

No. 638,423.

Patented Dec. 5, 1899.

C. E. SCRIBNER.  
SIGNAL LAMP AND SOCKET.

(Application filed Mar. 20, 1897.)

(No Model.)

Fig. 1

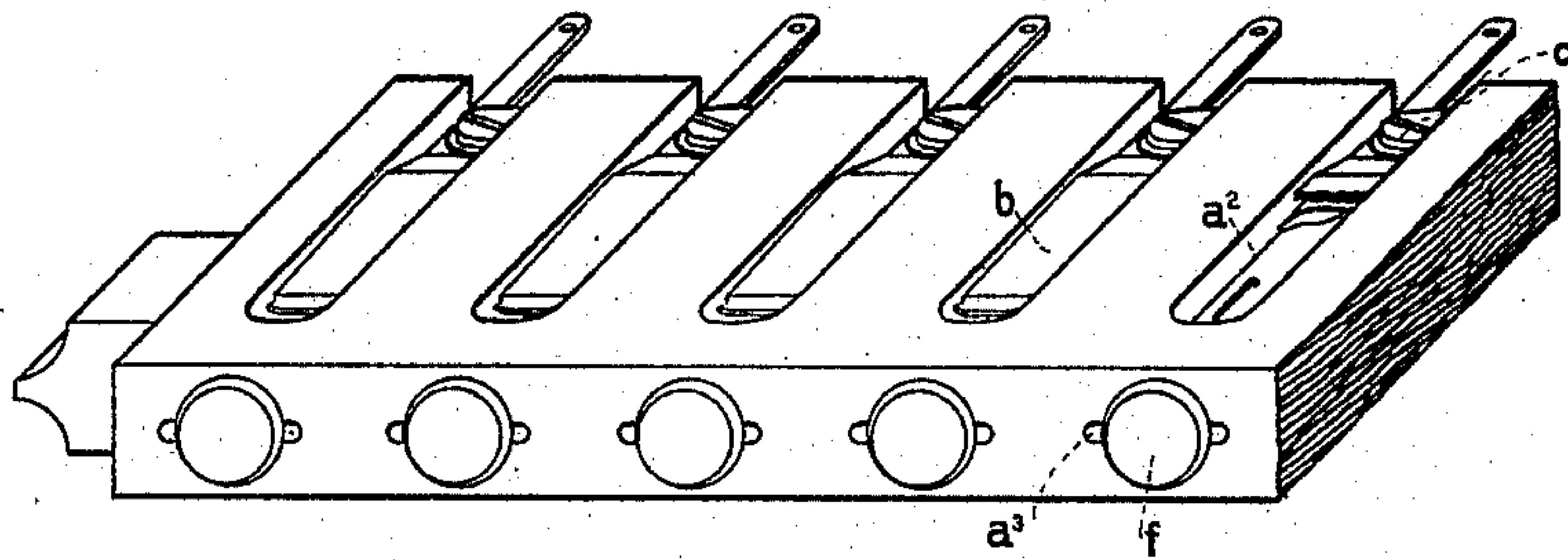


Fig. 2

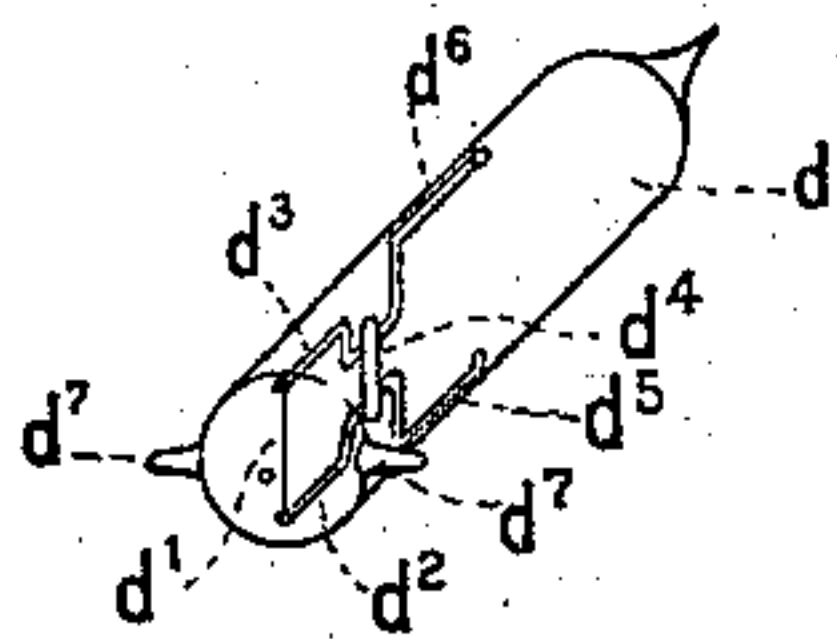


Fig. 5

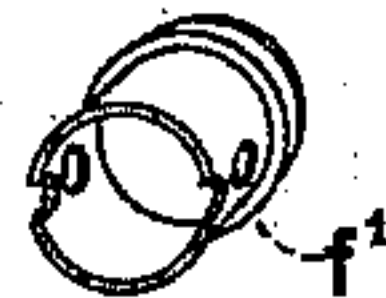


Fig. 3

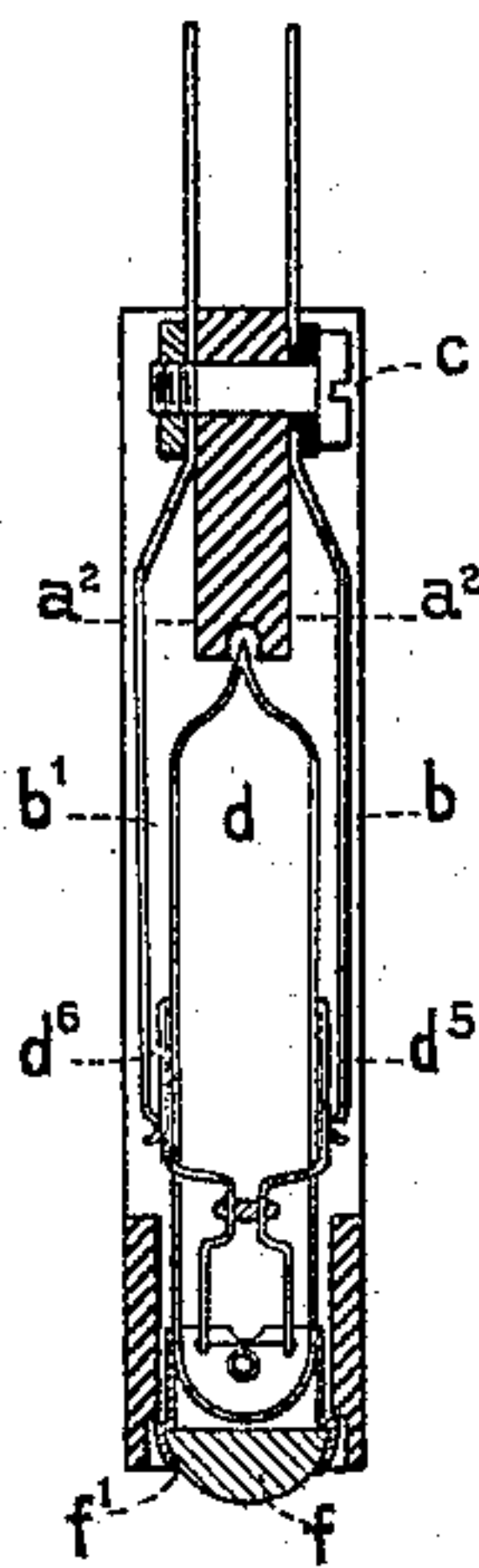
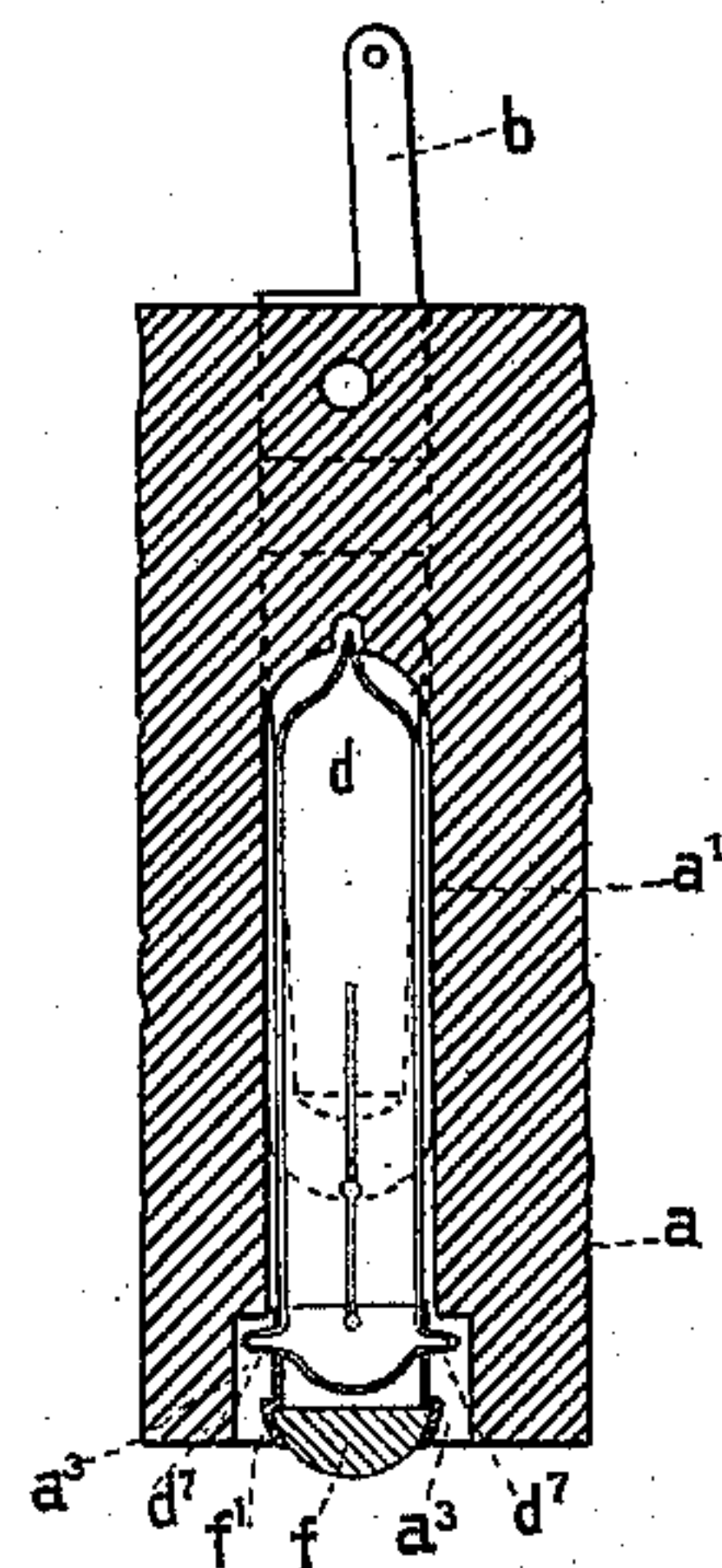


Fig. 4



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# UNITED STATES PATENT OFFICE.

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## SIGNAL-LAMP AND SOCKET.

SPECIFICATION forming part of Letters Patent No. 638,423, dated December 5, 1899.

Application filed March 20, 1897. Serial No. 628,412. (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 and Sockets, (Case No. 446,) of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part of this specification.

This invention concerns incandescent lamps and mountings or sockets therefor designed for use as secondary signals in telephone-switchboards.

It is common in telephone engineering to associate a secondary signal referring to a particular line with a spring-jack of the line, a number of signals being mounted in sockets formed in a common plate or frame and occupying a space in the switchboard approximately equal to that taken by an equal number of spring-jacks. Such an arrangement permits a uniform and symmetrical arrangement of parts and a uniform system of wiring to the spring-jacks and lamps. It is, of course, essential that both the spring-jack and the lamp-signal occupy a space as small as possible in order that a great number of spring-jacks and signals may be brought within the reach and observation of a single operator. It is further usual to place in front of each lamp in its socket a lens-shaped bead of opal glass projecting beyond the face of the switchboard, so that the light from the signal-lamps may be dispersed in all directions and the signal may be visible from the side as well as from the front. Such lamp-signals and sockets therefor, together with the opal lens referred to, have been described in a prior application made jointly by myself and F. R. McBerty, (Case No. 403,) filed August 17, 1895, Serial Number 559,614. It has been found, however, that in order to attain a long life of the filament, together with freedom from changes in the resistance of the filament, such as would be fatal to the use of the lamp as a signal, the volume of the bulb must be very large in proportion to the area of the filament.

The present invention involves a signal-lamp having a comparatively large bulb and

a socket adapted to receive the lamp provided with means for making connection with the terminals thereof, together with a device for retaining the light-dispersing lens in place and means for removably mounting and securing the lamp in the socket. The socket consists in a strip or block of insulating material having a transverse perforation, the strip being preferably of the same size as a strip of spring-jacks, and a pair of contact-springs mounted at the rear of the strip and having free ends projecting into the transverse perforation near its forward extremity. The lamp has a cylindrical bulb adapted to fit loosely in the opening in the strip. The platinum wires forming the terminals of the filament are led to wires or plates secured upon opposite sides of the bulb near its forward end and in position to register with the contact-springs of the socket, and projections are formed upon the bulb designed to enter recesses in the socket to retain the lamp in such position that the contact between the terminals of the lamp and the contact-springs is maintained. The dispersing-lens is mounted in the extremity of a short tube adapted to enter the orifice of the transverse perforation containing the lamp, the tube being provided with suitable means for retaining it in place.

The invention is illustrated in the attached drawings.

Figure 1 is a perspective view of a portion of the strip of signal-lamps. Fig. 2 is a view of a single lamp. Fig. 3 is a transverse sectional view of a strip on the center line of one of the sockets. Fig. 4 is a horizontal section through a single socket, lens, and lamp. Fig. 5 is a view of the dispersing-lens and its holder.

The sockets are formed in and the parts of the socket are mounted upon a strip  $a$  of insulating material, which may be hard rubber or wood. The openings for the lamps are perforations  $a'$ , drilled transversely into this strip. Transverse channels  $a^2$  are milled into the opposite faces of the strip from the rear nearly to the front of the strip sufficiently deep to open into the perforation  $a'$ . Contact-springs  $b$  and  $b'$  are mounted in these milled chan-



nels, the rear extremities of the springs being secured to the plate  $a$  by a bolt  $c$  passing through them, but insulated from one of them.

The lamp, Fig. 2, consists of a long cylindrical bulb  $d$ , wherein a short filament  $d'$  is mounted transversely between platinum lead-wires  $d^2$  and  $d^3$ , provided with the usual distance-piece  $d^4$ , of glass. The extremities of these platinum wires are led through the glass at opposite sides of the bulb and are laid against the surface of the cylinder, being secured thereto by melting them into the glass or by other suitable means. The exposed extremities  $d^5$   $d^6$  of these wires constitute the terminals of the lamp. The bulb is made of sufficient diameter to nearly fill the perforation  $a'$  and of such length as to bring the front end of the lamp nearly flush with the face of the strip. The lamp is provided with two projections or lugs  $d^7$  and  $d^8$  at opposite sides of the bulb near its forward extremity, preferably of glass.

When the lamp is placed in the socket, as shown at  $e$ , Figs. 3 and 4, the contact-terminals  $d^5$  and  $d^6$  register with the springs  $b$  and  $b'$ , the lugs  $d^7$  and  $d^8$  enter shallow recesses  $a^3$  near the orifice of the opening  $a'$ , whereby the rotation of the lamp in the socket is prevented and the contact between the springs  $b$  and  $b'$  and the terminals of the lamp is maintained.

The lens  $f$ , of opal glass, is mounted in a short tube  $f'$ , adapted to enter the orifice  $a'$ . This tube is provided with openings  $f^2$   $f^3$ , adapted to engage the lugs  $d^7$   $d^8$ . The tube is slit longitudinally to these openings, whereby the metal is permitted to yield during the insertion of the lamp into the tube  $f'$ , the lips thus formed being bent back behind the lugs  $d^7$   $d^8$  after the insertion of the lamp. A shoulder is formed on the tube  $f'$ , by means of which the tube may be grasped and withdrawn from the socket, bringing the lamp  $e$  with it. By this arrangement of parts I have secured a very compact appliance in which the bulb of the lamp occupies a very large proportion of the space, so that the vacuum-chamber about the filament is made as large as is compatible with the mechanical requirements of the mounting for the lamp.

I claim as my invention—

1. In combination a base having a tubular

socket therein, an incandescent lamp in the socket, contact-pieces forming terminals of the filament carried upon opposite sides of the lamp, and contact-springs in the socket engaging the said terminal pieces, a recess formed in the wall of the socket and a projection of glass formed integral with the lamp-bulb entering the said recess, substantially as described.

2. In combination a base having a tubular socket formed therein, an incandescent lamp in the socket, contact-pieces forming terminals of the filament carried upon the said lamp, and contact-springs in the socket engaging the said terminal pieces, a projection or lug of glass on the lamp-bulb near its forward extremity, and a recess in the wall of the socket receiving the said projection, a lens of opal glass and a tube containing the lens, said tube being in engagement with the said lug of glass and surrounding the end of the bulb, substantially as described.

3. In combination, a socket comprising a base-plate with a tubular opening formed therein, contact-springs projecting into the opening, and recesses at opposite sides of the said opening near its orifice, and a lamp having a bulb adapted to fill the said opening, contact-terminals on opposite sides of the bulb registering with said contact-springs of the socket, and projections formed on the bulb entering the said recesses to prevent the rotation of the bulb, substantially as described.

4. The combination with a base-plate having a tubular opening therein and contact-springs projecting into said opening, comprising a lamp-socket, of a cylindrical incandescent lamp adapted to be entirely contained within the socket and having contact-terminals registering with the said contact-springs, a cylindrical tube  $f'$  adapted to fit within the mouth of the socket, and a dispersing-lens  $f$  mounted in said tube and closing the mouth of the socket, substantially as set forth.

In witness whereof I hereunto subscribe my name this 15th day of February, A. D. 1897.

CHARLES E. SCRIBNER.

Witnesses:

ELLA EDLER,

DUNCAN E. WILLETT.