No. 667,462. Patented Feb. 5, 1901.

C. E. SCRIBNER.

SIGNAL LAMP FOR TELEPHONE SWITCHBOARDS.

(Appl' ation filed Mar. 9, 1898.)

(No Model.)

Fig.1

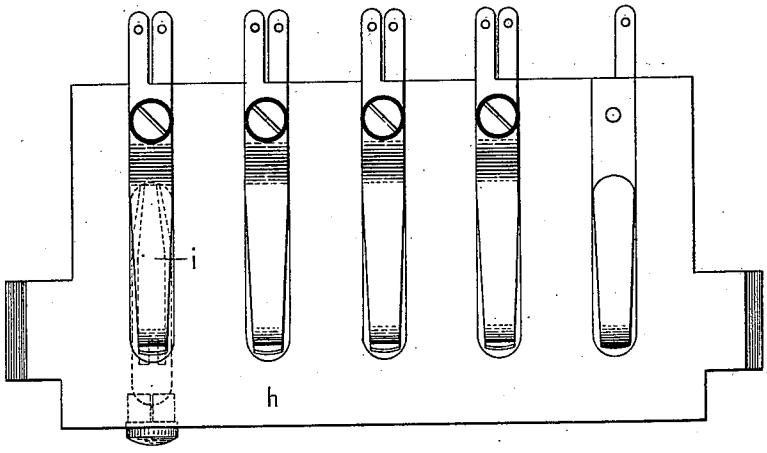


Fig.2

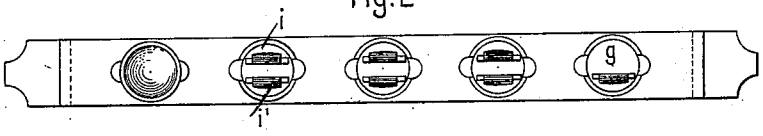


Fig.3

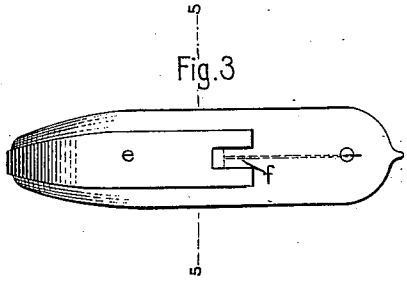


Fig.4

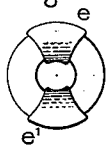


Fig.5

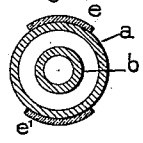
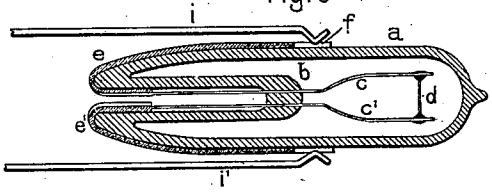


Fig.6



Witnesses:

D. W. C. Danner

A. D. Lawrence

Inventor:

Charles E. Scribner,

by Parker & Brown his Attys

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

CHARLES E. SCRIBNER, OF CHICAGO, ILLINOIS, ASSIGNOR TO THE WESTERN ELECTRIC COMPANY, OF SAME PLACE.

SIGNAL-LAMP FOR TELEPHONE-SWITCHBOARDS.

SPECIFICATION forming part of Letters Patent No. 667,462, dated February 5, 1901.

Application filed March 9, 1898. Serial No. 673,205. (No model.)

To all whom it may concern:

Be it known that I, CHARLES E. SCRIBNER, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented a certain new and useful Improvement in Signal-Lamps for Telephone-Switchboards, (Case No. 459,) of which the following is a full, clear, concise, and exact description.

My invention concerns the construction of small incandescent lamps for use as secondary signals in telephone-switchboards; and it consists in certain details of structure whereby increased durability, together with improved operation, is attained.

Signal-lamps used as secondary signals in telephone-switchboards are commonly associated with spring-jacks in the switchboard and on account of the necessity for compact arrangement of parts are mounted in sockets resembling spring-jacks in form and of equal size. The sockets are contained in a common strip or base-plate, ten or twenty sockets being arranged in one strip. Each socket may consist of a hole drilled transversely into the strip and a pair of springs arranged parallel with the axis of the opening, fixed at the rear of the strip, having free extremities projecting into the opening at diametrically opposite points near the face of the strip. The lamp for use in such a socket is of cylindrical form, having a length equal to the depth of the tubular opening and provided with terminal plates secured to opposite sides in position to register with the free extremities of the contact-springs. The present invention concerns details of construction and arrangement of these contact-plates and the form of the lamp with respect thereto.

The glass bulb of the lamp is constructed of two concentric glass tubes. These tubes are sealed together and form one end of the lamp-bulb, the seal being of conical shape. The inner tube carries the filament and contains the leading-in wires. The outer tube is sealed off at its other extremity to form the front of the bulb. The terminal plates consist of strips of sheet metal of suitable form having hook-shaped extremities which lie against the conical end of the lamp and which enter the inner tube, being soldered to the leading-in wires therein. These terminal plates are cemented to the bulb on opposite sides thereof. Each plate is provided with a slot formed longitudinally in it in position to come beneath the contact-springs of the socket. This is for the purpose of preventing the turning of the bulb in the socket.

The construction of the lamp-bulb and its terminal plates is illustrated in the attached drawings.

Figure 1 represents a plan of a strip of five sockets of usual form, while Fig. 2 is a front elevation of the same. Fig. 3 is a side elevation of the bulb, showing one terminal plate. Fig. 4 is a rear elevation of the bulb. Fig. 5 is a transverse section on line 5 5 of Fig. 3. Fig. 6 is a longitudinal central section of the bulb.

The bulb is formed of tubes *a* and *b*. These tubes are fused together to form one end of the lamp-bulb, the seal being drawn down to conical form. The inner tube *b* is fused and compressed upon the leading-in wires *c c'*, which carry the filament *d*. The free extremities of the wires are brought out through the tube *b*. In process of manufacture the open extremity of tube *a* is drawn down to a small diameter and after the exhaustion has been completed is fused, and thus becomes closed in the usual way. Terminal plates *e* and *e'* are applied to the sides of the bulb. The terminal plate consists of a strip of metal, preferably brass, tapering toward one extremity and formed to correspond to the curvature of the bulb. The tapered extremity is bent backward and enters the orifice of the inner tube *b*. The terminal wires *c* and *c'* are soldered to the portions of the terminal strips *e* and *e'*, respectively, which enter the tube. The plate is formed with a narrow longitudinal slot *f*, whose function will be described in connection with the socket. The terminal plates *e e'* are secured to the bulb by any suitable cement. The socket for the bulb is formed by drilling an opening *g* transversely into a strip *h* of insulating material. Two springs *i* and *i'* are secured upon opposite sides of this strip, being fastened at their rear extremities. The forward extremities of these springs project

into the tubular opening *g*. Ten or twenty such sockets are usually formed in a single strip, the strip being then mounted in a switch-board adjacent to a strip of spring-jacks of similar form and size. The wiring to the contact-springs *i* and *i'* is comprised in cables together with wires which extend to the spring-jacks, the entire space at the rear of the strip of lamp-sockets being occupied by such cables. The lamps must therefore be inserted in the sockets from the front.

In placing a lamp in a socket the conical rear extremity of the lamp is thrust between the springs *i* and *i'*, the contact-plates *e* and *e'* being properly placed to register with the springs, and the lamp is forced into the socket until the springs come to rest on the edges of the longitudinal slots *f* in the plates. The terminal plates cannot be displaced on the bulb in the process of inserting the lamp in the socket on account of the engagement of the hooked extremities of these plates with the bulb itself. After the lamp is in place it cannot be rotated in the socket with the exercise of any moderate amount of force, inasmuch as in rotating it the edges of the slots in the plates would tend to raise the springs.

In switchboards it is necessary to bring the jacks and the lamps within the least possible space, economy of space being of the greatest importance. The space being given, it is desirable that the lamps shall be as large as possible. It is with this end in view that I have provided the contact-plates *e e'* upon the sides of the lamp and secured such contact-pieces rigidly upon the different sides of the lamp. By providing the slots *f* in these plates a longitudinal engagement or shoulder is afforded for each of the contact-springs for the lamp, so that the lamp when inserted is prevented from turning. There must be some margin on the face of the board between the different holes or openings for the lamps. At the rear back of the board the space may be substantially filled by the contact-springs. There is thus a margin of space at the rear of the board which I am enabled to utilize by avoiding the use of yielding springs upon the lamp itself.

I claim as new and desire to secure by Letters Patent—

1. The combination with a tubular lamp-socket, of a cylindrical lamp-bulb adapted to be inserted within the socket, terminal plates secured on opposite sides of the bulb and conforming thereto, said terminal plates having slots *f* therein, and a pair of contact-springs projecting longitudinally into the socket, one on either side of the lamp, said springs bearing upon the portions of the terminal plates in which the slots are cut, to make electrical contact with the lamp and to prevent the same from turning within the socket, substantially as set forth.

2. The combination with a tubular lamp-socket, of a cylindrical lamp-bulb adapted to be inserted entirely within the socket, terminal plates for the lamp-filament secured on opposite sides of the bulb and conforming thereto, and a pair of contact-springs mounted at the rear of the socket and projecting forward longitudinally into the same, one of said springs on either side of the bulb, said springs being adapted to bear upon the terminal plates to make electrical contact with the lamp, the terminal plates being slotted substantially as shown, whereby the lamp is prevented from turning in the slot, as set forth.

3. In an incandescent electric lamp, the combination with the bulb thereof having one extremity in the form of a truncated cone, and a central recess in the said extremity, of contact-plates secured to the sides of the bulb having hooks or inwardly-projecting ends entering the said recess, and leading-in wires extending back and connected with the said hooks, substantially as described.

In witness whereof I hereunto subscribe my name this 31st day of January, A. D. 1898.

CHARLES E. SCRIBNER.

Witnesses:
ELLA EDLER,
GENEVA STEVENS.