C. E. BUELL.

ELECTRIC INCANDESCENT LAMP.

No. 344,343. Patented June 29, 1886.

Fig. 1.

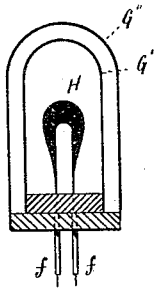
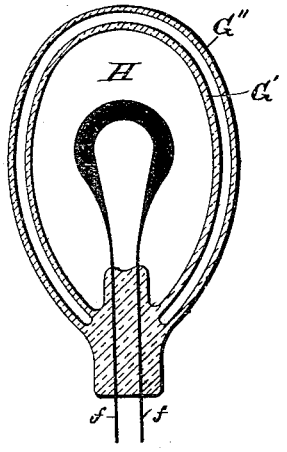



Fig. 2.




Witnesses.
W. A. Spalding.
E. A. Webster.

Inventor
Charles E. Buell

# UNITED STATES PATENT OFFICE.

CHARLES E. BUELL, OF NEW HAVEN, CONNECTICUT.

## ELECTRIC INCANDESCENT LAMP.

SPECIFICATION forming part of Letters Patent No. 344,343, dated June 29, 1886.

Application filed February 24, 1880. Serial No. 3,357.

*To all whom it may concern:*

Be it known that I, CHARLES E. BUELL, of New Haven, in the county of New Haven, Connecticut, have invented certain new and useful Improvements in Incandescent Electric Lamps; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part of this specification, and to the figures and letters of reference marked thereon.

Heretofore, when incandescent electric lamps have been made by inclosing a refractory resisting-conductor in a sealed globe from which the atmosphere has been wholly withdrawn, it has been found difficult to maintain a vacuum within the globe, and the globes so constructed are liable to be easily broken by slight drafts of cool air striking them when they become heated by reason of the proximity to the incandescent conductor; and it is therefore the object of my invention to obviate the above-named objections and provide a lamp that is perfectly air-tight, and is not liable to be broken by drafts of cool air passing over it when lighted, all as I will now proceed to describe, and point out in the claims at the end of this specification.

In the drawings, Figure 1 represents a cross-section of an electric lamp composed of the carbon resistance H, contained in the sealed globes G′, from which the air is as nearly as possible exhausted. The lamp thus formed is contained in a second globe, G″, from which the air is also either in whole or in part exhausted, and through which the conducting-wires pass and penetrate to the carbon in the interior globe, and are shown at *f f* as insulated wires. By so inclosing the exhausted globe G′ in a second exhausted globe leakage is prevented by having a nearly equal pressure both exterior and interior of the globe, G′. The heat which is produced by the passage of the current through the lamp is liable to heat the glass globes which contain the conducting resistances, and slight drafts of cool air upon the outside tend to crack such globes; but by inclosing them in a second and exhausted globe the outside globe remains cool and is not cracked, and shields the inner globe from those currents of air which would crack it.

Various forms may be given to the globes, and any of the well-known modes of supporting and controlling the electric lamps may be employed, such for instance, as shown in Fig. 2, in which the connecting-wires *f f* are sealed into the glass and the globes are exhausted and fused at the outer ends as ordinarily.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

1. The combination of an internal exhausted globe, an external exhausted globe, an incandescing filament, and lead-in gin wires passing through and sealed into both globes, substantially as described.

2. The combination, in an electric lamp, of a loop of carbon inclosed in an exhausted globe, which is inclosed in a second exhausted globe, each globe being sealed separately, thereby securing the inner vacuum from leakage of air from without, substantially as described.

3. The combination, in an electric lamp, of a carbon loop inclosed in double exhausted globes which are sealed separately, and metallic connections passing through the globes and sealed therein, the whole arranged in such a manner as to prevent the heating of the outer globe and expansion and contraction of the conducting-wires in the outer sealing, substantially as described.

In testimony whereof I have hereunto set my hand, this 21st day of February, A. D. 1880, in the presence of two subscribing witnesses.

CHARLES E. BUELL.

Witnesses:
CHAS. R. WHEDON,
JAMES A. WOOD.