March 27, 1928. 1,664,228

H. P. SPARKES

SWITCHBOARD LAMP

Filed May 7, 1923

Fig. 3.

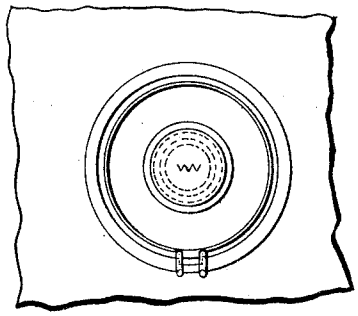


Fig. 2.

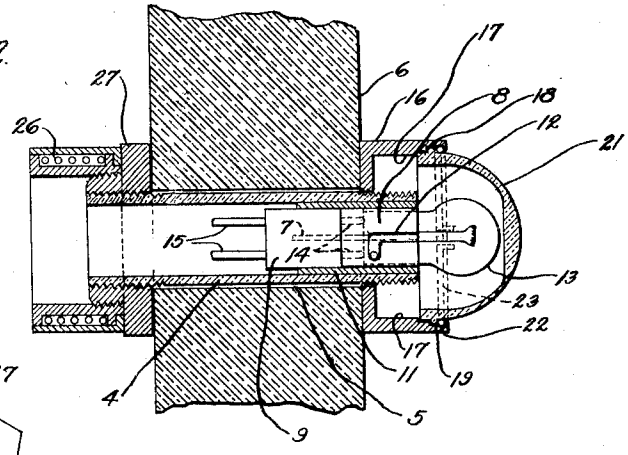
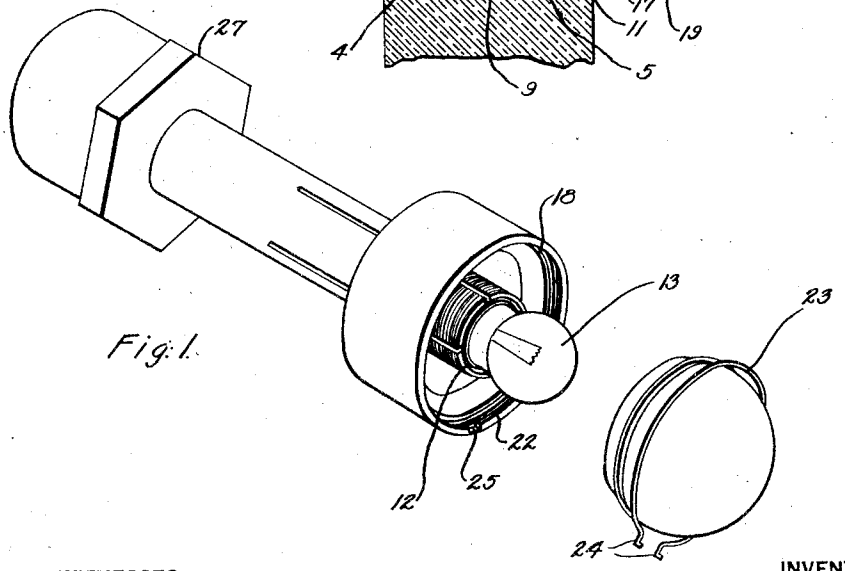


Fig. 1.



WITNESSES:

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UNITED STATES PATENT OFFICE.

HARRY P. SPARKES, OF PITTSBURGH, PENNSYLVANIA, ASSIGNOR TO WESTINGHOUSE ELECTRIC AND MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA.

SWITCHBOARD LAMP.

Application filed May 7, 1923. Serial No. 637,184.

My invention relates to switchboard lamps and particularly to signal and indicating lamps such as are used on switchboards employed in large power stations and which indicate the condition of an electric circuit.

Switchboards of this character comprise relatively thick panels of slate or other insulating material upon which various instruments and circuit controlling switches are mounted. It has been a common practice heretofore to provide signal lamps which were mounted in perforations in the panel. Because of the high voltages usually employed in illuminating the lamps, it was necessary to employ a lamp having a relatively long filament which in turn necessitated a long cylindrical containing bulb.

Such bulbs are mounted in perforations in the panel and the filament thereof lies within the perforation and behind the front face of the panel. A lens visible from the front of the board serves to close the perforation and the mounting for the lens is usually provided with ventilating openings to permit of the circulation of air in the opening in order to maintain the operating temperature of the lamp as low as possible. However, these ventilating devices have been found to be inadequate because of the heating effect of the extensive filament closely confined within the perforation in the panel and as a consequence the operating temperature of the lamp is increased to the point that its life is shortened. Replacement of the relatively expensive high voltage lamp increases the operating cost of the switchboard considerably.

One object of my invention is to provide a lamp for switchboard panels having a socket device for the lamp that enables the use of standard automobile lamps which operate on relatively low voltage and consequently are not subject to the objectionable heating conditions incident to lamps of relatively high voltage.

Another object of my invention is to provide a switchboard lamp where in the resistor element for reducing the voltage of the lamp circuit serves to clamp the lamp socket to the switchboard.

Another object of my invention is to provide a switchboard panel lamp having a hemispherical lens projecting from the front face of the panel that is visible from both the front and the sides of the panel, thus rendering the lens visible from any point in the operating room in front of the plane of the switchboard upon which the lamp is mounted and wherein the electric lamp extends into the lens.

Another object of my invention is to provide a switchboard panel lamp which is inexpensive to manufacture and which may readily be assembled upon the panel, and which supports a standard lamp with its filament in front of the front face of the panel.

Another object of my invention is to provide a switchboard panel lamp wherein a hemispherical lens is provided for protecting the lamp and which may readily be removed when it is desired to inspect or replace the lamp. Such lens may be of any desired color and a standard automobile lamp may be used without alteration.

These and other objects that will be made apparent throughout the further description of my invention are attained in the lamp device hereinafter described and illustrated in the accompanying drawings, wherein

Figure 1 is a perspective view of the switchboard lamp showing the lens and attaching ring detached from the holder.

Fig. 2 is a longitudinal section through the lamp structure and

Fig. 3 is an end view of the lamp with the lens removed.

Referring to the drawings the lamp device includes an insulating sleeve, or bushing 4 constituting a lamp receptacle and, having threaded ends and which is inserted in the perforation or opening 5 extending from the front to the rear of the panel 6. The ends of the bushing project beyond the front and rear faces of the panel and the end projecting from the front face of the panel is provided with longitudinal slots 7 preferably 4 in number for the purpose of dividing the end into integral flexible sections that may be pressed into engagement with a standard automobile lamp socket 8 for retaining it within the sleeve.

The standard automobile lamp socket comprises a cylindrical insulating member 9 that is secured within a metal sleeve 11 having two diametrically opposite angular slots 12, one of which is shown, extending inwardly

from the end of the sleeve 11 for the purpose of receiving and retaining the pins usually mounted on the base of a standard automobile electric lamp 13.

The insulating member 9 is provided with the usual contact pins 14 that are adapted to engage the terminals on the lamp base when the lamp is inserted within the sleeve 11. The terminal pins 14 are connected to conductors 15 which extend out of the rear end of the sleeve 4 and which may be connected to any preferred form of resistance element 26 for the purpose of reducing the voltage to that required for the lamp which is usually operated on 6 and 12 volts.

A lens socket 16 having a greater external diameter than the perforation 5 in the panel is secured upon the slotted end of the sleeve 4 and serves to clamp the flexible sections of the sleeve 4 tightly against the sleeve 11 of the lamp socket and to thereby retain it in any desired position. The interior bore 17 of the lens socket is enlarged to provide a shoulder 18 for receiving and supporting a bead 19 on the hemispherical lens 21.

The enlarged bore of the lens socket is provided with an annular groove 22 for receiving and retaining spring 23 which is inserted within the groove after the lens has been assembled in its socket. The spring 23 is provided at its end with outwardly and forwardly turned extensions 24 that are adapted to be gripped by the thumb and finger of the operator and moved toward one another when it is desired to release the lens from its socket. When the ends 24 of the spring 23 are pressed together, the spring 23 is sufficiently contracted in diameter to permit it to be withdrawn from the groove to release the lens. When the spring is in assembled position in the socket it expands into the groove 22 and engages the flange 19 and retains the lens within its socket.

A notch 25 is cut in the enlarged bore of the socket and extends into the groove 22. This notch permits the insertion or the withdrawal of the extensions 24 of the spring 23.

The lamp socket just described is securely clamped in operative position upon the panel by a threaded nut 27 that is mounted on the threaded end of the sleeve 4 and which serves to support the resistance element 26.

It will be apparent that the lamp is adapted to be mounted upon panels of different thicknesses and that the filament of the lamp is visible through the lens from the front and sides of the panel. Because of the concave-convex hemispherical shape of the lens which extends beyond the front face of the lens socket, the lens is visible from any point in front of the plane of the panel.

Because of the relatively low voltage lamp employed, the heat generated is dissipated by the surrounding fittings and it is not necessary to provide ventilating openings in the lens holder.

While I have described and illustrated only one embodiment of my invention it will be apparent to those skilled in the art that various changes, substitutions, additions and omissions, modifications may be made in the apparatus illustrated without departing from the spirit and scope of my invention as set forth in the appended claims.

I claim as my invention:

1. A lamp for switchboard panels comprising a bushing adapted to extend through a perforation in the panel having threaded projecting ends, one of which is slotted longitudinally for rendering it expansible and contractible, a lamp socket within the slotted end of the bushing for so supporting a lamp that the filament thereof lies exteriorly of the bushing, a threaded lens socket co-operating with the slotted end of the bushing for clamping the socket within the bushing and for engaging the front face of the panel, said lens socket and bushing also including means for contracting the slotted end of the latter, a threaded nut on the other end of the bushing for securing the bushing within the panel, a lens and means for securing the lens in the lens socket, said lens having a portion extending beyond the socket and visible from the front and side of the panel.

2. A lamp for switchboard panels comprising a bushing adapted to extend through a perforation in the panel having threaded projecting ends, one of which is tapered and is slotted longitudinally for rendering it expansible and contractible, a lamp socket within the slotted end of the bushing, for so supporting a lamp that the filament thereof lies exteriorly of the bushing, a threaded lens socket co-operating with the slotted end of the bushing for clamping the socket within the bushing and for engaging the front face of the panel, a threaded nut on the other end of the bushing for securing the bushing within the panel, a lens and means for securing the lens in the lens socket, said lens having a cavity therein for receiving the lamp.

3. A lamp for switchboard panels comprising a flexible tubular member extending through a perforation in the panel and having its ends threaded and extending beyond the front and rear faces of the panel, a terminal socket within the front end of the tubular member for receiving a standard electric lamp and so supporting it that the filament extends beyond the end of the said member, a threaded lens socket adjustably mounted on a threaded portion of the tubular member and having means cooperating with the said threaded portion for compressing the tubular member into engagement with the terminal socket and thereby clamp-

ing the latter within the tubular member, a threaded nut on the rear end of the said member for clamping it to the panel, a substantially hemispherical lens mounted in the lens socket and enveloping the lamp and having its major portion projecting from the socket and visible from the front and sides of the panel and means for securing the lens in the lens socket.

In testimony whereof, I have hereunto subscribed my name this 9th day of April, 1923.

HARRY P. SPARKES.