

No. 627,087.

Patented June 20, 1899.

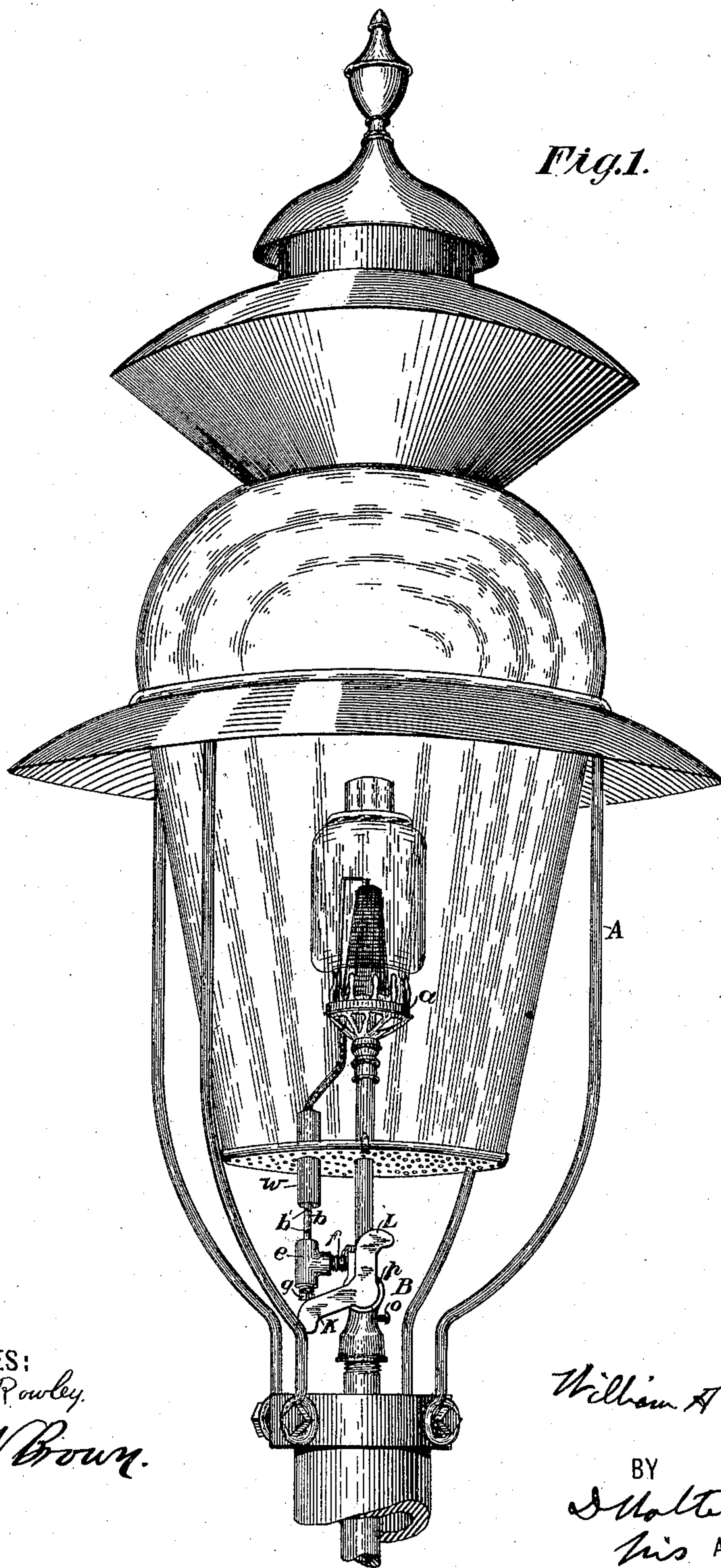
W. A. ARMINGTON.  
GAS BURNER.

(Application filed Apr. 25, 1898.)

(No Model.)

2 Sheets—Sheet 1.

*Fig. 1.*



WITNESSES:

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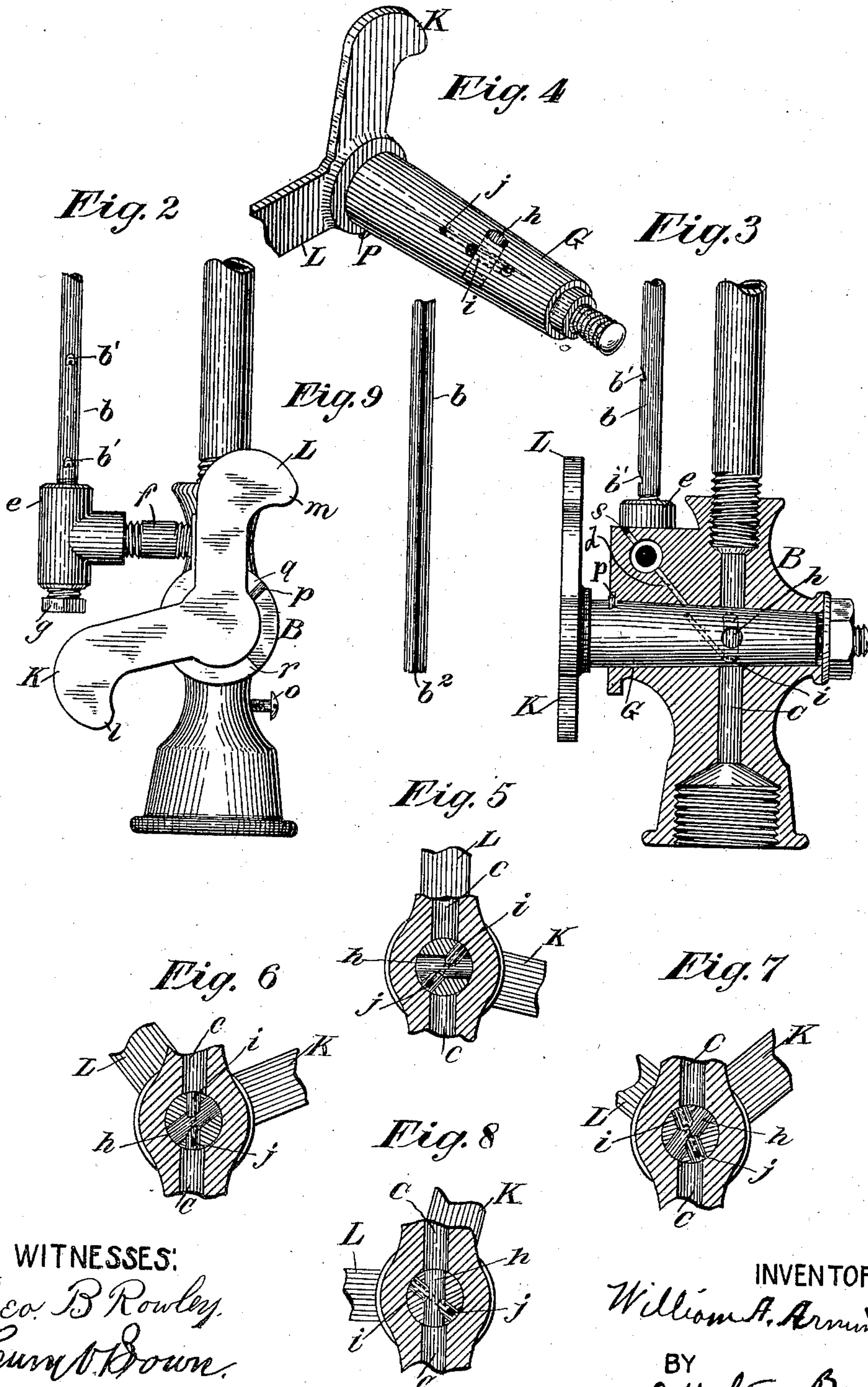
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WITNESSES:  
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# UNITED STATES PATENT OFFICE.

WILLIAM A. ARMINGTON, OF NEW YORK, N. Y.

## GAS-BURNER.

SPECIFICATION forming part of Letters Patent No. 627,087, dated June 20, 1899.

Application filed April 25, 1898. Serial No. 678,708. (No model.)

*To all whom it may concern:*

Be it known that I, WILLIAM A. ARMINGTON, a citizen of the United States, and a resident of the city of New York, borough of Brooklyn, in the county of Kings and State of New York, have invented certain new and useful Improvements in Gas-Burners, of which the following is a specification.

This invention relates to improvements in gas-burners, especially such as are used in street-lamps.

Incandescent mantles and other incandescent elements are now much used in street-lamps, and it is important that the burners shall be lighted and turned out with the least explosion possible in order to reduce the consequent breakages of the fragile incandescents. My invention aims to effect this; and to this end it comprises the following essential elements: first, a flash-tube, termed a "lighter," extending below the lantern and communicating with the gasway by a channel of small diameter, which admits only a small stream of gas to the lighter, this lighter being perforated with a series of small holes or preferably slit from end to end, the gas issuing from the holes or the slit, so that when the torch is applied to a lower hole outside the lantern a small flame will flash up the tube to a point within the lantern and adjacent to the main burner, and, second, a valve or cock body and a plug therein, the body containing but one main gasway and a small channel leading to the lighter, as aforesaid, and the plug containing transverse ports so arranged with reference to the aforesaid gasway and channel of the body that in one position all the ports will be shut off, and in the next position, corresponding to the beginning of the opening of the cock, the lighter will be put in communication with the gasway, and at the same time a small stream of gas will be allowed to pass through a secondary port to the burner, to be there ignited from the lighter with only a very small explosion, and that, when the cock is turned full open the main port of the plug will alone be in communication with the main gasway, allowing the full stream of gas to go to the burner, while the channel to the lighter and the secondary port will be closed.

In connection with the aforesaid parts an

important element (although it may be dispensed with) is a stop to inform the operator when he has opened the channel to the lighter and the secondary port sufficiently to get the necessary streams of gas without violent explosion.

Referring to the drawings which accompany the specification to aid the description, Figure 1 is a general view of a lantern with my burner assembled in position. Fig. 2 is an elevation of the burner, the main gas-tube and lighter being broken and all ports shut off. Fig. 3 is a vertical section of the burner on a plane perpendicular to that of Fig. 2. Fig. 4 is a perspective view of the plug as it would appear to one looking from above and to the left of Fig. 8. Figs. 5, 6, 7, and 8 are cross-sections of the plug as seen from the right of Fig. 3 and respectively showing the plug fully shut, opened to allow gas to go to the lighter and secondary port, a little more open so as to begin to allow gas to go through the main port to the burner, and full open. Fig. 9 is a broken detail of the preferred lighter.

A is a street-lantern, and B my improved cock, connecting with the gas-supply and equipped with the lighter *b*, which passes up from said cock through the sleeve *w* in the bottom of the lantern and to a position adjacent to the burner *a*.

*c* is the main gasway or channel through cock B, and *d* a channel of smaller diameter establishing communication from the way *c* to the lighter *b*. I prefer to connect said lighter *b* with cock B by the cross *e* and nipple *f*, the screw-plug *g* forming an adjustable stop to indicate to the operator when he has opened the cock sufficiently to allow of the preliminary flow of gas through the lighter *b* and to the burner *a*, as will be hereinafter explained. Said stop *g* is accurately adjusted at the factory and thereafter not disturbed.

The plug G has the main through-port *h*, which communicates with the way *c* in the full-open position, Fig. 8, the somewhat smaller port *i*, which crosses port *h* at an acute angle (about forty-five degrees) and communicates with the way *c* in the intermediate position of Fig. 6, and the still smaller port *j*, which extends diagonally through the plug at its lower end, preferably communicating with



the lower end of port *i*. Port *j* does not connect with port *h*, and instead of connecting with port *i* it might have a separate outlet through the under side of the plug. Said  
 5 several ports *h i j* are so positioned with reference to the way *c* and channel *d* that when the plug is in the full-closed position all said ports are closed by the solid metal of the  
 10 cock-body, Fig. 5, and when the plug is given its first turn, so that the bottom of knob *l* on arm *K* is just level with the bottom of plug *g*, port *i* communicates with way *c*, Fig. 6, and port *j* also communicates with said way  
 15 *c* through port *i* and with channel *d*, leading to the lighter *b*, and that as plug *G* turns farther to the full-open position ports *h* and *i* momentarily both communicate with way *c*, Fig. 7, port *h* finally in the full-open position fully communicating with way *c* and  
 20 port *i* being closed by the solid metal of the cock-body, Fig. 8.

The arms *K L*, fixed on the end of plug *G*, are adapted to be operated by the end of the torch or some other instrument carried by  
 25 the lamplighter.

The lighter *b* may be perforated with holes *b'*, arranged at suitable intervals, or it may be slit from end to end at *b<sup>2</sup>*, as indicated in Fig. 9, and I prefer the latter construction.

30 The burner *a* will be of any suitable kind, as in case of incandescent gas-lights using the well-known kinds of mantles or other incandescent elements, as Bunsen burners. The adjustable screw *o*, Fig. 2, threads into the  
 35 way *c* and serves to regulate the effective area thereof, and therefore the quantity of gas passing through.

The operation is as follows, supposing the cock to be shut off: The lamplighter applies  
 40 his torch or other implement to said arm *K* and raises it until the arm is level with the stop *g*, as hereinbefore described. This admits a small stream of gas to the burner and also to the lighter *b*, which is closed or  
 45 nearly closed at the top, so that the gas escapes from the holes *b'* or slit *b<sup>2</sup>*. Then the lamplighter applies the torch to one of said holes or to the slit, and the flame flashes up to  
 50 the top of the lighter *b* and ignites the small stream issuing from the burner and with but

a slight explosion, which will not injure a mantle. Now the lamplighter turns the plug *G* to the full-open position, the flow of gas to the burner increasing to the full normal flow and that to the lighter *b* being cut off. The  
 55 stop-pin *p* coming against a shoulder *r* on the body of the cock stops the plug in the full-open position. To turn out the lamp, the operator catches arm *K* with his torch or other implement and draws it down until said pin  
 60 *p* comes against the shoulder *q*, when the plug has come to full-shut position and all said ports *h i j* are closed.

For economy in manufacture I prefer to bore the channel *d* through the body of the cock  
 65 from the outside to the way *c* and then close the outer end of said channel *d* with a plug *s*, of solder or other material.

Now, having described my improvements, I claim as my invention—  
 70

1. The combination with a burner and a lighter therefor, of a cock having a main port, a second port adapted to permit a small stream of gas to go to the burner in one position of the cock, and a third port adapted to connect  
 75 the second port with the lighter, substantially as described.

2. The combination of a gas-burner and a lighter, a cock-body having a main gasway *c* to the said burner, and a channel *d* to said  
 80 lighter, and a plug having a main port *h*, a port *j* adapted in one position to admit gas to the lighter, and a secondary port *i* adapted in the same position to admit a partial flow of gas to the burner, substantially as described. 85

3. The combination of a gas-burner and lighter, a ported cock-body, a plug therein having the main port *h*, the secondary port *i* and the lighter-port *j* arranged substantially as described, and a stop *g* to determine the  
 90 position of the parts for admitting gas to the lighter and secondary port, substantially as described.

Signed at New York city, in the county of New York and State of New York, this 23d  
 95 day of April, 1898.

WILLIAM A. ARMINGTON.

Witnesses:

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 ABM. VAN SANTVOORD.