Nov. 16, 1937. A. LAMPL 2,099,305

ELECTRICAL DEVICE

Original Filed Sept. 24, 1926

Fig. 1.

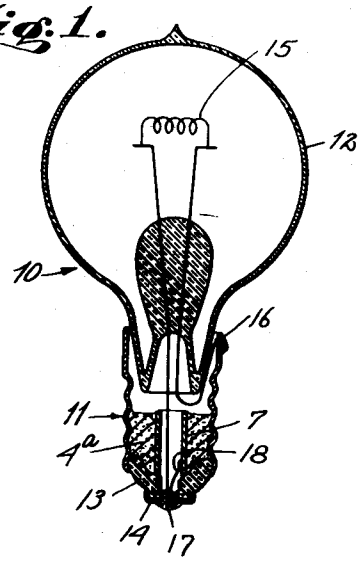
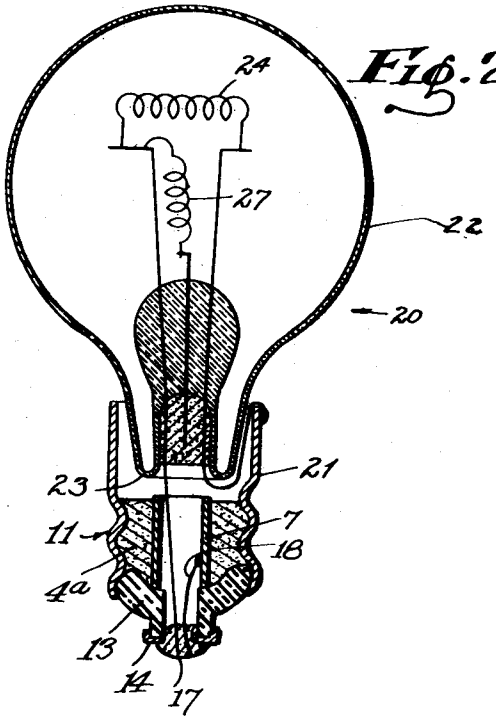


Fig. 2.



Alfred Lampl INVENTOR.

BY

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Patented Nov. 16, 1937

2,099,305

UNITED STATES PATENT OFFICE

2,099,305

ELECTRICAL DEVICE

Alfred Lampl, Berlin, Germany, assignor to Norma Electric Corporation, New York, N. Y., a corporation of New York

Original application September 24, 1926, Serial No. 137,602. Divided and this application March 11, 1932, Serial No. 598,149. In Germany March 13, 1926

1 Claim. (Cl. 176—24)

This invention relates to electrical devices such as lamps, sockets and the like articles.

It is particularly directed to electrical devices having shunts across the terminals thereof, particularly of the type wherein the fusing or fritting properties of comminuted, granulated, chipped or powdered metallic material and the reduction of the resistance of said shunt above certain limits of voltage is utilized for the control and variation of the electrical devices.

The present application is a division of my application, Serial No. 137,602, filed September 24, 1926, for Electrical resistances, which matured into Patent No. 1,878,153, issued September 20, 1932. Said application Serial No. 137,602, was copending with my application Serial No. 68,042, filed November 9, 1925, which matured into Patent No. 1,692,272, issued November 20, 1928, and which was reissued as Reissue Patent No. 18,495 on June 14, 1932. This application forms a continuation in part of said Patent No. 1,692,272 reissued as Reissue Patent No. 18,495. In my said patent there is described a resistance for serially mounted lamps in the shape of powdered granules or chips forming a normally non-conducting shunt to be used for example, for serially connected incandescent lamps. As stated in my said patent, upon the breaking down of a translating device, such as the filament of one of a series of lamps provided with said shunt, an automatic overbridging of the point of interruption is produced since the total voltage of the series is impressed on the particular shunt causing a fritting, partial or imperfect fusing of the granules into a conducting fritted mass, and the interruption of the current at the other serially arranged current consuming device is thus avoided.

After the defective lamp has been replaced, the particular shunt has generally been jarred or shaken up to unfrit the particles and render the shunt again non-conductive.

It is an object of my invention to provide means for obviating the necessity for shaking or knocking the resistance against an object to unfrit the shunt and to automatically render the shunt again non-conductive. I accomplish this object by embedding the metallic granules, metal chips or metal powder in a solid binding material, which by itself is not an electrical conductor, such for instance, as gypsum, chamotte, burnt clay, concrete, cement, mortar and the like. By this means, electrical resistances or shunts may be obtained which either present a very considerable electric resistance coefficient, or are adapted to oppose a certain definite degree of resistance to the passage of current in accordance with the voltage at the terminals of the resistance, depending upon whether the voltage is above or below a certain limit, that is, the fritting limiting voltage, or the voltage at which fritting of the particles occurs.

In other words, it is an object of my invention to provide an electrical system in which a plurality of lamps are attached to sockets connected in series circuit, and to provide either the lamps at the bases thereof or the sockets, with shunts which are normally non-conductive at the voltage of each device, but which automatically become conductive at the voltage of the series and which will automatically again become non-conductive upon reduction of the voltage from that of the series to that of the individual device, without shaking or vibrating the devices or the shunts, so that the fritted mass automatically becomes unfritted upon reduction of the voltage.

A further object of this invention is to incorporate a shunt of the character described in the base of an electric lamp or other electrical devices having spaced terminals, and which may be connected in series circuit.

A still further object of this invention is to provide electrical devices such as lamps and the like, which shall be of economical construction and practical and efficient to a high degree in use.

Other objects of this invention will in part be obvious and in part hereinafter pointed out.

The invention accordingly consists in the features of construction, combinations of elements, and arrangement of parts which will be exemplified in the construction hereinafter described, and of which the scope of application will be indicated in the following claim.

In the accompaying drawing, in which is shown one of the various possible illustrative embodiments of this invention,

Fig. 1 is an axial cross-sectional view of an electric lamp embodying the invention; and

Fig. 2 is a fragmentary, axial, cross-sectional view of a lamp embodying the invention and illustrating a modified construction thereof.

In Fig. 1 there is shown an electric lamp 10 having a base 11 and a bulb 12. Attached to the base 11 is a rear insulating disc 13 to which there is attached the usual central contact 14. The filament 15 is connected on one side thereof, as at 16, to the metallic screw shell 11, and the opposite end of the filament is connected as at 17 to the central contact 14. Disposed within the shell is a small axial tubular metallic mem-

ber 7 electrically interconnected by means of wire 18 or metallic strip to the central contact 14. Between the screw threaded shell portion of the base 11 and the metal tube 7 is a resistance shunt 4a normally non-conductive at a low voltage of the lamp 10 and which automatically becomes conductive at the higher voltage of a series of the lamps when said lamps are connected together in series circuit and which will automatically become non-conductive again when the voltage is reduced to that of the lamp. The resistance or shunt 4a may likewise be comprised of metal particles such as for instance of particles of brass, iron, aluminum and may further be secured in an embedding material. The entire mass may be introduced into the base of the lamp in pasty or plastic condition and allowed to solidify in the base. Obviously, any other suitable resistance having properties above mentioned, may be substituted for the resistance 4a.

In the form shown in Fig. 2, the lamp 20 is likewise provided with a base 21 and a bulb 22. Embedded within the neck portion 23 of the bulb 22 is a resistance 4b substantially similar to the resistances 4 and 4a. One end of the filament 24 for the lamp 20 is connected to the resistance or shunt 4b and to the screw threaded metallic shell portion of the base 21. The other end of the filament likewise extends through the resistance 4b and is connected to the central contact of the lamp. The resistance 4b is protected by a special ballast resistance 27 which may be in the form of a metallic filament of resistance wire of substantially the same resistance as the incandescent filament 24. The resistance 27 has one end embedded within the resistance 4b and the other end thereof is connected to the filament 24.

In accordance with the arrangement shown in Fig. 2 of the drawing, the sensitive fritted resistance 4b is protected against excessive strain by the fixed ballast resistance 27 so that the resistance 4b merely operates as a sensitive fritting valve and therefore may be selected of relatively small size.

It will of course, be understood that the invention is not limited to the few forms of applications and embodied herewith shown and described, merely by way of illustration of the principle thereof, but may be utilized for various other equivalent purposes and changes in construction. Thus, other suitable resistances or shunts having properties set forth above may be substituted for the resistances 4a or 4b and said shunts may be applied to a plurality of other electrical devices, not shown in the drawing. For example, as stated in my said re-issue patent, loosely aggregated particles of chips of iron, nickel or other metal may be disposed between the electrodes of a lamp in the base or glass body of said lamp.

As various possible embodiments might be made of the above invention, and as various changes might be made in the embodiment above set forth, it is to be understood that all matter herein set forth or shown in the accompanying drawing is to be interpreted as illustrative and not in a limiting sense.

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

An electric lamp comprising a base, a bulb attached thereto, a filament within the lamp having the ends thereof connected to the terminals of the base, a shunt within the lamp across said filament, normally non-conducting below a predetermined voltage, and adapted to become automatically conducting above said voltage, and a ballast resistance having one end embedded within said shunt and the other end thereof connected electrically to said filament.

ALFRED LAMPL.

CERTIFICATE OF CORRECTION.

Patent No. 2,099,305. November 16, 1937.

ALFRED LAMPL.

It is hereby certified that the name of the assignee in the above numbered patent was erroneously written and printed as "Norma Electric Corporation" whereas said name should have been written and printed as Noma Electric Corporation, of New York, N.Y., a corporation of New York, as shown by the record of assignments in this office; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 25th day of January, A. D. 1938.

Henry Van Arsdale,

(Seal) Acting Commissioner of Patents.