto by its elasticity.

The sac or bag D, near its juncture with the service-pipe A, is provided with a series of small apertures, G, the number and size of which vary according to the number of burners to be used.

When no gas is being used the sac or bag D shrinks, and the apertures in the same are closed, or nearly closed, by such shrinkage. When gas is turned on at a burner the sac or bag is slightly opened, and the apertures expanded sufficiently to allow a proper amount of gas to supply the burner.

As the gas is turned on and lighted at additional burners the sac or bag will be further expanded, and the apertures correspondingly enlarged, permitting an additional amount of gas to flow through corresponding to the additional number of burners in use.

The number of burners to be employed is so proportioned to the size and number of the apertures in the sac or bag that said sac or bag will never expand under a normal pressure of gas in the tube A and said globe or ball sufficiently to prevent a full supply of gas to the burners; but when such normal pressure is exceeded said sac or bag further expands and contracts the annular space between its outside and the interior of the chamber F in proper ratio to keep the pressure in the pipe A' at a uniform standard, and thus secure a steady light.

When all the cocks at the burner are closed, should there be any leak in the distributing pipe or pipes at any point between the regulator and the burners, the bag will be expanded, and as it can be readily observed through the transparent walls of the chamber A, such leakage will be at once indicated, the appara-

tus thus serving as a safety-indicator as well as a regulator.

What we claim is—

1. A gas-regulator and safety-indicator consisting of a chamber having its walls composed wholly or partially of transparent material, and adapted to be interposed between the ends of the service and distributing pipes, and connected thereto by gas-tight connections, and a flexible and elastic sac or bag connected to the service-pipe, said sac or bag being perforated near its juncture with the service-tube, whereby the gas may be supplied to the burner in uniform quantities and a steady flame produced, substantially as specified.

2. A chamber having its walls composed wholly or partially of transparent material, and an expanding perforated sac or bag, in combination with the service and distributing gas-pipes, to which it is secured by suitable gas-tight connections, substantially as and for the purposes specified.

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