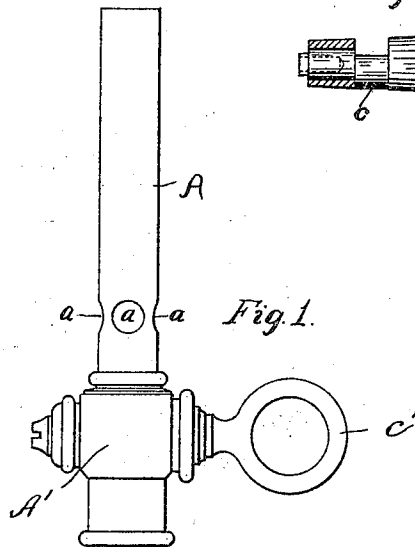
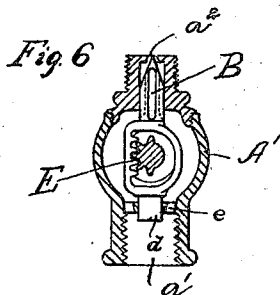
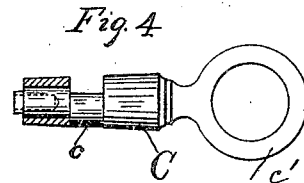
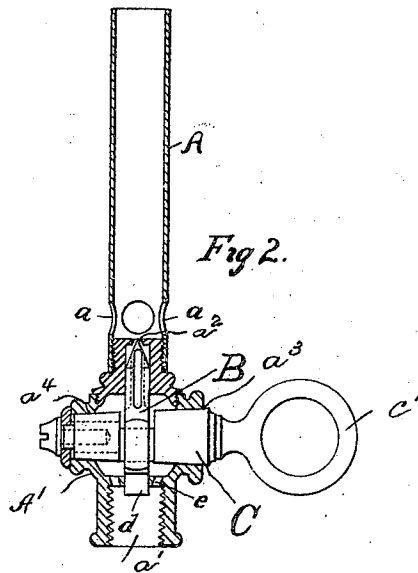
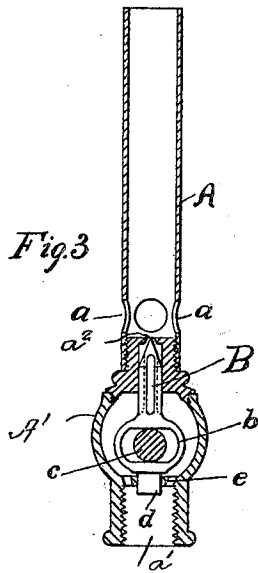


No. 812,730.

PATENTED FEB. 13, 1906.

W. T. DONNELLY.  
GAS CONTROLLING DEVICE.  
APPLICATION FILED DEC. 20, 1904.



Witnesses  
H. J. Knudsen  
E. R. Jones.

Inventor  
William J. Donnelly  
By his Attorney C. A. Collins.

# UNITED STATES PATENT OFFICE.

WILLIAM T. DONNELLY, OF NEW YORK, N. Y., ASSIGNOR TO GENERAL GAS APPLIANCE COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW JERSEY.

## GAS-CONTROLLING DEVICE.

No. 812,730.

Specification of Letters Patent.

Patented Feb. 13, 1906.

Application filed December 20, 1904. Serial No. 237,623.

*To all whom it may concern:*

Be it known that I, WILLIAM T. DONNELLY, a citizen of the United States, residing in the borough of Brooklyn, city of New York, in the county of Kings and State of New York, have invented a new and Improved Gas-Controlling Device, of which the following is a specification.

My invention relates to the control of the flow of gas in connection with that class of gas-consuming devices in which the gas is mixed with air to produce a heating-flame. In the use of such devices, as is well known, the air is drawn in through air-ports by means of a jet of gas from a needle-valve and it is necessary to regulate or vary the flow of gas from time to time to compensate for variations in its quality or pressure, or both, to the end of producing a mixture of gas and air of substantially uniform quality. Such regulation has heretofore usually been effected by a special regulating device independent of the gas plug or cock by means of which the gas is turned on to or shut off from the burner. Such devices are in many cases complicated and the manner of using them is not in general readily understood by the user familiar by custom only with the use of the ordinary gas-plug.

The object of my present improvements is to provide a simple and efficient means of regulating the flow of gas which can be readily employed to that end by any one familiar with the use of the ordinary gas-plug. To this end I employ a hollow body having a gas-inlet and a gas-outlet, the latter being provided with a seat for a needle-valve, said hollow body being provided with opposite bearing-apertures of different diameters to receive a tapered plug fitting gas-tight therein and similar to the ordinary gas-plug, except that it is not provided with the usual gas port or opening therethrough. The hollow body is of such a size as to permit the gas to pass freely around the plug, between it and the walls of said body, and within the hollow body is a needle-valve adapted to engage the valve-seat and operatively connected with the tapered plug. Thus the rotation of the plug operates to vary the effective orifice of the needle-valve port, and consequently regulates the flow and velocity of gas thereat, and hence the quality of the mixture of air and

gas. While the modified gas-plug does not directly affect the flow of gas, its utilization for operating a needle-valve provides a means for operating a valve entirely inclosed within the gas-pipe without leakage of gas. This is important for the reason that since the needle-valve operates not only as a regulator, but also as a stop for the gas when the gas is shut off the gas-pressure extends up to the needle-valve. The friction of the tapered plug in its bearing-apertures enables the needle-valve to be set at any desired point without moving, and a familiar means is presented to the user for regulating the flow of gas in the same manner as the gas is ordinarily turned on or off by means of the well-known gas-plug.

My invention will be best understood by reference to the accompanying drawings, in which the same letters of reference indicate corresponding parts throughout.

Referring to the drawings, Figure 1 shows an elevation of the device. Figs. 2 and 3 are sectional views. Fig. 4 is a separate view of the modified gas-plug. Fig. 5 is a view looking down upon the needle-valve, and Fig. 6 is a modified form of mechanism for moving the needle-valve.

Referring to the drawings, A indicates a gas-pipe leading to a burner (not shown) and provided with induction air-ports *a a*.

A' represents the hollow body of my improved fixture, having the gas-inlet aperture *a'* and the outlet *a''*, provided with a needle-valve seat, and the bearing-apertures *a''' a''''* for the tapered plug, which apertures are of different diameters, as shown.

B is the needle-valve, having its port in suitable proximity to the air-ports. The sides of the needle may be grooved, as shown, to permit the passage of the gas thereby.

C is the tapered plug fitting the bearing-apertures *a''' a''''*, provided with an external hand-operating device or finger-piece *c'* for turning it and resembling an ordinary gas-plug, said plug C being arranged to provide mechanism for effecting the movement of the needle-valve. As shown in Figs. 2 and 3, this consists of a crank or eccentric *c*, forming a part of the plug which is engaged by a loop *b*, forming a part of the needle B.

A modified form of device for moving the needle B is shown in Fig. 6, in which the cen-

tral portion of the plug *c* and the loop *b* of the needle *B* are arranged to form an engaging rack and pinion, as shown at *E*. Other forms of devices for effecting the movement of the  
5 needle-valve by the rotation of the plug will readily occur to those skilled in the art, and I do not limit my invention in this respect to the use of any particular form of mechanism.

It will be clear that by the rotation of the  
10 plug the needle may be advanced and retracted, so as to regulate, or, if desired, to entirely shut off the flow of gas. This will be naturally done by any one familiar with the use of the ordinary gas-plug by manipulating the  
15 plug in the same manner in which it is ordinarily employed. The adaptation of the gas-plug for operating the needle-valve also presents the advantage of providing an efficient means for preventing the leakage of gas  
20 and tightening to compensate for wear, while the friction of the conical or tapered plug in its bearing enables the needle-valve to be set and remain at any desired point.

What I claim as new, and desire to secure  
25 by Letters Patent, is—

As an article of manufacture, a gas-controlling device comprising among its members, a hollow body provided with a gas-inlet, a gas-outlet and opposite bearing-apertures of different diameters, a longitudinally-mov-  
30 able needle-valve mounted within said hollow body, and adapted to engage the gas-outlet to regulate and close the same, a tapered plug fitting said bearing-apertures gas-tight  
35 and extending through said hollow body, said hollow body and tapered plug being constructed to provide a space to permit the passage of gas past said plug, said plug having a hand-operating device outside of said hollow  
40 body, and operative connections between said plug and the needle-valve, for operating said valve, substantially as described.

In testimony whereof I have hereunto subscribed my name this 16th day of December, A. D. 1904.

WILLIAM T. DONNELLY.

Witnesses:

CLARKSON A. COLLINS,  
WILLIAM J. KINDGEN.