

No. 740,857.

PATENTED OCT. 6, 1903.

W. HOOKER.

APPARATUS FOR INCANDESCENT GAS OR VAPOR LIGHTING.

APPLICATION FILED JUNE 16, 1902.

NO MODEL.

Fig. 1.

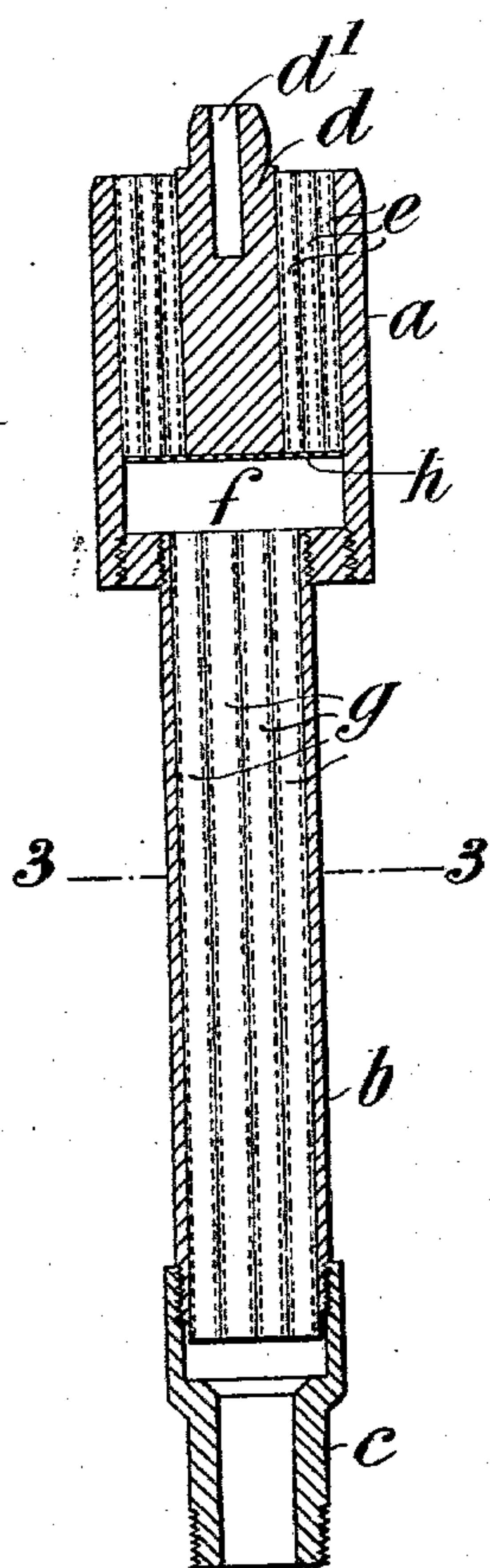


Fig. 2.

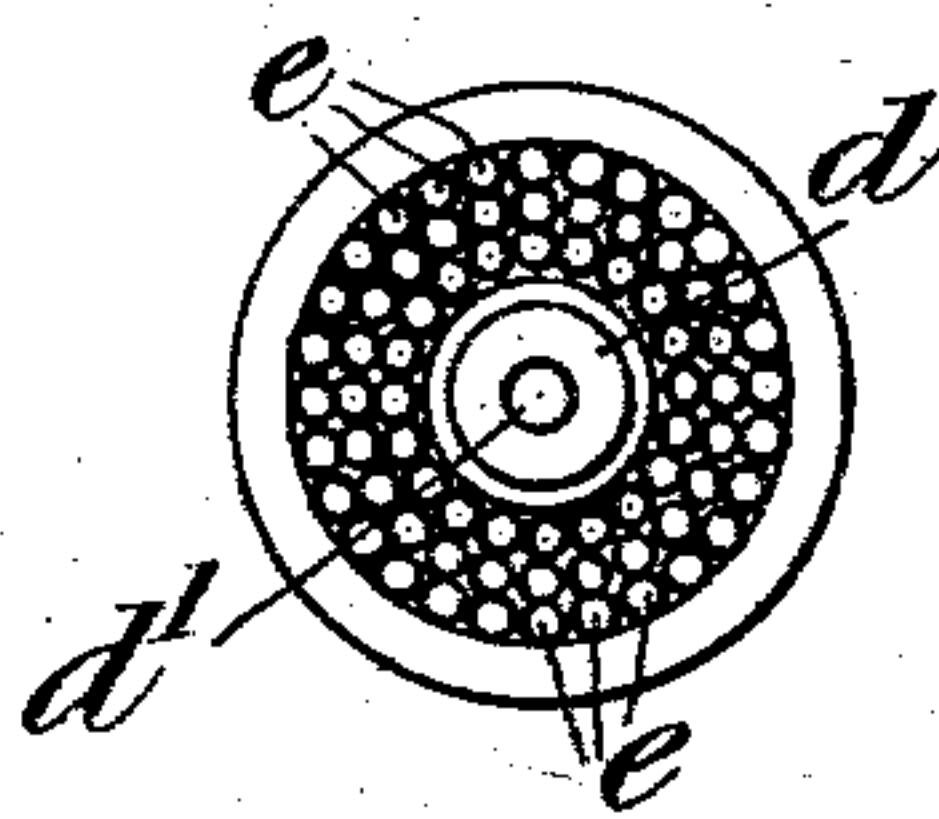


Fig. 3.

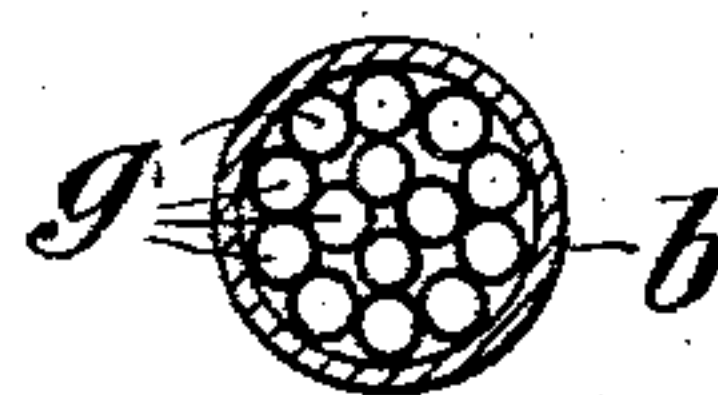
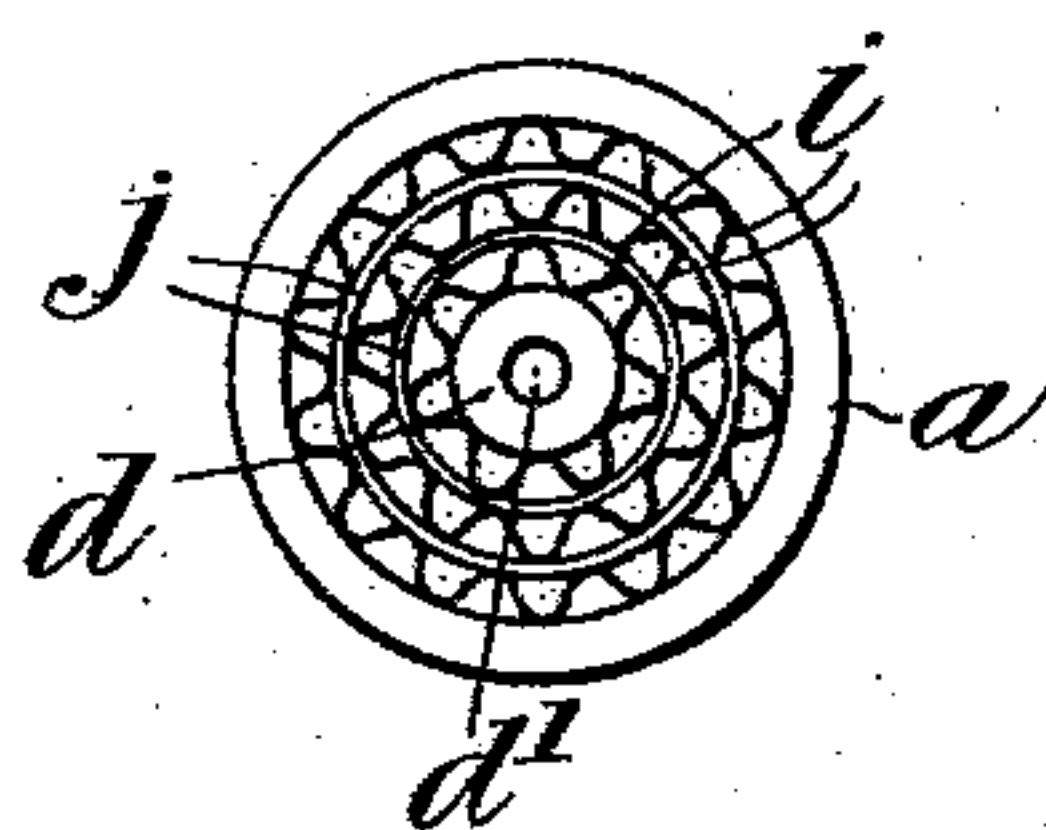


Fig. 4.



Witnesses:

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UNITED STATES PATENT OFFICE.

WILLIAM HOOKER, OF LONDON, ENGLAND, ASSIGNOR TO THE FLAMELESS GAS LIGHT COMPANY, LIMITED, OF LONDON, ENGLAND.

APPARATUS FOR INCANDESCENT GAS OR VAPOR LIGHTING.

SPECIFICATION forming part of Letters Patent No. 740,857, dated October 6, 1903.

Application filed June 16, 1902. Serial No. 111,973. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM HOOKER, gas engineer, a subject of the King of Great Britain, residing at 210 Portland road, South Norwood, London, England, have invented new and useful Improvements in Apparatus for Incandescent Gas or Vapor Lighting, of which the following is a specification.

This invention has for its object to provide a burner which can burn mixtures of air and gas or vapor, and more especially is suited to enable combustible vapor too poor in hydrocarbons to permit of its being burned with ordinary burners to be utilized for incandescent lighting.

According to the invention the improved burner is constructed of a head and a stem or tube, the said head (which is preferably cylindrical in shape) and the stem being filled with concentric rows of tubes or the equivalent, so as to divide the vapor which flows through the burner into a number of streams. In practice it has been found that the best results are attained by employing tubes having an internal diameter of from about one thirty-second to about three thirty-seconds of an inch. Furthermore, two or more concentric rows of tubes or their equivalents are essential in the head or upper part of the burner in order to produce the desired result.

To enable the invention to be fully understood, the ordinary form of the improved burner will now be described by reference to the accompanying drawings, in which—

Figure 1 is a vertical section of a burner made according to the invention. Fig. 2 is a plan view thereof. Fig. 3 is a section on the line 3 3, Fig. 1, and Fig. 4 is a view similar to Fig. 2 of a modified construction of the burner.

a is the head of the burner, which is here shown cylindrical in shape, and b is the stem or tube, to the upper part of which the lower end of the head a is secured. The lower end of the tube b is screwed into a nipple c , designed to be affixed to the usual bracket.

d is a central cylinder which is provided at its upper end with a socket d' for receiving the fork for the usual incandescent mantle, and $e e$ are the concentric rows of tubes, preferably of brass, which are inserted in

the space between the cylinder d and the cylindrical head a . As above described, these tubes to obtain good results must be of a diameter varying approximately between one thirty-second and three thirty-seconds of an inch, and the whole of the space in the burner-head must be filled with the tubes, as otherwise the gas issues in the form of a hollow cylinder and does not give rise to good results.

As will be seen, the tubes $e e$ and the central cylinder d do not extend to the bottom of the burner-head a , the space f being left between the bottoms of the said tubes and cylinders and the bottom of the burner-head a , so that the vapor issuing from the portion b of the burner can spread over the whole of the tubes $e e$.

$g g$ are the tubes which are arranged within the burner-tube b , the said tubes filling up the whole of the said tube b and being preferably of a diameter within the limits above stated.

h is a gauze disk which is arranged below the ends of tubes $e e$, but which can be dispensed with, if desired.

Although a central support d is shown for the mantle-fork, it will be understood that the mantle can be supported on a rod attached laterally to the burner-head, and in this case the whole of the said head can be filled with tubes.

In the arrangement illustrated in Fig. 4 the tubular passages are shown formed by corrugated brass strips $i i$, inserted between concentric cylinders $j j$, also of brass. As will be seen, these corrugated sheets when in position form the equivalent of a number of upright tubes.

It is not essential that the stem b should be filled with tubes if a proportionately greater length be given to the upper part a , so as to countervail for the absence of these tubes.

The invention includes specially the utilization of weakly-carbureted air for incandescent lighting by burning it with a burner such as described. By these means a very brilliant light can be obtained cheaply by the combustion of mixture incombustible with ordinary burners.

Having now particularly described and ascertained the nature of my said invention and

in what manner the same is to be performed, I declare that what I claim is—

1. A burner for use with an incandescent mantle comprising a head provided with parallel cylindrical walls, forming an annular space between them, the central portion of the head within the inner of said walls being impervious, and said annular space forming the only passage for the combustible mixture through said head, and metallic devices within said annular space dividing it into a plurality of passages of fine bore, substantially as described.

2. A burner for use with an incandescent mantle comprising a head provided with parallel cylindrical walls, forming an annular space between them, the central portion of the head within the inner of said walls being impervious, and said annular space forming the only passage for the combustible mixture through said head, and a plurality of vertical tubes of very fine bore located in and filling said annular space, substantially as described.

3. A burner for use with an incandescent mantle, comprising a head provided with parallel cylindrical walls, forming an annular space between them, the central portion of the head within the inner of said walls being impervious, and said annular space forming the only passage for the combustible mixture through said head, and a plurality of vertical tubes of very fine bore located in said space, in contact with each other and completely filling said space, and a supply-tube of smaller diameter than said head communicating with the lower end of said head, substantially as described.

4. An incandescent burner comprising a head having an external cylindrical wall, an internal cylindrical wall, a solid central portion within the said inner wall provided with means for receiving a mantle-support, a wire-gauze partition extending horizontally across said head below the solid central portion forming an annular space above said wire-gauze and a chamber below the same, a plu-

ality of metal tubes of fine bore inserted in and completely filling said annular space above the wire-gauze partition, and a supply-tube connected to the bottom of said head and discharging into said head below the said partition, substantially as described.

5. In an incandescent burner, the combination with the tube for supplying the combustible mixture, of a head connected therewith and provided with an internal passage communicating with said tube, a series of tubes of fine bore located in said passage and extending longitudinally thereof and a series of tubes of fine bore located in said supply-tube extending longitudinally thereof, substantially as described.

6. In an incandescent burner, the combination with the tube for supplying the combustible mixture, of a head secured to said tube and provided with a chamber into which said tube discharges, a perforated disk in said chamber, said head being provided with an annular passage above said disk and chamber, and communicating with said chamber, a series of vertical tubes of fine bore located in said annular passage and extending longitudinally thereof and a series of tubes of fine bore located in said tube and extending longitudinally thereof, substantially as described.

7. An incandescent burner having a head provided with parallel cylindrical walls, forming an annular space between them, said space forming the only passage for combustible material through said head, the portion of the head within the inner cylindrical wall being provided with a device to receive a mantle-support, and a plurality of tubes of fine bore located in said annular space and disposed longitudinally thereof, substantially as described.

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Witnesses:

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