

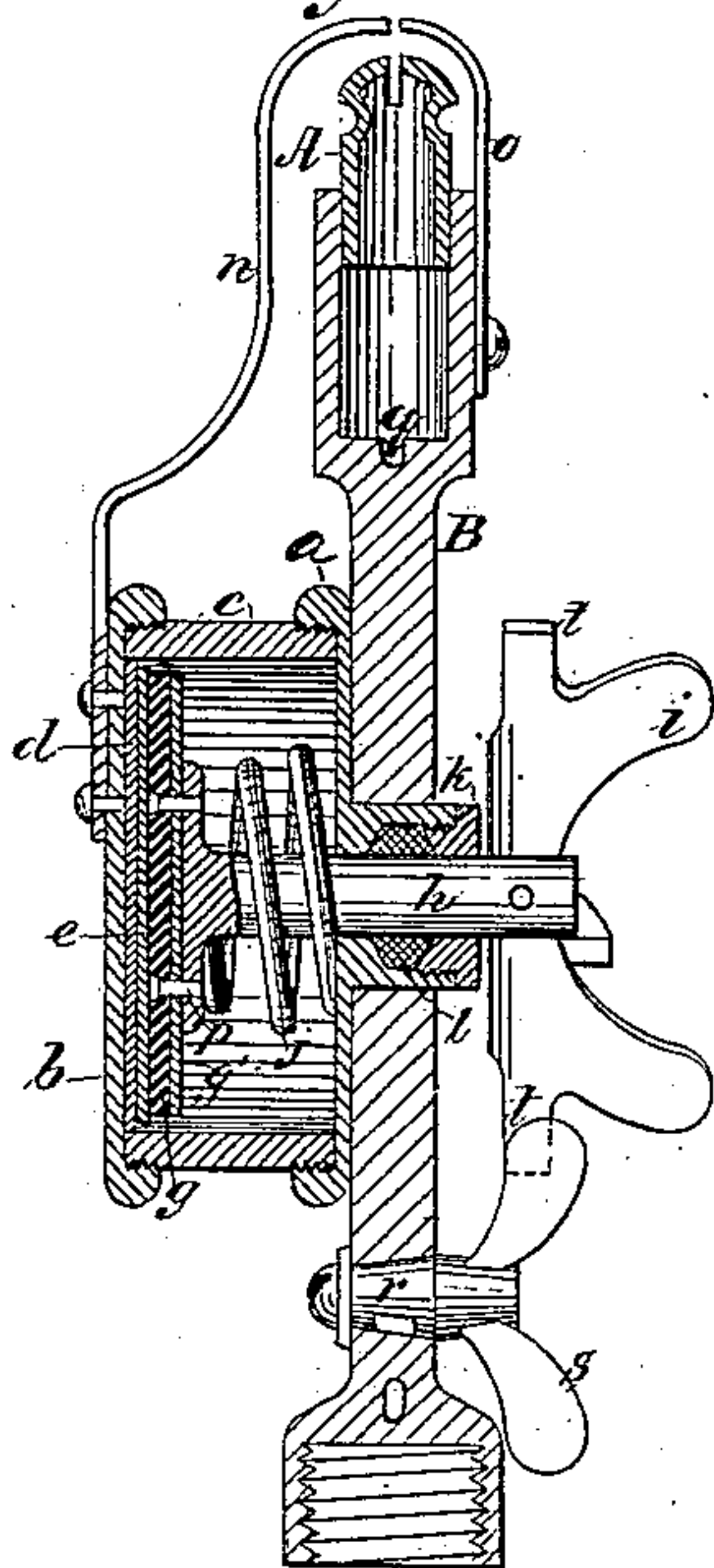
(No Model.)

C. W. WEISS.  
ELECTRIC GAS LIGHTER.

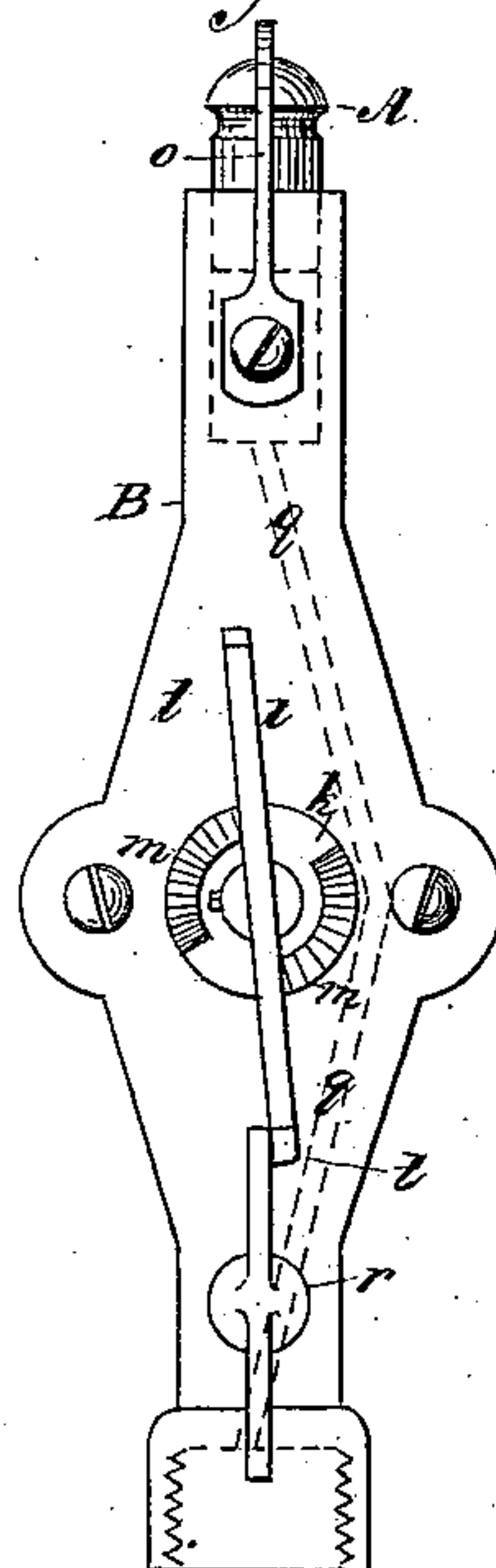
No. 310,002.

Patented Dec. 30, 1884.

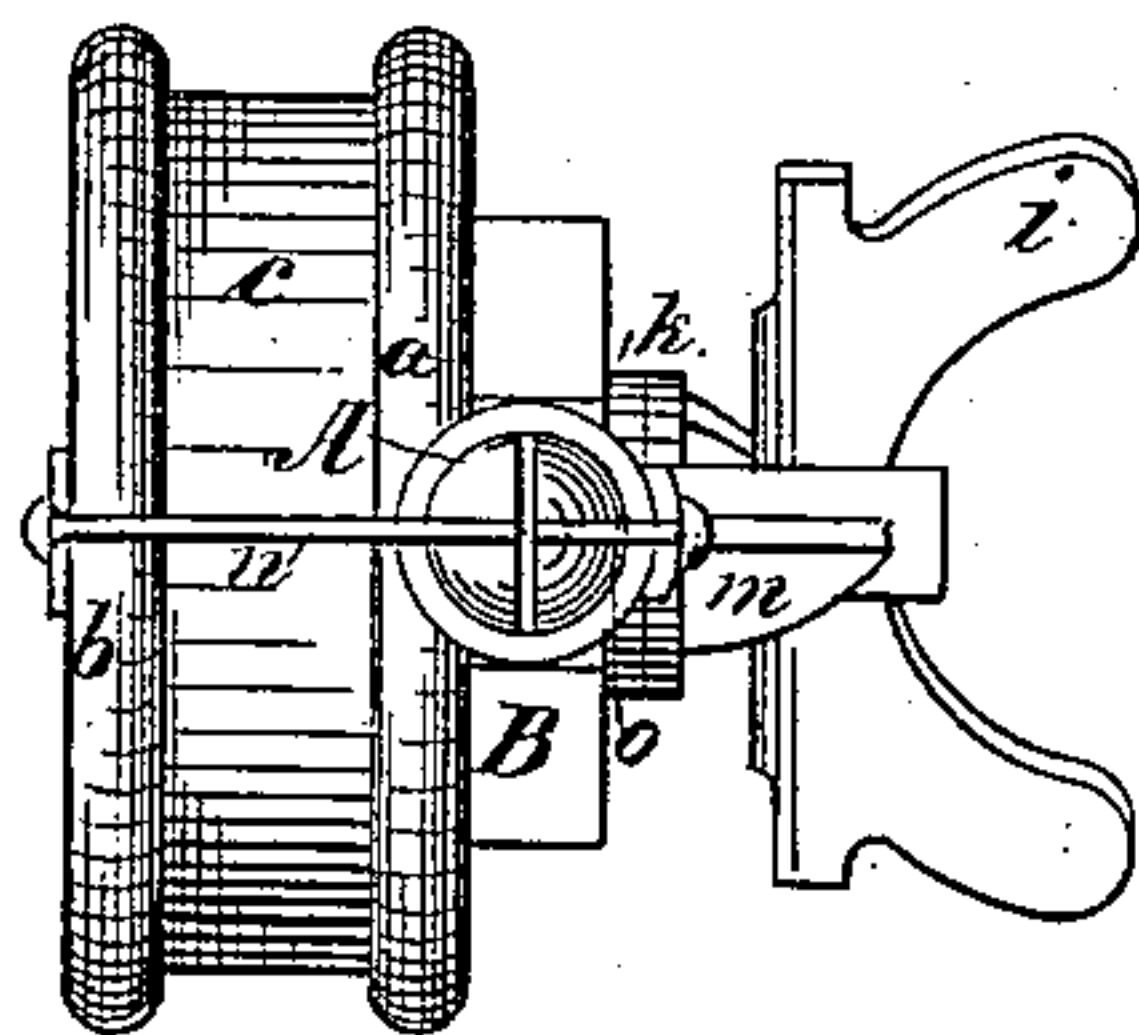
*Fig. 1.*



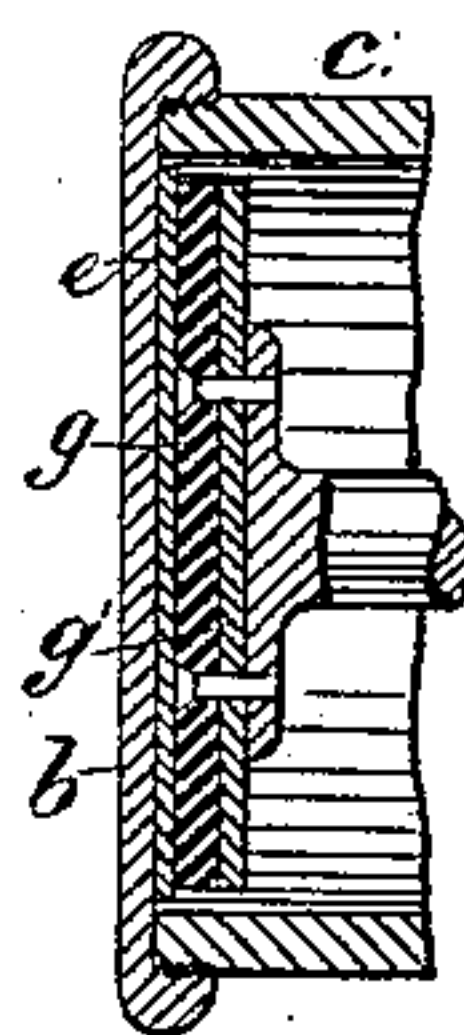
*Fig. 2.*



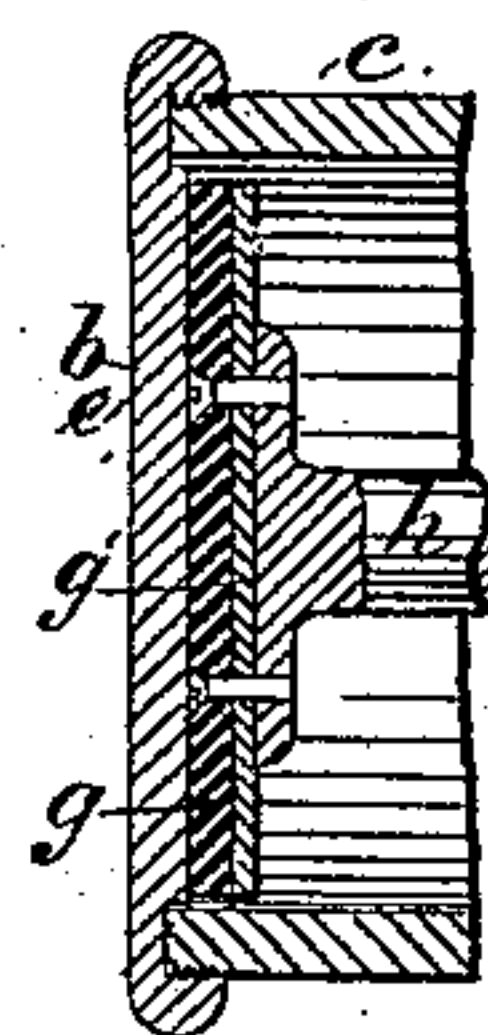
*Fig. 3.*



*Fig. 4.*



*Fig. 5.*



WITNESSES:

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# UNITED STATES PATENT OFFICE.

CHARLES W. WEISS, OF BROOKLYN, NEW YORK.

## ELECTRIC GAS-LIGHTER.

SPECIFICATION forming part of Letters Patent No. 310,002, dated December 30, 1884.

Application filed March 12, 1884. (No model.)

*To all whom it may concern:*

Be it known that I, CHARLES W. WEISS, a citizen of the United States, and a resident of Brooklyn, Kings county, New York, have invented certain Improvements in an Electrophorus for Lighting, of which the following is a specification.

My invention relates to that class of gas-lighting apparatus wherein an electric spark is produced by friction between a resinous and a metal plate.

The novel features of my invention consist of arranging the generating-plates of an electrophorus in a hermetically-sealed case, and fixedly attaching the said case to a gas-burner, and so arranged that the handle which operates the plates within the case, which generate the igniting spark, shall or shall not, as may be desired, operate to turn on the gas. Where the apparatus is arranged to perform both operations, it is also adapted to turn on the gas a moment before the spark is produced.

In the drawings which serve to illustrate my invention, Figure 1 is a vertical mid-section of the apparatus, shown as mounted fixedly on a gas bracket or tip. Fig. 2 is a front view of the same. Fig. 3 is a plan. Figs. 4 and 5 are fragmentary sectional views illustrating modifications. These will be particularly described hereinafter.

I have herein shown my apparatus as connected with a gas tip or burner adapted to be screwed onto the bracket, where the ordinary tip is now attached. This, however, is not absolutely necessary, as my electrophorus may be applied to a torch for lighting.

A represents an ordinary burner-tip, and B a pipe which screws onto the gas-bracket. To this pipe the electrophorus is attached. The latter comprises a box or case, whereof *a* is the metal front plate; *b*, the metal back plate, and *c* a drum or hoop of some insulating material, as hard rubber or glass. I have shown the metal plates *a* and *b* as screwed directly onto the drum *c*; but they may be attached in any good way.

On the inner face of the back plate, *b*, is mounted, by preference, a layer of some soft fabric—as muslin or leather, *d*—and on this fabric is mounted a plate of lead, *e*, to provide

a frictional surface to receive the resinous plate. This latter plate, *g*, is made, by preference, of hard rubber, and suitably connected to a metal plate, *g'*, which forms a backing, and is attached to an axial metal stem, *h*, which passes through a stuffing-box in the front plate, *a*, and its outer end is provided with a cross-handle or thumb-piece, *i*, by which the resinous plate is rotated and lifted. The resinous plate *g* is held in contact with the leaden plate *e* by means of a spring, *j*, of any kind, arranged between the said plate *e* and the plate *a* of the cases; and in order that the plate *g* may be first rotated slightly and then lifted from the lead plate by one rotary operation of the thumb-piece *i*, I provide a hollow plug, *k*, which screws into the aperture in the front plate, *a*, onto a suitable packing, *l*, thus forming a stuffing-box for the stem *h*. The thumb-piece *i* rests normally between two inclined projections or arms, *m m*, on or forming a part of the plug *k*. One side of these is inclined and the other side is perpendicular. Therefore, when the thumb-piece *i* is turned, the first movement is simply that of rotation; but when the lower faces of the piece *i* strike the inclined faces of the projections *m m*, the rotation continues, but the thumb-piece rides up the inclines, lifts the resinous plate from the lead plate, and compresses spring *j*. A continuation of the rotation causes the thumb-piece to pass over the arms *m*, when the spring draws it back to its normal position. (Shown in Fig. 2.) In Fig. 3 the thumb-piece is shown partly turned around and riding up the inclines on *m*. The spark is produced between the metallic points *n* and *o*, arranged over the burner tip or nipple A. The former is attached to the back plate, *b*, and is electrically connected with this plate and the lead friction-plate thereon, and the latter, *o*, is attached to the pipe B, and is electrically connected with the resinous plate *g* and the ground through the various conducting parts. The flanged part of the stem *h* is connected to the resinous plate *g* by metal screws or rivets *p*, and these are relied on to form the necessary metallic connection between plate *b* and the earth. Other means may, however, be provided for this purpose. It is not necessary that the gas be turned on



by the same means that produces the spark. The gas-cock may be entirely separate, and the gas be turned on before the spark is produced; but, for convenience, I prefer to employ the means I will now describe, or some equivalent device, for turning on the gas and producing the spark by one movement and nearly simultaneously.

Referring to Figs. 1 and 2, *q* represents the gas-passage in B, (shown in dotted lines,) and *r* an ordinary gas-cock with a thumb-piece, *s*. Projecting parts *t* on the thumb-piece *i* contact with the wing of the thumb-piece *s*, and the first movement of *i* serves to turn the gas-cock so as to let on a little gas. The further movement of *i*, as before described, produces the spark and ignites the gas. The latter may now be turned on full head, if desired.

In order that the resinous plate may adjust itself to the lead plate, I usually back the latter, as shown in Fig. 1, with a layer of some soft material, which serves as a sort of cushion; but I may secure the lead directly to the back plate, *b*, as shown in Fig. 4, and dress its face off truly to fit the resinous plate; or I may also make the entire back plate, *b*, of lead, as shown in Fig. 5. I prefer, however, to make the back plate of some harder metal.

The friction faces of the resinous and lead plates may be plane, as shown, or may be concavo-convex, if desired. It is only important that the frictional surfaces should contact to the fullest extent possible.

In lieu of the projections *t* on the thumb-piece *i*, any portion of said thumb-piece may be made to engage the thumb-piece on the gas-cock.

As I have said, one very important feature of my invention is the employment of the metal lead for the frictional plate on the insulated metal plate B of the electrophorus. To this feature I make no claim, as the same is fully described and claimed in a previous application filed by me November 23, 1883, Serial No. 112,621, of which this present application is a division.

I claim as my invention—

1. In an apparatus for lighting gas by electricity, the combination, with the gas-burner, of a generator of static electricity inclosed in a hermetically-sealed case of non-conducting material and rigidly attached to said burner,

means consisting of a rigid conductor for conveying the positive electric current to the point where it is to be discharged, means consisting of a rigid conductor, a gas-burner, and the pipe to which it is attached, for conveying the negative electricity to earth, and means for operating the generative plates, all arranged and combined to operate substantially as described.

2. In an electric gas-lighting apparatus, the combination of the gas-burner and its tip, the electrophorus, the conductor *n*, conductor *o*, cam *m*, the thumb-piece *i*, and stem *h*, substantially as described.

3. In an electric gas-lighting apparatus, the combination of the gas-burner and its tip, the electrophorus, the conductor *n*, conductor *o*, the thumb-piece *i* and stem *h*, the gas-cock *r*, and the thumb-piece *s*, substantially as described.

4. In an electric gas-lighting apparatus, the combination of the gas-burner and its tip, the electrophorus, the conductors *n* and *o*, stem *h*, spring *j*, stuffing-box *h*, and thumb-piece *i*, substantially as described.

5. In an electric gas-lighting apparatus, the combination of the gas-burner and its tip, an electrophorus contained in a hermetically-sealed case and attached thereto, and means for rotating one of the generating-plates upon and lifting it from contact with the other and turning on the gas, all in one operation, substantially as described.

6. As a means for rotating and elevating the plate of an electrophorus, the stem *h*, provided with a thumb-piece, *i*, and the plug *k*, provided with the cam-like projections *m m*, all arranged to operate substantially as set forth.

7. As a means for turning on the gas a moment before producing the spark, the combination, with the thumb-piece *i*, for operating the plate of the electrophorus, provided with suitable projections, *t*, of the gas-cock *r*, provided with a thumb-piece, *s*, arranged to be engaged by the projection on *i* at the beginning of the movement of the latter, substantially as set forth.

CHAS. W. WEISS.

Witnesses:

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