

1,204,381.

UNITED STATES PATENT OFFICE.

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SECURING MEANS FOR ELECTRIC SOCKETS.

1,204,381.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, EUGENE A. KUEN, a citizen of the United States, residing at Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Securing Means for Electric Sockets, of which the following is a specification.

It is the object of my invention to provide new and improved securing means for attaching sockets arranged to receive the plugs of electric connections or incandescent bulbs to electric lamps, employed for instance in vehicle headlights, electric lamps, and for similar purposes.

It is the object of my invention further to provide simple, readily attachable and economical means for securing sockets of the character mentioned in place.

The invention will be further readily understood from the following description and claims, and from the drawing, in which latter:

Figure 1 is a vertical axial section of an automobile headlight, taken on the line of the principal axis of its reflector, embodying my improved device. Fig. 2 is an outside end elevation of my improved device as applied to the outer casing of an electric lamp illustrated in Fig. 1, the lamp-body being partly broken away. Fig. 3 is an inside end elevation of the same. Fig. 4 is an axial section of my improved device, showing a connector-plug inserted, and taken on the line 4—4 of Fig. 3. Fig. 5 is a similar view, with the socket shown in side elevation. Fig. 6 is a perspective view of the securing member. Fig. 7 is an inside end elevation of my improved device as applied for attaching the socket of an electric bulb to the reflector; and, Fig. 8 is an axial section of the same on the line 8—8 of Fig. 7.

In the present exemplification of my invention, 11 represents the reflector of a usual headlight or automobile lamp, shown of general parabolic form.

12 is the outer casing of the lamp.

A space 13 is located in the body of the lamp between the outer casing and the reflector.

14 is the door of the lamp. The door is shown as comprising a lens 15, or transparent member or sheet of glass, as is usual in the art. The door is secured to the body in suitable manner, as by a hinge or hinges 16.

17 is an incandescent light bulb whose plug 18 is suitably attached to a socket 19 by usual bayonet connections 20. The socket 19 may, if desired, be arranged so as to be adjustable in the line of the principal axis of the reflector for adjusting the bulb to proper focus in the reflector, as by having slip connection in a flange 21 rigid on the reflector, a screw 22 holding the socket in adjusted position.

One or more flexible electric conductors usually lead from the socket of the bulb 17 to a socket with which an outside connector plug connects, the outside plug having electric connection made therewith by one or more flexible conductors from a suitable source of electric power.

My invention may be employed in connection with an auxiliary incandescent light bulb, shown at 25, whose plug 26 is secured to a socket 27 by means of usual bayonet connections 28. In practice one or more flexible electric conductors lead from the last-named socket to the socket for the outside connector plug.

The electric connections for the electric light bulbs and the outside connector plug are exemplified as comprising a flexible electric conductor 31 which leads from the usual binding post 32 of the socket 27, the binding post comprising a terminal 33 spring-pressed toward the terminal 34 of the electric light bulb 25 by means of a spring 35, the spring being compressed when connecting the electric light plug 26 with the socket 27 by means of the bayonet connections 28. The binding post 32 is surrounded by a body 36 of insulating material. A flexible electric conductor 38 leads from the binding post 39 of the socket 19, the binding post 39 and its connections in the socket being similar to the binding post and its connections of the socket 27. The electric conductors 31 and 38 lead to binding posts 41, 42, of a socket 43, with which they are electrically connected, the binding posts being insulated from each other and surrounded by a body 40 of insulating material. These binding posts comprise spring-pressed terminals 44, 45, being spring-pressed outwardly by springs 46, 47, for having contact made therewith by the terminals 48, 49, of an outside connector plug 50, arranged to be inserted in the socket 43, and to be connected therewith, as by bayonet connections 51.

These electric connections serve one of the terminals of each of the electric light bulbs, the other terminal of each of said bulbs being grounded through the plugs of the bulbs and the body of the lamp.

The above described connections exemplify means for forming the electric connections for the electric light bulbs, although it is obvious that these connections may be effected in other manner.

My present invention is directed to means for securing the sockets in place, and in the present exemplification the sockets for the auxiliary electric light bulb and for the outside connector plug are exemplified as secured in place by means of my invention, the exemplification showing how my invention is employed when the socket has its plug connection extending outwardly from the lamp, as well as when its plug connection extends inwardly in the reflector, and further showing the securing member acting against a concave surface as well as against a convex surface.

I shall first describe my invention as applied to the socket for the outside connector plug.

The socket 43 is received in an aperture 55 in the casing. A securing member 56 is resiliently supported with relation to the lamp-member in which the socket is located. In the present exemplification the resilience is obtained by means of cushioning the securing member upon the lamp-member, exemplified as accomplished by providing the securing member with spring feet 57, three of these spring feet being shown projecting divergently from the securing member and bowed toward the lamp-member, the ends of the feet being bent with a reverse curve 58.

The shell 60 of the socket is provided with opposed shoulders 61, 62, shown formed by knobs struck outwardly from the body of the shell or socket-member. The wall of the aperture 55 is provided with recesses 64 through which one or the other of the sets of shoulders 61, 62, is arranged to pass. The wall of said aperture is further provided with depressions 65 in which the shoulders 61 are adapted to rest for preventing rotary movement of the socket in the lamp-member, exemplified as the outer casing. The securing member is provided with an aperture 66 in which the shell of the socket is received, the wall of the aperture being provided with recesses 67 through which one or the other of the sets of shoulders 61, 62, is arranged to pass. The securing member is further provided with depressions 68 arranged to receive the shoulders 62 for preventing relative rotary movement between the securing member and the socket.

The shell of the socket 27 is provided with similar parts and has a corresponding resilient securing member received thereabout,

the respective parts thereof being designated by similar reference numerals provided with the exponent prime (''). The depressions 65' in the wall of the aperture 55' in the reflector are at the inner face of the reflector.

The spring feet of the securing members are so constructed and arranged as to be received against the inner concavely curved surface 71 of the outer casing or against the outer convexly curved surface 72 of the reflector. The outer ends of the feet are arranged to spread for permitting a greater or less yield of the securing member, the feet spreading to a greater or less extent along either a convexly curved or a concavely curved surface, so as to secure either an outer plug socket or an inner lamp socket in place. The resistance of the spring of the securing member is greater than the resistance of the springs of the socket, so that the plugs may be readily inserted without disturbing the socket.

Illustrating the manner of securing the socket in place with especial reference to its attachment to an outer casing, the securing member is received about the shell of the socket and its recesses 67 caused to pass the shoulders 62, relative rotation being caused between the securing member and socket for seating the shoulders 62 in the depressions 68. The outer shell of the socket having been received in the aperture 55 of the outer casing, the securing member is pressed for passing the shoulders 61 through the recesses 64, whereupon the socket and securing member are turned for locating the shoulder 61 in the depressions 65. The socket is thereby held securely and rigidly in place by the resilient action of the securing member and the shoulders 61, 62, received respectively in the depressions 68, 65. The socket-member may, if desired, be first passed into the aperture 55 in the outer casing from the outside. The socket 27 for the incandescent bulb is secured in place by similar manipulation.

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

1. Means for securing electric terminal sockets in place, comprising a lamp-member, a securing-member, a socket-member, and resiliently acting means about said socket-member, said socket-member and said lamp-member and securing-member provided with retaining connections held in locking relation by the resilient action of said resiliently acting means, said resiliently acting means located between the retaining connections between said socket-member and said lamp-member and securing-member respectively, and said retaining connections limiting relative rotary movements between said socket-member, lamp-member and securing-member.

2. In means for securing an electric terminal socket to a lamp-member, the combination with a lamp-member, of a securing-member having spread contact-parts arranged to coact with a convex surface and with a concave surface, a socket-member, means between said socket-member and said lamp-member and securing-member for limiting relative movement between said lamp-member and securing-member lengthwise of said socket-member, and continually acting resilient means for exerting force in the direction of said movement.

3. In means for securing an electric socket to a lamp, the combination of a lamp-member, a spring-plate, and a socket-member received in said lamp-member and spring-plate, said socket-member and said lamp-member and spring-plate provided with coacting shoulders, and said spring-plate acting to press said coacting shoulders together.

4. In means for securing an electric terminal socket to a lamp, the combination of a lamp-member, a plate provided with diverging spring-feet projected toward said lamp-member, and a socket-member extending through said lamp-member and said plate, said socket-member provided with a pair of sets of shoulders, said sets of shoulders spaced apart lengthwise of said socket-member, said lamp-member and said plate provided with shoulders coacting with said respective sets of shoulders, and said spring-feet acting to separate said plate and lamp-member for causing coaction between the shoulders thereon and the shoulders on said socket-member.

5. In means for securing an electric socket to a lamp, the combination of a lamp-member formed of a curved sheet of metal having a concave side and a convex side, an aperture therethrough, a plate provided with an aperture and with diverging spring-feet extending divergingly from the apertured portion of said plate toward said lamp-member, and a socket-member in said apertures provided with spaced-apart shoulders, said lamp-member and plate provided with coacting shoulders, and said spring-feet arranged to press said apertured portion of said plate and said lamp-member in separated relation from either side of said lamp-member.

6. In means for securing an electric terminal socket to a lamp-member, the combination with a lamp-member, of a securing-member having spread contact-parts arranged to coact with a convex surface and with a concave surface, a socket-member, means between said socket-member and said lamp-member and securing-member for limiting relative movement between said lamp-member and securing-member lengthwise of said socket-member and rotatively, and continually acting resilient means for exerting force in the direction of said lengthwise movement.

In testimony whereof I have hereunto signed my name in the presence of two subscribing witnesses.

EUGENE A. KUEN.

Witnesses:

NATHANIEL H. MAXWELL,
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