

No. 787,428.

PATENTED APR. 18, 1905.

F. H. BLACKBURN.
INCANDESCENT ELECTRIC LAMP.

APPLICATION FILED JAN. 6, 1904.

Fig. 1.

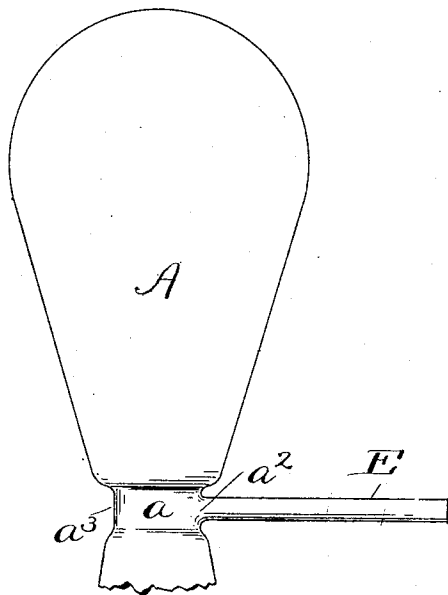


Fig. 2.

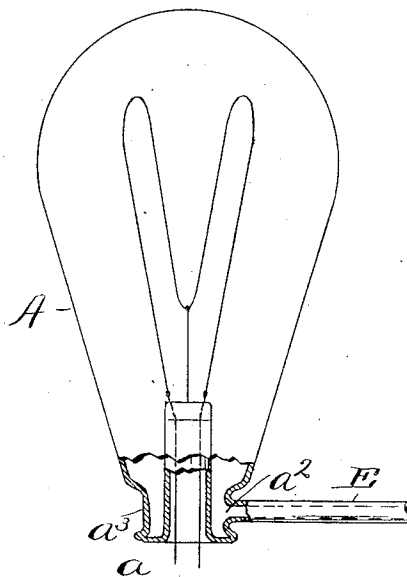


Fig. 3.

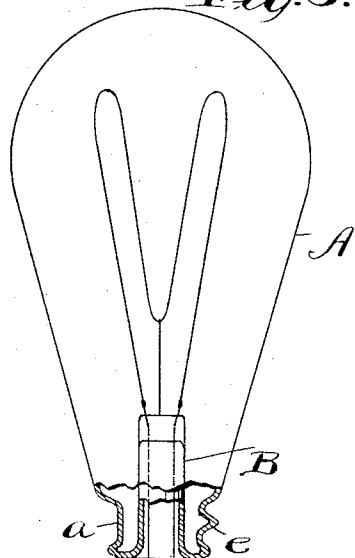
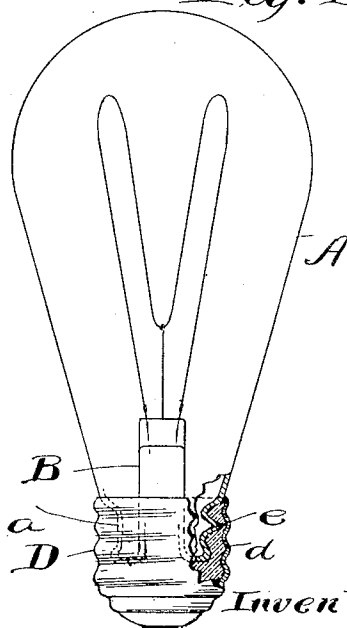


Fig. 4.



Witnesses.
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UNITED STATES PATENT OFFICE.

FRANK H. BLACKBURN, OF FOSTORIA, OHIO, ASSIGNOR TO THE NATIONAL ELECTRIC LAMP COMPANY, OF CLEVELAND, OHIO, A CORPORATION OF NEW JERSEY.

INCANDESCENT ELECTRIC LAMP.

SPECIFICATION forming part of Letters Patent No. 787,428, dated April 18, 1905.

Application filed January 6, 1904. Serial No. 187,887.

To all whom it may concern:

Be it known that I, FRANK H. BLACKBURN, a citizen of the United States, residing at Fostoria, in the county of Seneca and State of Ohio, have invented a certain new and useful Improvement in Incandescent Electric Lamps, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

This invention is a so-called "tipless" incandescent lamp—that is to say, an incandescent lamp which has no visible tip.

The tip on an incandescent lamp is the pointed projection which remains attached to the lamp after the exhaustion-tube has been fused off, which tip seals the hole through which the air is exhausted. Ordinarily these tips are at the extreme outer end of the bulb. Wherever they are, if in the visible part of the bulb, they are objectionable for many reasons well understood in this art. Many efforts have been made to do away with the visible tip; but such efforts have heretofore not resulted in any satisfactory practical construction. In a practical construction the exhaustion-tube, of which the tip is the remains, must be accessible throughout its length during the manufacture of the lamp, so that it can be repaired when broken, and it is very liable to be broken during the repeated necessary handling. Said exhaustion-tube must not be attached so near another seal that the glass at the point of attachment is under strain due to the other seal, because thereby the liability to breakage is multiplied. It must not require the reduction in the size of the bulb or any variation from the standard size of the lamp-base.

A lamp constructed according to the invention herein described has all of the necessary characteristics above referred to, and, moreover, it costs no more to make the lamp than it does to make the ordinary lamps in common use with the visible tip.

The invention in its entirety consists in an incandescent lamp having its tip projecting out from the side of the neck of the bulb and

covered, concealed, and protected by the shell of the lamp-base; and it consists, further, in certain details of construction, to be hereinafter definitely pointed out.

In the drawings, Figure 1 is an elevation of a lamp-bulb, showing its condition in an early stage in the manufacture of a lamp in accordance with this invention and having the exhaustion-tube secured thereto. Fig. 2 is a similar view of the lamp after the stem has been inserted into and sealed to the bulb. Fig. 3 is a similar view of the lamp after the exhaustion-tube has been fused off and the opening sealed, but before the base has been applied; and Fig. 4 is a similar view of the completed lamp, one side of the neck and of the base being in section.

Referring to the parts by letters, A represents the lamp-bulb of familiar outline and of regular size, *a* being the neck thereof.

B represents the stem, whose flaring lower edge is sealed to the lower end of the neck.

D represents the base of the lamp, having the usual threaded shell, which is intended to be secured upon the neck in the usual way.

In that part of the neck *a* which will be embraced by and covered by the shell *d* of the base is a perforation *a'*, which is preferably formed before the stem B is sealed to the lower end of the neck. This perforation is in the best construction, as shown, formed in a portion *a''* of said neck which is depressed below the adjacent surfaces, said depression being, as shown, annular, extending entirely around the neck. The exhaustion-tube E is fused to the neck over this perforation, as shown in Fig. 2, and then the stem is sealed to the neck. After the air has been exhausted this exhaustion-tube is fused off as close to the neck as possible, thereby sealing the bulb and leaving the projecting tip *e*, which tip, however, because it projects from the depressed surface *a'*, does not project far enough to interfere with the application in the usual way of the standard base D. The shell *d* of the base covers, conceals, and protects the tip.

The described lamp is tipless in the ordi-

nary sense and is quite as strong and no more expensive than the ordinary lamps.

I claim—

1. In an incandescent lamp, a bulb having a depression in its neck, and the tip which seals the air-exhaustion hole projecting from said depressed portion.
2. In an incandescent electric lamp, the combination of a bulb having a neck and a tip projecting laterally out from said neck, with a metallic base having a shell which embraces said neck and conceals and protects said tip.
3. In an incandescent electric lamp, the com-

bination of a bulb having a depression in its neck and the tip projecting out from said depressed portion, with a base having a shell which embraces said neck and covers said depressed portion thereof and thereby conceals and protects said tip.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

FRANK H. BLACKBURN.

Witnesses:

A. H. WINSLOW,
E. J. KULAS.