

No. 628,973.

Patented July 18, 1899.

A. WIERRE.  
MANUFACTURE OF INCANDESCENT LAMPS.

(Application filed Mar. 16, 1898.)

(No Model.)

FIG. 1

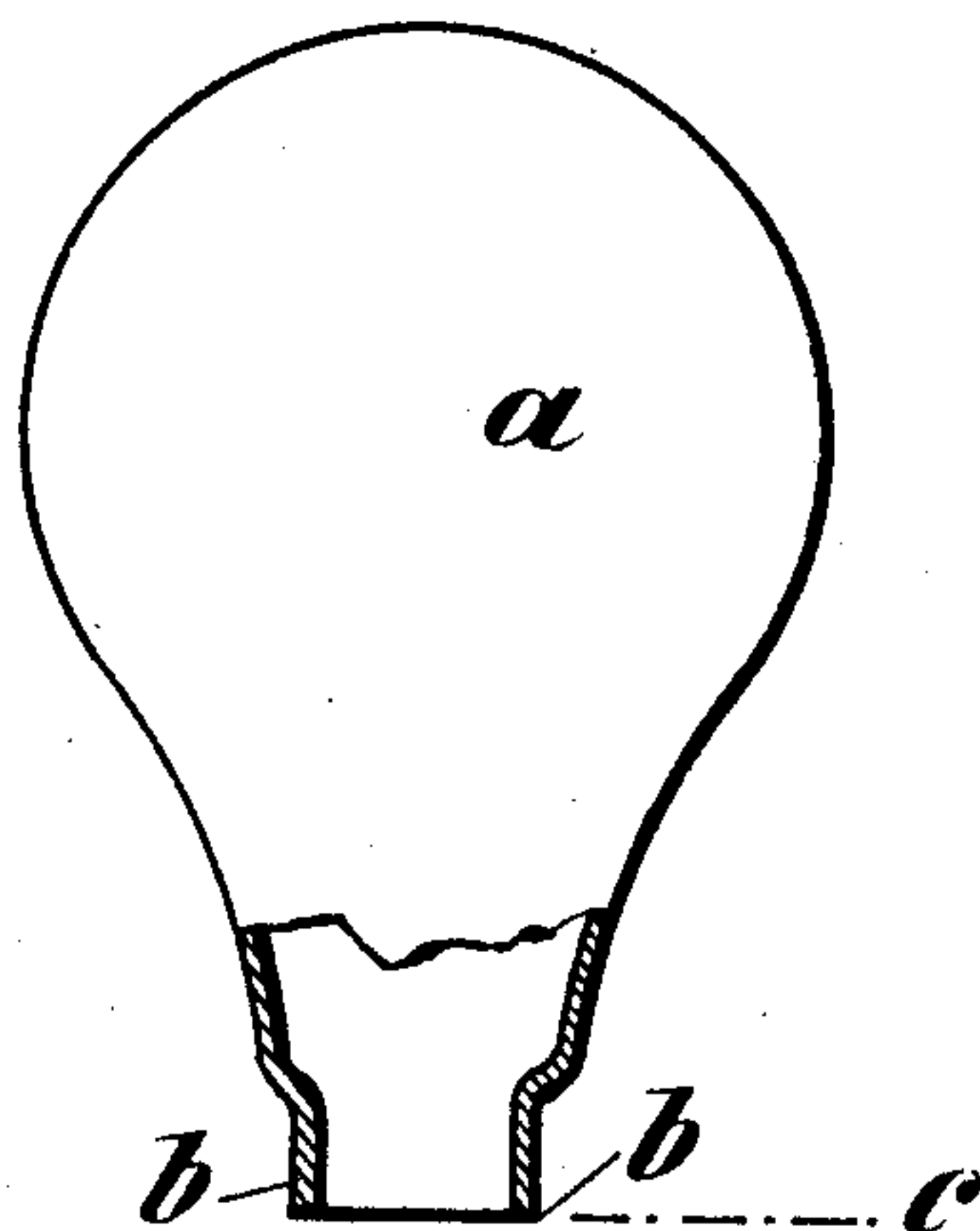


FIG. 3

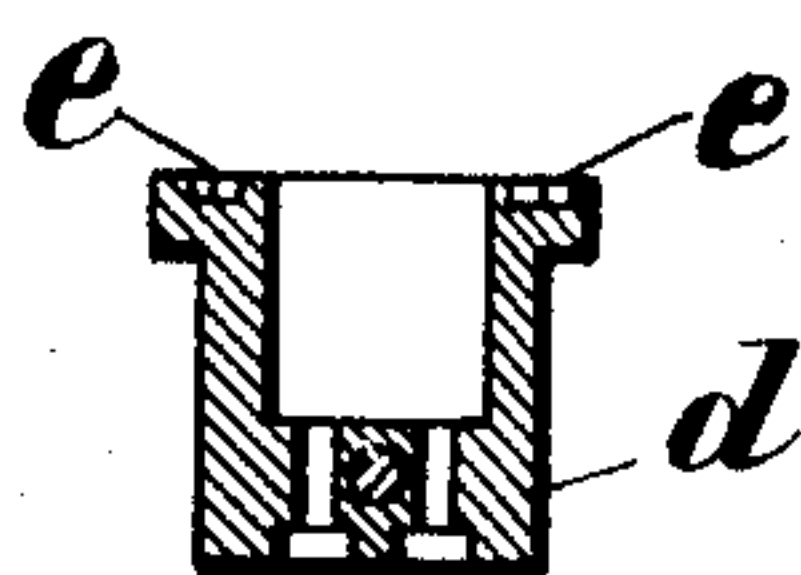


FIG. 4

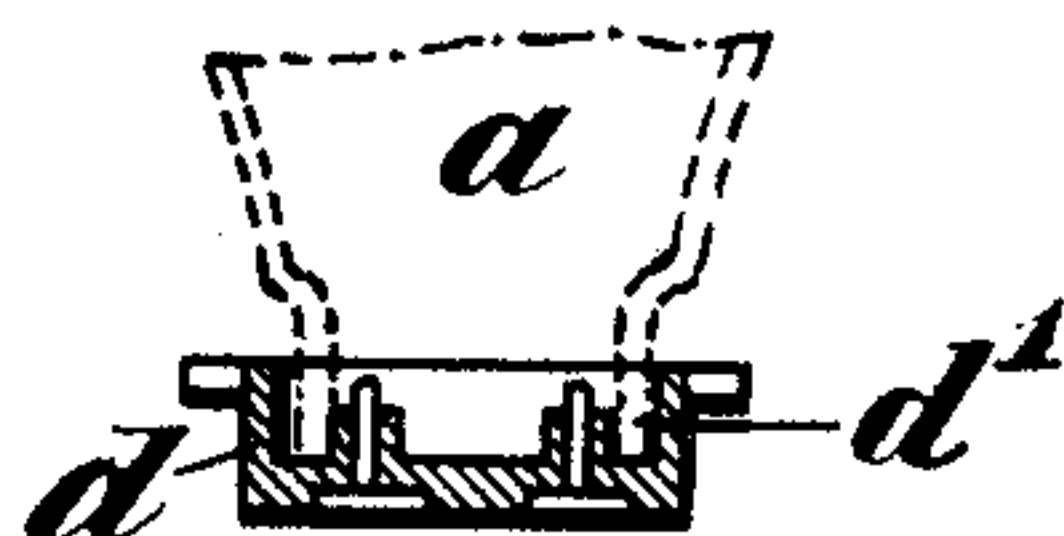
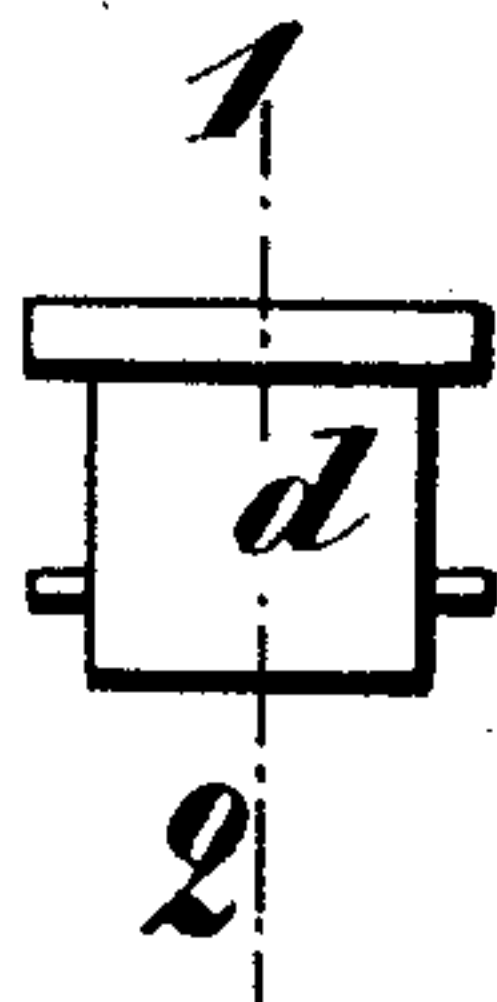


FIG. 2



Witnesses  
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# UNITED STATES PATENT OFFICE.

ADOLPHE WIERRE, OF PARIS, FRANCE.

## MANUFACTURE OF INCANDESCENT LAMPS.

SPECIFICATION forming part of Letters Patent No. 628,973, dated July 18, 1899.

Application filed March 16, 1898. Serial No. 674,019. (No model.)

*To all whom it may concern:*

Be it known that I, ADOLPHE WIERRE, of the city of Paris, France, have invented Improvements in the Manufacture of Incandescent Lamps, of which the following is a full, clear, and exact description.

Incandescent electric lamps have hitherto usually been made by introducing into a prepared bulb the filament previously cemented to the leading-in wires fixed in a mass of glass, to which the bulb is then fused and afterward exhausted. After the bulb has been exhausted of air two conductors are generally, for the sake of economy, soldered to the leading-in wires and to the terminals of the lamp-base after the latter has been fixed to the bulb by plaster. It will be seen that a lamp thus made involves numerous manipulations representing nearly the whole of its prime cost. Moreover, it forms an indivisible whole which is rendered useless immediately the filament becomes unserviceable. The lamp and method of manufacture, which form the subject of the present application for Letters Patent, are designed to avoid these objections and present, as compared with what is now known, the following advantages: first, reduction of hand labor in the manufacture; second, utilization of those parts of a worn-out lamp which still remain serviceable; third, reduction of the cost of manufacture, and hence possibility of employing economical filament-lamps; fourth, perfect adhesion between the bulb and its cap or base, thus rendering it impossible for the bulb to become disconnected when in use.

In order that the invention may be more readily understood, I have illustrated it, by way of example, in the accompanying drawings, in which—

Figure 1 represents a glass bulb; Fig. 2, an exterior elevation of the lamp-base; and Fig. 3, a section on line 1 2, Fig. 2, of the cap or base. Fig. 4 shows a modified form of cap in which the seat for the bulb is at *d'*.

*a* is the bulb, which may be made of flint or other glass, opaline, or other material used for lamp-bulbs and may be of any suitable form.

The neck *b*, Fig. 1, instead of being a tube of some centimeters in length, as usual, is cut off close up to the shoulder of the bulb at *c*, so as to present a cylindrical section. The neck of the bulb thus prepared is preferably suitably metalized, so as to render it capable of uniting with metallic solder when such solder is used to secure the bulb and base together. This neck is such that it may fit easily in a base of suitable form for containing the solder.

The base may be fitted to the holder by means of a bayonet-joint, screw, or other means of fixing. This base may be of molded glass, opaline, porcelain, earthenware, enameled metal, &c., provided it be of suitable form and give passage to the leading-in wire, while remaining air-tight, and also furnish a metalized seat or recess for the neck of the bulb when metallic solder is used.

In the example illustrated in Fig. 2 the lamp is to be fixed by a bayonet-joint, the cap *d* being made of porcelain, and the terminals, which also serve as supports for the filament or filaments and the metal holding-cup *e*, being fixed at the moment of glazing the porcelain by the fusion of the vitreous enamel constituting such glazing.

To produce a lamp according to my invention, I proceed in the following manner: I take a bulb *a*, provided with the usual exhausting-tube, and in the groove or recess *e* of the base *d* or at the bottom *d'* of the base, as the case may be, I place metallic solder, preferably ordinary plumber's solder, although any other kind of solder may be employed. The filament is united by any suitable means to the terminals. The whole, or, more exactly, the base *d*, is then brought to a temperature which will effect fusion of the solder, which after cooling will hold the parts united and in place and insure a perfectly air-tight joint. When ceramic cement is used, the method of procedure is much the same, except that the base *d* is placed in a suitable oven, and instead of solder a few grains of enamel or highly-fusible lead glaze are placed around the joint. It is necessary in this case to cool the structure very slowly in order to avoid



cracks caused by too-sudden cooling, and it is on account of this difficulty in the cooling that metallic solder is preferred. It now only remains to exhaust the air and seal the bulb  
5 at the blowpipe to have a lamp ready for use.

I will now describe how, when the lamp becomes unserviceable by the wearing out of the filament, for example, I am enabled to obtain a new lamp at a minimum expense.

10 After first slightly grinding off the point of sealing, so as to admit air to the bulb, I heat the base to a suitable temperature for the purpose of separating it from the bulb. The bulb is then again provided with an exhaust-  
15 ing-tube, and, if necessary, all traces of carbon which may have become deposited within it are removed. By then repeating the same operations as previously described an absolutely new lamp is obtained at the cost  
20 of a new filament, whereas a lamp made in the ordinary way herein referred to would be en-

tirely useless in the event of the filament becoming unserviceable.

I claim—

The combination, in an incandescent lamp, 25 of a bulb, a base adapted to fit the mouth of the bulb, leading-in wires in said base secured therein and insulated from the base and from each other by a surrounding vitreous enamel body molded with and adherent to said base 30 and wires and a joint uniting bulb and base formed of fusible material united by fusion both to the base and to the bulb so as to form an air-tight closure therefor, as specified.

The foregoing specification of my improve- 35 ments in the manufacture of incandescent lamps signed by me this 28th day of February, 1898.

ADOLPHE WIERRE.

Witnesses:

EDWARD P. MACLEAN,  
MAURICE HENRI PIGNET.