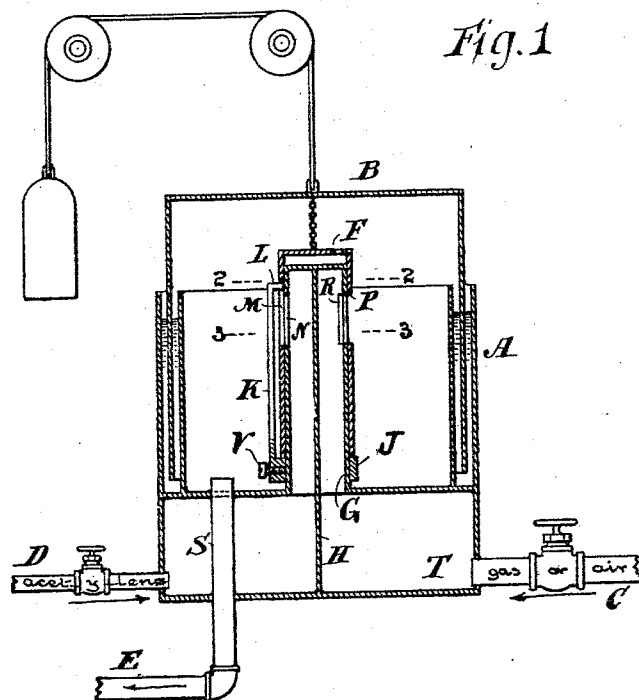


(No Model.)

E. N. DICKERSON.
GAS MIXER.

No. 565,157.

Patented Aug. 4, 1896.



Witnesses
Geo. Wadman
Jac. Klemann Jr.

Inventor
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UNITED STATES PATENT OFFICE.

EDWARD N. DICKERSON, OF NEW YORK, N. Y.

GAS-MIXER.

SPECIFICATION forming part of Letters Patent No. 565,157, dated August 4, 1896.

Application filed May 15, 1895. Serial No. 549,365. (No model.)

To all whom it may concern:

Be it known that I, EDWARD N. DICKERSON, of No. 253 Broadway, in the city, county, and State of New York, have invented a new and useful Improvement in Automatic Gas-Mixers, of which the following is a full, true, and exact description, reference being had to the accompanying drawings.

This invention relates to an apparatus by means of which two gases may be mingled together in determined proportions, and it is especially applicable to mingling acetylene and coal or water gas, or acetylene and air.

My invention consists of two automatically-controlled valves which regulate the supply of the two gases to a mixing-chamber, which mixing-chamber is a movable holder, itself operating these valves, so as to afford a constantly equal ratio between their openings, however wide they may be opened. These valves are arranged in a single tubular support with an external sliding tube, and the relation of the gases can be adjusted by the rotation of the external tube.

My invention will be readily understood from the accompanying drawings, in which—

Figure 1 represents a vertical cross-section of my complete apparatus; Fig. 2, a section through Fig. 1 on the line 2 2; Fig. 3, a section through Fig. 1 on the line 3 3; and Fig. 4, the same view as Fig. 3, the external tube being slightly rotated so as to practically close the smaller valve.

As arranged my apparatus is designed to supply up to about twenty per cent. of acetylene to a corresponding amount of illuminating-gas, thereby increasing its illuminating power.

My apparatus consists generally of an external water-seal casing A, having an internal bell-governor B, which may be suitably counterbalanced. Beneath the chamber of the governor B are the chambers S T, divided by the central partition H, which divides a central tube G into two chambers. On the outside of the tube G is the tube F, fitting practically gas-tight upon the inner tube G. This is connected, preferably, by a flexible connection to the holder B. The chamber S connects with the acetylene-inlet D, and the chamber T with the gas-inlet C. The outlet of the gov-

ernor is shown at E. Corresponding openings N M through the tubes G F are shown for the acetylene, and openings R P for the gas. Surrounding the lower end of the tube G is the adjustable ring J, provided with set-screw V. Upon the ring or collar J is mounted the arm K, having inwardly-projecting finger L, which enters into the slot M of the tube F, which is extended somewhat above the corresponding slot or opening N, so as not to interfere with that opening. This finger L serves as a guide for the motion of the tube F. The slot R is somewhat narrower than the slot P, as shown clearly in Figs. 3 and 4.

In the position shown in Fig. 3 both the acetylene and gas openings are opened to their fullest extent.

In Fig. 4 the lower collar J has been so adjusted as that the openings M N are practically closed, but the openings R P are still open to their fullest extent by reason of the excess of width of the opening P. It is obvious that any intermediate degree of regulation can be readily obtained by the adjustment of the collar J.

The operation is of course readily understood. The openings being adjusted to the proper relative proportions, gas entering through the pipes D and C is governed by the governor B, which closes the ports of the tube G, connecting with the chambers S and T, when the governor B has risen, and the inflow of the gases is governed by the outflow through the pipe E.

I am aware of the fact that a double regulation of gases, substantially similar in principle, has been heretofore patented to E. A. Burdick on the 26th day of July, 1881, No. 244,850. In my apparatus but a single valve is employed, operated from the governor by a flexible connection, so that the valve is not tipped by any tipping of the governor. In the Burdick device the two inlet-valves are connected with different parts of the governor B, and therefore the governor B will not operate them uniformly by reason of its tipping in operation. There is an additional amount of friction also in these pipes which I avoid by my contrivance, wherein I substitute one pipe with two valves for two pipes with such valves.

It is obvious that though the governor B is, in my opinion, the best form, the control of the tube F might be by a diaphragm.

What I claim as my invention, and desire
5 to secure by Letters Patent, is—

The combination in a gas-mixer, of the governor B, provided with an upper chamber and the two lower chambers, the partition H, dividing the said lower chambers and extending
10 into the interior tube G, the exterior tube J, circumferentially adjustable and supported

by the governor B, and the registering openings in the tubes G and J, substantially as described.

In testimony whereof I have signed my
15 name to this specification in the presence of two subscribing witnesses.

E. N. DICKERSON.

Witnesses:

ANTHONY GREF,
H. COUTANT.