No. 612,959. Patented Oct. 25, 1898.

J. P. WILSON.

BUNSEN BURNER.

(Application filed Feb. 26, 1898.)

(No Model.)

Fig: 1.

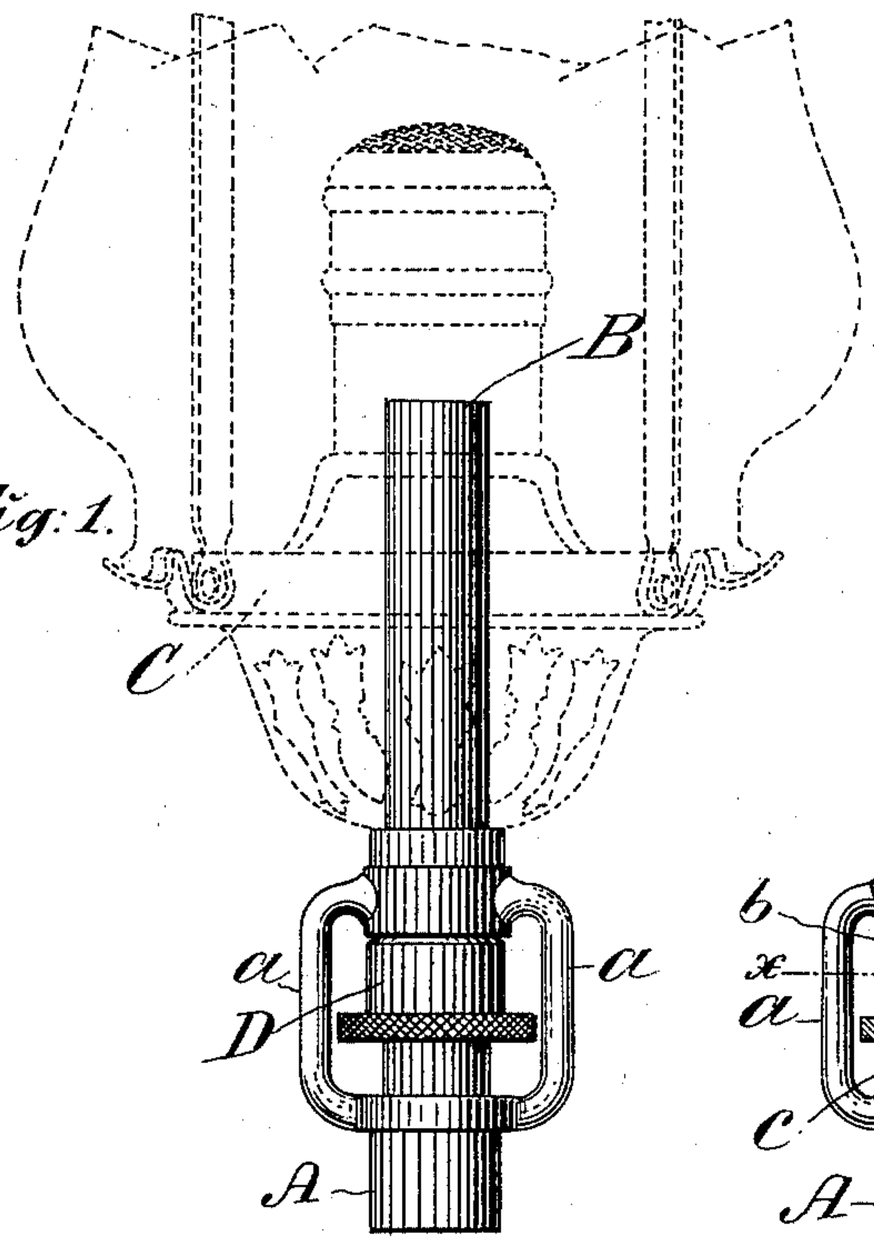


Fig: 2.

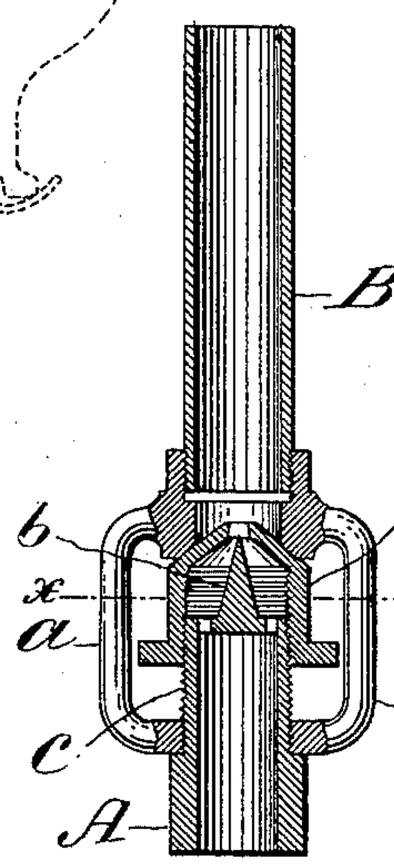


Fig: 3.

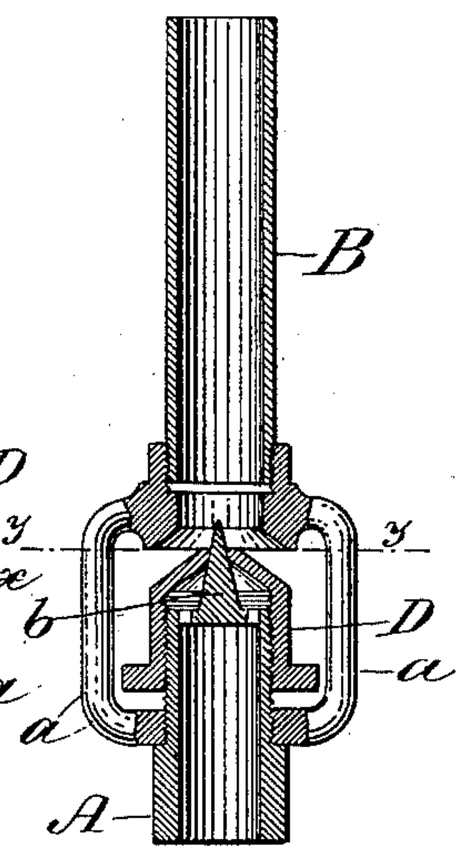


Fig: 4.

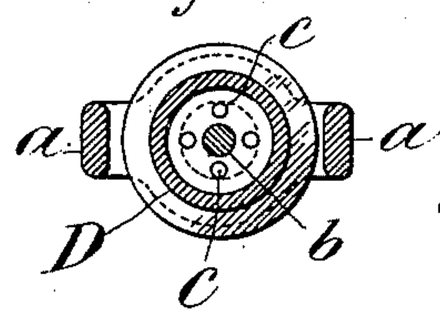
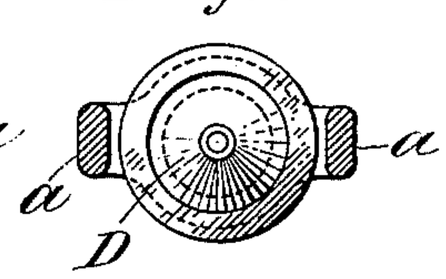


Fig: 5



WITNESSES:

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JAMES P. WILSON, OF NEWARK, NEW JERSEY.

BUNSEN BURNER.

SPECIFICATION forming part of Letters Patent No. 612,959, dated October 25, 1898.

Application filed February 26, 1898. Serial No. 671,769. (No model.)

To all whom it may concern:

Be it known that I, JAMES P. WILSON, a citizen of the United States, residing at Newark, in the county of Essex and State of New Jersey, have invented certain new and useful Improvements in Bunsen Burners, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings and to the letters of reference marked thereon.

My invention relates to that class of gas-burners commonly known as "Bunsen" burners, wherein air is mingled with the gas before combustion; and the invention is principally applicable in that variety of burners employed for producing an incandescent illuminant, as in the well-known Welsbach burners; but it may be applied with equal advantage in any form of Bunsen burner, whether employed for lighting or for heating purposes.

The object of my invention is to provide the burner with a simple, cheap, efficient, and reliable means by which the flow of gas and the flow of air to the commingling tube or chamber may be simultaneously regulated and properly proportioned by the adjustment of a single piece or adjunct of the burner.

The necessity of a single adjustment of the kind referred to is due to the varying quality of the different gases in use as well as to the different pressures under which such gases are consumed.

My invention therefore consists in a single instrumentality in connection with a Bunsen burner which by a single adjustment shall control and regulate or proportion the admission of both gas and air, so that as more gas is admitted less air will be admitted, and the reverse, as will be herein first fully described, and then pointed out in the claim.

In the accompanying drawings, forming part of this specification, Figure 1 is a view in elevation of a Bunsen burner, showing my regulator applied in connection therewith, the regulator being shown as adjusted to the limit which will preclude the admission of air and open the gas-passage to its full extent, the dotted lines indicating the application of the improvement in connection with the frame of a convenient form of incandescent gas-lamp. Fig. 2 is a vertical sectional view of the burner shown in Fig. 1, the parts being in corresponding position; and Fig. 3 is a like view wherein the regulator is turned or moved to the other limit of its adjustment—that is, to open the air-inlet passage to its fullest extent, at the same time completely closing the gas-inlet. Fig. 4 is a horizontal section on a plane through line *x x* of Fig. 2, and Fig. 5 is a horizontal section and plan view on a plane through line *y y* of Fig. 3.

In all the figures like letters of reference wherever they occur indicate corresponding parts.

A is the base of the burner structure through which gas is admitted, and on this is sustained the commingling tube or chamber B, within which the air and gas are mixed before being consumed. Tube B and base A are connected through the medium of suitable arms, as *a a*, between which air may freely enter to be drawn in at the lower mouth of tube B when that mouth is open.

C, Fig. 1, represents the frame of an incandescent gas-lamp, which may be of any pattern and with which the Bunsen burner may be used; but the improved burner may be used for any other lighting or heating purposes and generally in any situation where it will be found available.

To regulate the issue of gas from the burner-base and at the same time the inflow of air to the base of tube B, it is my purpose to employ a single piece, the same being arranged to accomplish both functions simultaneously. Such a piece is shown at D, the same being threaded upon the burner-base and movable thereon to any desired point between the limits where it will either cut off all the air or all the gas. In this form the lower mouth of the commingling tube may be more or less flared, as indicated, or otherwise fashioned as may be desired, and the top of the regulating-piece D should be correspondingly formed, so that when turned to its seat against said mouth it will exclude air therefrom.

At *b* on base A is a conical projection, and around this are perforations, as at *c*, through which the gas may issue, and in the upper part of piece D is an opening of size calculated to fit the cone *b* when piece D is turned, as in Fig. 3. When so turned, the regulator

will arrest the flow of gas, and between that position and the one shown in Fig. 2 the regulator may occupy any position.

It will be seen from a consideration of the foregoing and of the construction shown that as more gas is admitted to the commingling-tube less air is admitted, and vice versa, so that by use of the single regulating-piece the flame or the mixture to be burned may be proportioned to secure the desired results and this by but a single adjustment. No matter what may be the pressure or what may be the quality of the gas the regulator-piece has only to be turned so as to secure the desired flame, the proper proportions of air and gas for that purpose being automatically insured by the appliance itself.

The improvement is simple, easy of application and use, and well calculated to answer all the purposes or objects of the invention previously alluded to.

Having now fully described my invention, what I claim as new therein, and desire to secure by Letters Patent, is--

In a burner of the character herein set forth, the combination of the burner-base, the commingling tube or chamber mounted upon arms connected with the base, the stationary cone, and the regulating-piece threaded upon the base and perforated to fit the cone, said regulating-piece being arranged to simultaneously govern the flow of gas and the admission of air to the lower open mouth of the commingling-tube, substantially as shown and described.

In testimony whereof I have hereunto set my hand in the presence of two witnesses.

Dated New York, N. Y., February 24, 1898.

JAMES P. WILSON.

Witnesses:

WILLIAM C. FITZSIMMONS,

WORTH OSGOOD.