

No. 698,975.

Patented Apr. 29, 1902.

T. H. LEWIS.
ACETYLENE GAS GENERATOR.

(Application filed June 4, 1900.)

(No Model.)

3 Sheets—Sheet 1.

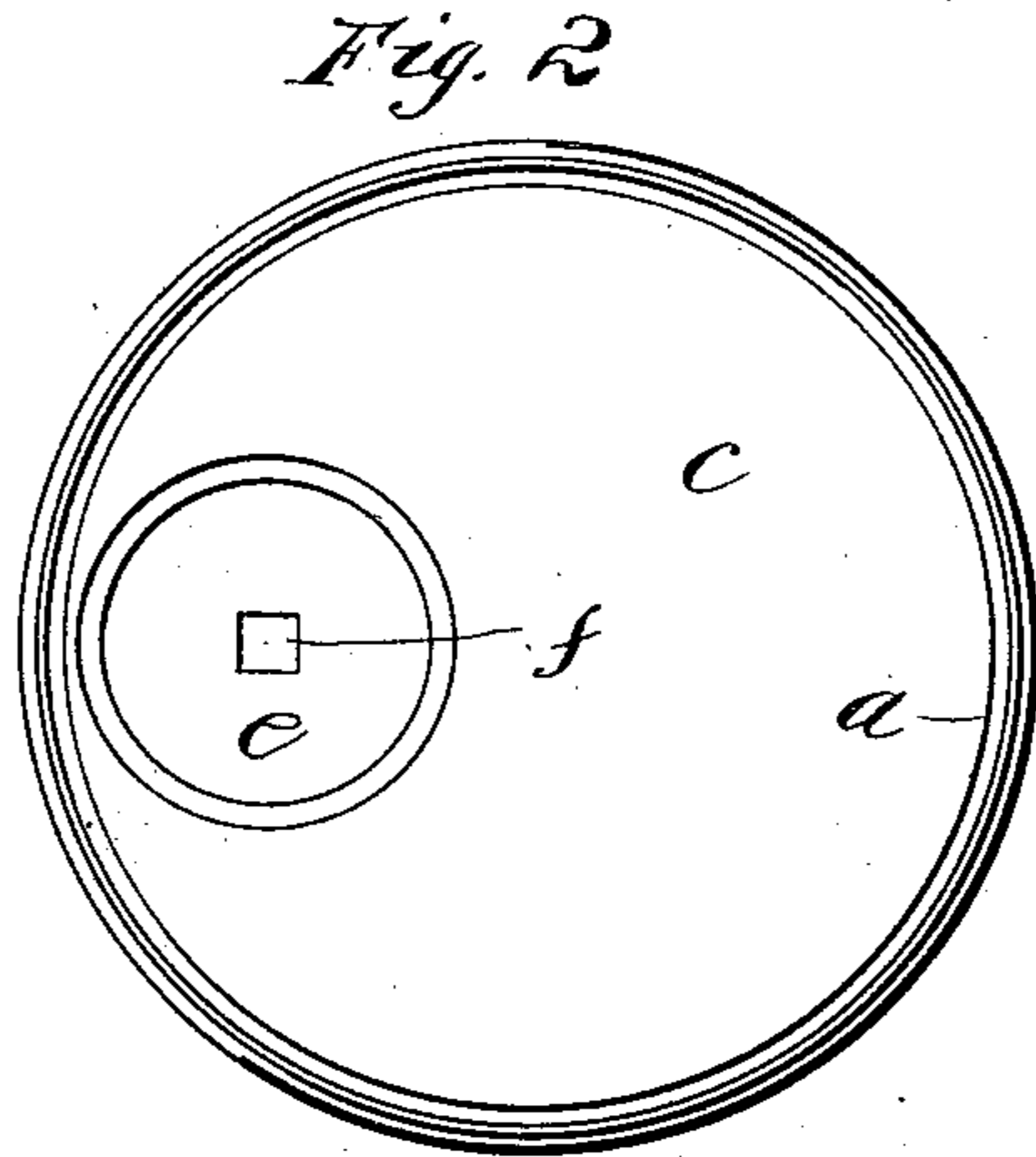
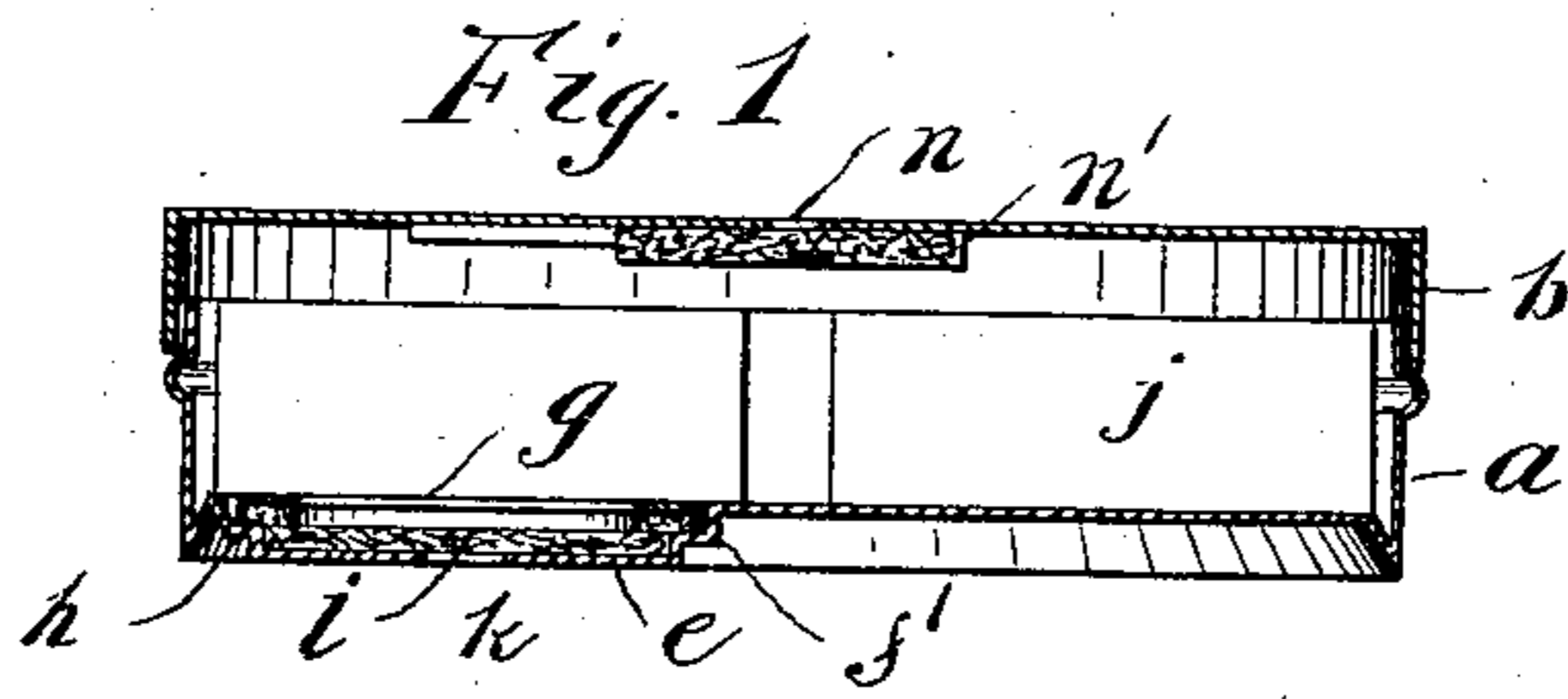
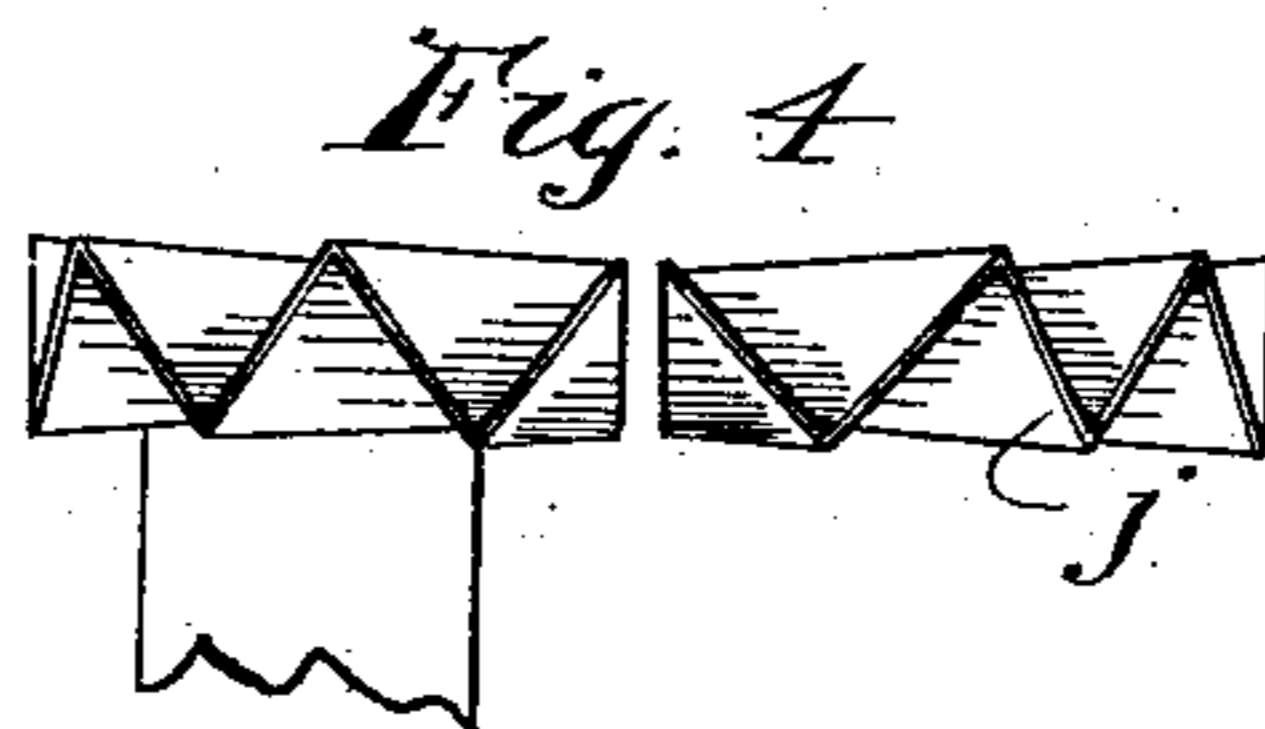
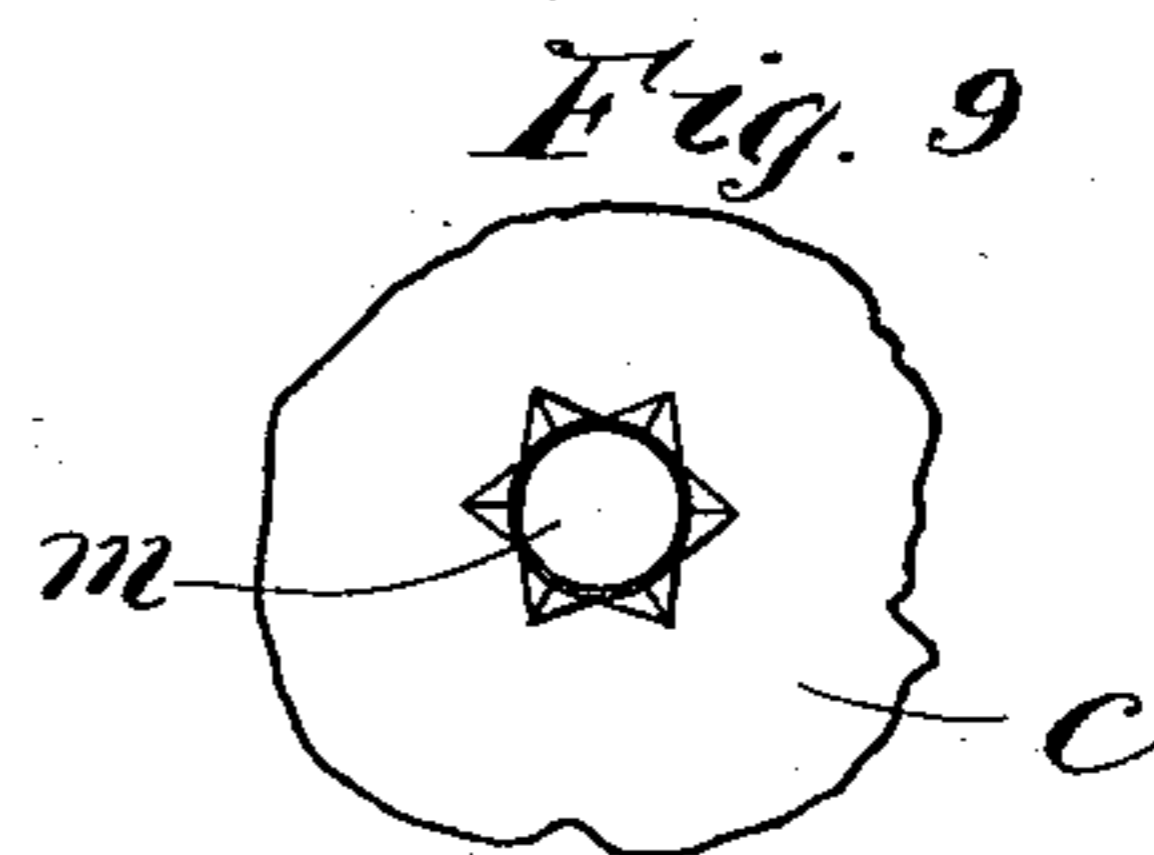
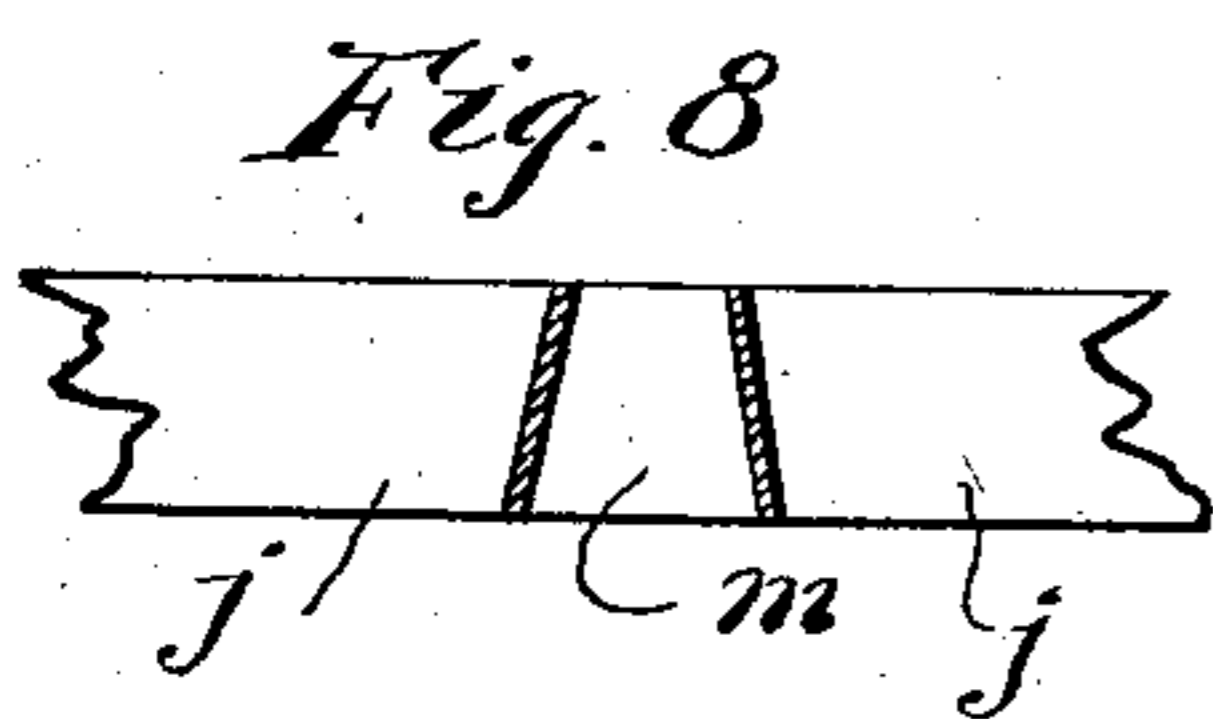
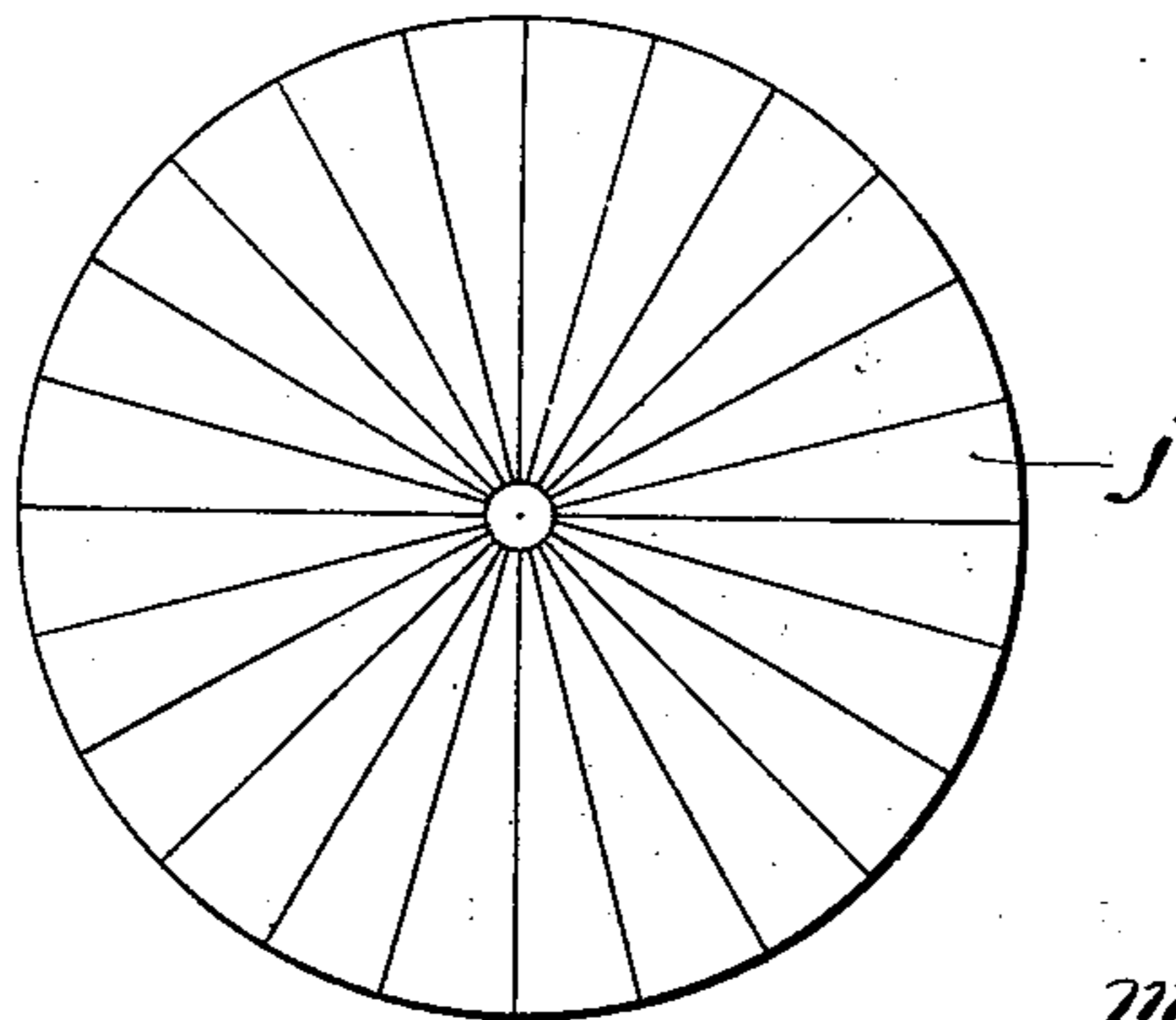


Fig. 3.



Witnesses:

J. D. McMahon.
G. S. Noble

Inventor,
Thomas Henry Lewis
by T. Singer
Att'y.

No. 698,975.

Patented Apr. 29, 1902.

T. H. LEWIS.
ACETYLENE GAS GENERATOR.

(Application filed June 4, 1900.)

(No Model.)

3 Sheets—Sheet 2.

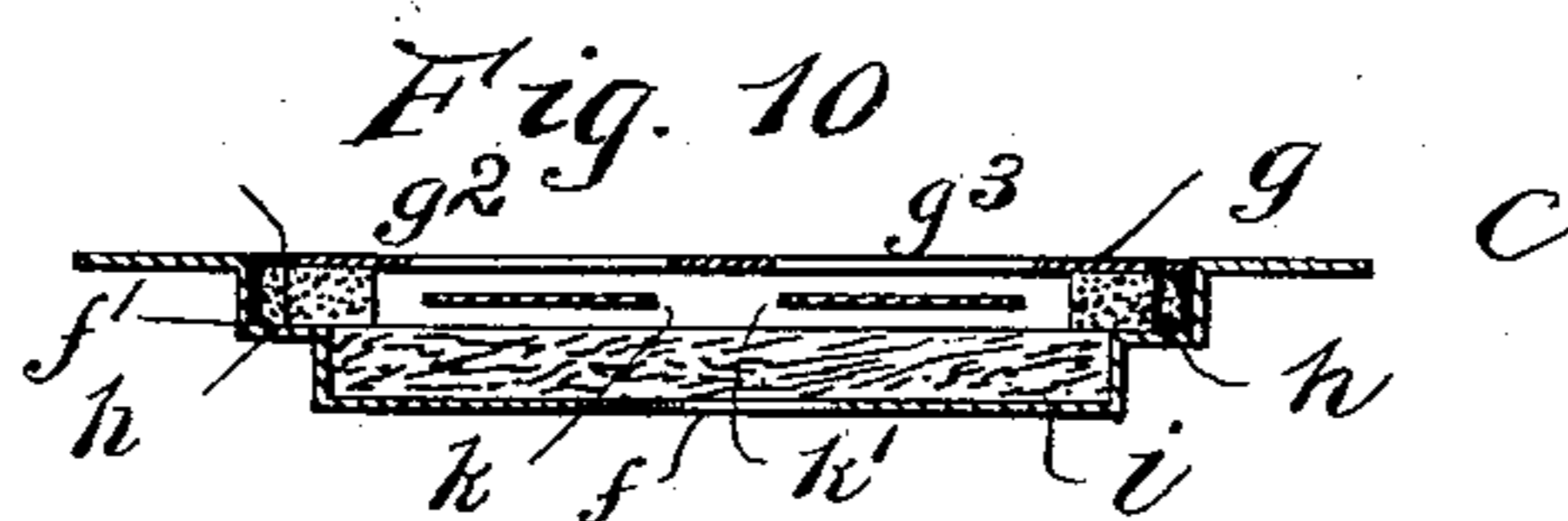
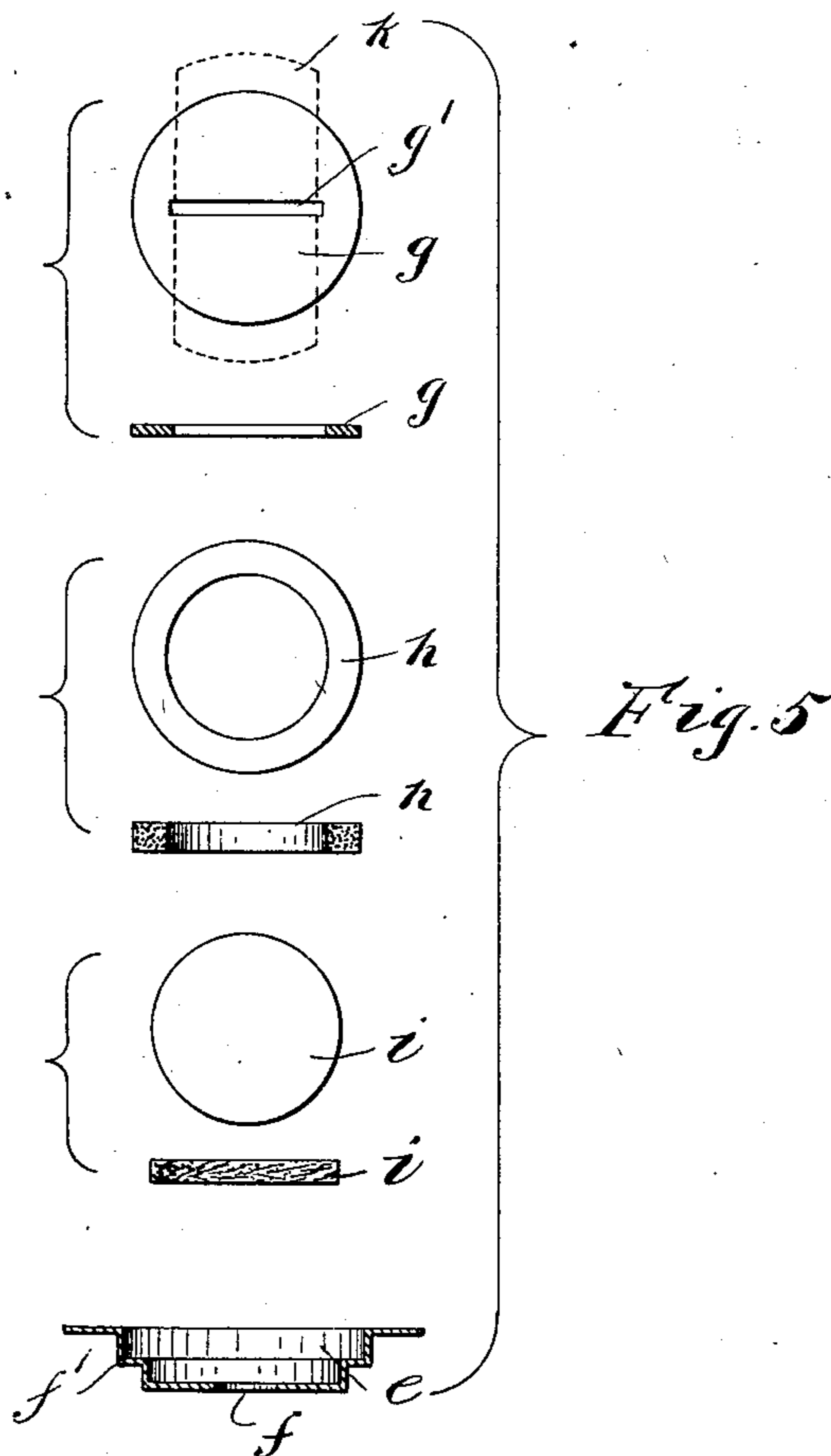
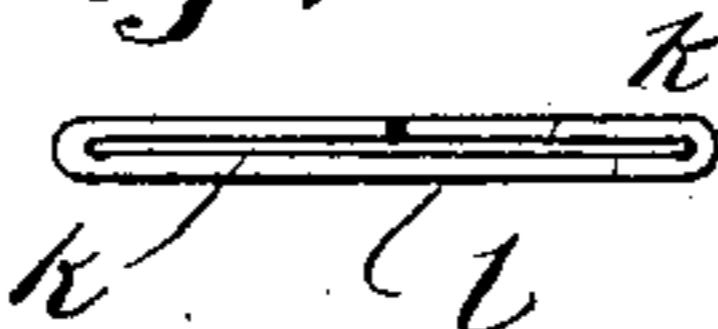


Fig. 6



Fig. 7



Witnesses:

J. D. McMahon.
S. S. Noble

Inventor,
Thomas Henry Lewis
by B. Singer Att'y.

No. 698,975.

Patented Apr. 29, 1902.

T. H. LEWIS.
ACETYLENE GAS GENERATOR.

(Application filed June 4, 1900.)

(No Model.)

3 Sheets—Sheet 3.

Fig. 11

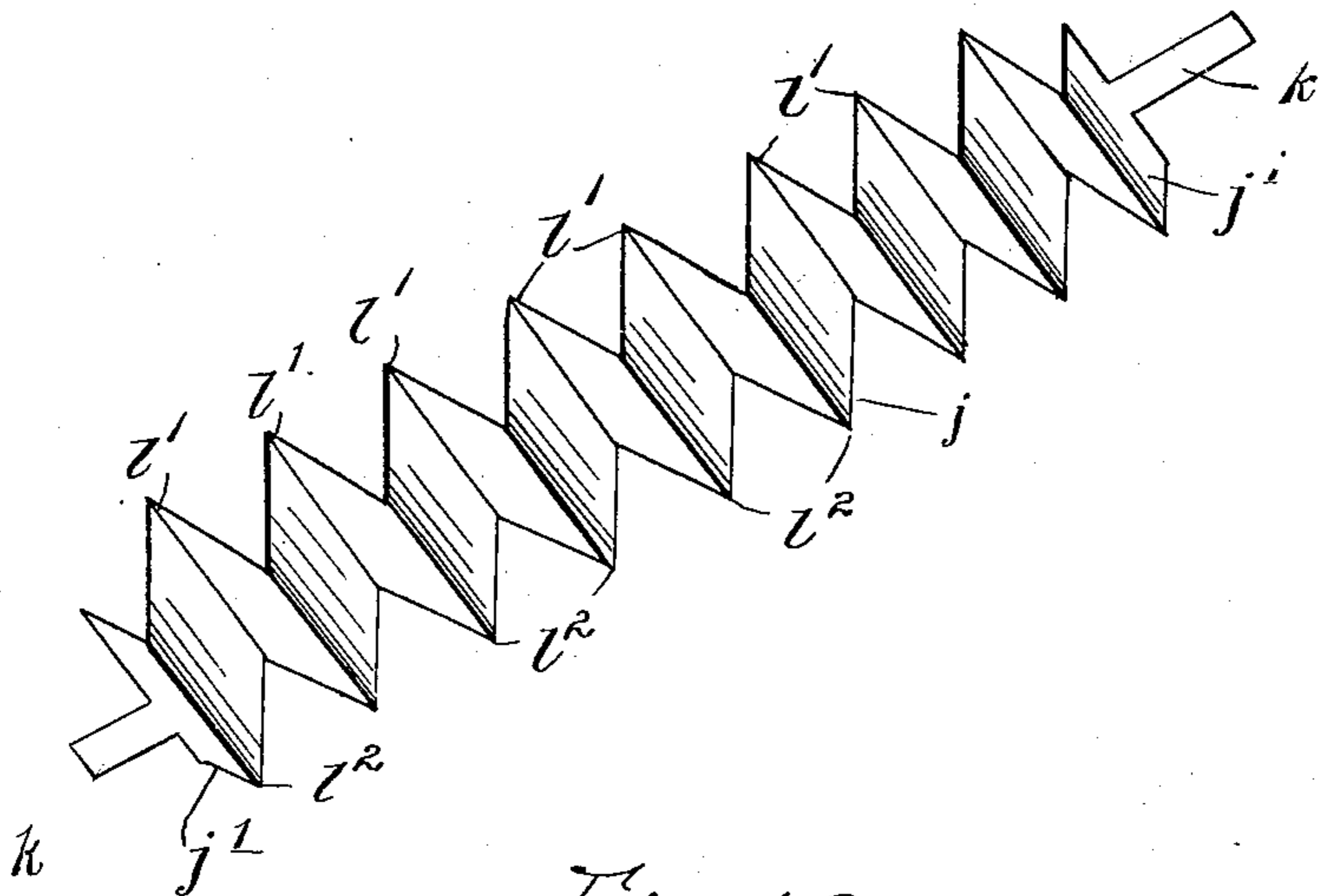
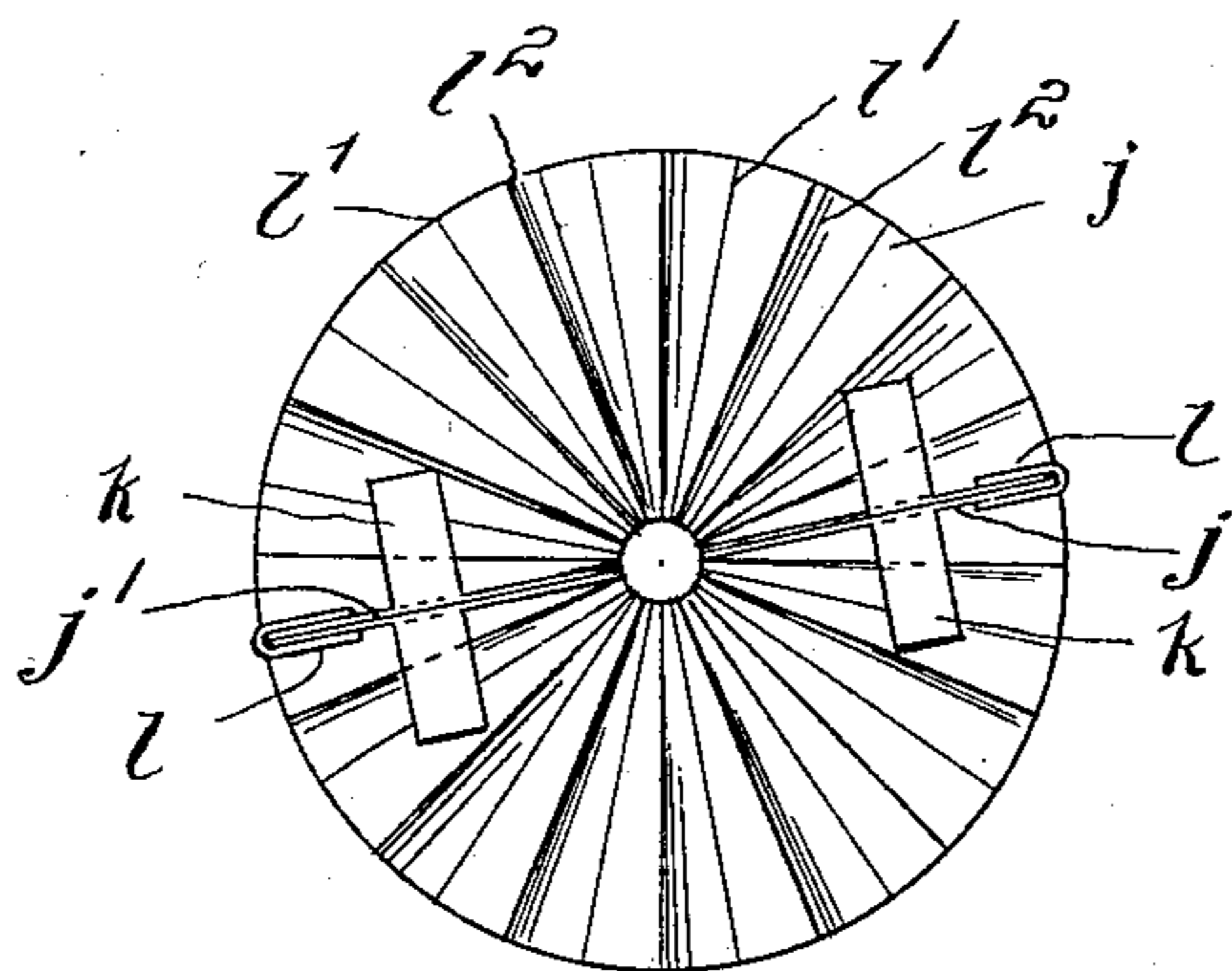


Fig. 12



Witnesses:

G. S. Noble

Eugene R. Weber.

Inventor,

Thomas Henry Lewis
by P. H. H. H.

Att'y

UNITED STATES PATENT OFFICE.

THOMAS H. LEWIS, OF LONDON, ENGLAND.

ACETYLENE-GAS GENERATOR.

SPECIFICATION forming part of Letters Patent No. 698,975, dated April 29, 1902.

Application filed June 4, 1900. Serial No. 19,089. (No model.)

To all whom it may concern:

Be it known that I, THOMAS HENRY LEWIS, engineer, of 109 Victoria street, Westminster, London, England, have invented certain new and useful Improvements in Acetylene-Gas Apparatus, (for which I have obtained a patent in Great Britain, No. 22,389, bearing date November 9, 1899,) of which the following is a specification.

10 The object of the present invention is to provide a case (or cartridge) for use in an acetylene or similar lamp with such an internal arrangement of structure as will insure an even emission of gas at the top orifice 15 when the foot or base of the cartridge is immersed in water, and, further, such as will provide on the lower orifice a gas-tight joint by means of a packing-ring and a valve for the regular admission of moisture without 20 permitting the escape of gas thereby.

One main feature of my invention consists in the employment as a medium for preventing the escape of gas at the foot or base of the cartridge of a pad and packing-ring constructed as hereinafter described. 25

Another feature of my invention is the employment as a medium for introducing moisture into the cartridge and distributing it to the generating salt in a regular and uniform 30 manner, and also as an appliance for providing room for the expansion that takes place on the generating salt being decomposed, of a wick or permeable frame constructed as hereinafter described.

35 To make my invention more clearly understood, I will refer to the accompanying drawings, in which—

Figure 1 is a transverse section showing the general construction and arrangement of 40 the cartridge. Fig. 2 is a plan from the top of the outer case with lid or cover removed, showing the recess formed in the bottom of the case. Fig. 3 is a plan of the corrugated absorbent wick or frame for distributing water. Fig. 4 is a side view of said wick, partly 45 broken away. Fig. 5 gives enlarged views of the parts contained by the recess aforesaid. Fig. 6 is a detail showing how the ends of the corrugated material are connected. Fig. 7 is a perspective view of the clip shown in Fig. 6. Fig. 8 is a section through the non-conducting core. Fig. 9 is a plan view of

same. Fig. 10 shows an alternative device when moisture is to be admitted to the wick in two places. Fig. 11 is a perspective view 55 of the absorbent wick in the first step of its construction from the strip. Fig. 12 is a bottom plan view of said wick as it would appear through a transparent casing when in position for action, showing the clips applied to 60 secure the ends.

In all the figures the same letters refer to the same parts.

The arrangement or structure that I adopt is as follows: I provide a non-absorbent receptacle of suitable dimensions. I find a box 65 *a* (with a lid *b* and a dished bottom *c*) about two and a half inches diameter by about one inch in depth (according to the lamp to be used the dimensions would of course vary) 70 suits my purpose. On one side of this box at what is to be its base when in use I provide a recess *e* one inch in diameter by about one-eighth of an inch deep. The part of the box forming this recess *e* has a hole *f* in the 75 bottom having an area of, say, a quarter of a square inch. It is necessary to have a hole of the above dimensions and of course varying with the candle-power of light required in order that the absorbent material herein- 80 after described may be kept in proper communication with the water, so as to allow free access of the moisture to the interior of the box. The top of the recess is provided with a ledge or shoulder *f'*, and on this ledge or shoulder 85 I place a disk or piece of metal *g* to fit snugly. The disk or piece of metal *g* is provided with a slit hole or opening *g'* for the insertion of tongue-piece *k*, hereinafter mentioned. I take a strip *j* of absorbent material, such 90 as blotting-paper of the necessary thickness, in width not more than half the diameter of the box and in length about twice the circumference of the box. This strip is then folded into corrugations or plaits running across the 95 strip, as shown in Fig. 11, the terminal plaits *j'* having tongue extensions *k* for a purpose presently explained. The two ends of the strip are then brought together and secured by a clip or clips *l* of tagger-tinned plate applied to the plaits *j'* inside of the tongue extensions, this bringing together being done 100 in such manner that the alternating angles *l'* *l''* of said plaits will be in parallel horizon-

tal planes, with one edge of the original flat strip setting inward toward the center and the other outward and forming the periphery, as in Fig. 3, and the tongue k setting downward, as in Fig. 4, the plaits naturally closing toward each other at the center and spreading therefrom radiatingly to the periphery. In this way a circular discoidal figure is formed which fits snugly within the box a ; or instead of employing a single strip of material in length of twice the circumference of the box I may take two strips, each of about once the circumference of the box, and shape and fold them in the manner shown in Fig. 11, providing each with the end tongues shown in said figure, then unite the plait j' at one end of one strip to the plait j' at one end of the other strip, with the tongues k projecting downward, bringing the opposite ends of the strips around in the same manner, as described, for a single strip and uniting them also by a clip, thus obtaining two pairs of tongues diametrically opposite each other, as represented in Fig. 12 and less clearly in Fig. 10, which is a fragmentary detail. I find it may be desirable to prevent the points where the corrugations nearly meet from actually contacting, and in order the better to insure this I may provide either loose or attached to the inside part of the box a non-conducting core m , which may be a boss of tin corrugated to fit the corrugations of the strip. I pass the tongue-pieces, formed as before mentioned, through the slit of the disk of metal g and bend each end of the tongue-piece back against the underneath side of the metal disk or piece. I place a pad of blotting-paper or other absorbent material i over the hole at the bottom of recess e , and on this pad and upon the ledge f' , overlapping both, I place a cork packing-ring h , which on becoming moistened expands and forms a gas-tight joint between the pad i and the edges of recess e . When the above devices are in position, I fill calcium carbide between the uppermost corrugations formed in the strip j , placed in the box, until it is quite full, the corrugations on the reverse side providing the space needed for expansion of the generating salt as and when it is decomposed. One or, if desired, two small holes n in the lid b are provided to serve as a burner at the top of the box a , beneath which a suitable pad n' serves to filter the gas and prevent the said hole or holes from choking with dust during action. The lid is then fixed onto the box and sealed in any suitable manner. On placing the base of the charged receptacle in water moisture will creep along the absorbent material and be conveyed by its plaits into contact with an extended surface of the carbide charge and gas will be generated and give a steady flame throughout the life of the charge. When it is desired to admit the moisture to the wick in the box at two places instead of one, so as to decompose the generating salt more rapidly, the recess e is enlarged, so as

to admit of the metal piece or disk g , and the absorbent pad i being enlarged, as shown in Fig. 10, the metal piece being then provided with two slits $g^2 g^3$ instead of one, and such metal piece may be attached to the shoulder in recess e in any convenient manner to assist in forming with the cork ring the gas-tight joint. The corrugated strip is then provided with two joints and two pairs of tongue-pieces $k k'$ instead of one, and these pass through the two slits provided in the metal disk or piece g . The outer hole f in recess e will feed both tongue-pieces. This alternative method is more clearly shown by reference to Fig. 10.

It will of course be understood that I do not limit myself to the form and dimensions which I have in this description assigned to the various parts of my improved cartridge, as the same may be varied in many ways to suit the particular requirements of various lamps, and that my invention may be used with generating compounds other than the simple carbide of calcium.

I claim—

1. In a cartridge for use in an acetylene or similar lamp, the combination with an inclosing case, of a corrugated or plaited strip of absorbent material arranged on the bottom thereof in such manner as to serve as a yielding confining and dividing frame to support the charge upon the upper side and yield as said charge increases in bulk with decomposition, and means located on the under side of the strip for saturating said strip with hydrating fluid.

2. In a cartridge for use in an acetylene or similar lamp, the combination with an inclosing case of a corrugated or plaited strip of absorbent material arranged therein in such manner as to serve as a yielding confining and dividing frame to support the charge on one side, a central non-conducting core to keep the inner ends of the corrugations or plaits from contact, and means whereby said strip may be exposed to the contact of a hydrating fluid, to absorb and conduct moisture therefrom to the contacting surface of the charge resting on its plaits.

3. In a cartridge for use in an acetylene or similar lamp the combination with a non-conducting casing having a recess e formed in its bottom wall, and an opening f through the floor of said recess, of an absorbent pad set within said recess.

4. In a cartridge for use in an acetylene or similar lamp, the combination with a non-conducting casing having a recess e formed in its bottom wall, an opening f through the floor of said recess, and a ledge or shoulder f' near the top of the recess, of an absorbent pad set within said recess, a slitted metal plate fitting snugly into said shoulder and a corrugated or plaited strip of absorbent material dividing said casing to support the charge upon its upper side and having its ends passed through the slit in said plate.

5. In a cartridge for use in an acetylene or

similar lamp, the combination with a non-conducting case having a recess *e* formed in its bottom wall, an opening *f* through the floor of said recess, and a ledge or shoulder *f'* near
5 the top of the recess, of an absorbent pad set within said recess, a cork ring overlapping the edge of said pad and the ledge, a perforated metal plate covering said ring, and a
10 plaited or corrugated strip of absorbent material dividing said casing to support the charge

therein and having its ends passed through said perforated plate and in contact with the absorbent pad.

In testimony whereof I have affixed my signature in presence of two witnesses.

THOMAS H. LEWIS.

Witnesses:

EDMUND S. SNEWIN,

HENRY MAYKELS.