

(No Model.)

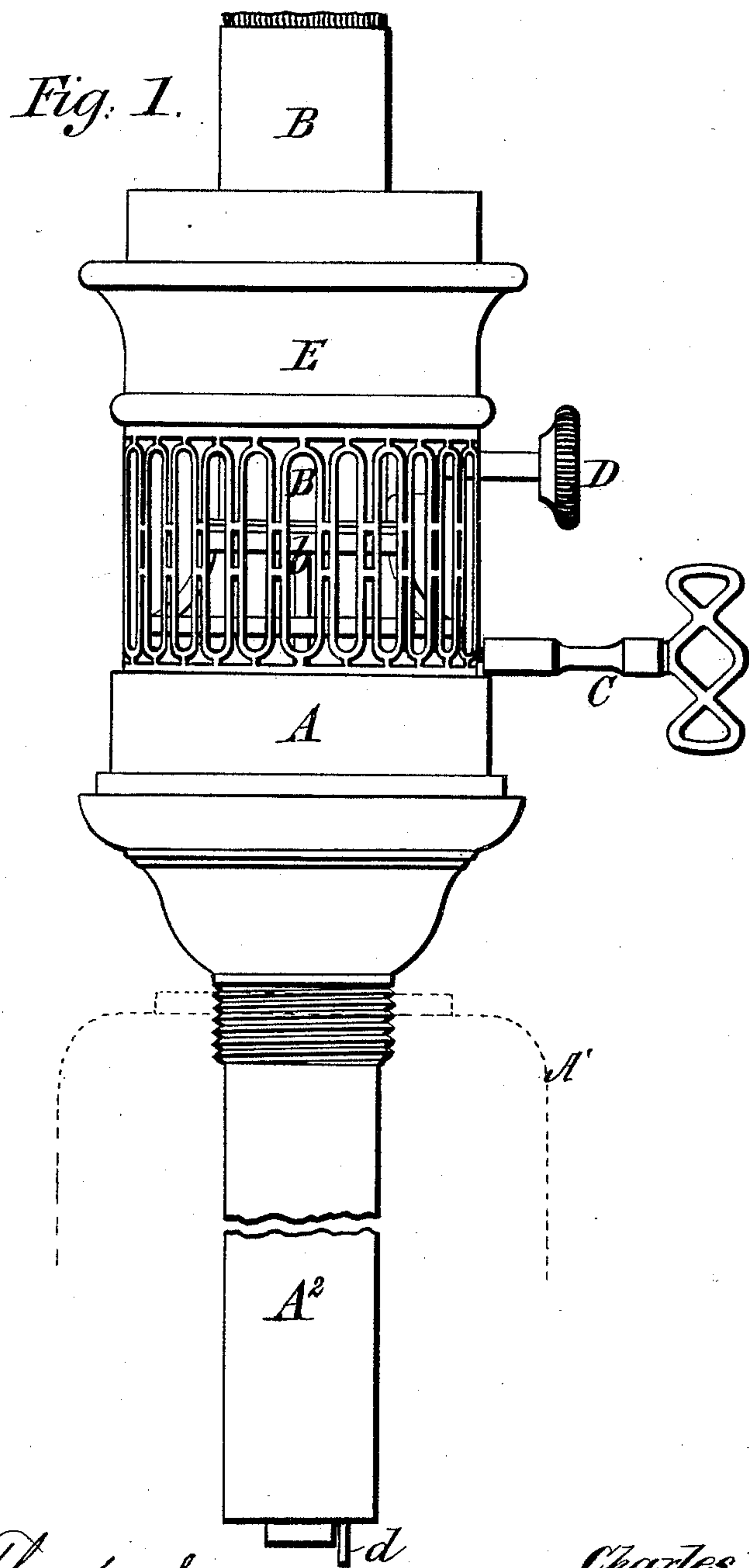
C. D. ARIA.

4 Sheets—Sheet 1.

MODERATOR OR CARCEL LAMP.

No. 409,899.

Patented Aug. 27, 1889.



Witnesses.

J. A. Rutherford.
Wm. E. Smith.

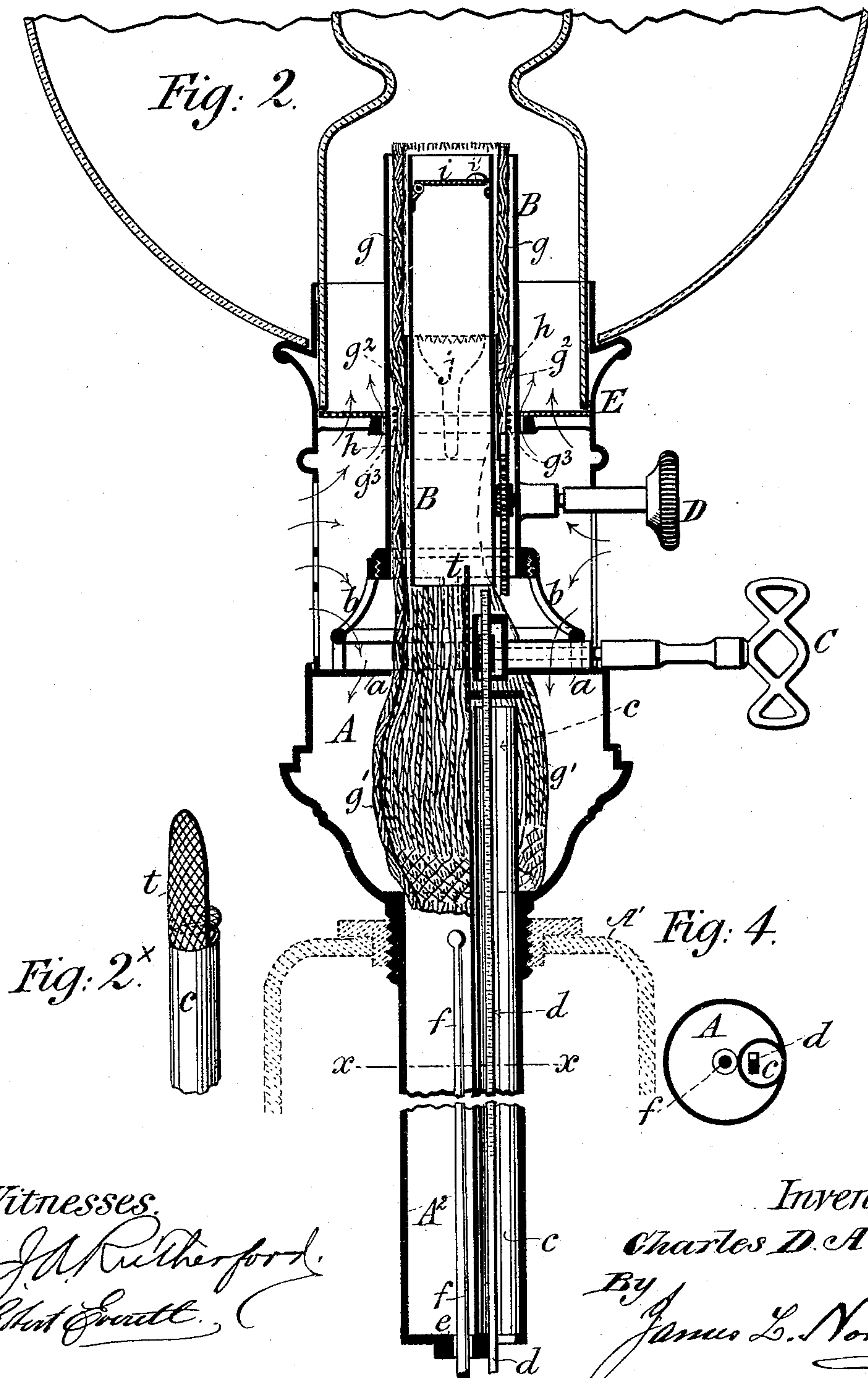
Inventor.

Charles D. Aria.
By
James L. Norris
Atty

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MODERATOR OR CARCEL LAMP.

No. 409,899.

Patented Aug. 27, 1889.



Witnesses.
J. A. Rutherford.
Albert Smith.

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(No Model.)

4 Sheets—Sheet 3.

C. D. ARIA.

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Fig. 6.

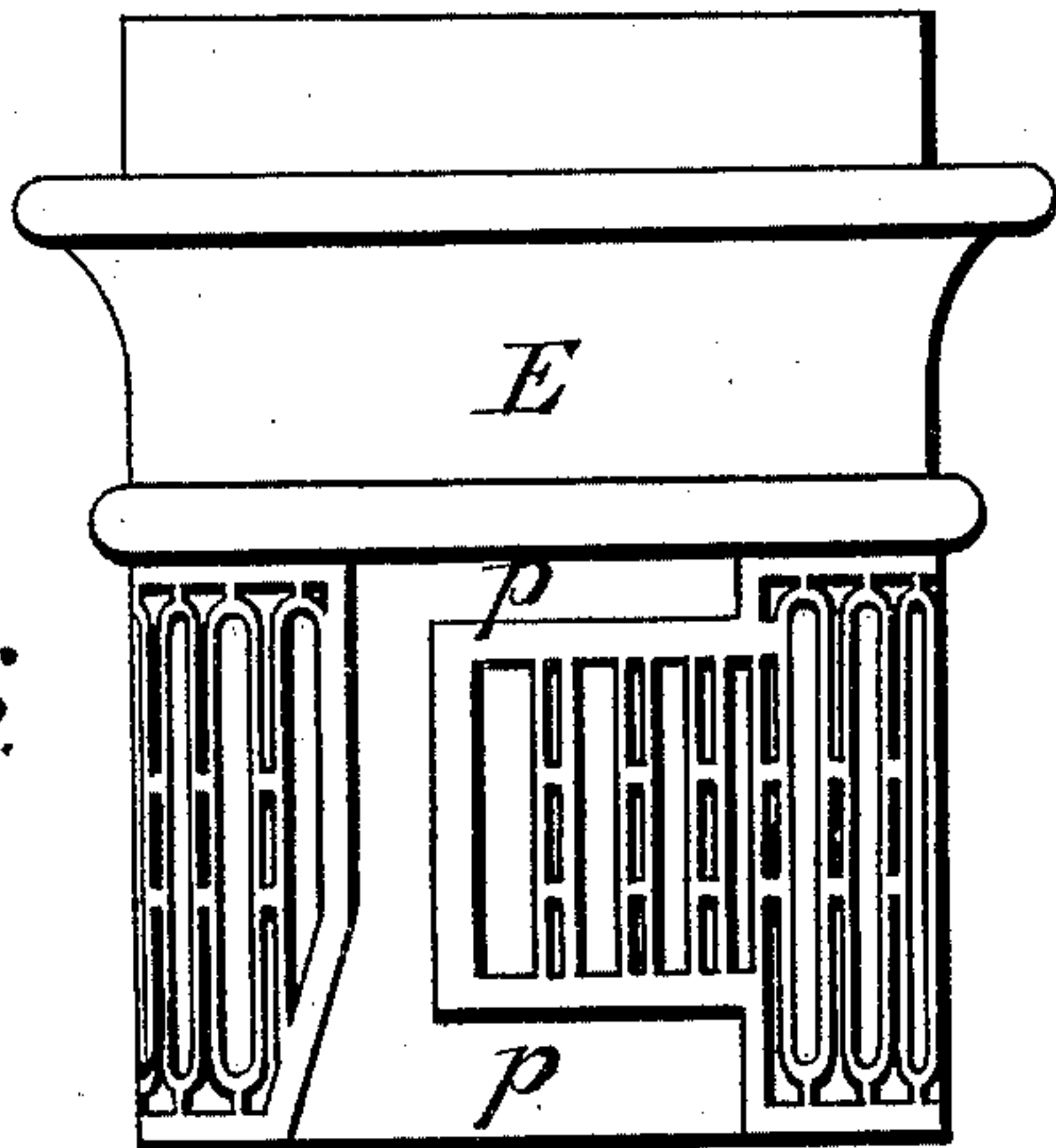
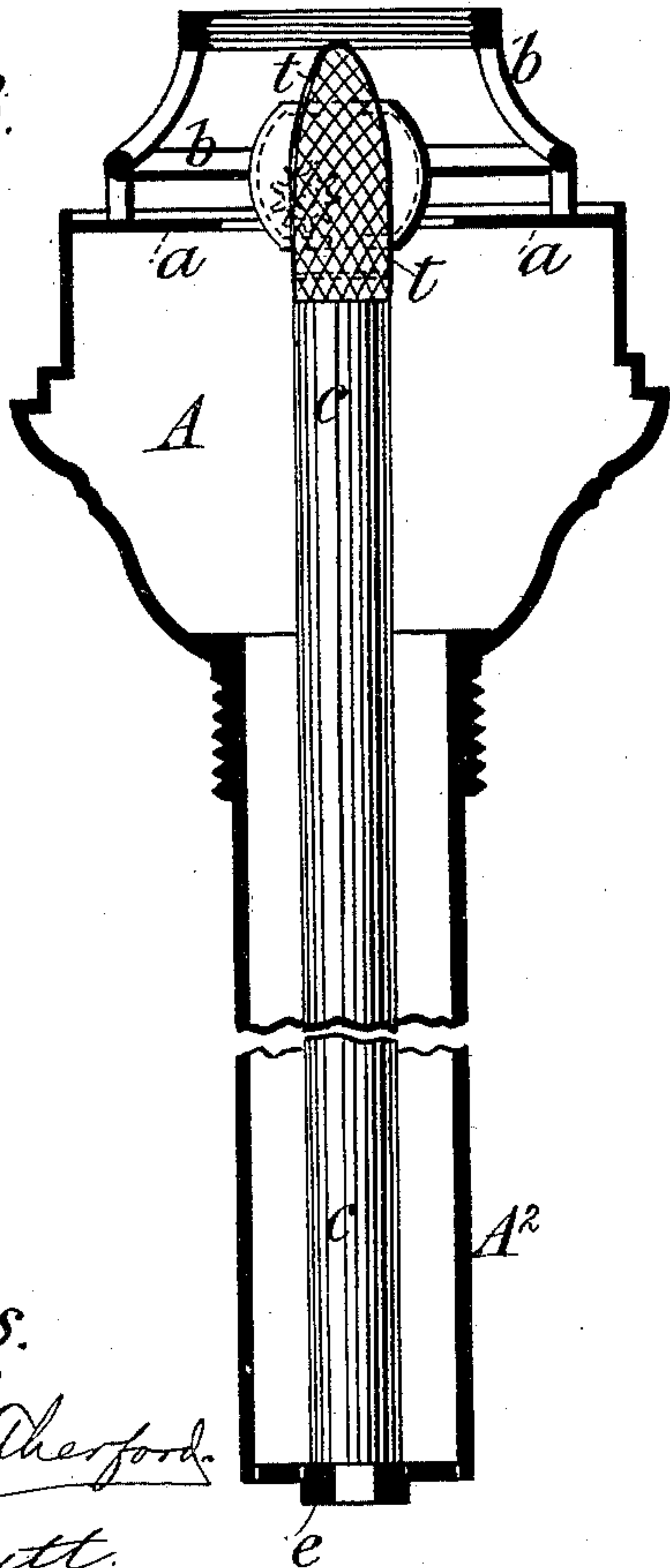


Fig. 3.



Witnesses.

J. A. Rutherford.
Robert Emmett.

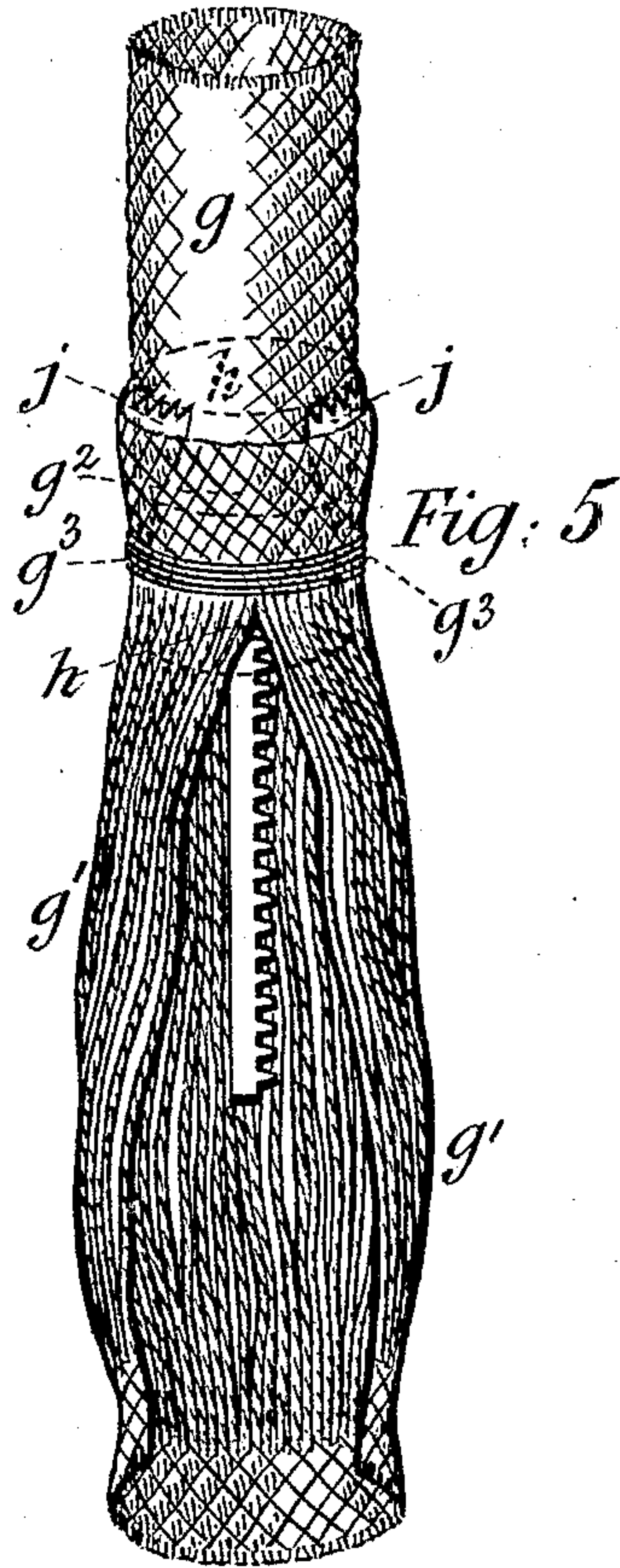
Inventor:

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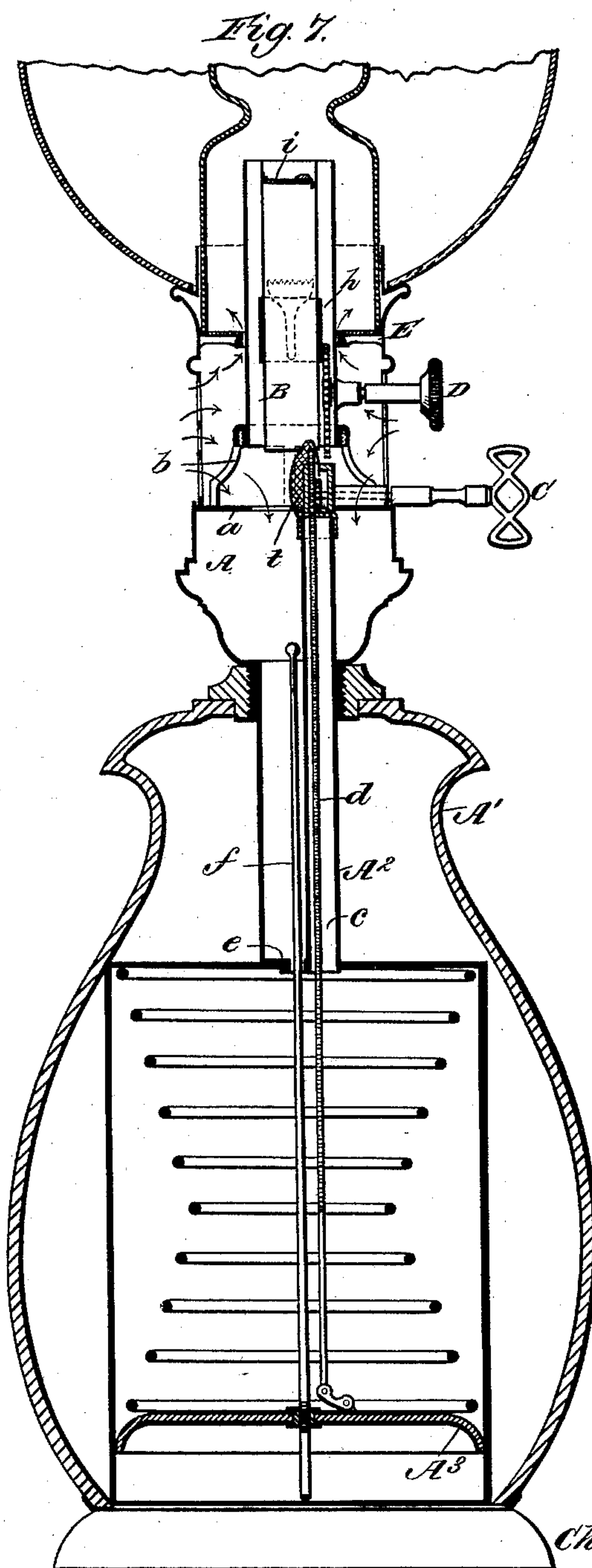
(No Model.)

4 Sheets—Sheet 4.

C. D. ARIA.
MODERATOR OR CARCEL LAMP.

No. 409,899.

Patented Aug. 27, 1889.



Witnesses.

Inventor.

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Geo. H. Rea.

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UNITED STATES PATENT OFFICE.

CHARLES DIXON ARIA, OF LONDON, COUNTY OF MIDDLESEX, ENGLAND.

MODERATOR OR CARCEL LAMP.

SPECIFICATION forming part of Letters Patent No. 409,899, dated August 27, 1889.

Application filed February 23, 1888. Serial No. 265,067. (No model.) Patented in England November 22, 1887, No. 16,073; in France December 3, 1887, No. 187,371; in Germany December 3, 1887, No. 44,117; in Canada February 22, 1888, No. 28,738; in Belgium March 24, 1888, No. 80,758; in Austria-Hungary July 10, 1888, No. 8,538 and No. 24,804; in India November 8, 1888, No. 108; in New South Wales November 29, 1888, No. 1,096; in South Australia November 29, 1888, No. 1,178, and in Italy January 31, 1889, 24,627/246.

To all whom it may concern:

Be it known that I, CHARLES DIXON ARIA, a subject of the Queen of Great Britain and Ireland, residing at London, in the county of Middlesex, England, have invented new and useful Improvements in or Applicable to Moderator or Carcel Lamps to Render them Capable of Burning Oils, (for which I have obtained Letters Patent in Great Britain, No. 16,073, November 22, 1887; France, No. 187,371, December 3, 1887; Germany, No. 44,117, December 3, 1887; Canada, No. 28,738, February 22, 1888; Belgium, No. 80,758, March 24, 1888; Austria-Hungary, No. 8,538 and No. 24,804, July 10, 1888; India, No. 108, November 8, 1888; New South Wales, No. 1,096, November 29, 1888; South Australia, No. 1,178, November 29, 1888, and Italy, No. 24,627 and No. 246, January 31, 1889,) of which the following is a specification.

This invention has for its object to improve what are known as "moderator" or "carcel" lamps, and provide novel means whereby they can be employed to burn mineral oils without danger of vaporization of the oil at the upper level of the wick-case and thereby avoid explosions.

The object of my invention I accomplish by the features of construction and combination of devices, hereinafter described and claimed, reference being made to the accompanying drawings, in which—

Figure 1 is an elevation of my improved burner removed from the lamp. Fig. 2 is a vertical section of the same. Fig. 2^x is a detail perspective of the overflow-pipe with its guard of wire-gauze. Fig. 3 is a vertical section of the secondary reservoir detached from the wick-case; and Fig. 4, a horizontal section taken on the line $x\ x$ of Fig. 2, showing the arrangement of the overflow-pipe in the said secondary reservoir. Fig. 5 is an elevation of the combined wicks and the rack-tube which carries them. Fig. 6 is an elevation of the gallery, showing the means I adopt for securing it in position; and Fig. 7 is a vertical sectional view omitting the wicks and show-

ing one form of mechanism for raising the oil from the main reservoir into the secondary reservoir.

A is the secondary reservoir, which is located at a suitable distance between the wick-case and the main reservoir, a portion of the latter being indicated by dotted lines A', Figs. 1 and 2. The secondary reservoir consists of a cup or vessel terminating in a tubular extension A², which is provided at its upper extremity with a screw-thread to secure it in a screw-socket of the main reservoir A', that contains the spring-pressed oil-raising piston A³, as shown in Fig. 7. The upper part of the cup or vessel is provided with a ledge or rim a , to which is soldered an open or skeleton circular frame or support b , screw-threaded internally at its uppermost part to receive the wick-case B, and to maintain the latter at a safe distance from the oil at its highest level. This frame or support forms at the same time a means for allowing a free circulation of air for the purpose of keeping the oil cool in the secondary reservoir and the wick-case.

Within the secondary reservoir, and extending upward to near the under surface of the ledge or rim a , I arrange an overflow-pipe c , through which excess oil pumped up from the main reservoir into the said secondary reservoir flows back to the main reservoir. Through this overflow-pipe, in which the air is free to circulate to aid in keeping the secondary reservoir cool, passes the vertical rack d , which at its lower end connects with the piston A³, and is free to pass into the inner tube of the wick-case.

As an additional safety, the overflow-pipe is furnished at top with a guard or shield t , of wire-gauze, in order to prevent the entry of flame into the secondary reservoir should any vapor be formed or become ignited. By preference I use wire-gauze of twenty-eight meshes to the inch. This arrangement is clearly shown in the detached view, Fig. 2^x.

The rack d may be of that known construction that when the lamp is wound up to its full extent the rack can be wound back into

a tube attached to the ordinary disk or piston A^3 , so as to be perfectly clear of the wick-case.

The bottom of the secondary reservoir A is fitted with a plug e , in which is drilled a hole to allow passage to the usual moderator-rod f , by means of which oil is supplied to this secondary reservoir whenever the key C is turned, so as to cause the rack d to raise the disk or piston and the oil to flow upward along the rod f .

D is the key for raising or lowering the wick in its case B.

The internal tube of the wick-case is provided near its upper end with a foraminous or wire-gauze disk i to prevent particles of charred or glowing wick from falling into the oil in the secondary oil-reservoir, and also to provide against the descent of the flame into the wick-tube should any vapor become by chance ignited. This hinged disk is suitably weighted in order to be self-closing if it should be raised by the rack d when the latter is raised in raising the usual disk or piston.

The wick, or, more correctly speaking, combination of wicks, which I employ for the purpose of my invention, is clearly seen in its combined form in the detached view, Fig. 5. It is composed of two distinct portions or wicks $g g'$. The portion g is tubular and constitutes the burning-wick, and is (like the usual wicks) fitted onto the rack-tube h , which is free to travel between the inner and outer tubes forming the wick-case. It is held by the spring-clips j . The feeding-wick g' , I construct as a flat wick for the greater portion of its length, its uppermost portion only terminating in a short tubular length g^2 and surrounding the lower portion of the burning-wick g , to which it is secured by a winding of cotton thread g^3 or by other convenient means. It will thus be seen that the burning-wick g not only does not dip into the oil, but, together with its case, is kept at a proper distance from the oil in the secondary reservoir, and that it receives its supply from the feeding-wick simply by suction or capillary attraction. Therefore vaporization at the level of the wick-case and consequent explosion are obviated, as, by reason of my invention, the oil is not brought to the level of the burning-wick.

E is the gallery, which, when fitted in place, rests on the ledge or rim a , and is secured in position by means of the double bayonet-slot p , which engages with the keys C and D.

Although I have described and shown my invention as applied to a moderator lamp, it may be applied in like manner to a carcel lamp.

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

1. The combination, with the main reservoir A' of a moderator or carcel lamp, of the secondary reservoir A, comprising a cup connected to said main reservoir, having a tubu-

lar extension A^2 , depending therein and provided at its top with a ledge or rim a , a skeleton frame b , rising from the latter, the wick-case B, detachably secured to the upper end of the frame, the wick g in the wick-case, the auxiliary feed-wick g' , descending through the skeleton frame and the ledge or rim into the secondary reservoir, the moderator-rod f , rising in the tubular extension, and the oil-overflow tube c , rising through the tubular extension and cup comprising the secondary reservoir and terminating below and adjacent to the aforesaid ledge or rim for conveying an excess of oil back to the main reservoir, substantially as described.

2. The combination, with the main reservoir A' of a moderator or carcel lamp, of the secondary reservoir A, comprising a cup screwed into the former, having at its top the ledge or rim a , and at its bottom the tubular extension A^2 , depending in the main reservoir, a skeleton frame b , rising from the ledge or rim and internally screw-threaded at its upper end, the wick-case B, screwed into the latter, the wick g in the wick-case, the feed-wick g' , descending through the skeleton frame and the ledge or rim into the secondary reservoir, the moderator-rod f , rising in the tubular extension, and the oil-overflow tube c , rising in the latter and terminating at its top end below and adjacent to the aforesaid ledge or rim, substantially as described.

3. The combination, with the main oil-reservoir A' of a moderator or carcel lamp, of a secondary oil-reservoir A, secured to and above the former and comprising a tubular extension A^2 , depending therein, a moderator-rod f , and oil-overflow tube rising in the latter and terminating below the top thereof for conveying excess of oil back to the main reservoir, a wick-case B, supported above the secondary reservoir, and wick leading from the wick-case into the secondary reservoir, substantially as described.

4. The combination, with the main reservoir of a moderator or carcel lamp, of a secondary reservoir A, comprising a cup secured to and above the main reservoir, and a tubular extension A^2 , depending in the latter, an overflow-tube c , rising in the tubular extension, open to air circulation, and terminating at its upper end below the top of the cup portion of the secondary reservoir, and a wick-case B, supported above the secondary reservoir, substantially as described.

5. The combination, in a moderator or carcel lamp, of the main reservoir, a secondary reservoir mounted thereon and communicating therewith, and comprising a cup provided at its top with an inwardly-projecting rim a , a chimney-supporting gallery E, supported by the cup, a skeleton frame b , arranged within the gallery and resting upon and supported by the said inwardly-projecting rim, a wick-case detachably secured to the upper end of the skeleton frame, and a wick pass-

ing from the secondary reservoir upwardly through the inwardly-projecting rim and skeleton frame, substantially as described.

5 6. The combination, in a moderator or carcel lamp, of the main reservoir, a secondary reservoir supported by the latter and comprising a cup having at its top an inwardly-projecting rim *a*, an overflow-tube *c*; rising within the secondary reservoir and terminating at a point beneath the said projecting rim, a skeleton frame *b*, resting on and supported by the rim, a chimney-supporting gallery *E*, inclosing the skeleton frame, a wick-

case carried by the upper end of the skeleton frame, and a wick passing from the secondary reservoir through the rim and skeleton frame, substantially as described. 15

In testimony whereof I have signed my name, in the presence of two subscribing witnesses, this 2d day of January, 1888.

CHARLES DIXON ARIA.

Witnesses:

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G. W. WESTTEY,
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