

A. C. ROESSLER & W. A. ARMINGTON.

GAS REGULATOR.

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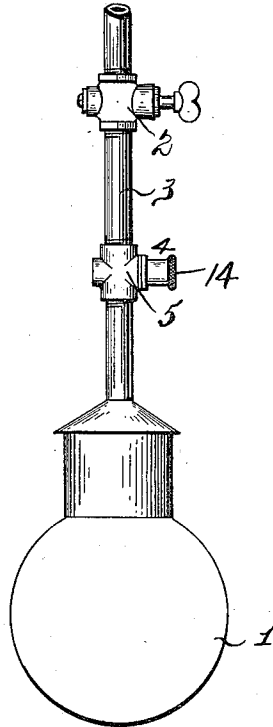


Fig. 1.

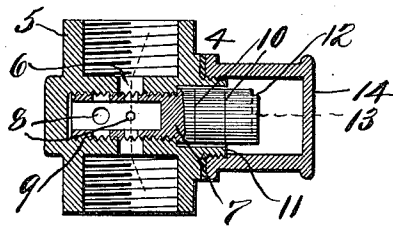


Fig. 2.



Fig. 3.

Witnesses:
C. A. Jarvis
Philip S. McLean.

Inventors:
Amandus C. Roessler
William A. Armington
by Brock Beeken Smith
attorneys.

UNITED STATES PATENT OFFICE.

AMANDUS C. ROESSLER, OF MINEOLA, AND WILLIAM A. ARMINGTON, OF NEW YORK,
N. Y., ASSIGNORS TO BAY STATE GAS COMPANY, (DELAWARE,) A CORPORATION OF
DELAWARE.

GAS-REGULATOR.

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To all whom it may concern:

Be it known that we, AMANDUS C. ROESSLER, a subject of the King of Great Britain and Ireland, formerly of London, England, and now a resident of Mineola, Nassau county, and State of New York, and WILLIAM A. ARMINGTON, a citizen of the United States, and a resident of the borough of Brooklyn, county of Kings, city and State of New York, have invented certain new and useful Improvements in Gas-Regulators, of which the following is a specification.

In certain gas systems, and more particularly in what are known as pressure-gas systems, the gas is conducted under pressure to the burners, so that when the gas is first turned on it flows with such a rush and under such impetus as to cause the burner to "belch" forth a flame when first ignited. This preliminary burst of flame is both injurious and objectionable. Where the burner is in the form of a mantle this first burst of flame frequently destroys the mantle and even the globe surrounding the mantle. Also, as is well known, the pressure of gas will vary at different points in a system, according to the length or the height of the pipes. On account of this difference in pressure, different volumes of gas will be supplied to the burners at different points in the system, some of the burners receiving too great a volume of gas, and others, perhaps, not getting enough gas. Some effort has been made heretofore to even the volume of gas supplied to the different burners, by reaming out the connection to the burner more or less until the proper flow of gas was approximated. This method however is at best mere guesswork and is not at all satisfactory.

The primary object of our invention is to accurately and reliably regulate the volume of gas supplied to each burner, so that all burners will receive the proper volume of gas regardless of the pressure in that particular part of the system, and to accomplish this regulation independent of the main cock for turning on or shutting off the flow to the burner or burners.

Accordingly, our invention consists in placing independently adjustable regulators in the different parts of the system, which, when once adjusted, will permit the proper volume of gas to flow to the burner or burners in that part of the system, each time the

gas is turned on. The regulators, when once adjusted, serve to permit only a predetermined amount of gas to flow to the burner, and any preliminary rush of gas, when it is first turned on, is checked and held back by the regulator. Preferably the regulator is placed close to the burner so that the full pressure may be led up almost to the burner, and there be regulated so that only a predetermined volume will actually pass to the burner, and the main or shut-off cock may be placed at any desired point in the pipe line.

Specifically, the regulator is preferably in the form of a member having a passage therein, and a plug which is disposed so as to intercept the said passage, said plug having different sized openings therein and being adjustable so that the various sized openings may be brought into register with the passage.

In the accompanying drawings we have illustrated a preferred embodiment of the invention and also a preferred use but it will be understood that various changes and modifications may be made therein without departing from the spirit and scope of the invention.

In the drawings: Figure 1 is a view illustrating the invention in use in a gas system. Fig. 2 is an enlarged sectional view of the regulator itself. Fig. 3 is a cross sectional view of the adjustable plug, taken on the line 3—3 of Fig. 2.

Like reference characters refer to the same parts throughout the several views.

The invention finds its greatest usefulness in connection with pressure-gas systems, and for purposes of illustration it is so shown in Fig. 1. In this view the burner is designated 1, and the main valve 2 for controlling the burner is disposed in the pipe line 3 at a point more or less remote from the burner, as occasion demands. The regulator 4 is interposed in the pipe connections at a point adjacent to or comparatively near the burner. A preferred arrangement is to put the gas regulator right up close to the burner and to place the shut-off valve in the pipe line wherever it may be most convenient. By this arrangement the full volume and pressure of the gas is carried almost as far as the burner, that is, right up to the regulator which is disposed relatively close to the burner.

The precise construction of the regulator may vary but it preferably consists of a member 5 in the nature of a coupling, as shown in the sectional view, which is inserted in the pipe connections and is provided with a passage 6 therein for the flow of the gas. Seated in the said member and intercepting the passage therein is a plug 7 having a number of transverse openings 8 therein adapted when the plug is properly adjusted to be brought into alinement with the passage 6. These openings in the plug are of different sizes and are preferably arranged in two or more series disposed at different points in the length of the plug, substantially as indicated in the sectional view. The plug is adjusted rotatively to bring the different openings of one series into register with the passage, or longitudinally to bring the openings of the other series into alinement with the passage by any suitable means. The means for accomplishing this adjustment may and preferably does consist simply in providing the plug with external screw threads 9 for engagement with the corresponding threaded seat in the member 5.

After the regulator has once been adjusted to permit the proper flow of gas to the burner, it need not be adjusted again. To accomplish this first adjustment, the plug is turned until the transverse opening of the proper size to pass the necessary volume of gas is brought into register with the passage. To assist in securing the necessary adjustment, the outer or stem portion of the plug is preferably provided with two gage lines 10, or other marks, which, when they register with a stationary part, say the face 11, denote which one of the series of openings is in register with the passage 6. And, that the operator may know which opening of a series is in alinement with the passage, the valve stem may be provided with an additional mark, such as the mutilation or cut-away part 12, which, when turned to a certain position, will indicate that a certain one of the openings in either of the series is in register with the passage. The head of the valve stem may have a screw slot 13 in the

same to afford a grip for a screw driver or like instrument for turning it. The stem of the plug may be inclosed and protected by a screw cap 14.

The pressure of gas increases as it rises in a pipe line (about one-tenth of an inch to every ten feet) so that the pressure of the gas on the upper floors of a building will be greater than the pressure on the lower floors. For instance the pressure at the first floor may be one inch water column, at the second floor two inches, and on the fourth floor three inches. As each burner, to be most effective, must receive a certain volume of gas, the regulator for that particular burner or burners will be adjusted to pass just the proper amount of gas. Knowing the pressure at a particular point in the system, and knowing the size of the orifice necessary to pass the required definite amount of gas at that particular pressure, it is only necessary to adjust the stem of the regulator until the proper sized orifice is brought in line with the gas passage. Then, each time the gas is turned on, the burner will receive its proper supply of gas, no matter what the pressure may be in that particular part of the system. The regulators may be provided with markings or information to assist in the adjustment.

What is claimed is:

A gas regulator comprising a member having a passage therein, a plug intersecting said passage, said plug having a series of different sized openings at one point in the length thereof and a series of still different sized openings at another point in the length thereof, and means for turning the plug rotatively and shifting it longitudinally to bring the opening therein of the desired size into alinement with the passage aforesaid.

Signed at New York city in the county of New York and State of New York this 4th day of May, A. D. 1911.

AMANDUS C. ROESSLER.
WILLIAM A. ARMINGTON.

Witnesses:

JEANNETTE STORK,
TERESA V. LYNCH.