(No Model.)

G. TAYLOR.

DEVICE FOR REGULATING THE FLOW OF GASES AND FLUIDS.

No. 325,459. Patented Sept. 1, 1885.

Fig. 1.

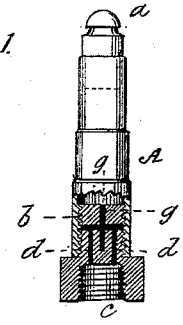


Fig. 2.

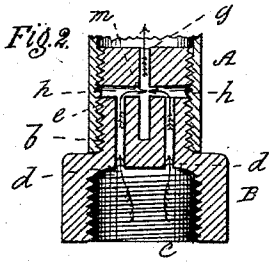


Fig. 4.

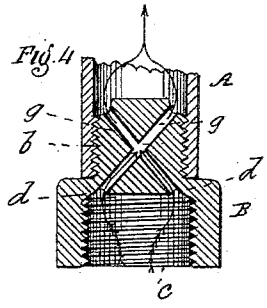
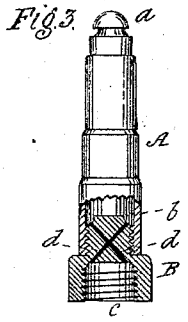


Fig. 3.



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UNITED STATES PATENT OFFICE.

GEORGE TAYLOR, OF JERSEY CITY, NEW JERSEY.

DEVICE FOR REGULATING THE FLOW OF GASES AND FLUIDS.

SPECIFICATION forming part of Letters Patent No. 325,459, dated September 1, 1885.

Application filed April 19, 1884. (No model.)

To all whom it may concern:

Be it known that I, GEORGE TAYLOR, of Jersey City, in the county of Hudson and State of New Jersey, have invented an Improved Device for Regulating the Flow of Gases and Fluids Under Pressure; and I hereby declare the following to be a full, clear, and exact description thereof, reference being had to the accompanying drawings, which form a part of this specification.

This invention relates to an improvement in means for regulating and controlling the pressure and supply of gases and fluids. It is more especially designed for regulating the pressure on illuminating-gas in gas-burners so that the same shall be delivered at the point of combustion under such degree of pressure as to obtain the best and most economical results in its consumption; but it may also be used for regulating the pressure and discharge of fluids—as, for instance, in water-fountains that are operated by means of compressed air.

My said invention, when used for regulating the flow of gas, is more especially applicable to single or separate burners; and the object of the invention is to provide a cheap and simple device to check the pressure and supply of the gas to the tip of the burner and to obviate the necessity of using movable parts in a regulator, and thereby avoid the possibility of its getting out of order by reason of said parts wearing out. This I effect by means of a novel application of the well-known law in physics—namely, that two opposing currents tend to neutralize each other, and that with an increase of force there is a corresponding and proportionate increase of resistance.

My said invention consists in a regulating device for gases and fluids under pressure adapted to be fitted to and between the supply and the point of exit, the said device consisting of having two or more converging ways arranged in such manner that the currents of gas or fluid received from the supply-pipe shall strike each other at some point below the point of exit and then pass upward to the latter. By this means the currents before passing to the exit are caused to act upon each other with a retarding force proportionate to the degree of pressure under which they enter the regulator, the resistance being low when said pressure is low and increasing in proportion to the increase of said pressure, and hence the currents neutralize each other and the pressure at the exit is practically unaffected by the variations of pressure in the mains or source of supply.

In order that my said invention may be clearly understood, I now proceed to particularly describe the same as applied for regulating the pressure and supply of illuminating-gas.

In the accompanying drawings, Figure 1 represents a gas-burner with my regulating device attached, the latter being shown in section. Fig. 2 is a vertical central section of the regulator on an enlarged scale; and Figs. 3 and 4 are similar views of my regulator constructed after a modified form.

Similar letters of reference indicate the same parts in all the several figures.

A may represent an ordinary gas burner, and *a* the tip of said burner.

B represents my improved regulating device, consisting of a solid plug having a portion, *b*, thereof which fits into the lower end of the burner A, and a hollow portion, *c*, which fits onto a gas-fixture or to a supply-pipe, the connections being made by means of screw-threads, as shown, or by any other suitable means.

d d are gasways leading from the supply. In Figs. 1 and 2 these gasways are formed by vertical openings bored through the solid portion *b* of the regulator, which enter a transverse opening, *e*, and *g* is a slit which is cut centrally across the portion *b* at right angles to the opening *e*, which latter it intersects and is carried down some distance below the same and terminates in the solid metal. The transverse opening *e* (which is preferably made tapering from both ends toward *g*) being thus intersected by the slit *g*, and its ends being covered by the body of the burner, as at *h*, forms two nozzles by means of which the two currents passing upward through the openings *d d* are brought into collision, as at *m*, before they pass into the slit *g*, and the force of each current acting upon the other tends to retard and drive back both of them, and thus produce an equable pressure at all points above said point of contact. The resistance being proportionate to the degree of pressure in the mains the gas is delivered to the flame at a

nearly uniform pressure, whatever may be the pressure in the mains.

I may state that it is not necessary to adjust the capacity of the gasways *d d* with any great degree of nicety, the only condition for successful operation being that each of said gasways shall have a capacity that would enable it if acting alone to discharge a somewhat larger volume of gas than the tip which is used in connection therewith.

In the modification shown in Figs. 3 and 4 the principle and mode of operation are the same as above described, the only difference being that the point of contact is at the intersection of two diagonal gasways, and that the gas under the regulated pressure is free to pass through the upper ends of said gasways in two currents which unite in the body of the burner.

In the application of my said invention for regulating the flow of fluids under pressure the construction of the device and the mode of its operation are substantially the same as above described, and a further particular description of such application of the invention is not deemed to be necessary.

By means of this construction the use of a float or a diaphragm or other movable device to diminish the flow is entirely obviated as the opposing currents retard each other's progress proportionately to the degree of pressure, and thereby cause an equable supply and pressure at the tip.

I do not claim, broadly, a burner or pressure-regulating device having two or more converging openings to receive the gas or fluid.

I am aware that it has been proposed to provide a removable cylindrical check-plug constructed to fit the interior of the burner, said plug having one or more annular grooves connected with each other, whereby is formed a tortuous passage for the gas which checks its irregular flow. I therefore do not claim such a construction; but

What I do claim, and desire to secure by Letters Patent, is—

In a gas-burner, the coupling-piece B, having a screw-threaded socket on one end and a plug on the other with exterior threads, said plug having two converging gasways wholly in the body thereof, and an outlet for the gas from the point of convergence of said gasway, the whole constructed whereby the two currents of gas flowing from said plug to the point of convergence serve to check one another, and to automatically compensate for any increase of pressure, substantially as specified.

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