

No. 740,077.

PATENTED SEPT. 29, 1903.

F. W. BARTLETT.  
NON-REFILLABLE LAMP.  
APPLICATION FILED JUNE 21, 1902.

NO MODEL.

Fig. 1.

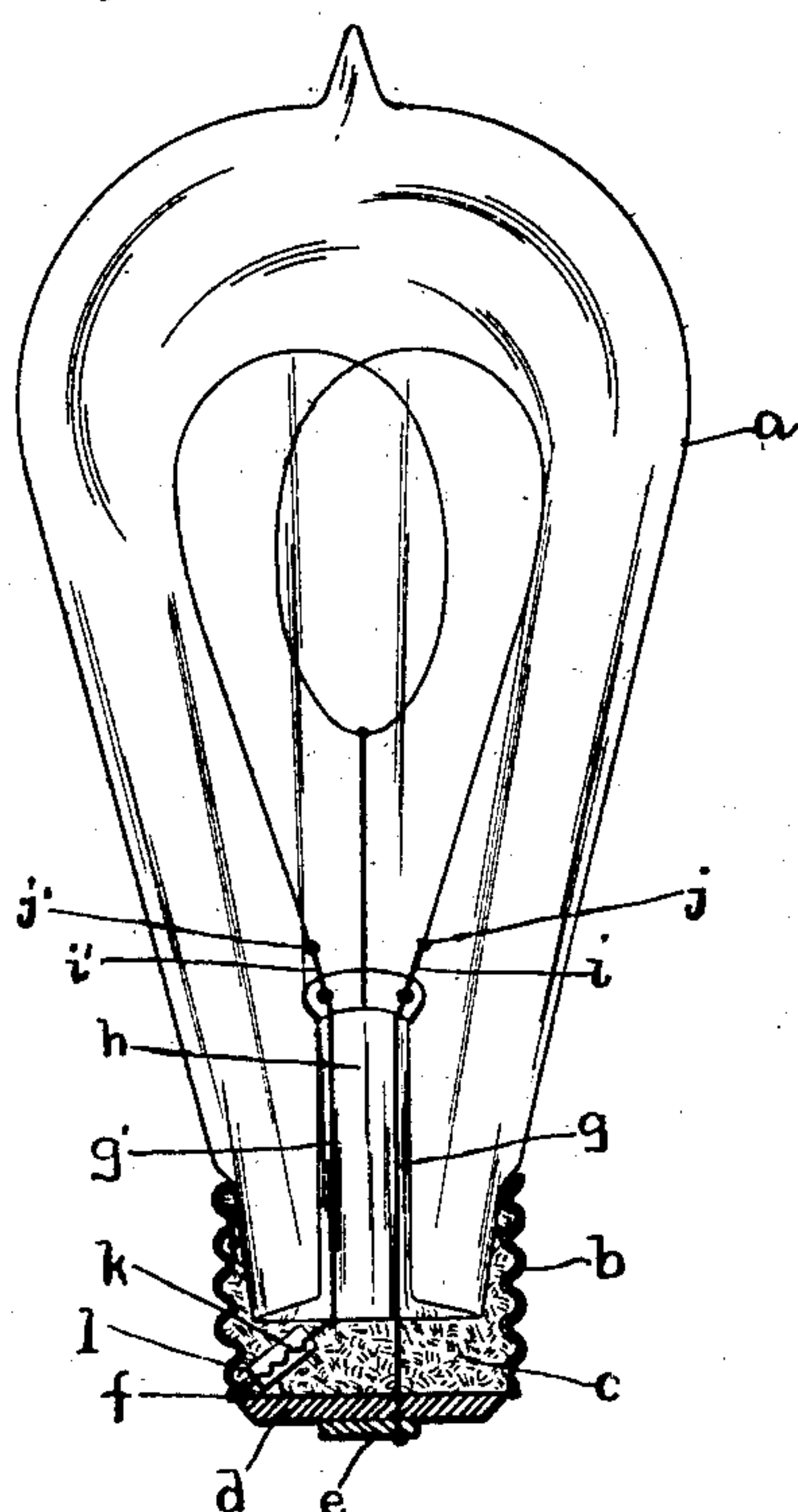


Fig. 2.

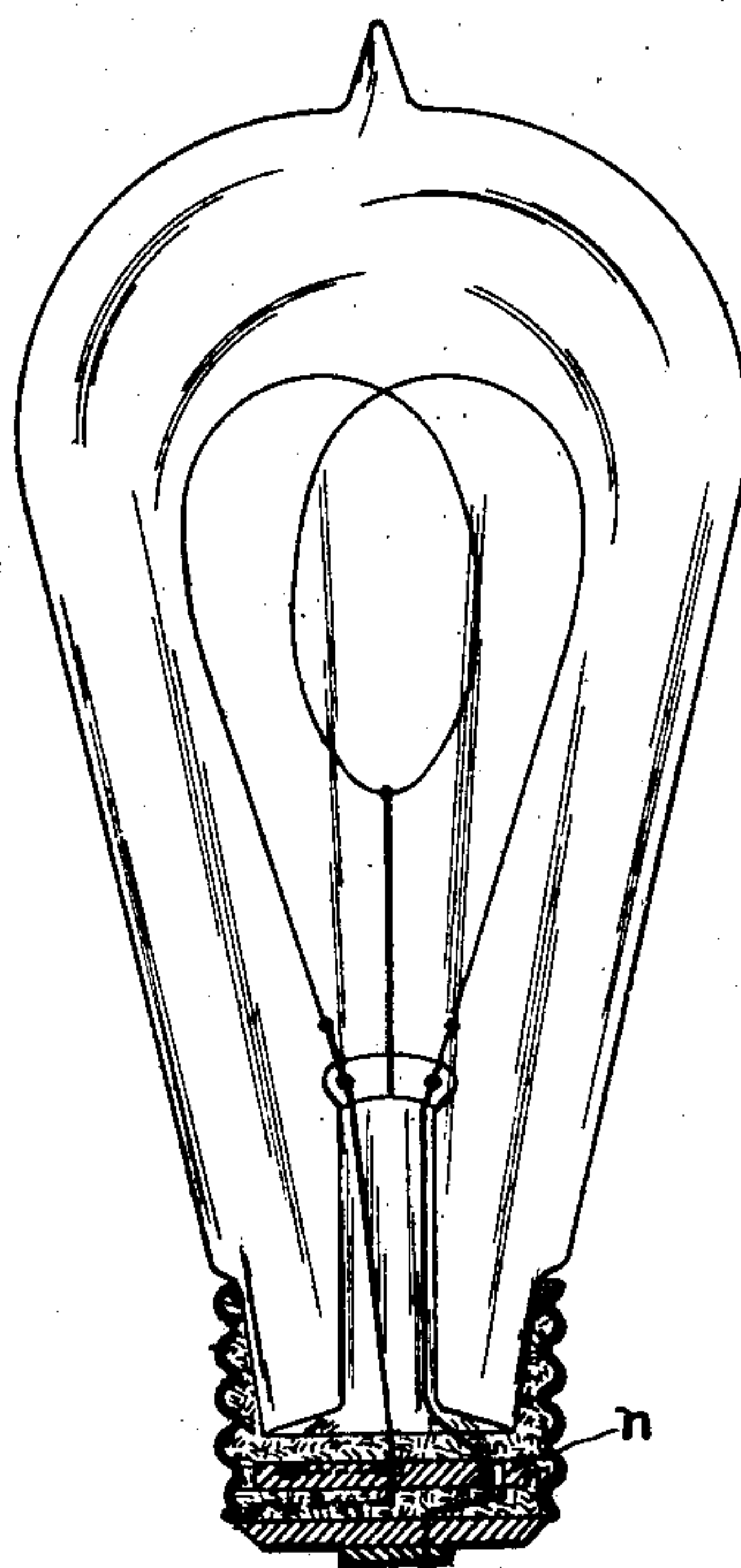


Fig. 4.

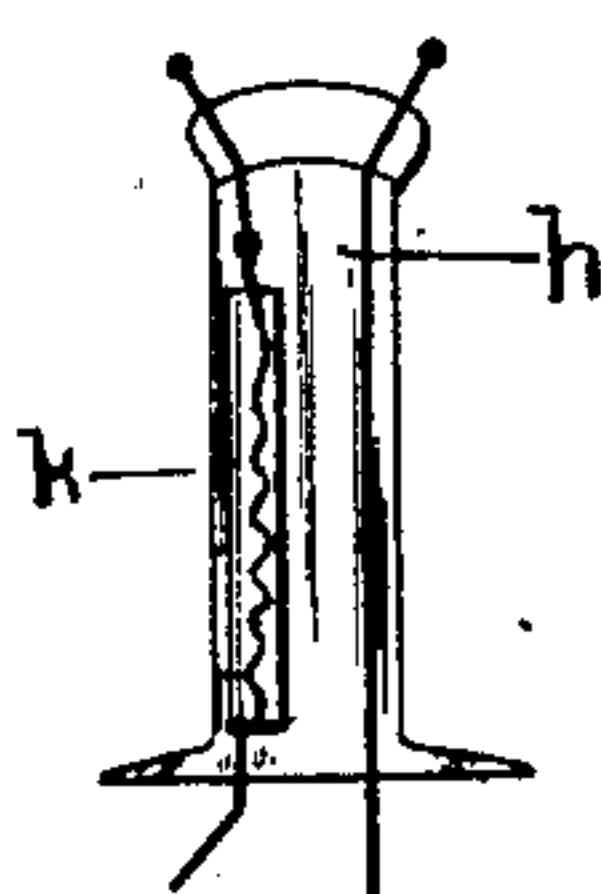
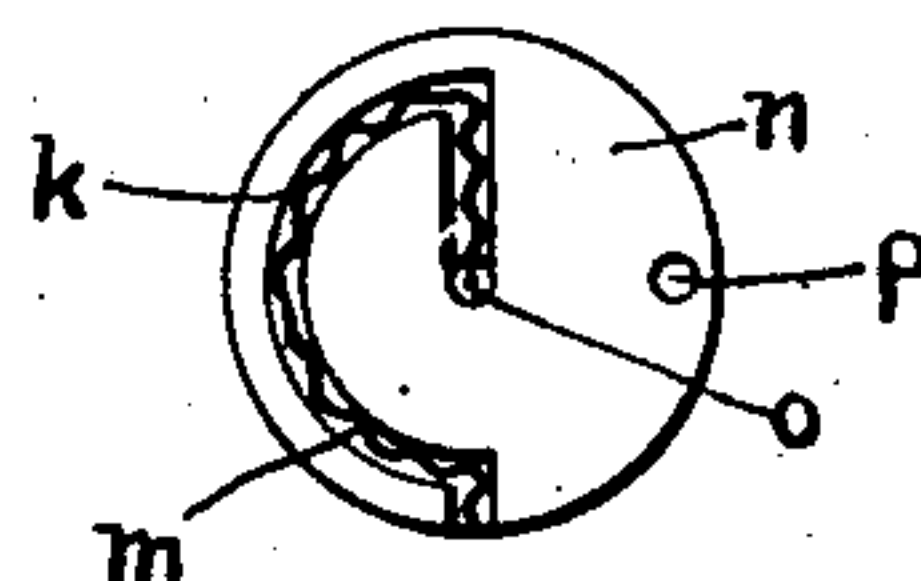


Fig. 3.



Witnesses.

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## UNITED STATES PATENT OFFICE.

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## NON-REFILLABLE LAMP.

SPECIFICATION forming part of Letters Patent No. 740,077, dated September 29, 1903.

Application filed June 21, 1902. Serial No. 112,587. (No model.)

*To all whom it may concern:*

Be it known that I, FREDERICK W. BARTLETT, a citizen of the United States, residing at New York, in the county and State of New York, have invented an Improvement in Non-Refillable Lamps, of which the following description, in connection with the accompanying drawings, is a specification, like letters on the drawings representing like parts.

My invention aims to provide a non-refillable incandescent lamp or one so constituted as to prevent the substitution of a new filament for the old one when the latter is burned out or otherwise rendered useless or inefficient. High-grade lamps when thus burned out may be obtained at very slight cost, and it is a common practice to purchase lamps in this condition, open the end or top of the lamp, remove the old filament, and insert a new one in its place. The air is then exhausted, the bulb sealed up, and the lamp again placed upon the market. This operation is often conducted by irresponsible persons lacking the necessary skill and knowledge in the art and employing inferior materials, so that the product of this refilling process, in any event an inferior one, is a very low-grade lamp, though often having every appearance of a high-grade lamp. My invention aims to correct this practice and prevent all possible injury to the reputation of the maker of the original lamp and deception of the public as well.

My invention will be best understood by the description and illustration of a specific embodiment thereof, while its scope will be particularly pointed out in the appended claims.

Referring to the drawings, Figure 1 is a central sectional view in elevation of a common form of incandescent lamp provided with one form of my invention. Fig. 2 is a similar view showing another form thereof. Fig. 3 is a plan view of the fuse-block in Fig. 2, and Fig. 4 is a detail showing a third arrangement.

In the drawings I have shown a common form of lamp, provided with the usual bulb *a*, fastened to the brass shell *b* at its neck by a mass of hard tough cementitious material *c*. A porcelain button *d* is located at the bottom of the shell and insulates the contact-

button *e* from the shell *b* and contact *f*. Button *e* is connected to one of the copper leading-in wires *g*, which passes through the button and cement into the glass stem *h*, where it is fused to the platinum wire *i*, which latter wire passes through the sealed end of the glass stem into the interior of the bulb, where it is united to the filament by the pasted joint *j*. The other leading-in wire *g'* has corresponding connections with the other end of the filament through pasted joints *j'* and platinum wire *i'* and is suitably connected to the brass shell at *f*. At some suitable position in its length is interposed a disrupting device, here shown as a fusible cut-out, represented in Fig. 1 by the fuse *k* within the protecting shell *l* of mica, fiber, or other material entirely inclosed by the cementitious mass of the base and being rendered thereby inaccessible except by the destruction of the entire base of the lamp. This fuse is adapted to carry the normal current of the lamp, but not twice the normal current, being preferably designed to blow at about fifty per cent. overload.

In Figs. 2 and 3 I have illustrated another method of arranging the fuse. A groove *m* of any desired shape or length is formed in a small porcelain or hard-rubber button *n*, which I employ as a fuse-block. The fuse is placed within this groove and the entire button embedded within the cement at the base of the lamp, wire *g'* being connected to the fuse at *o* and wire *g* passing through the button at *p*. The other end of fuse *k* is connected to the brass shell in the same manner as in Fig. 1, and this connection I have indicated in dotted lines. By this arrangement any desired length of fuse may be employed.

Fig. 4 illustrates another mode of arrangement in which the space within the glass stem *h* is utilized to receive the fuse *k*. This fuse may be of any known type. I have shown the same inclosed by a protecting-cylinder of suitable material. This fuse may be inserted within the stem after the initial exhaustion has been effected and connected to the lead-wire in any suitable manner.

The purpose and operation of this device is as follows: In the modern process of exhaustion the oxygen in the bulb is removed by causing it to combine chemically with



gaseous substances introduced therein. During this process of chemical exhaustion the pasted joints, which are commonly employed to fasten the filament to the platinum leading-in wires, must be flashed or heated to expel the gases, which they would otherwise absorb to the subsequent detriment of a good vacuum. If these joints are not flashed, the vacuum obtained when the bulb is sealed over will be too poor for commercial use. The current required for heating the pasted joints to expel the gases is ordinarily about twice the normal current in a half-ampere lamp, a current of one ampere being employed.

In the initial manufacture of the lamp the leading-in wires with their platinum ends, are sealed into the stem. The filament is then mounted on the platinum wires and inserted into the bulb, after which the flange of the stem is sealed to the bulb. The lamp is then exhausted in the ordinary manner, the copper lead-wires being connected to a suitable source of current during the exhaustion to cause the necessary heating of the pasted joints. When exhaustion has been effected and the bulb sealed up, the fuse  $\frac{1}{2}$  is then inserted in one of the lead-wires and with the bulb is cemented into the shell. The lamp is now in condition for use; but the filament cannot be renewed in the manner above indicated, for the fuse  $\frac{1}{2}$  will cause a disruption of the lamp-circuit if sufficient current is passed through it to flash the pasted joints and in the form shown in Fig. 1 being embedded in the hard cement cannot be replaced or repaired without such destruction of the lamp or displacement of its parts as to impair its commercial value or require a prohibitive expense for correction.

By constructing my lamp as shown I obtain the effect and advantages of an inclosed fuse protected from the atmosphere by the moisture-proof cement, thereby materially increasing the sensitiveness and effectiveness of the device. It is to be understood, however, that the location of the cut-out is not an essential feature of my invention and that it may be placed in any suitable position in or upon the lamp. In this connection I contemplate the employment of any form of fuse which is adapted to accomplish the result indicated and afford reliable operation, and all known and usual accessories therefor are within the scope of my invention.

It is to be understood also that my invention is not limited to the mere use of a fuse, but broadly covers any disruptive device used in this connection, and that I include thereby any device affected by increase of current or by any manifestation whatever resulting from an attempt to renew the filament to cause injury of any kind to the lamp, whether that injury be to the circuit of the

lamp or to other parts thereof. The specific form disclosed wherein I have shown a fusible cut-out for breaking the lamp-circuit is but one embodiment of my invention submitted for illustrative purposes only, and other applications of the broad idea herein disclosed which will be apparent to those skilled in the art fall within the scope of my invention.

I claim—

1. A non-refillable incandescent lamp having means to render said lamp unfit for use on the renewal of its filament.
2. An incandescent lamp comprising a bulb, filament and leading-in wires having a fusible cut-out in series with the filament between the terminals of the leading-in wires.
3. The combination of an incandescent lamp and means applied to said lamp after its initial exhaustion and the heating of its pasted joints to render said lamp unfit for use on subsequent exhaustion and heating of said pasted joints.
4. The combination of an incandescent lamp and means within the lamp itself for rendering said lamp unfit for use on the passage of more than the normal current there-through.
5. An incandescent lamp provided with disrupting means, applied after initial installation of the filament to prevent reinstallation of such filament.
6. The combination of an incandescent lamp and a fuse therefor inaccessibly located within said lamp.
7. The combination of an incandescent lamp having a filament connected to leading-in wires through pasted joints and means associated therewith for causing the disruption of the lamp-circuit when said pasted joints are heated to expel gases therefrom.
8. The combination of an incandescent lamp and a fuse within the lamp adapted to open the lamp-circuit at less than twice the normal current of the lamp.
9. The combination of an incandescent lamp and a fuse within the lamp protected from external manipulation.
10. The combination of an incandescent lamp and a fuse within the lamp protected from external manipulation by a body of cementitious material.
11. The combination of an incandescent lamp and an inclosed inaccessible fuse within the lamp.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

FREDERICK W. BARTLETT.

Witnesses:

ISAIAH A. HUSON, Jr.,  
CHAS. B. HART.