

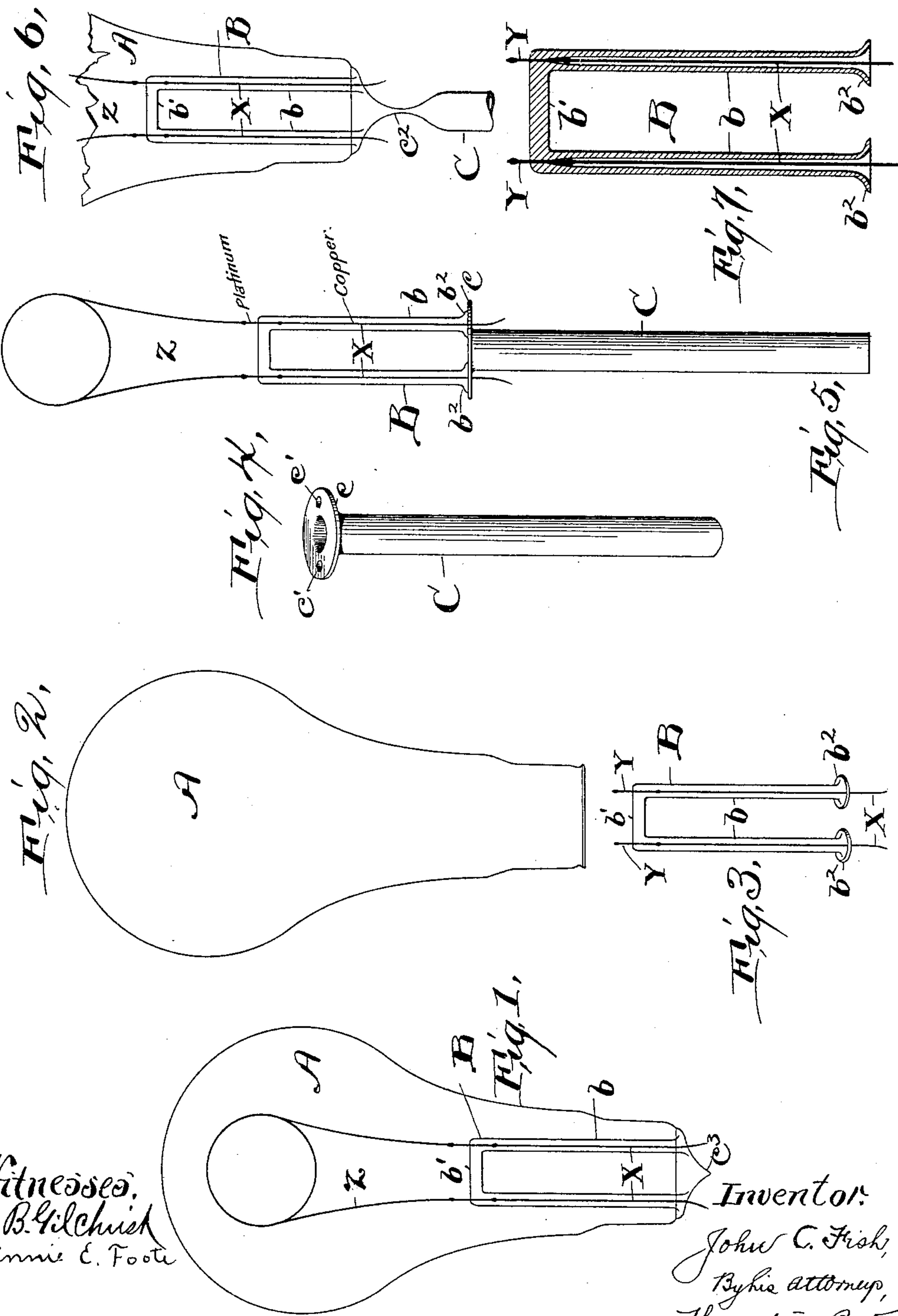
(No Model.)

J. C. FISH.

INCANDESCENT ELECTRIC LAMP AND PROCESS OF MAKING SAME.

No. 598,726.

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Witnesses:
E. B. Gilchrist
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UNITED STATES PATENT OFFICE.

JOHN C. FISH, OF SHELBY, OHIO, ASSIGNOR TO THE SHELBY ELECTRIC COMPANY, OF SAME PLACE.

INCANDESCENT ELECTRIC LAMP AND PROCESS OF MAKING SAME.

SPECIFICATION forming part of Letters Patent No. 598,726, dated February 8, 1898.

Application filed August 3, 1897. Serial No. 646,972. (No model.)

To all whom it may concern:

Be it known that I, JOHN C. FISH, a citizen of the United States, residing at Shelby, in the county of Richland and State of Ohio, have
5 invented certain new and useful Improvements in Incandescent Electric Lamps and the Process of Making the Same; and I do hereby declare the following to be a full, clear, and exact description of the invention, reference being had to the accompanying drawings.

The primary object of my invention is to provide an incandescent electric lamp which may be cheaply constructed and economically exhausted at its base.

15 Another object is to provide means for attaching in the lamp-globe a cheap and very efficient mount, which insulates the leading-in wires from each other and establishes them in convenient position for treating the lamp.
20 I have invented a lamp having these qualities and have discovered a process by which it may be very economically constructed, and I regard as my invention, first, the combination of steps constituting the process; second, the
25 product resulting from these steps in the manufacture of the lamp, and, third, the completed lamp.

The invention consists, therefore, in the succession of steps and the combination of parts
30 hereinafter described, and definitely enumerated in the claims.

In the drawings, Figure 1 is a lamp made in accordance with my invention, the cap by which connection is made with the socket
35 being left off. Fig. 2 is an elevation of the globe before the filament and mount are secured in it. Fig. 3 is a perspective view of the mount. Fig. 4 is a perspective view of the flanged tube by means of which the
40 mount is secured to the lamp. Fig. 5 is an elevation of the flanged tube and the mount secured together. Fig. 6 is an elevation of the lower end of the lamp after the mount and flanged tube have been fused to it. Fig.
45 7 is a vertical section through the mount.

Similar letters of reference designate similar parts of each figure.

Referring to the parts by letters, A represents the globe of the lamp. This is preferably made in the usual pear-shaped form
50 shown, being open at its lower end.

B represents the mount, which is composed of two parallel glass tubes *b*, united at their upper ends by a bridge *b'*. This bridge is preferably a solid piece of glass fused to each
55 of the tubes, and each of the tubes is fused at its upper end around a platinum wire *Y*. To the upper ends of these platinum wires is secured the filament *Z* in the ordinary manner, while to their lower ends are secured the
60 copper leading-in wires *X*. These copper wires stand loosely in the tubular holes in the mount, as shown in Fig. 7, and only the platinum is embedded in the glass. By this construction only short pieces of platinum are
65 necessary, while efficient protection is given against leakage of air, and the leading-in wires are insulated throughout.

C represents a tube having on one end a flange forming a disk or plate *c* of substantially the same diameter as that of the opening at the base of the globe A. Through this
70 flange are formed a pair of holes *c'*, which are substantially the same distance apart as the two legs of the mount.

75 The first step in the process consists in taking the mount and the flanged tube and fusing them together, the mount and tube C being on opposite sides of the plate *c*, and the ends of the mount being joined to said plate.
80 In order that this fusing may be conveniently accomplished, flanges *b'* are previously formed at the base of the two legs of the mount, as shown. Fig. 5 shows the flanged tube and
85 mount fused together. The filament can be connected to the platinum wires either before or after this fusing, as desired. In place of the round holes *c'* in the flange or plate *c* notches may be made in the periphery of that
90 plate. I am using the term "holes" herein as covering such construction also. The mount having the flanged tube attached and carrying the filament, as is shown in Fig. 5, is now
95 placed inside the globe A, and the periphery of the flange is fused to the edge of the globe. In this operation the tube acts as a very convenient handle for holding plate *c'* and the mount in proper position, though some of the objects of my invention might be attained by using
100 a plate *c* without the tube C, the mount being fused to the plate and the plate being then fused to the lamp-globe. When using a sepa-

rate plate, the lamp of course requires tubulation at some convenient point to enable exhaustion, and this is preferably in the plate itself.

5 The exhausting-tube (whether the flanged tube or a separate tube) is preferably drawn down near the lamp, as shown at c^2 in Fig. 6. This drawing down is usual and leaves a sufficient tubular hole for the exit of the air, 10 while enabling the lamp to be easily sealed off after exhaustion. The lamp in this condition has its tube attached to any satisfactory air-pump and is exhausted. After exhaustion the tube is fused off at the drawn- 15 down portion, and the lamp is thus left hermetically sealed.

With my preferred method of making the lamp, as above pointed out, the sealing-point is at the base of the lamp, giving the approxi- 20 mately conical form as shown at c^3 in Fig. 1. This point thus comes inside of the brass cap instead of projecting at the head of the globe. This makes a much neater-looking lamp, the danger of laceration by the point is removed, 25 and the lamp is otherwise more satisfactory.

The convenient means which the flanged tube affords the operator of holding the mount in position with reference to the globe when the two are being sealed together over- 30 comes one of the great difficulties heretofore attendant upon securing mounts in bottom-exhaustion lamps, while that tube overcomes another difficulty in the construction of such lamps in supplying a convenient and 35 satisfactory exhaust-tube.

The number of lamps which the operator can produce in a given time by the use of my flanged tube in connection with the mount is very largely in excess of those he can produce 40 by fusing the mount direct to the globe without the intervention of the tube.

Having thus described my invention, I claim—

1. In the manufacture of an incandescent 45 electric lamp, the following steps, namely, taking a tube having a flange on its end, fusing to the side of the flange which is opposite the tube a mount, said flange being substantially flat or in the form of a disk whereby 50 the fusing-flame may conveniently be brought against the side thereof opposite the tube, and fusing said flange to the base of the lamp-globe, substantially as described.

2. In the manufacture of an incandescent 55 electric lamp, the following steps, namely, forming on the end of a tube an outward annular disk-like flange substantially as shown,

fusing a mount to the side of the flange opposite the tube, fusing the flange to the base of the lamp-globe, and exhausting the globe, 60 substantially as described.

3. In the manufacture of an incandescent electric lamp, the following steps, namely, fusing a mount to the flange of a flanged tube, placing the mount in a lamp-globe and fus- 65 ing the flange thereto, drawing down the tube near the flange, thus reducing the bore at this point, exhausting the air from the globe and sealing off the tube at the said drawn-down portion, substantially as described. 70

4. The combination of a mount for an electric lamp, consisting of two tubes rigidly braced together, and a flanged tube, said mount being fused to said flange on the op- 75 posite side from the tube, and leading-in wires projecting from the tubes through the flange, substantially as described.

5. The combination of a U-shaped mount for an incandescent electric lamp, and lead- 80 ing-in wires projecting from each end of the U, a flanged tube having its flange secured to the ends of the mount and having spaces through the flange through which the leading-in wires project, substantially as described.

6. The combination of a lamp-globe A and 85 a flanged tube C, having a flange c which is fused to said lamp-globe, a mount within the globe fused to said flange, and having leading-in wires projecting through the same, said tube being drawn down near the flange, as 90 at c^2 , thus reducing the bore at this point, but being open and adapted to have air in the globe exhausted through it, substantially as described.

7. In an electric lamp, in combination, a 95 mount composed of a pair of tubes rigidly braced together, a plate to which the ends of the mount are fused and through which the leading-in wires contained in the mount project, said plate being fused to the lamp-globe, 100 substantially as described.

8. An electric lamp having in combination a globe A, a mount B, composed of the tubes 105 b and the bridge b' , said tubes loosely carrying the leading-in wires, the ends of said tube being secured to a plate, which plate is secured to the globe, substantially as described.

In testimony whereof I affix my signature, in presence of two witnesses, this 29th day of July, 1897.

JOHN C. FISH.

Witnesses:

J. FEIGHNER,
A. A. CHAILLET.