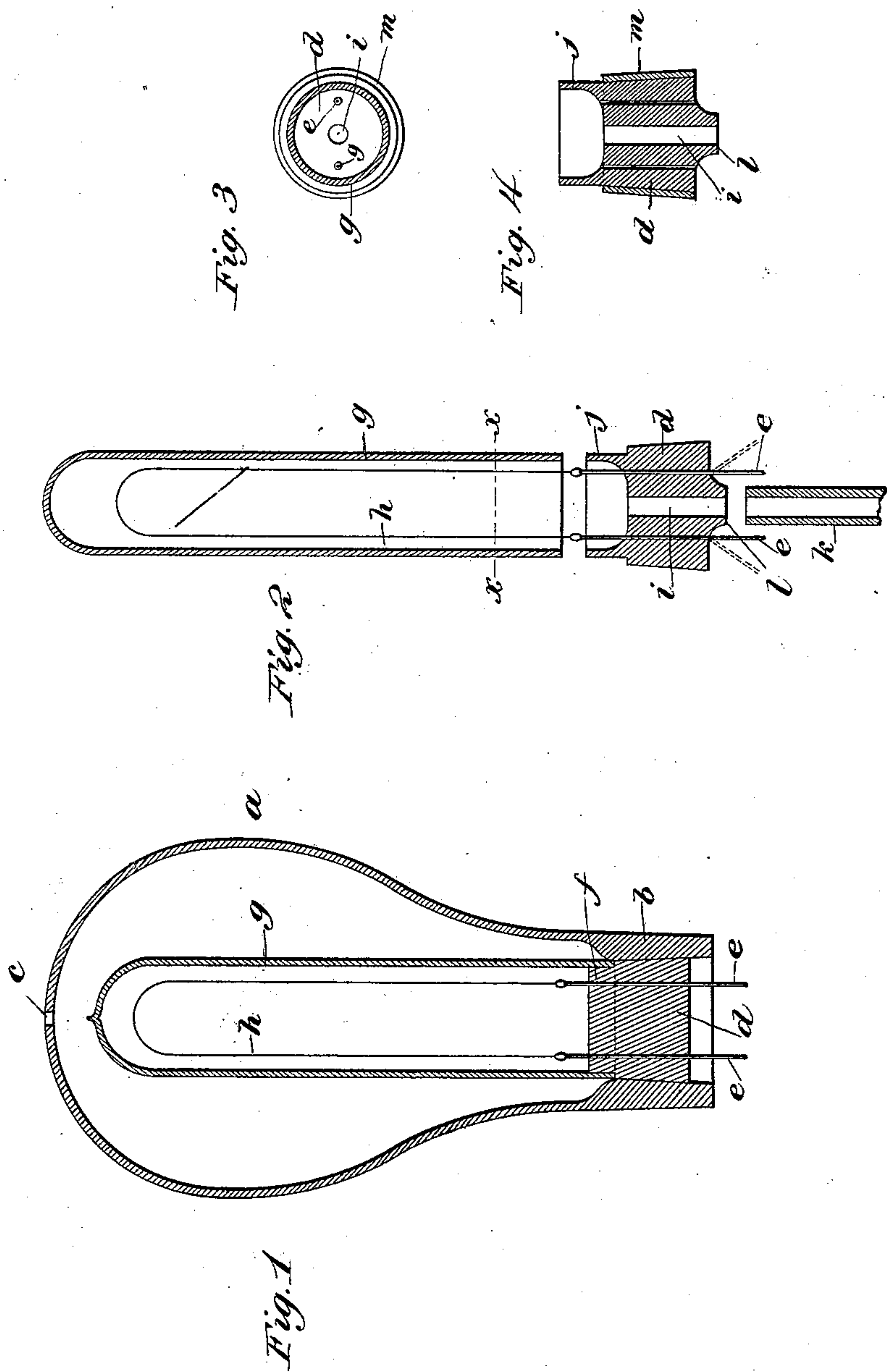


(No. Model.)

A. C. CAREY.
INCANDESCENT LAMP.

No. 512,464.

Patented Jan. 9, 1894.



Witnesses

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UNITED STATES PATENT OFFICE.

AUGUSTUS C. CAREY, OF LAKE PLEASANT, MASSACHUSETTS.

INCANDESCENT LAMP.

SPECIFICATION forming part of Letters Patent No. 512,464, dated January 9, 1894.

Application filed March 29, 1893. Serial No. 468,163. (No model.)

To all whom it may concern:

Be it known that I, AUGUSTUS C. CAREY, a citizen of the United States, residing at Lake Pleasant, in the county of Franklin and State of Massachusetts, have invented a certain new and useful Improvement in Incandescent Lamps, of which the following is a full, clear, and exact description.

The objects, among others, of this invention are to provide a shade or globe for electric lamps, to effect an economy in the manufacture of such lamps, increase the durability or longevity of the lamps and provide for the ready renewal of "dead" lamps.

In attaining the objects of my invention, I use a shade, globe or bulb which is adapted to be fitted to ordinary sockets and which receives and supports a filament-containing tube which is removable therefrom at pleasure.

Having thus stated the principle of my invention, I will proceed now to describe the best mode in which I have contemplated applying that principle, and then will particularly point out and distinctly claim the part, improvement or combination, which I claim as my invention.

In the accompanying drawings illustrating my invention, in the several figures of which like parts are similarly designated, Figure 1 is a longitudinal section of one form of my lamp. Fig. 2 is a longitudinal section of a disassembled tube, showing another form thereof. Fig. 3 is a cross section of the tube, taken in the plane of line $x-x$, Fig. 2; and Fig. 4 is a longitudinal section of another form of stopper.

a is the globe or bulb, made of glass or other transparent or translucent material, of pear or other shape, of any desired thickness and having the thickened or reinforced butt b , which butt is, by preference, made with a tapering bore, although such bore may be straight. The butt is adapted to be fitted to or to receive an ordinary or other socket. An opening c is made in the bulb, and preferably at a point opposite its butt, to permit the escape of heat and to facilitate cleaning. The butt of the bulb is adapted to receive a stopper d , which is made of glass or other material, plastic or otherwise. I prefer to use a

glass stopper, and to fit it to the bore of the globe by a ground joint, which joint obviously need not be air-tight, and only sufficiently close to cause the stopper and the globe to hold together frictionally when assembled. The stopper is supplied with the leading-in wires e . The inner end of the stopper is shouldered at f , and to this shouldered portion a tube g of glass is fused or otherwise secured in an air-tight manner. Within this tube is arranged the incandescing filament h , which is appropriately united to the leading-in wires. In constructing this filament-containing tube, the stopper is supplied with the leading-in wires and the filament attached thereto; then the tube g is secured to the stopper and then the tube is exhausted by suitable connections at its inner end, and then that end sealed as usual. The filament-containing tube, comprising the stopper, leading-in wires, filament and tube g , which, for convenience, I shall hereinafter refer to as the illuminating device or tube, is then ready to be inserted in the globe or bulb and the whole to be applied to a socket. The projecting ends of the leading-in wires afford convenient contacts for completing the circuit through such socket; and, moreover, these leading-in wires preferably are of sufficiently stout wire to afford finger-holds for grasping the illuminating tube to insert it in and remove it from the globe or bulb.

Instead of the construction of the illuminating tube just described, I may make the stopper with a longitudinal hole i , Fig. 2, and a tubular or hollow shouldered portion j , and the tube g may be made with one end closed, like a test tube or bottle, and have its open end butt-jointed and fused or otherwise united with the tubular portion j , and the tube then exhausted by application of an exhausting tube k to a reduced portion l of the stopper, which exhausting tube is thereafter sealed off in usual manner.

In order to apply and remove the exhausting tube, the leading-in wires may be bent aside as indicated by the dotted lines in Fig. 2.

In Fig. 4, I have shown the stopper supplied with a jacket or bushing m , which may be of vulcabeston or other refractory substance that will make a tight fit in the bore

of the butt of the bulb and thus avoid the necessity and expense of grinding.

The tube *g* and the stopper may be made integral or in one piece, if desired, but the constructions hereinbefore described are believed to be preferable for economical reasons.

It will be understood that the leading-in wires may be molded in the stopper in the manufacture of the latter.

Some of the advantages resulting from this construction of incandescent lamp are, that the globe or bulb acts as a shade or globe proper, and is joined with the illuminating device and applied to the fixtures, not separately, as heretofore, but together with the illuminating device; and it may be made of thick glass, and therefore is less liable to break than the thin exhausted globes. The illuminating tube may be made at less cost than the present common incandescent lamps, and being protected by the globe of thick glass, is less liable to be broken; being so much smaller than usual lamps, it may be more readily and more perfectly exhausted, and hence the longevity of the lamp is increased.

What I claim is—

1. In an incandescent lamp, an external protecting and supporting bulb having a tubular butt by which it may be applied to an ordinary electric lamp socket, and a stopper fitted to and supported in the tubular butt of said bulb and supplied with leading-in wires and an incandescing filament, combined with an exhausted tube fused to the inner end of the stopper and inclosing the filament and inner ends of the leading-in wires to which the filament is secured, substantially as described.

2. In an incandescent lamp, an external bulb which constitutes a protector and support for the illuminating device, is in open communication with the external atmosphere, and is provided with a tubular butt by which it may be applied to an ordinary electric lamp socket, combined with such illuminating device, consisting essentially of a stopper fitted to and supported in the tubular butt of said bulb and supplied with leading-in wires and an incandescing filament, and an exhausted tube secured to the inner end of the stopper and inclosing the filament and inner ends of the leading-in wires to which

the filament is secured, substantially as described.

3. In an incandescent lamp, a globe or bulb having a tubular butt provided with a tapering bore, combined with an illuminating tube having a stopper adapted to be fitted to such bore, substantially as described.

4. In an incandescent lamp, a stopper adapted to be removably fitted to and supported in the tubular butt of a globe which is capable of being applied to an ordinary electric lamp socket, the said stopper being supplied with leading-in wires, an incandescing filament, and an exhausted tube fused to the inner end of such stopper and inclosing the filament and leading-in wires, substantially as described.

5. In an incandescent lamp, the combination with an external protecting and supporting bulb having a tubular butt by which it may be applied to an ordinary lamp socket, of a stopper fitted to and supported in the tubular butt of said bulb and supplied with leading-in wires and an incandescing filament and having a shouldered inner end, and an exhausted tube fused to such shouldered inner end and receiving the filament and ends of the leading-in wires to which the filament is secured, substantially as described.

6. In an incandescent lamp, a stopper adapted to be removably fitted to and supported in the tubular butt of a globe which is capable of being applied to an ordinary electric lamp socket, the said stopper being supplied with leading-in wires, an incandescing filament and an exhausted tube fused to the inner end of such stopper and inclosing the filament and leading-in wires, the said stopper having a longitudinal perforation affording a medium through which the tube may be exhausted, substantially as described.

7. In an incandescent lamp, a globe or bulb having a tubular butt, combined with an illuminating tube having a jacketed or bushed stopper adapted to be fitted into such tubular butt, substantially as described.

In testimony whereof I have hereunto set my hand this 25th day of March, A. D. 1893.

AUGUSTUS C. CAREY.

Witnesses:

JOHN E. DONOVAN,
CHAS. ALLEN.