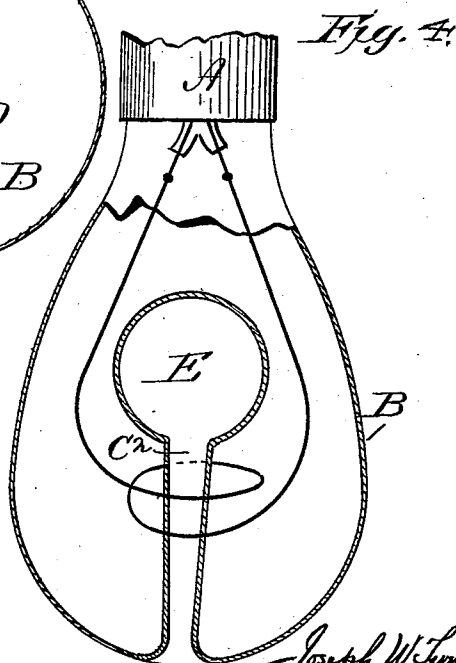
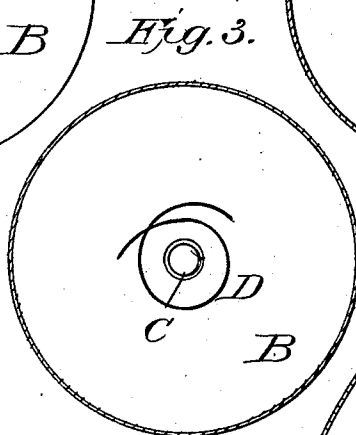
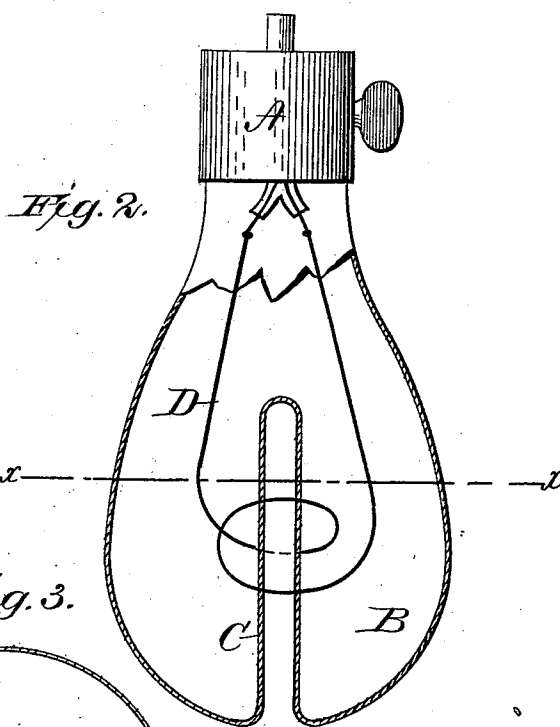
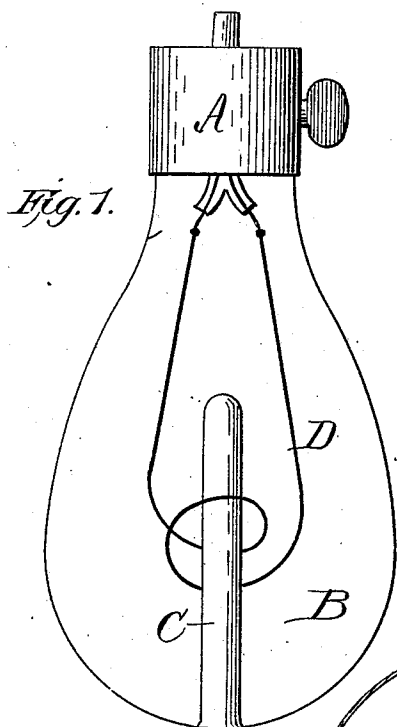


(No Model.)

J. W. TURNBULL.  
REFLECTOR FOR ELECTRIC LAMPS.

No. 512,636.

Patented Jan. 9, 1894.



WITNESSES  
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# UNITED STATES PATENT OFFICE.

JOSEPH W. TURNBULL, OF PASCAGOULA, MISSISSIPPI, ASSIGNOR OF THREE-FIFTHS TO CHARLES BOSTER, OF SAME PLACE, AND EMILE FERDINAND DEL BONDIO, OF NEW ORLEANS, LOUISIANA.

## REFLECTOR FOR ELECTRIC LAMPS.

SPECIFICATION forming part of Letters Patent No. 512,636, dated January 9, 1894.

Application filed November 3, 1891. Serial No. 410,723. (No model.)

### *To all whom it may concern:*

Be it known that I, JOSEPH W. TURNBULL, a citizen of the United States, residing at Pascagoula, in the county of Jackson and State of Mississippi, have invented certain new and useful Improvements in Reflectors for Electric Lamps; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The object of my invention is to produce an improved incandescent electric lamp, and it consists in providing within the lamp a hollow, silvered reflector, closed at its inner end and open at its outer end, whereby the rays are reflected or refracted; while, at the same time, by the circulation of air in the tube, the lamp will not become injuriously heated.

In the accompanying drawings: Figure 1 is a side elevation of my lamp. Fig. 2 shows the lower part thereof in central vertical section. Fig. 3 is a section on the line  $x-x$  of Fig. 2. Fig. 4 is a view corresponding to Fig. 2, but showing a somewhat modified form of reflector.

Referring to the figures on the drawings: A indicates the socket or head of my reflector lamp and B the bulb thereof secured therein, as usual.

C indicates a tube of non-conducting material, preferably glass, projecting from the bottom of the bulb inwardly and having its lower end open and its upper end closed, as illustrated. The tube may be blown into the bulb in its manufacture, or it may be made separately and united to the bulb by fusion. It may be made cylindrical, as shown in Figs. 1

and 2, or it may have a globular head E and a tapering neck C<sup>2</sup>, as shown in Fig. 4. The interior of the tube is coated with a suitable bright material, as, for instance, quicksilver, to constitute a reflector.

D indicates the carbon filaments that are, in the suitable and ordinary way, fastened in the upper end of the lamp, but which are preferably of such a length as to permit of their being wrapped around the reflector.

What I claim is—

1. In an incandescent lamp, the combination with a bulb adapted in use to inclose a vacuum, of a head at one end thereof; and a cylindrical reflector projecting in the said bulb having its inner end closed and its outer end open, said open end being at the opposite end of the bulb with respect to the head, the said reflector being entwined with filaments supported by the head, substantially as and for the purpose specified.

2. As a new article of manufacture, an incandescent electric lamp bulb, adapted in use to inclose a vacuum, having an end adapted to receive an ordinary head or socket, and in its outer end an inwardly projecting parallel sided reflector, having its inner end closed and its outer end open whereby the same may be ventilated, said ventilator opening being in the opposite end from the head, substantially as and for the purpose specified.

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

JOSEPH W. TURNBULL.

Witnesses:

C. D. MOORE,  
C. S. MERIWETHER.