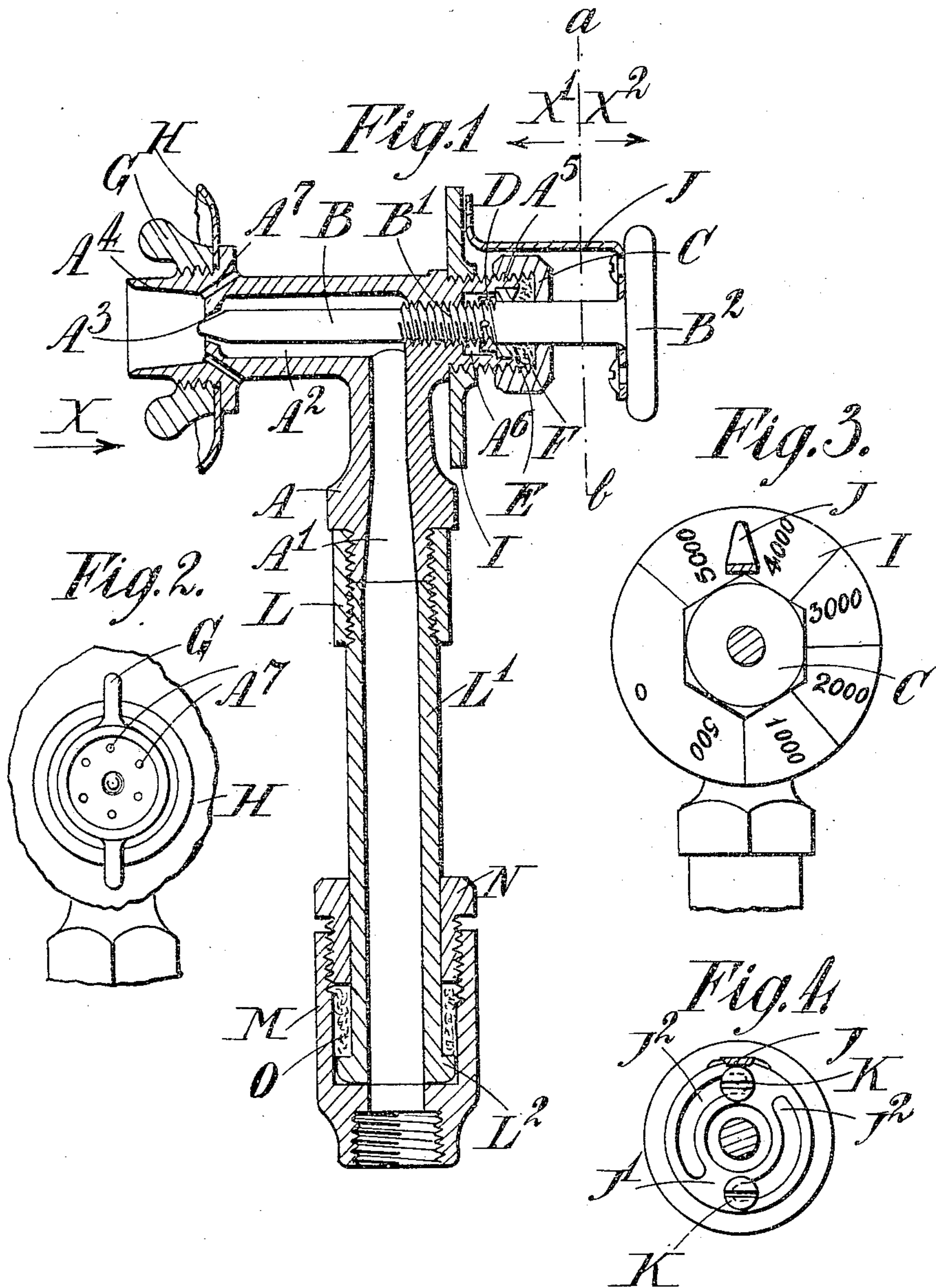


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GAS BURNER FOR FLARE LIGHTS.  
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960,127.

Patented May 31, 1910.



Witnesses:  
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his attorneys.



# UNITED STATES PATENT OFFICE.

CHARLES CHEERS WAKEFIELD, OF LONDON, ENGLAND.

GAS-BURNER FOR FLARE-LIGHTS.

960,127.

Specification of Letters Patent. Patented May 31, 1910.

Application filed March 30, 1908. Serial No. 424,252.

*To all whom it may concern:*

Be it known that I, CHARLES CHEERS WAKEFIELD, a subject of the King of England, residing at London, in England, have  
5 invented certain new and useful Improvements in or Relating to Gas-Burners for Flare-Lights, of which the following is a specification.

This invention relates to improvements in  
10 gas-burners and more particularly to those employed with flare lights burning, for example, acetylene gas.

One of the chief features of this invention is the employment of a needle valve arranged to project through the burner orifice for the purpose of producing an annular  
15 flame.

Other features of this invention will be evident from the following description taken in connection with the accompanying  
20 drawings, in which:—

Figure 1 is a section of a burner for a flare light constructed according to one embodiment of this invention. Fig. 2 is a  
25 part end view of the same looking in the direction of the arrow X in Fig. 1 and showing the burner orifice. Fig. 3 is a section on the line *a—b* in Fig. 1 looking in the direction of the arrow X<sup>1</sup>, and Fig. 4 is a  
30 section on the line *a—b* in Fig. 1 looking in the direction of the arrow X<sup>2</sup>.

Like letters indicate like parts throughout the drawings.

Referring to the drawings, the burner  
35 comprises a body A cast or otherwise constructed having a vertical passage A<sup>1</sup> through which the combustible passes from the supply pipe to a horizontal passage A<sup>2</sup>. At the end of the horizontal passage A<sup>2</sup> a conical orifice A<sup>3</sup> is provided, the body A being  
40 continued beyond this orifice to form a shield or directing mouth A<sup>4</sup> surrounding the orifice. A solid needle valve B is adapted to fit into the orifice A<sup>3</sup>, and the  
45 end of this needle valve is of such length and is so shaped that it projects right through the orifice into the mouthpiece A<sup>4</sup>. By employing a needle valve which projects through the orifice A<sup>3</sup> as just described, the  
50 combustible issues in such a way as to give a ring of flame which is found to be particularly suitable for use in a flare light. At the same time the advantage is obtained that the valve is self-cleaning, it being impossible  
55 for the orifice to become incrustated with any of the products of combustion. Further,

by employing a solid needle valve instead of a hollow one through which the combustible gases are led, the advantage is obtained that there are no holes in the needle valve which  
60 can become stopped up and prevent the proper operation of the burner. The needle valve is of slightly enlarged diameter at B<sup>1</sup>, and this portion is provided with a screw thread and screws into the body A as shown. 65 The needle valve B is provided with a stuffing box and to form this the body A is provided with an externally threaded portion A<sup>5</sup> on to which an internally threaded nut C screws. Upon the spindle of the needle  
70 valve B a collar D is pinned, this collar being within a recess A<sup>6</sup> formed in the portion A<sup>5</sup> of the body A. Loosely surrounding the spindle of the valve B is a collar E adapted to fit in a recess in the end of the  
75 portion A<sup>5</sup> of the body A. Between the collar E and the nut C suitable packing F is arranged. For turning the spindle of the needle valve B a handle B<sup>2</sup> is provided. The collar D serves to prevent the valve  
80 from being withdrawn beyond a certain point. A number of air holes A<sup>7</sup> are provided in the body A, these air holes being arranged circumferentially with respect to the orifice A<sup>3</sup>. The mouth piece A<sup>4</sup> is preferably threaded externally to receive a wing  
85 nut G between which and a suitable flange on the body A, a reflector H can be clamped.

Upon the threaded portion A<sup>5</sup> of the body A is screwed a dial plate I, this dial being  
90 graduated to show the candle power of the light obtained for any particular position of the needle valve B with respect to the orifice A<sup>3</sup>. For indicating this candle power the handle B<sup>2</sup> of the needle valve B is provided with a pointer J. The pointer J is  
95 provided with a circular base plate J<sup>1</sup> having slots J<sup>2</sup> therein. The base plate J<sup>1</sup> is attached to the handle B<sup>2</sup> by screws K passing through the slots J<sup>2</sup>. By providing the  
100 slots J<sup>2</sup> and screws K, the position of the pointer J can be varied relatively to the graduations on the scale of the dial plate I, thus permitting of adjustment to correct for the error which would otherwise be introduced as the surface of the needle valve B wears away. 105

In order to enable the burner to be turned horizontally in any desired direction without the necessity for moving the lamp stand-  
110 ard, or equivalent which, in the case of an acetylene lamp would be the generator of the



gas, the burner is connected to the gas supply pipe by a stuffing box which, while preventing the escape of gas, allows free movement of the burner in a horizontal plane.

5 A suitable construction of such a swivel joint is shown in Fig. 1, the burner body A being connected by a screw collar L to a pipe L<sup>1</sup>. The pipe L<sup>1</sup> is provided at its lower end with a flange L<sup>2</sup>, this pipe with the  
10 flange fitting into a gland M which is connected to the source of supply of combustible. Surrounding the pipe L<sup>1</sup> is a nut N adapted to screw into the gland M and compress packing O situated between the nut  
15 and the flange L<sup>2</sup> on the pipe L<sup>1</sup>.

Though the burner has been shown and described as being arranged to direct the flame horizontally, it is obvious that it might be so arranged that the flame is directed in any required direction.  
20

It is obvious that various modifications may be made in the methods of carrying this invention into effect, the construction described above being given merely by way of  
25 example.

What I claim as my invention and desire to secure by Letters Patent is:—

1. A burner of the character described provided with an external shoulder, a reflector embracing the burner and engaging the front of the shoulder, and a nut upon the burner for clamping the reflector against the shoulder, said nut being movable forwardly from the burner, substantially as described.  
30

35 2. A burner of the character described having a valve-controlled jet orifice, an external shoulder, a reflector embracing the burner and engaging the front of the shoulder, and a nut fitted upon the burner and  
40 clamping the reflector against the shoulder, said nut being removable forwardly from the burner, substantially as described.

3. A burner of the character described, having a needle valve provided with a hand wheel, a dial, an index cooperating with the dial and having a slotted disk, and screws  
45 passing through the slots into the hand wheel, the slots in the disk being arranged to permit adjustment of the index on the hand wheel about its axis as a center; substantially as described.  
50

4. A burner of the character described having a needle valve provided with a hand wheel, a dial, an index cooperating with the dial and provided with an attaching plate  
55 applied to the hand wheel and having an arcuate slot therein concentric with the center of the wheel, and a fastening passing through the slot and entering the wheel to adjustably connect the attaching plate thereto, substantially as described.  
60

5. A burner of the character described, comprising a tubular body, a transverse partition in said body, a jet orifice through said partition, the front end of the tubular body  
65 forwardly of the partition forming a mouth piece, a series of perforations extending at an acute angle through the tubular body and the partition, said perforations surrounding the jet orifice and converging forwardly  
70 into the mouth piece, the front ends of the perforations being in substantially the same plane as the front end of the jet orifice, and a needle valve extending through the body and having a pointed terminal cooperating  
75 with the jet orifice; substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

CHARLES CHEERS WAKEFIELD.

Witnesses:

H. D. JAMESON,  
F. L. RAND.