

(No Model.)

C. W. KNIGHT.

AUTOMATIC REGULATING DEVICE FOR GAS BURNERS.

No. 590,892.

Patented Sept. 28, 1897.

FIG. 1.

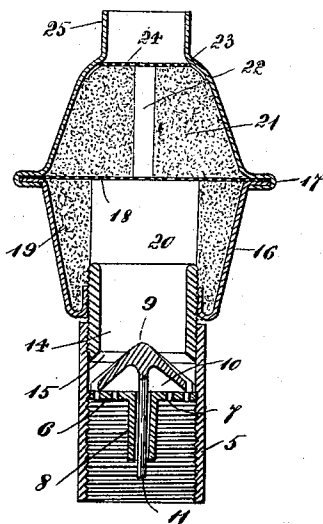
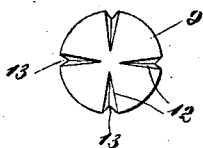


FIG. 2.



WITNESSES

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AUTOMATIC REGULATING DEVICE FOR GAS-BURNERS.

SPECIFICATION forming part of Letters Patent No. 590,892, dated September 28, 1897.

Application filed October 26, 1896. Serial No. 610,113. (No model.)

To all whom it may concern:

Be it known that I, CHARLES W. KNIGHT, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Automatic Regulating Devices for Gas-Burners, of which the following is a full and complete specification, such as will enable those skilled in the art to which it appertains to make and use the same.

This invention relates to automatic regulating devices for gas-burners; and the object thereof is to provide an improved device of this class which is simple in construction and operation and which is designed to be connected with an ordinary gas-fixture, a further object being to provide a gas-regulating device by means of which the flow of gas will be exactly and automatically regulated at all times regardless of the pressure within the mains.

The invention is fully disclosed in the following specification, of which the accompanying drawings form a part, in which similar numerals of reference designate the same parts wherever found throughout both views, and in which—

Figure 1 is a central vertical section of my improved gas-regulator, and Fig. 2 a plan view of a valve which I employ.

In the practice of my invention I provide a tube 5, which is screw-threaded at its lower end and which is adapted to be connected with any ordinary gas-fixture, and within said tube 5 is placed a partition-plate 6, which is provided with a plurality of fine perforations, as shown at 7, any desired number of which may be employed.

The partition-plate 6 is provided centrally with a depending tubular extension 8, the central bore of which extends through said plate, and I also provide a valve 9, which is conical in form and provided with a conical chamber 10 in the lower side thereof, and said valve is provided centrally of the lower side, the base of the valve being directed downwardly, with a rod or bar 11, which passes through said tubular extension 8 of the plate 6, and when the valve is placed in position the base thereof rests on the plate 6.

The valve 9 is provided with a plurality of radial notches or recesses 12, which are formed in the upper conical surface thereof, said notches or recesses extending downwardly to the base and gradually increasing in depth from their upper to their lower ends, and at the lower ends of said radial notches or recesses 12 are vertical notches or recesses 13, which are formed in the perimeter or base of the valve and which communicate with the radial notches or recesses 12.

Secured in the upper end of the tube 5 is a screw-threaded tubular plug 14, at the lower end of which is formed a valve-seat 15, and the position of the valve-seat 15 on the lower end of the tubular plug 14 is adjusted with reference to the position of the valve 9, and mounted on the upper end of the tubular plug 9 is a casing 16, which is circular in cross-section and the vertical length of which is greater than the transverse diameter, and the said casing is preferably composed of two separate conical portions, the base of the lower portion being directed upwardly and the base of the upper portion downwardly, and the said casings are composed of sheet metal, and the bases thereof are connected, as shown at 17, and centrally of said casing is a perforated diaphragm or partition-plate 18. That portion of the casing below the diaphragm or plate 18 is provided with a lining 19, composed of asbestos and plaster-of-paris combined in the proportion of one part of the asbestos to nine parts of the plaster-of-paris, and the central bore of the chamber 20, formed by this lining, is substantially the same diameter as the outer diameter of the tubular plug 14, and that portion of the casing 16 above the diaphragm or partition-plate 18 is filled, as shown at 21, with plaster-of-paris and asbestos combined as above stated, and formed centrally therein is a vertical bore 22, and the upper conical portion of the chamber 16 is abruptly contracted at 23, below which point is placed a diaphragm of wire-gauze 24, and above the diaphragm 24 is a tubular extension 25, with which the ordinary burner-tip is adapted to be connected.

The separate parts of my improved gas-regulator, consisting of the tube 5, the tubular

plug 14, and the casing 16, are detachably connected by means of screw-threads, and the separate parts of the casing 16, which is mounted on the tubular plug 14, are not intended to be disconnected.

The valve 9 constitutes the chief feature of my improved regulator, and said valve operates as a differential valve to control at all times the flow of the gas to the burner-tip and to regulate the same under all conditions to the amount required by the tip regardless of the pressure in the gas-mains.

The lining or packing at 19 and 21 in the casing 16, composed of asbestos and plaster-of-paris, as hereinbefore described, serves to an extent as a purifier of the gas, and it will be understood that in the operation of the device the valve 9 is free to move vertically in the tubular casing 5, in which it is placed, and when the pressure of gas is too great within the mains the valve will be raised and will approach the valve-seat 15 and gradually cut off the flow of gas, which in this case passes through the notches or recesses 13 and the radial grooves 12, formed in said valve, and when the pressure of the gas is normal the valve will rest upon the partition-plate 6, and the gas will pass through the perforations formed in said plate and through the notches or recesses 13 in the valve.

My improved gas-regulating device is perfectly adapted to accomplish the result for which it is intended, and is also comparatively inexpensive, and, as will be understood, the same may be applied to any form of gas-fixture and used wherever ordinary gas-burners are employed.

Having fully described my invention, I

claim as new and desire to secure by Letters Patent—

The herein-described gas-regulating device, consisting of a tubular casing, a perforated plate mounted therein, and provided centrally with a depending tubular extension, a conical valve mounted above said plate and resting thereon, the apex of which is directed upwardly, said valve being provided in its under surface with a conical chamber, and a central depending rod or pin which passes through said plate, and the tubular extension connected therewith, and said valve being also provided in its upper side with radial grooves which communicate with notches or recesses formed in the base or perimeter thereof, and said tubular casing being provided with a tubular plug which is secured therein above the valve, at the lower end of which is formed an annular valve-seat, and said plug being provided with a casing which is mounted thereon, said casing being circular in cross-section, and being provided centrally with a perforated partition or diaphragm, and at the upper end thereof with a diaphragm of wire-gauze, and the walls of the casing being packed or lined with asbestos and plaster-of-paris combined, substantially as shown and described.

In testimony that I claim the foregoing as my invention I have signed my name, in presence of the subscribing witnesses, this 9th day of October, 1896.

CHARLES W. KNIGHT.

Witnesses:

CHARLES S. ROGERS;
L. M. MULLER.