

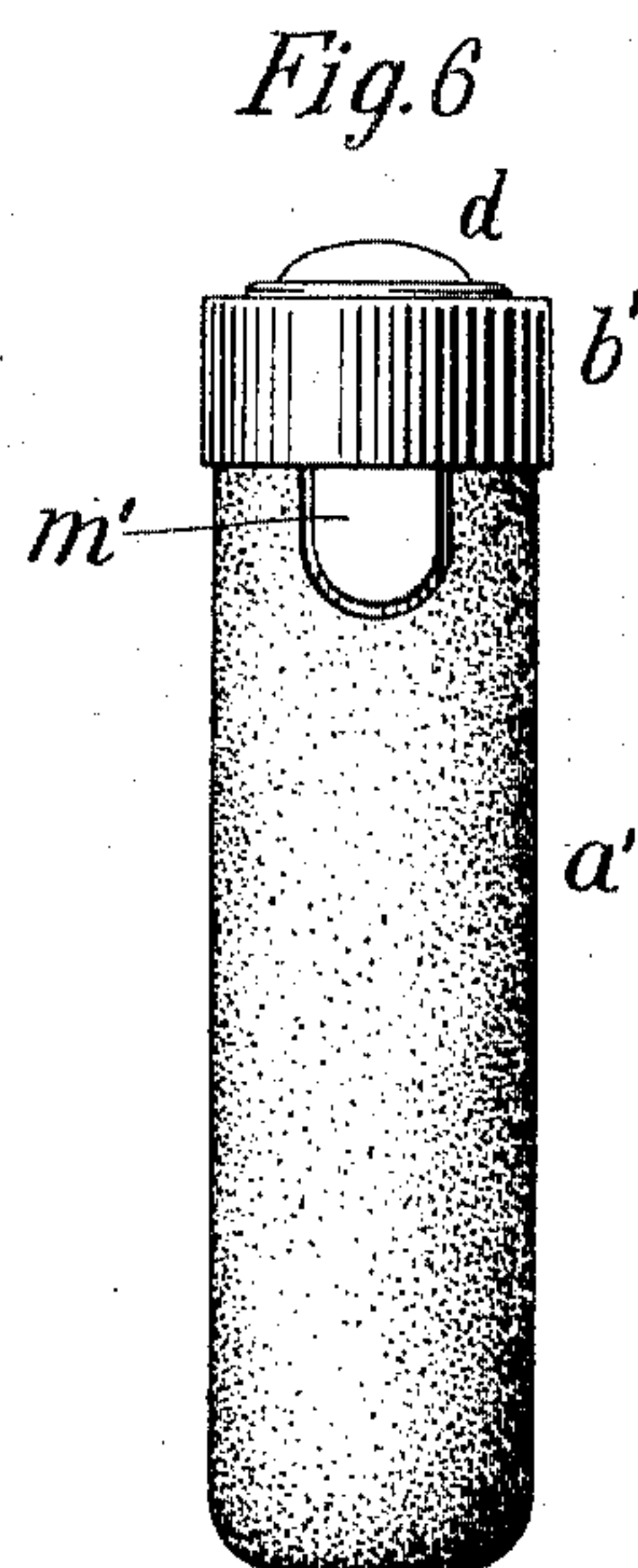
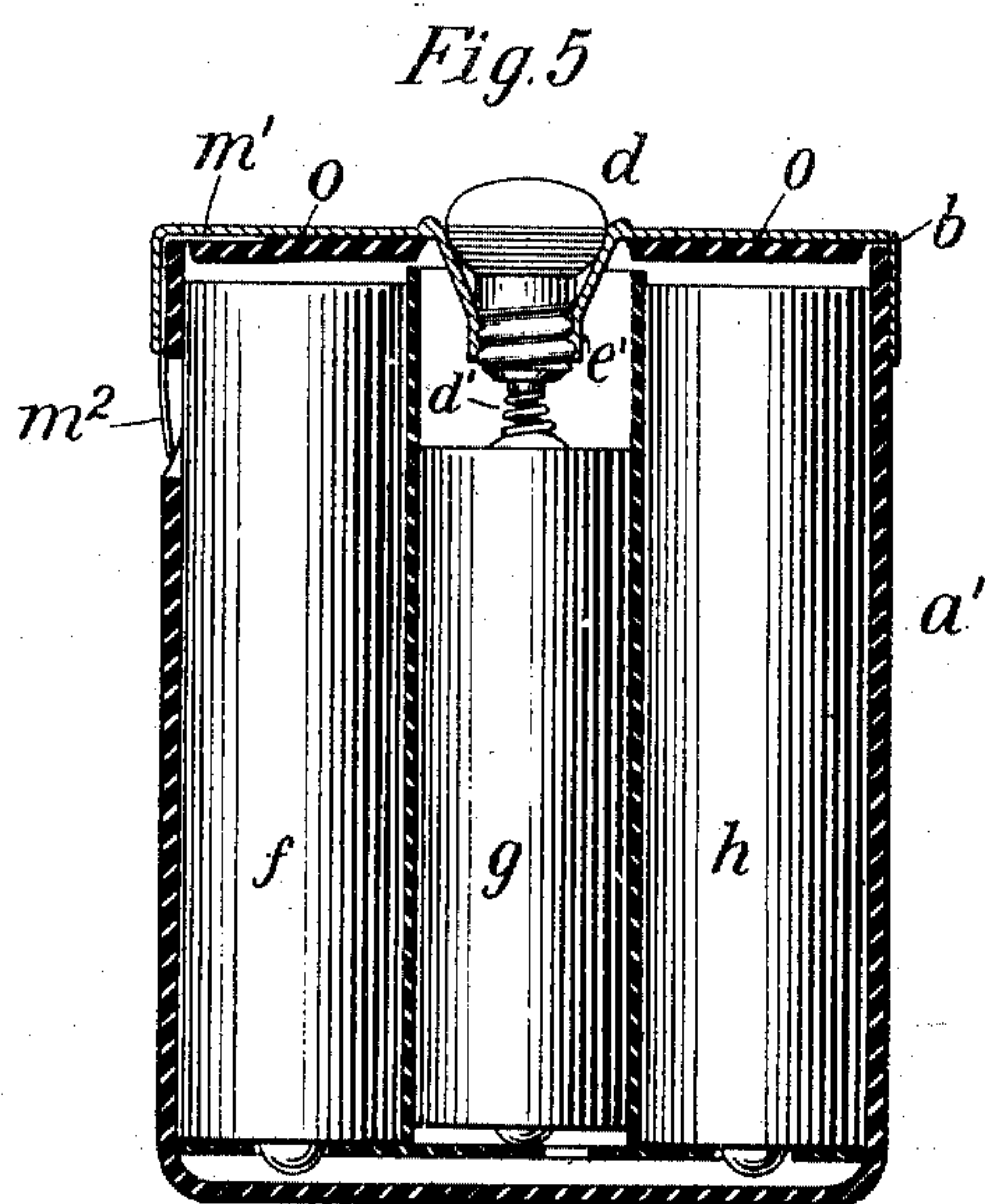
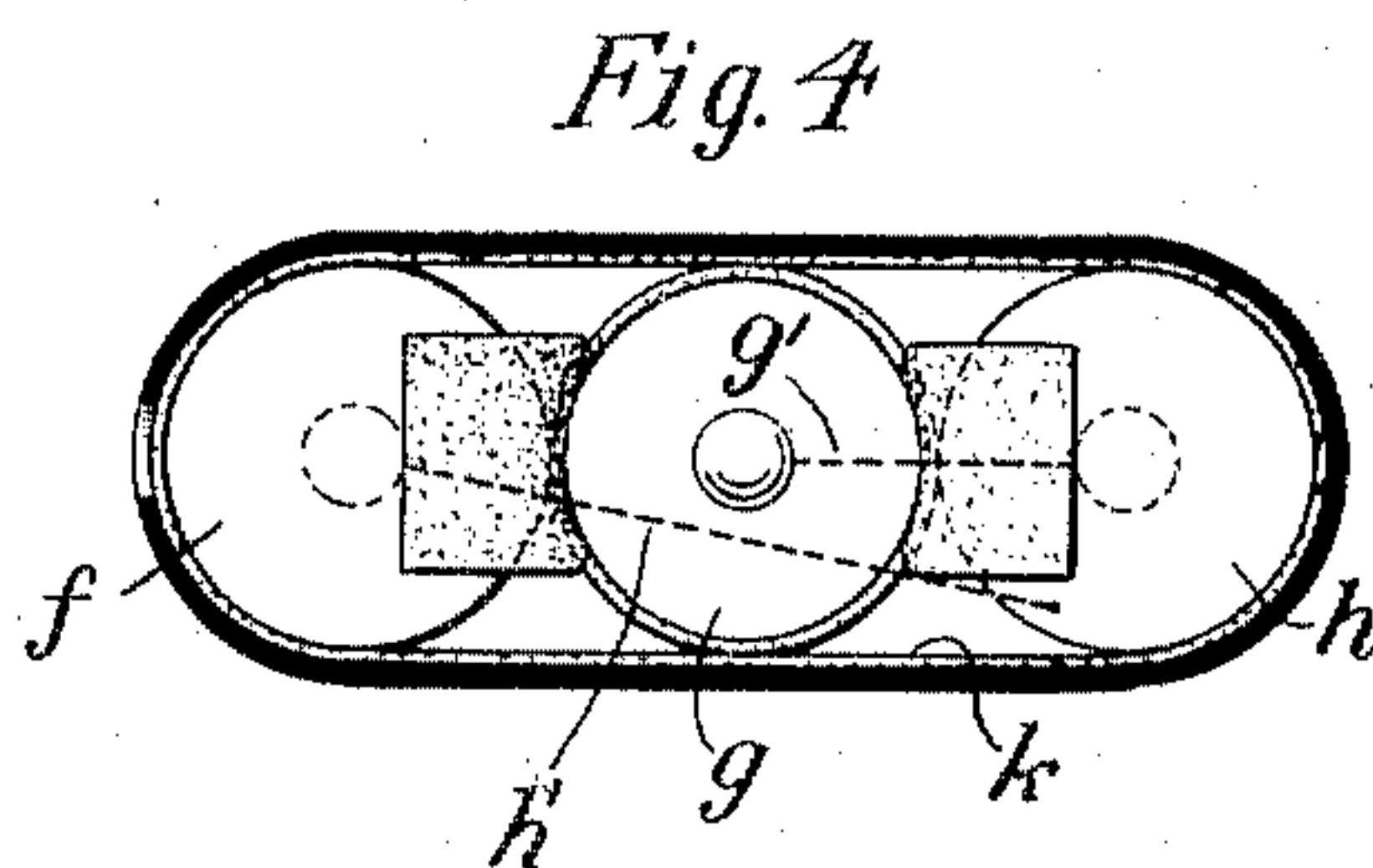
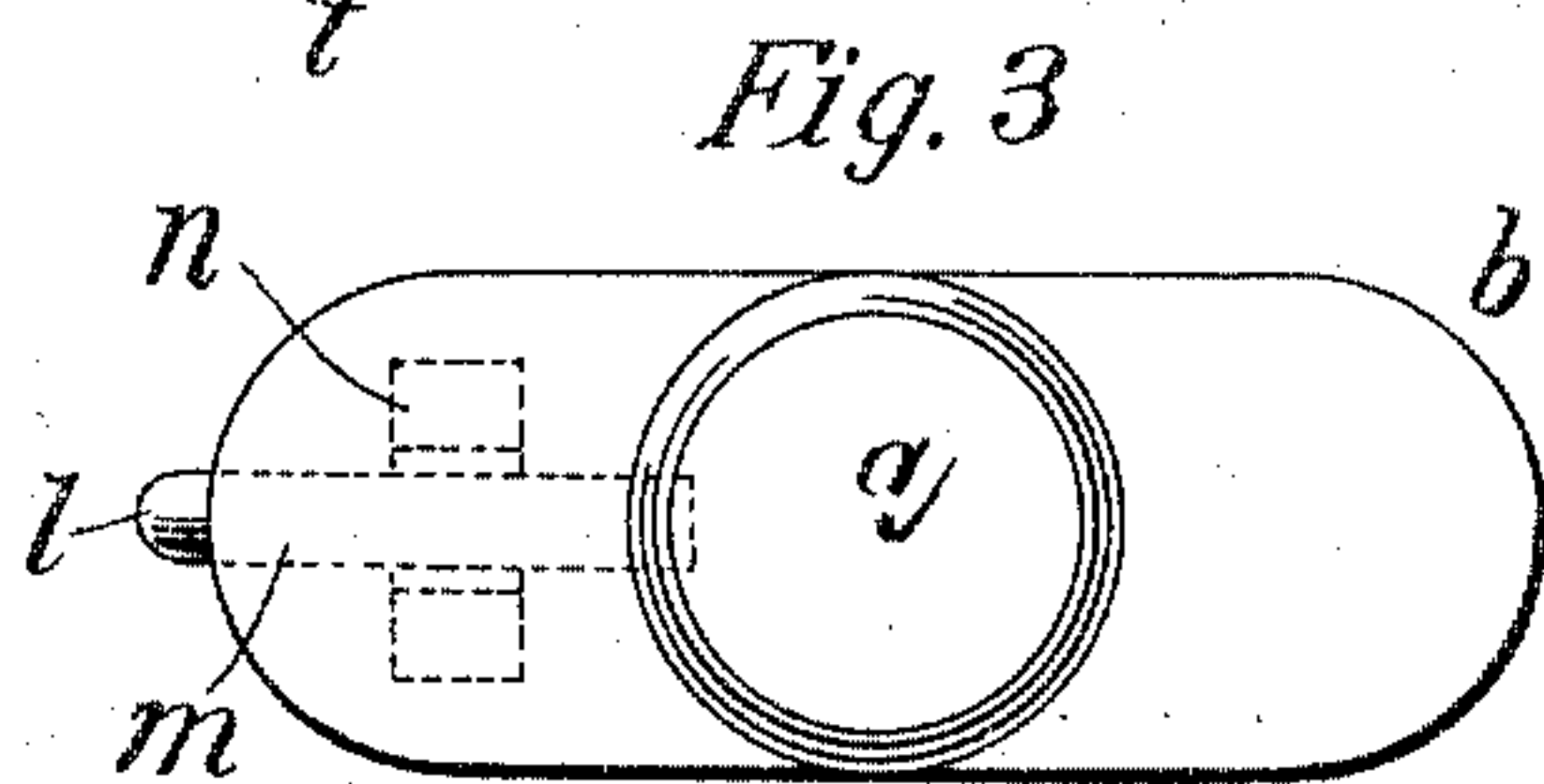
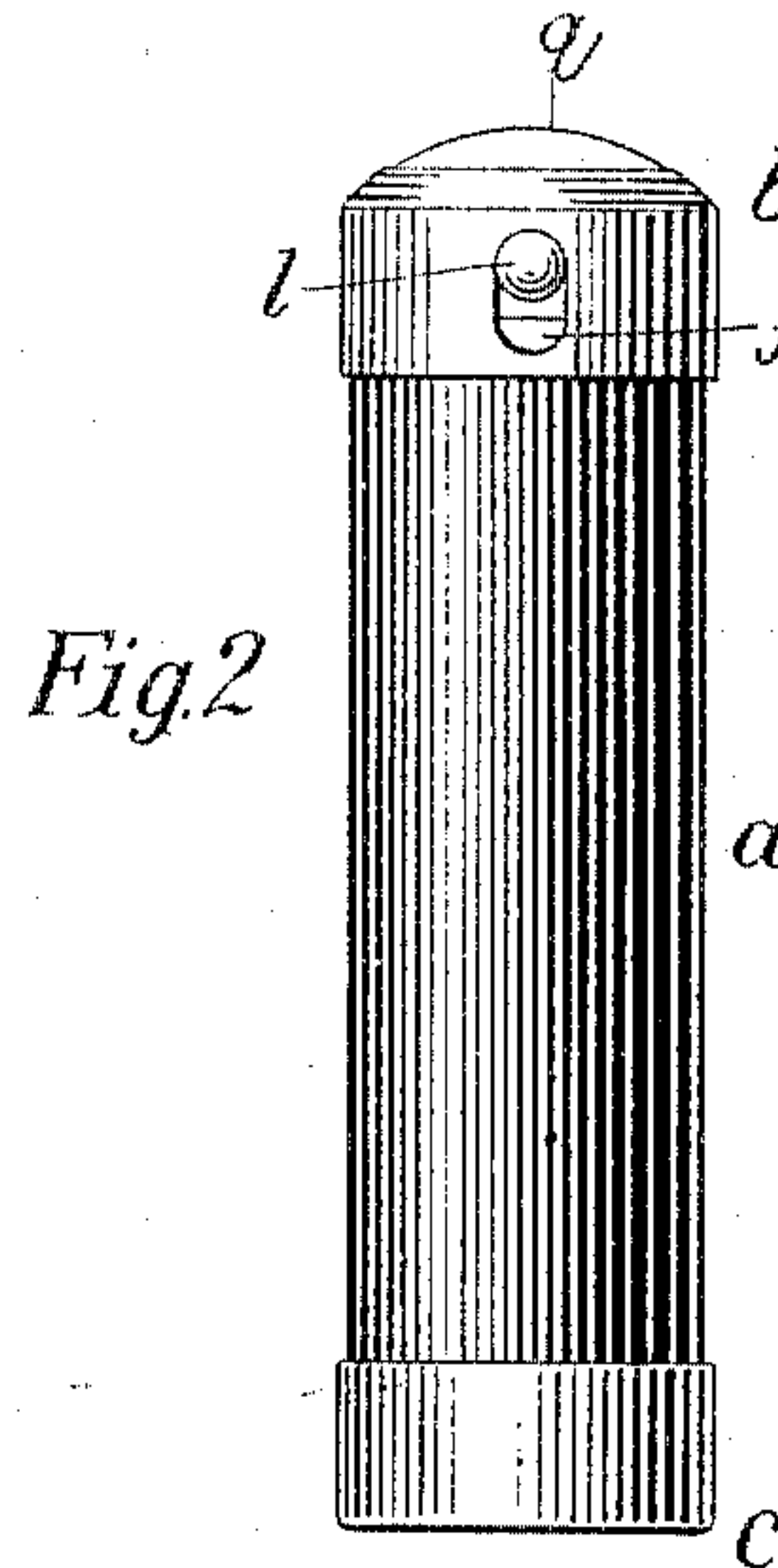
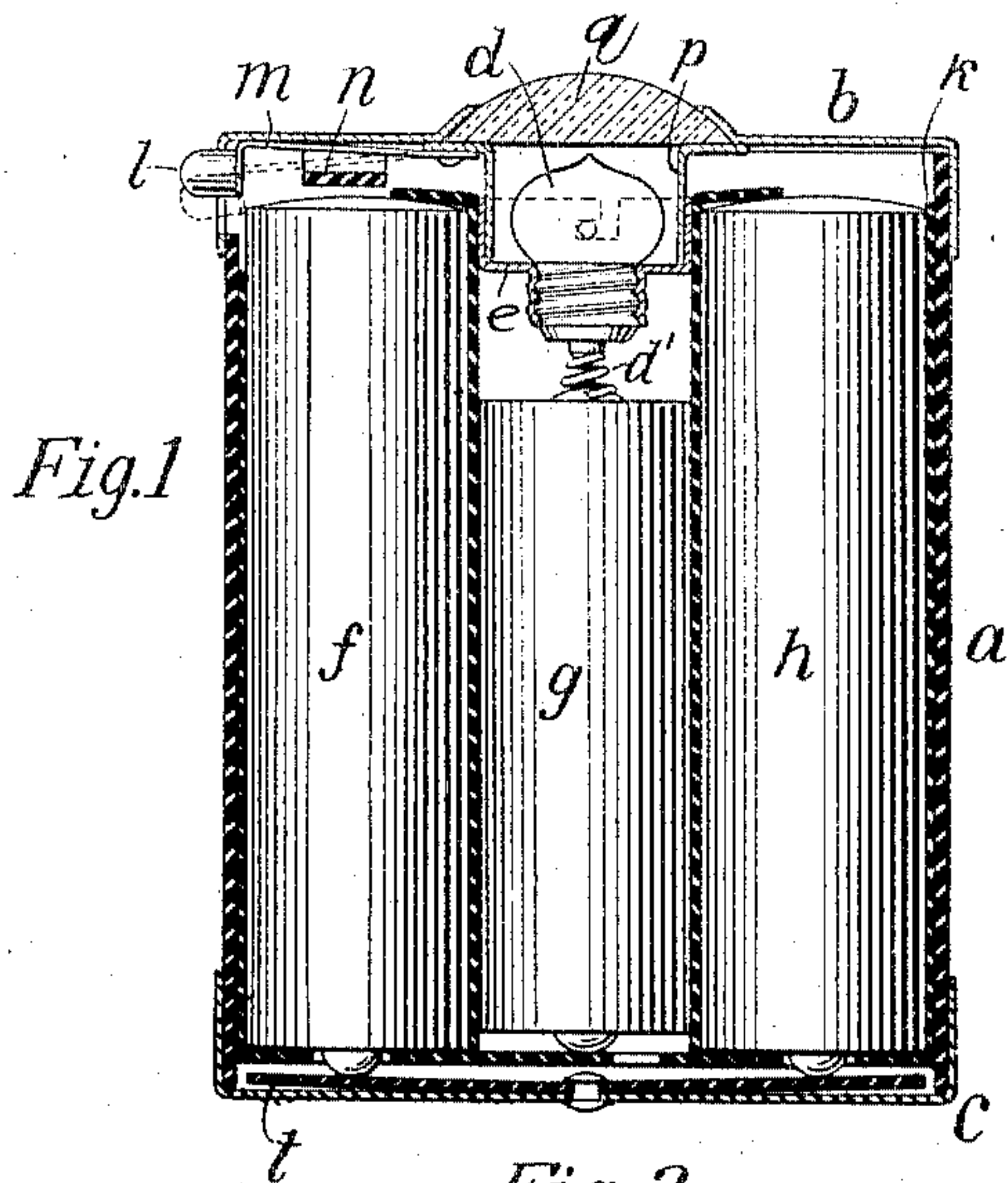
No. 777,510.

PATENTED DEC. 13, 1904.

C. HUBERT.
PORTABLE LIGHT.

APPLICATION FILED JULY 21, 1904.

NO MODEL.



Witnesses:

Joseph N. Holwell, Jr.
Henry Barnes

Inventor

Conrad Hubert

by Henry D. Williams Atty.

UNITED STATES PATENT OFFICE.

CONRAD HUBERT, OF NEW YORK, N. Y.

PORTABLE LIGHT.

SPECIFICATION forming part of Letters Patent No. 777,510, dated December 13, 1904.

Application filed July 21, 1904. Serial No. 217,453. (No model.)

To all whom it may concern:

Be it known that I, CONRAD HUBERT, a citizen of the United States, residing in the borough of Manhattan, city of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Portable Lights, of which the following is a specification, reference being had therein to the accompanying drawings, forming a part thereof.

My invention relates to portable electric lights, and particularly those of small dimensions and convenient shape to adapt them to be carried in the pocket of the user.

My invention has for its objects simplicity and compactness of construction, non-liability to accidental closure of circuit, and consequent exhaustion of battery, durability, and ease and reliability of operation.

In portable electric lights of this class the amount of battery-power which can be obtained in an appliance of such small dimensions is necessarily not great and accidental closures would speedily exhaust the battery.

It is desirable, however, that the operation of closing the circuit, and thereby obtaining the light, should be readily and easily performed and that so long as the user desires the light he may maintain the circuit closed without inconvenient effort. It is also desirable that the circuit-closer shall make contact directly with one of the battery-cells within the casing, and to the satisfactory performance of this operation it is necessary that there should

be a wide range of movement, as the batteries necessarily fit somewhat loosely in the casing and are not so accurately made that the place of contact will be the same with every battery. It is also desirable to employ as little

conductive material as possible in the casings, so that there will be little liability of the formation of short circuits, which would waste the battery-current. My invention aims to attain these and other desirable features in lighting devices of this class.

I will now describe the constructions of portable lights shown in the accompanying drawings and embodying my invention and will thereafter point out my invention in claims.

Figure 1 is a central sectional elevation of

a portable light on a plane parallel to the front face of the device. Fig. 2 is a side elevation looking toward the narrow side of the device. Fig. 3 is an end elevation looking toward the end of the device in which the electric lamp is sunk and socketed, such end being shown as the upper end in Figs. 1 and 2. Fig. 4 is a similar view with the cover removed. Fig. 5 is a central sectional elevation similar to Fig. 1, but showing a modified construction. Fig. 6 is a side elevation of the same looking toward the narrow side of the device.

The casing is shaped to form a thin flat package without angular corners or protuberances, so as to be well adapted to be carried in the pocket of the user. The body *a* of the casing is made of insulating material, and the casing is wide at the flat sides and semicylindrical at the thin sides, so as to follow closely the contour of the inclosed battery-cells, and is substantially flat at the ends. In the construction shown in Figs. 1 to 4, inclusive, the insulating-body has end covers of metal or other conductive material. The end piece or cover *b*, which is the upper cover in the position illustrated, fits over the adjacent end of the casing *a* and is slidably removable and has a detachable metallic socket *c*, in which the electric lamp is carried, this socket fitting over a downwardly-projecting tube *p* of the cover and having a bayonet-slot engagement therewith, as indicated in Fig. 1. This upper cover *b* carries the contact device and forms part of the circuit for energizing the lamp. The other cover, *c*, (shown as the lower cover in Figs. 1 and 2,) is no part of the circuit.

In the modified construction (shown in Figs. 5 and 6) the body *a'* is closed at its lower end and has a cover *b'* only at its upper end, this cover being of conductive material and carrying the contact device. The lamp-socket *c'* is here integral with the cover.

The lamp *d* is threaded into its socket and carries at its lower end a yielding contact device consisting of a helical spring *d'*. It has proved difficult in devices of this class to assure the contact between the battery and lamp terminal under such conditions that the fric-

tionally-removable cover will not be displaced, and the simple device of attaching the helical spring d' to the lamp attains this desirable object and produces an effective and reliable contact at this part of the device. In the construction shown in Figs. 1 to 4, inclusive, the lamp d is sunk completely within the casing, and a lens g is seated in a rim on the outer face of the cover and located above the lamp. In the construction shown in Figs. 5 and 6 the lamp partly protrudes and as the lamp is tipless has no objectionable protuberance.

The battery is composed of a plurality of cells arranged side by side and fitting within the casing. The construction and arrangement is such as is covered in my Patent No. 762,720, dated June 14, 1904, the battery entirely filling the casing and the cells being insulated from one another, the middle cell g having its carbon terminal in direct contact with one of the lamp-terminals. The zinc terminal of the cell g is connected by the wire g' with the carbon terminal of the cell h , and the zinc terminal of the cell h is connected by the wire h' with the carbon terminal of the cell f . The zinc casing of the cell f is included in the lamp-circuit by direct contact of the circuit-closer with the casing. The circuit-closer is adapted for manual operation and is resilient, including a spring secured at one end to the cover b , so that it is carried by the cover and is removable with the cover and so that the body of the casing forms no part of the circuit. The body of the casing may therefore be entirely made of insulating material, as in the construction shown in Figs. 5 and 6, or with a lower metallic cover c , as in the construction shown in Figs. 1 to 4, inclusive. It is particularly important to guard against the closing of circuits along the sides of the casing, as in the construction last mentioned the battery is removable by pulling it out longitudinally, and the paper insulating-cover k may become torn in such movement. In the construction last mentioned a strip of insulating material t is secured to the lower cover and is to some extent resilient, tending to press the battery upward toward its contact devices. In the construction shown in Figs. 5 and 6 the battery is fixedly secured in the body of the casing, so that when the battery is exhausted the only part of the device retained is the upper cover b' and the lamp carried thereby. A new battery and casing-body a' are provided as one integral structure, over which the upper cover b' is placed.

In the construction shown in Figs. 1 to 4, inclusive, the spring m of the contact device is bent at a right angle at its outer end and has a projecting knob l thereon, which protrudes sufficiently for convenient manipulation. The rim of the cover is slotted to permit free movement of the contact device. The movement of this device is substantially longitudinal of the casing, and when the knob is

moved longitudinally in a downward direction, as indicated in broken lines, the contact device will come in contact with the upper end of the zinc casing of the battery-cell f , thereby closing the lamp-circuit. This longitudinal direction of movement is convenient of manipulation, as the projecting knob does not in this movement move into the casing, but moves substantially parallel to the outer side surface of the casing, and the circuit may be more conveniently closed and may be held closed with greater convenience than where a button is provided which has to be depressed into the casing. This is particularly true in devices of this kind, where the contact is made directly with a battery-cell, by reason of the slight variations of the dimensions of the battery-cells or of the relative positions of the parts which necessarily occur in different articles of this class. A high degree of precision in these details of construction is not commercially practicable, and the usual slight variations are readily accommodated in the present construction, while the movement is not such as would be accidentally given to the contact device under the conditions of use.

In the construction shown in Figs. 1 to 4, inclusive, by reason of the fact that the contact-spring m is located directly above the top of the battery-cell f there is a possibility that the cell may be forced up or the cover forced down, so that some part of the resilient contact device may be normally in contact with the battery-cell, thereby closing the circuit and exhausting the battery, or may be in such proximity to the cell as to be abnormally liable to accidental closure with like effect. To guard against this possibility, I provide an insulating-bridge n , which is secured to the cover b and bridges the contact-spring m , so as to allow sufficient freedom of movement thereto, but so as to be always interposed between the contact-spring and the upper end of the battery-cell f , operating to effectually separate the battery-cell and contact-spring, so that no condition of normal circuit closure or of abnormal liability to accidental circuit closure can occur.

In the construction shown in Figs. 5 and 6 a contact-spring m' is secured to the upper cover b' and bent at a right angle and extends down longitudinally between the body and the rim of the cover, and the insulating material of the body is cut so as to permit the lower part m^2 of the contact-spring m' to be freely movable into contact with the battery-cell f . Here the circuit is closed by pressing inward the lower end of the contact-spring, and the effective flexible part of the spring in the circuit-closing operation does not include the upper part thereof shown as horizontal, and therefore it is only necessary to provide blocks of insulating material o , secured to the inner face of the cover, to pre-

vent any possible contact of a battery-cell with the conductive cover.

As the upper cover b or b' is of conductive material, the current readily flows from the
5 contact-spring m or m' to the socket of the lamp e or e' and flows therefrom into the lamp in the usual manner.

It is obvious that various modifications may be made in the constructions shown and above
10 particularly described within the spirit and scope of my invention.

What I claim, and desire to secure by Letters Patent, is—

1. A portable electric light comprising a
15 casing and a battery therein, the casing having a body of insulating material and a cover of conductive material, an electric lamp carried by the conductive cover and contacting at one terminal with one terminal of the bat-
20 tery, and a resilient circuit-closer carried by the conductive cover and arranged to close the circuit by direct contact with the battery.

2. A portable electric light comprising a
25 casing and a battery therein, the casing having a body of insulating material and a cover of conductive material, an electric lamp carried by the conductive cover and contacting at one terminal with one terminal of the bat-
30 tery, and a resilient circuit-closer carried by the conductive cover and movable longitudinally of the casing to close the circuit by direct contact with the battery.

3. A portable electric light comprising a
35 casing and a battery therein, the casing having a body of insulating material and a cover of conductive material, the cover being frictionally held on the body and slidably removable therefrom, an electric lamp carried by the cover and carrying a helical spring ar-
40 ranged to come in contact with one terminal

of the battery, and a resilient circuit-closer carried by the conductive cover and arranged to close the circuit by direct contact with the battery.

4. A portable electric light comprising a
45 casing and a battery therein, the casing having a body and a cover, an electric lamp carried by the cover and contacting at one terminal with one terminal of the battery, a re-
50 silient circuit-closer comprising a spring carried by the cover and a knob thereon projecting out of the casing, the knob being movable longitudinally of the casing in its circuit-
55 closing movement and the circuit-closer being arranged to close the circuit of the battery and lamp by direct contact with the battery.

5. A portable electric light comprising a
casing and a battery therein, the casing hav-
60 ing a body of insulating material and a cover of conductive material, an electric lamp car-
ried by the conductive cover and contacting at one terminal with one terminal of the bat-
tery, a resilient circuit-closer comprising a
65 spring carried by the conductive-cover and a knob thereon projecting out of the casing, the
knob being movable longitudinally of the cas-
ing in its circuit-closing movement and the
circuit-closer being arranged to close the cir-
cuit by direct contact with the battery, and
70 an insulating-bridge carried by the cover and projecting over the spring of the circuit-closer
between the spring and the battery, substan-
tially as set forth.

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

CONRAD HUBERT.

Witnesses:

HENRY D. WILLIAMS,
HERBERT H. GIBBS.