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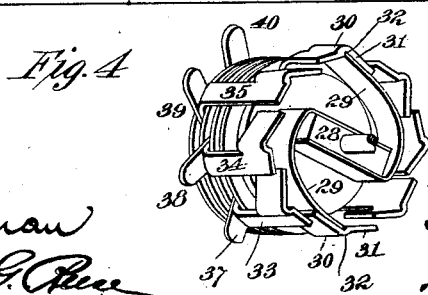
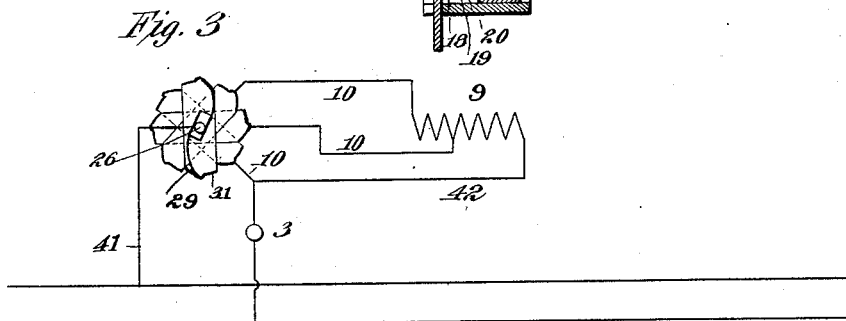
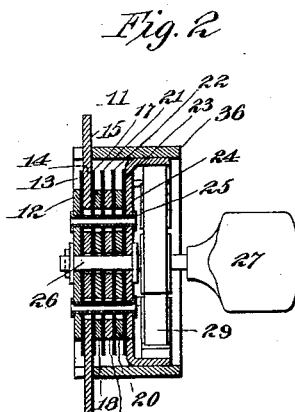
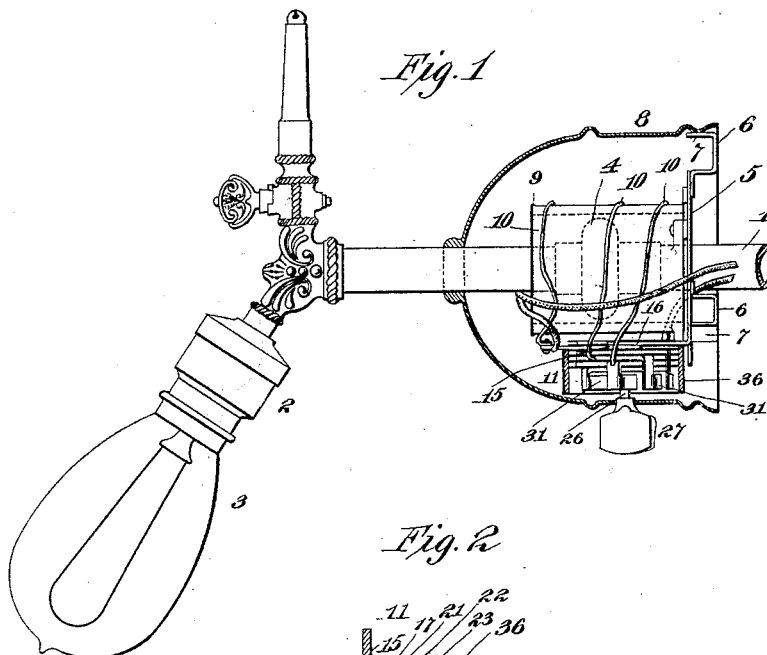
No. 650,275.

Patented May 22, 1900.

H. E. REEVE.
ELECTRIC LIGHT DIMMER.

(Application filed Aug. 25, 1899.)

(No Model.)



Witnesses:
Jas. C. Coleman
Archibald G. Rice

Inventor
Henry G. Reeve
by
Edmunds & Sons
Att'ys.

UNITED STATES PATENT OFFICE.

HENRY E. REEVE, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE ELECTRIC REGULATOR COMPANY, OF NEW JERSEY.

ELECTRIC-LIGHT DIMMER.

SPECIFICATION forming part of Letters Patent No. 650,275, dated May 22, 1900.

Application filed August 25, 1899. Serial No. 728,417. (No model.)

To all whom it may concern:

Be it known that I, HENRY E. REEVE, a citizen of the United States, residing in the borough of Brooklyn, city of New York, State of New York, have invented a certain new and useful Improvement in Electric-Light Dimmers, of which the following is a description.

My invention relates to various new and useful improvements in dimmers for electric lights; and the object of the invention is to provide a simple, cheap, and effective device for the purpose.

Heretofore incandescent-electric-lamp sockets have been constructed with rheostats therein, whereby more or less resistance may be interposed in series with the lamp for the purpose of reducing the candle-power thereof, but such devices have been expensive, more or less clumsy, and unreliable.

In my improved device I employ a resistance, preferably in the form of a cheap tubular enamel rheostat, which is located within the canopy of the light-fixture, and I carry in proximity with the said rheostat and also within the canopy a suitable switching device, by means of which more or less of the resistance may be interposed in series with the lamp. Preferably a tubular rheostat is employed, as stated, which surrounds the tube or other lamp carrying bracket and which may also inclose the insulating-joint when such a device is used, whereby a very compact arrangement is secured and one which can be readily reached for installation or repair.

The improved switch which I have invented is especially adapted for use for cutting into and out of a circuit more or less of the resistance of a rheostat, but such a switch may be used in other connections, as will suggest themselves to skilled persons.

My improved switch is simple and cheap in construction, effective in use, and is so made that leakage of current and the formation of destructive arcs are effectively overcome.

In order that my invention may be better understood, attention is directed to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is a side elevation, partly in section, of an ordinary well-known form of elec-

tric-light fixture equipped with my present improvements; Fig. 2, an enlarged sectional view of the improved switch; Fig. 3, a diagram, and Fig. 4 a perspective view of the improved switch.

In all of the above views corresponding parts are represented by the same numerals of reference.

1 represents a tubular bracket carrying an incandescent-lamp socket 2 at its outer end, in which is mounted a lamp 3. I illustrate an insulating-joint 4 on the fixture and which is of well-known form.

5 represents a base which is provided with downwardly-turned feet 6, by which the base may be secured to the wall and be removed therefrom to the proper distance to accord with municipal electric-lighting regulations and the requirements of the work to be done in putting the fixture in place. The main-line wires are always heavy and incased in insulating material, which makes them stiff, so that they require space in which to bend them and bring them within the small compass of the canopy and to make the necessary connections with the lamp-wires and the controlling device or rheostat. If bent in too short a curve, the insulation may be cracked and the wire within it broken, so that an arc may be formed and disaster follow. The feet 6 are provided with upturned flanges 7, to which a canopy 8 may be secured. Preferably the canopy 8 is a sectional canopy of well-known construction, which may be inserted in place after the fixture has been installed. The base 5 carries a tubular enameled rheostat 9 of a common form. These rheostats are generally made by baking a suitable resistance-wire in an enamel-like coating surrounding a metal tube, and they constitute a well-known article of manufacture. Wires 10 10 10, connected as I will hereinafter explain, serve to short-circuit all of the resistance-wire or only portions thereof.

11 represents the preferred construction of switching device, which is also carried within the canopy 8 and the special construction of which is more particularly illustrated in Figs. 2 and 4. The switch comprises a back plate 12 in the form of a disk and upon which is placed a disk 13, of mica, vulcanized fiber,

or other suitable insulating material. Carried upon the insulating material 13 is a disk 14, having extending arms 15, which are screwed or riveted to the small supporting-bracket 16, (see Fig. 1,) formed rigidly with the base 5. A disk of insulating material 17 is placed upon the disk 14, and metal disks 18, 19, and 20, with interposed insulating-disks 21, 22, and 23, are carried in front of the insulating material 17, as shown.

24 is a front plate mounted upon the insulating-disk 23, and 25 represents rivets which pass through all the disks and plates to hold the same together, which rivets also electrically connect the back plate 12 with said front plate. The openings in the disks of insulating material 13, 17, 21, 22, and 23 fit the rivets 25 closely; but the openings in the supporting-disk 14 and in the metal conducting-disks 18, 19, and 20 are enlarged and do not contact with said rivets, whereby said conducting-disks will be insulated from each other and from the base portions of the switch.

26 is a shaft mounted in bearings formed only in the back and front disks 12 and 24, respectively, which shaft carries a thumb-piece 27, by which it may be turned. Mounted on the shaft 26 is a metal piece 28, which carries rearwardly-trailing springs 29. The front plate 24 is provided with upwardly-turned fingers 30, having contact-surfaces 31 and notches 32 to prevent backward movement of the shaft 26 by the pawl-like engagement with said notches of the springs 29, as will be understood. The conducting-disk 20 is provided with corresponding upturned fingers 33, formed with corresponding contact-surfaces and notches. The disk 19 is provided with similar fingers 34, and the disk 18 is provided with similar fingers 35, the conducting-surfaces of all of these fingers being circularly arranged, as shown, and constituting a series of contacts with which the springs 29 may successively engage. Preferably a sleeve 36, of insulating material, such as asbestos, is inserted over the entire switch, so as to effectively protect it. In addition to the fingers 33, 34, and 35, with which the disks 20, 19, and 18, respectively, are provided, the said disks are also furnished with projecting ears 37, 38, and 39 for connection with the conductors 10, as will be explained, and a corresponding ear 40 is formed on the back plate 12 for the same purpose.

Having reference to Fig. 3, a desirable arrangement of circuits will be understood. A main wire 41 leads to the back plate 12, being connected with the ear 40 thereof, so as to connect, through the shaft 26, the springs 29 with the circuit. The conducting-wires 10 connect the ears 39, 38, and 37 with one end of the rheostat 9, with an intermediate portion thereof, and directly with the lamp, respectively, and another wire 42 connects the other end of the rheostat also directly with said lamp, as shown in Fig. 3, whereby when the contact-springs 29 are in engagement with the

conducting-plates of the fingers 33 the entire resistance will be interposed in series with the lamp. When in engagement with the conducting-plates of the fingers 34, a portion only of the resistance will be in series with the lamp, and when in engagement with the conducting-surfaces of the fingers 35 none of the resistance will be in series with the lamp. In this way the lamp may receive its full current to burn with its normal brilliancy, a less current, so as to be only partly dimmed, or only sufficient current as to illuminate it with the minimum light desired. The conducting-surfaces 31 of the fingers 30 are entirely out of circuit, whereby when the springs 29 are in engagement therewith the lamp will be cut out. It will be observed that on turning the finger-piece 27 the springs 29 will snap successively into engagement with the several conducting-surfaces, thus preventing the possibility of the formation of any destructive arcs, and that by providing the conducting-surfaces with notches, as explained, return movement of the springs 29 will be prevented.

Although I prefer to use my improved switch as a means for controlling the amount of resistance which is to be interposed in series with an electric lamp, it will be understood that the said switch may be used in other connections, as will suggest themselves to skilled persons.

Having now described my invention, what I claim as new, and desire to secure by Letters Patent, is as follows:

1. The combination of a lamp-support, an electric lamp carried by said support, a stationary canopy surrounding said support, a base within said canopy having supporting-legs, whereby a clear, unobstructed space beneath said base will be afforded, a tubular resistance carried by the base within the canopy and inclosing the lamp-support, and a circuit-controlling device carried by said base within the canopy arranged to interpose more or less of the resistance of said rheostat in series with the lamp and having all of its electrical connections made above the base, substantially as set forth.

2. The combination of a lamp-support, an electric lamp carried by said support, a stationary canopy surrounding the support, a base within said canopy, a tubular resistance carried by the base within the canopy and inclosing the lamp-support, and a switch for controlling the current supplied to said resistance, said switch comprising a series of insulated plates carried by said base and having outwardly-turned fingers carrying contact-surfaces arranged in a circular path, a switch carried by said plates, and a contact device successively engaging said contact-surfaces, substantially as set forth.

3. The combination with a rheostat, of a switch for controlling the current supplied to said rheostat, said switch comprising in combination a series of insulated plates having outwardly-turned fingers carrying contact-

surfaces arranged in a circular path, a shaft carried by said plates, and a contact device mounted on said shaft and successively engaging said contact-surfaces, substantially as set forth.

4. The combination with a rheostat, of a switch for controlling the current supplied to said rheostat, said switch comprising in combination a series of insulated plates having outwardly-turned fingers carrying contact-surfaces arranged in a circular path, a shaft carried by said plates, a contact device mounted on said shaft and successively engaging said contact-surfaces, and means for preventing return movement of said shaft, substantially as set forth.

5. The combination with a rheostat, of a switch for controlling the current supplied to said rheostat, said switch comprising in combination a series of insulated plates having outwardly-turned fingers carrying contact-

surfaces arranged in a circular path, a shaft carried by said plates, a contact device mounted on said shaft and successively engaging said contact-surfaces, and depressions or notches formed in said contact-surfaces for preventing return movement of said shaft, substantially as set forth.

6. An improved switch, comprising in combination a series of plates or disks secured flatwise or face to face with insulating-layers between them and fingers carried by said plates and carrying at their ends contact-surfaces which are arranged in a circular path, and a contact-spring successively engaging with said surfaces, substantially as set forth.

This specification signed and witnessed this 24th day of August, 1899.

HENRY E. REEVE.

Witnesses:

E. R. FRENCH,
JNO. R. TAYLOR.