

(No Model.)

J. L. WILLIAMS.
SAFETY LAMP.

No. 321,166.

Patented June 30, 1885.

Fig. 1.

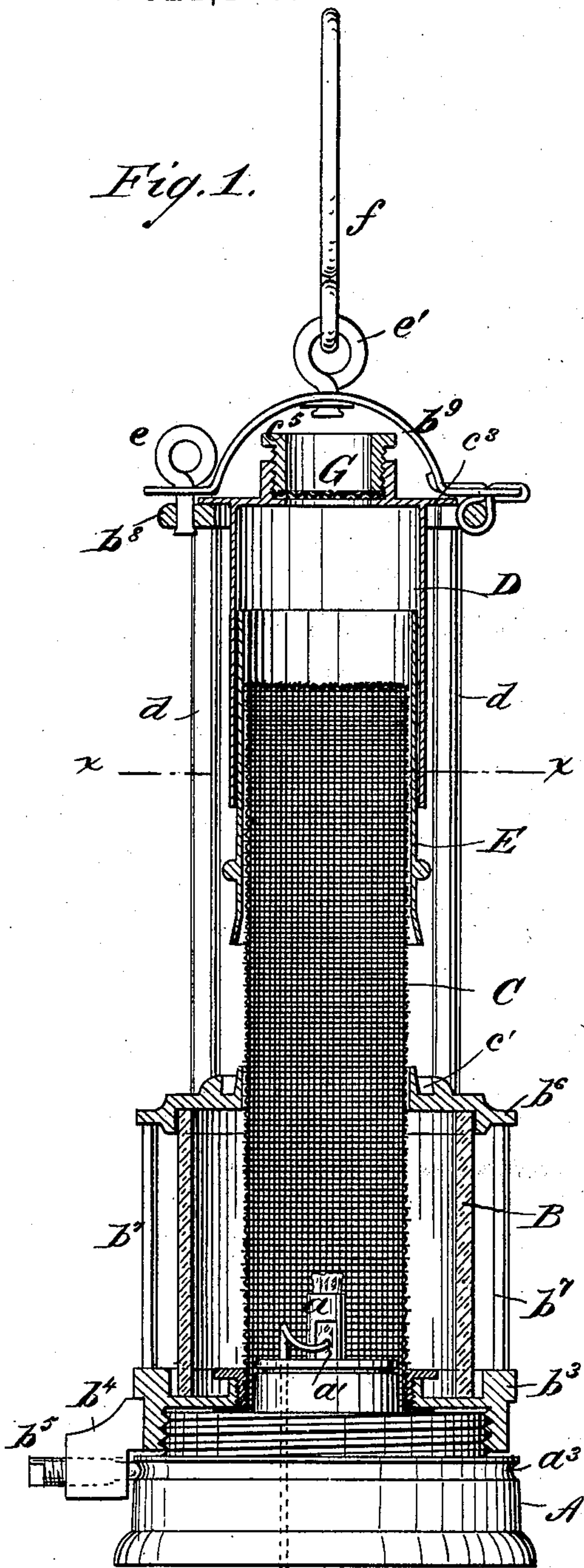


Fig. 3.

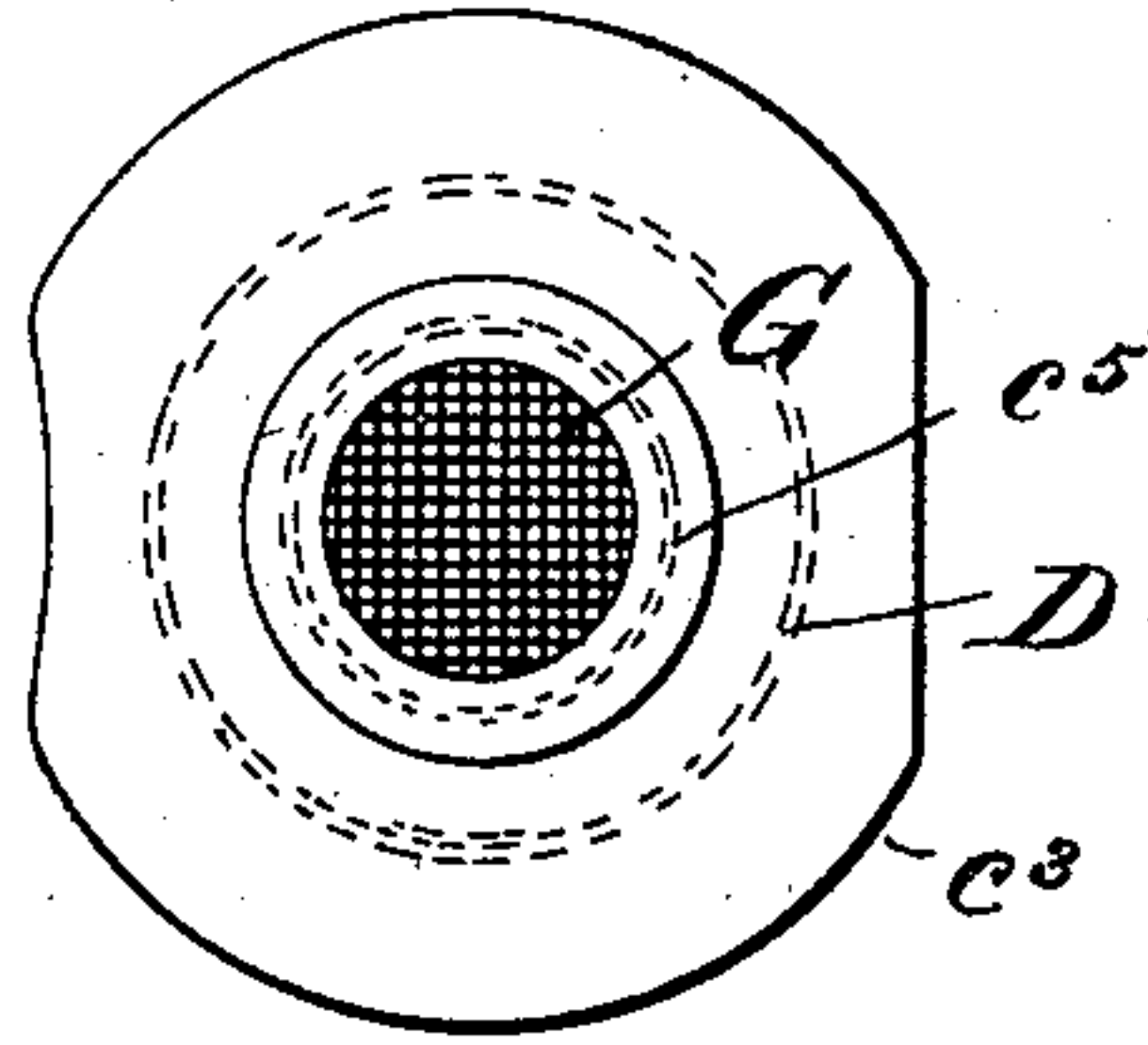
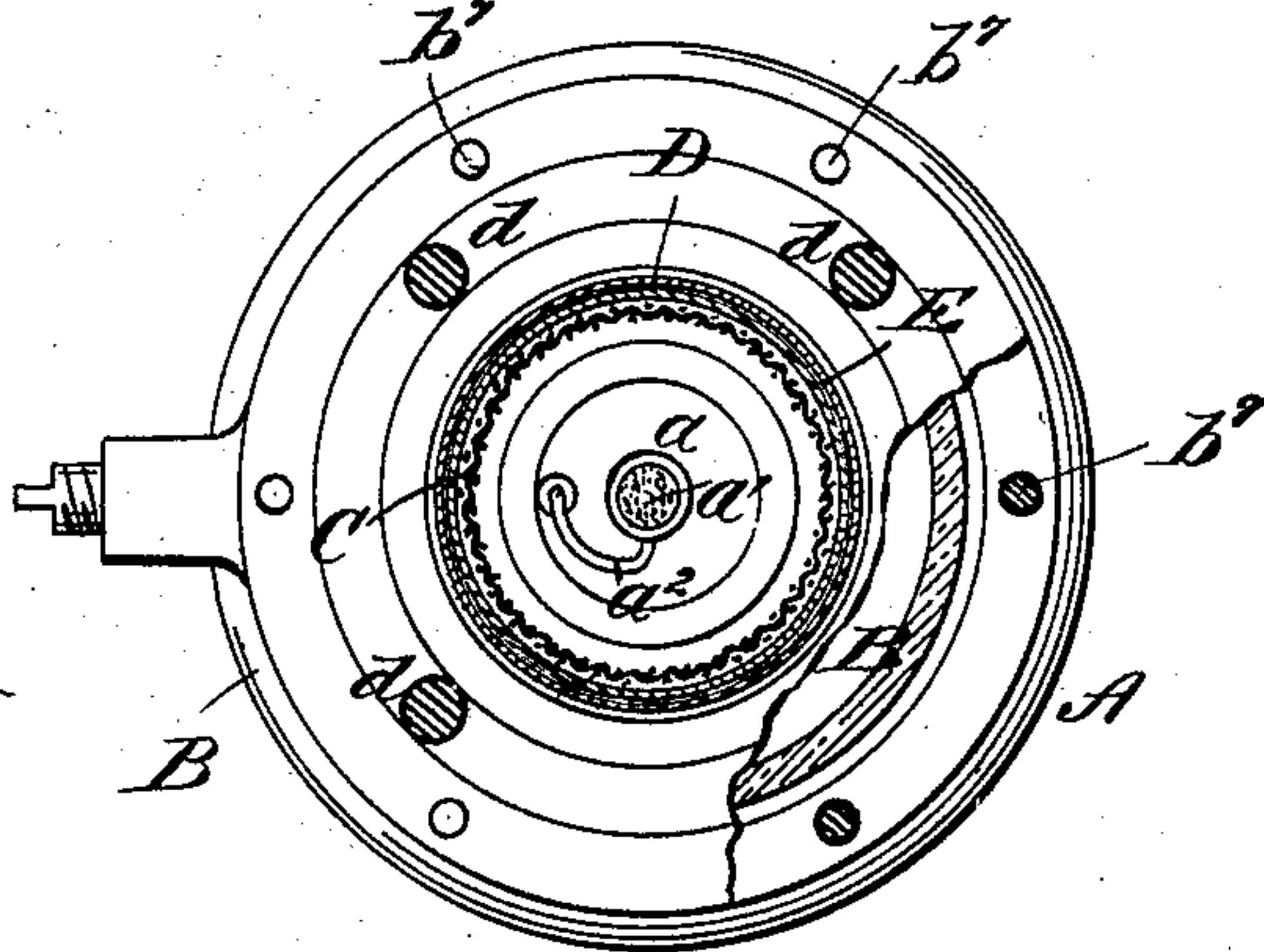


Fig. 2.



WITNESSES:

H. Twitchell.
C. Sedgwick

INVENTOR:

J. L. Williams
BY *Munn & Co*
ATTORNEYS.

UNITED STATES PATENT OFFICE.

JOHN LLOYD WILLIAMS, OF SHENANDOAH, PENNSYLVANIA.

SAFETY-LAMP.

SPECIFICATION forming part of Letters Patent No. 321,166, dated June 30, 1885.

Application filed January 24, 1885. (No model.)

To all whom it may concern:

Be it known that I, JOHN LLOYD WILLIAMS, of Shenandoah, in the county of Schuylkill and State of Pennsylvania, have invented certain new and useful Improvements in Safety-Lamps, of which the following is a full, clear, and exact description.

This invention relates to safety-lamps of the Davy description, for use in mines and other places in which there is explosive gas; and it consists in certain novel attachments and combinations of parts, all as hereinafter fully described, and pointed out in the claims, arranged outside of the wire-gauze cylinder of the lamp, which extinguisher may be used in addition to an adjustable sleeve on the wick-tube to afford double safety against a rush of gas at any time into the lamp; also, including an extension of the gauze cylinder the full length of the lamp below the burner thereof, and inside of an inclosing glass or transparent cylinder or case, whereby additional safety is secured and a better light obtained; likewise, including an additional wire-gauze protector at the top of the lamp, at a distance from and above the top of the gauze cylinder, for the purpose of giving additional security, all substantially as herein described.

Reference is to be had to the accompanying drawings, forming part of this specification, in which similar letters of reference indicate corresponding parts in all the figures.

Figure 1 represents a mainly sectional elevation of a safety-lamp embodying my invention; Fig. 2, a partly broken horizontal section of the same on the line *xx* in Fig. 1; and Fig. 3, a plan or top view of the cap-piece or upper sleeve of the lamp with supplementary wire gauze therein and means for securing and removing the same.

The invention is applicable not only to the ordinary Davy lamp, but to other lamps of similar character known as improvements thereon, it being as sensitive to gas as a perfect Davy lamp, and gives as good a light as others which are an improvement thereon. In some cases only certain of the novel features may be separately used, and in others all or any number of them may be combined.

In applying the invention to an ordinary Davy lamp, the extinguishing-sleeve on the

outside of the gauze cylinder may be arranged to slide up and down over an upper fixed sleeve instead of within it. I however will proceed to describe the lamp in one of its most improved forms, combining the several features of the invention.

A is the base of the lamp, which also constitutes the oil-reservoir, and up above which the slotted wick-tube *a*, holding the wick *a'*, projects, as also a wick-lifter, *a''*, capable of operation from beneath the base. The base A screws at its upper end into a cupped lower ring, *b''*, of the main frame, and may be locked therein by an adjusting-screw, *b'''*, arranged to pass through and engage with a lug, *b''''*, on one side of said ring, and to bear against or within a groove, *a'''*, in and around the base A. This ring *b''* is connected by a cage of rods, *b'''*, with a second upper cupped ring or plate, *b''''*, between which and the ring *b''* a glass or transparent cylinder or case, B, is inclosed.

C is the wire-gauze cylinder of the lamp arranged to extend through the ring *b''''* down to the bottom of the lamp below the burner and within the glass cylinder B. Said gauze cylinder, which is closed at its upper end by an extension of the wire-gauze as usual, projects above the ring *b''''* to the usual or any suitable height. The upper portion of the lamp consists, in part, of a ring, *b''''''*, connected with the ring *b''''* by the usual cage of rods *d*, and having mounted on it a hinged hood, *b''''''''*, secured, when closed, by a turn-catch, *e*, and having attached to it a swiveled eye, *e'*, to which the handle *f* of the lamp is secured.

Fitting down through the upper ring, *b''''*, of the frame of the lamp is an upper sleeve, D, provided with a centrally-perforated top or cap piece, *c''*, which sits down on the top of the ring *b''''*. This sleeve, which is thus made removable through the top of the lamp, is of somewhat greater diameter than the gauze cylinder C, and may extend to any desired distance below its top, and serves to receive up through and within it and between it and the gauze cylinder C a telescopic extinguisher or lower sleeve, E. These sleeves D and E may be of any desired length, but should be so proportioned or arranged that, on drawing the lower sleeve, E, fully down, the combined sleeves will wholly inclose the sides of the

gauze cylinder C above the ring b^6 or space between the rings b^6 and b^8 , and so exclude air or gas from entering. When the sleeve E is fully down to extinguish the lamp, its lower end is made to enter a groove, c' , in the top of the ring b^6 , and thus makes a closer joint.

Arranged above the top of the gauze cylinder C, at some distance from it, within a socket on top of the cap-piece c^3 , is a wire-gauze diaphragm, G, sufficiently large to cover the central aperture in said cap-piece, and held down to its place by a screw-gland, c^5 , made to engage with the socket. This wire-gauze diaphragm G, which, being fitted as described, can be readily changed by unscrewing the gland c^5 , gives additional safety to the lamp, as, in case of the top of the gauze-cylinder C getting burned or injured at any time, and its condition not being noticed, the gauze G would prevent the gas from passing through, thus avoiding an explosion.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination, with the base of the lamp, its wick-tube, and a glass-cylinder at the lower part of the lamp, of a wire-gauze cylinder extending down within the said cylinder, a stationary sleeve projecting downward from the upper part of the lamp, and a sliding

sleeve on the said wire-gauze cylinder, substantially as herein shown and described.

2. The combination, with the base of a lamp, the ring b^6 , supported above the same, the glass cylinder between said base and ring, and the wire-gauze cylinder C, projecting down through the ring of the ring b^8 , supported above the ring b^6 , the sleeve D, depending from the ring b^8 , and the sliding sleeve E, substantially as herein shown and described.

3. The combination, with the base of the lamp, the stationary sleeve D, and the sliding sleeve E, of the ring b^6 , supported above the base and provided with the annular groove c' , to receive the lower end of the sliding sleeve, and the wire-gauze cylinder C, projecting through the said ring, substantially as herein shown and described.

4. The upper sleeve, D, with its perforated cap-piece c^3 , in combination with the wire-gauze G, arranged to cover the perforation in said cap-piece, a screw-socket adapted to receive said gauze, and the screw-gland c^5 for holding said gauze in place and to provide for its removal from the lamp, substantially as specified.

JOHN LLOYD WILLIAMS.

Witnesses:

WILLIAM BENT,
L. J. ELLIS.