

Nov. 6, 1928.

K. K. NIELSEN

1,690,693

CANDLE SOCKET

Filed Jan. 28, 1927

Fig 1

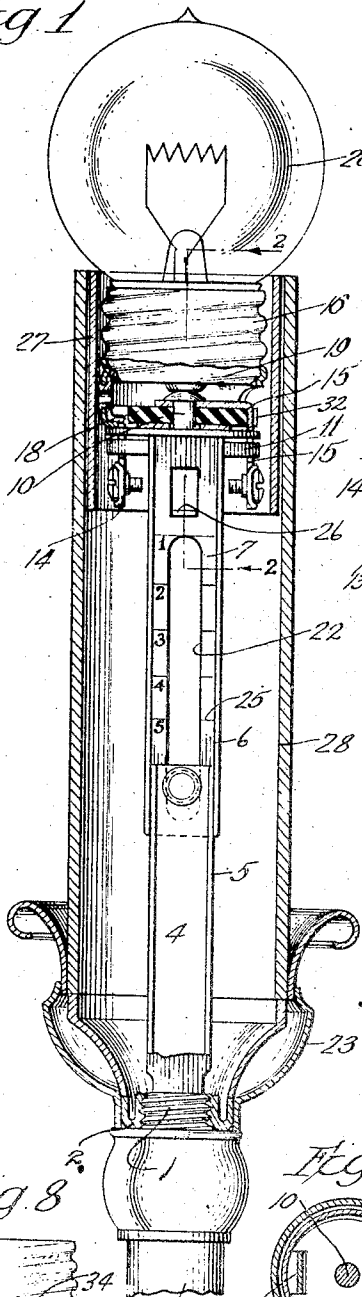


Fig 2

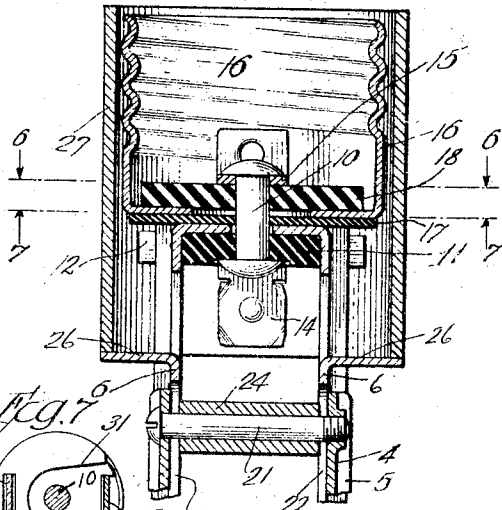


Fig 3

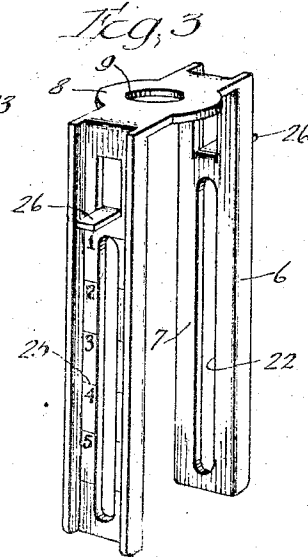


Fig 4

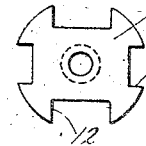


Fig 5

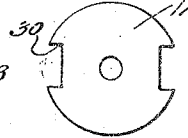


Fig 6

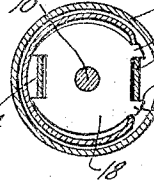
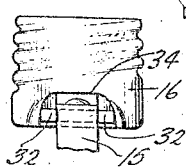


Fig 8



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Patented Nov. 6, 1928.

1,690,693

UNITED STATES PATENT OFFICE.

KARL K. NIELSEN, OF CHICAGO, ILLINOIS.

CANDLE SOCKET.

Application filed January 28, 1927. Serial No. 164,165.

REISSUED

My invention relates to electric lamp sockets of the general type designed for use with so-called Edison base incandescent lamps, and in one of its main objects aims to provide a simple construction in which a single central socket terminal serves as the sole means for securing the socket shell and the insulating parts to each other and to a support; and in which the various parts interengage so as to prevent the rotation of the socket shell, the insulating parts and one of the wire terminals with respect to the support.

More particularly, my invention aims to provide a lamp socket in which the axial socket terminal and the wire terminal connected to the latter are insulated from the base of the socket shell by a simple insulating disk, in which the socket shell and this insulating disk have interengaging formations for preventing a relative rotation of the said disk and shell, and in which the said disk also has shoulders engaging the said wire terminal to prevent the latter from rotating about the central socket terminal.

My invention also aims to provide a lamp socket in which the socket shell is insulated from its support by an interposed insulator; in which the said wire terminal engages shoulders on the said interposed terminal to prevent rotation of the socket shell upon the support; in which a still lower insulator cooperates with the said insulating disk for insulating the central socket terminal from both the socket shell and the support; and in which this lower insulator also has shoulders engaging the support and other shoulders engaging both wire terminals of the socket, so that the various shoulders will cooperate in anchoring the assembled parts against rotation.

In one of its commercial applications, my novel socket construction is particularly adapted for use in so-called candle sockets of the type in which the support includes a pair of oppositely directed and relatively slidable forks, the upper of which has its bight disposed between the said interposed insulator and the said lower insulator. Hence I am illustrating and describing my invention as embodied in such a candle socket, although I do not wish to be limited to this embodiment of the same. Furthermore, I am not here claiming other features of the disclosed candle socket, as these are being claimed in my separate and partly divisional application for United States patent on a

candle socket, filed August 8, 1927 under Serial No. 211,320.

Still further and more detailed objects will appear from the following specification and from the accompanying drawings, in which

Fig. 1 is a central, vertical and longitudinal section through a candle socket embodying my invention, showing this in connection with the lamp and the usual adjacent fixture portions.

Fig. 2 is an enlarged central, vertical and longitudinal section taken through the socket and insulating tube of Fig. 1 and through the upper portion of the support in a plane at right angles to Fig. 1, or along the line 2—2 of that figure.

Fig. 3 is a perspective view of the upper forked member of the support.

Fig. 4 is a reduced plan view of the middle insulator.

Fig. 5 is a reduced plan view of the lower insulator.

Fig. 6 is a horizontal section, taken along the line 6—6 of Fig. 2 through the socket shell.

Fig. 7 is a horizontal section taken along the line 7—7 of Fig. 2 and looking upward.

Fig. 8 is an elevation of the socket shell and the upper insulator, taken from the right hand of the socket shell in Fig. 1.

In the illustrated embodiment, the support for the socket proper comprises two forked members each of which has vertical shanks spaced by an adequate distance for affording stiffness to the support and for permitting wires to extend between the inner shanks to the terminals of the socket. The lower forked member has as its bottom a suitable threaded portion, such as an upwardly drawn tubular part 1 for attaching it to the threaded upper end 2 of a fixture bracket 3, and has each of its parallel shanks 4 provided with lateral flanges 5 so that each shank has a channel shaped transverse section. These flanges 5 fit slidably between the lateral flanges 6 on the parallel shanks 7 of the upper forked member, and the latter shanks have their outwardly directed faces spaced by a distance substantially equal to that between the inner faces of the shanks 4 of the lower forked member.

The upper forked member has a horizontal top 8 provided with a central perforation 9 of larger diameter than that of the rivet 10 which forms the axial contact of the lamp socket.

This rivet is insulated from the bottom of the said support top 8 by an insulating washer 11 (shown separately in Fig. 4) which has a pair of opposed notches 12 respectively housing the shanks of the support and another pair of opposed notches 13 through which the terminals 14 and 15 respectively extend.

The metal socket shell 16 seats on a middle insulator 17 (Fig. 5) which has a pair of notches 30 clearing the said terminals, and this insulator in turn seats on the support top 8. A third or upper insulator 18 seats on the bottom of the socket shell, both of the insulators 17 and 18 being shaped as shown in Fig. 5. The wire terminal 15 extends to the top of the upper insulator 18 and then flatwise along the said top, and the rivet 10 passes through it, so that this single rivet secures the socket shell to the upper supporting member and holds the interposed insulators in effective position, while the upper head of the rivet contacts with the axial terminal 19 of the lamp bulb 20. The companion terminal 14 extends into the bore of the socket shell and is secured to the latter so as to afford the other circuit connection to the socket.

To keep the socket shell spaced from the wire terminal 15 and the rivet 10, I provide the bottom of this shell with a notch 31 as shown in Fig. 7, which notch connects with an opening 34 in the lower part of the side of the shell as shown in Fig. 8. Then I preferably also provide the upper insulator 18 with a pair of projections 32 disposed at opposite sides of the notch 33 through which the terminal 15 extends downwardly, and indent the socket shell adjacent to these projections so that the lateral edges of the notch 33 engage the said projections. This engagement prevents the upper insulator 18 from rotating in the socket shell, so as to interlock these parts rigidly even if the other wire terminal 14 (which is secured to the socket shell) should be narrower in width than the notch 13 through which it extends.

To lock the slidably interfitting forks of the two forked members to each other I employ a single screw 21 which spans the fork of the member in which the shanks are more widely spaced (which in the illustrated case means the shanks 4 of the lower forked member) and which extends through vertical slots 22 in the shanks 7 of the companion forked member, this screw being threaded into one of the shanks 4 as shown in Fig. 2. When the screw 21 is slightly loosened, the two forked members can readily be slid on each other to vary the effective length of the supporting member and then tightened to lock these members in their adjusted position, the screw 21 being preferably disposed near the upper end of the lower forked member so that it will be accessible at all times

above the top of the usual lower fixture parts, such as the ornamental cup 23.

To prevent an undue tightening of the screw 21 from bending the fork shanks toward each other, I place a spacer tube 24 between the shanks 6 of the upper forked member and extend the screw through it, thus guarding against having the support distorted in shape so that its two parts will not slide freely on each other. I also desirably provide the outer face of at least one shank 7 of the upper forked member with graduations 25 indicating the total length from the top of the socket shell to the bottom of the supporting member, thereby enabling the installing electrician to adjust the length accurately and quickly without using a rule alongside my candle socket. Moreover, I preferably provide each shank 7 of the upper forked member with an outwardly directed finger 26 for supporting an insulating tube 27 which fits loosely between the socket shell and the usual candle-simulating tube 28 which houses my entire candle socket.

By making the notches in the lower insulator of widths corresponding respectively to those of the two wire terminals and of the upper fork shanks 7, I prevent a relative rotation of these parts. And, since the terminal 14 is fastened to the socket shell 16, I likewise prevent the shell from rotating on the supporting member, while the previously described arrangement prevents the upper insulator 18 and the two wire terminals (14 and 15) from rotating about the axis of the socket shell. Hence the single rivet 10 suffices for holding the entire upper part of my candle socket rigidly assembled. Moreover, since the insulators and the two forked members are easily formed by simple punch press operations, my entire appliance can be cheaply manufactured.

However, while I have illustrated and described my invention in an embodiment including numerous highly desirable details of construction and arrangement, I do not wish to be limited to these, since many changes might obviously be made without departing either from the spirit of my invention or from the appended claims. For example, it will be obvious that the term "support" as used in the claims refers to the upper portion of the upper forked member of the illustrated socket, and that my invention would operate equally well if other means were employed for supporting this support.

I claim as my invention:

1. An electric candle socket including a support having a top and a pair of shanks supporting the top, an intermediate insulator seated on the said top, a socket shell having its base seated on the intermediate insulator, an insulator above the said intermediate insulator disposed within and seated on the

base of the socket shell and a lower insulator underhanging the top of the support; a wire terminal secured to the socket shell and having a downwardly extending portion; a second wire terminal having a part seated on the upper insulator and having a downwardly extending portion; there being aligned perforations in the three insulators, the seating part of the second wire terminal, the base of the socket shell and the support top; and a fastening member extending through the said aligned perforations and headed at each end and approximately fitting the perforations of the three insulators but smaller in diameter than the perforations in the support top and in the socket shell base; the three insulators having two sets of aligned lateral notches through which sets of notches the downwardly extending portions of the wire terminals respectively extend, and the lower insulator having shoulder formations engaging one shank of the support to prevent rotation of that insulator with respect to the support about the fastening member.

2. In an electric socket, a metal shell formed for receiving the base of a lamp bulb and having a lateral aperture near its bottom, an insulator seated on the bottom of the said shell and having a portion thereof projecting into the aperture and engaging the lateral edges of the aperture to prevent rotation of the insulator in the shell, the insulator also having a pair of spaced notches, a wire terminal extending through one of the notches and secured to the socket shell, a base contact axial of the shell and extending freely through the bottom of the shell, and a second wire terminal extending through the other notch and secured to the base terminal.

3. In an electric socket, a metal shell formed for receiving the base of a lamp bulb, and having a lateral aperture near its bottom, an insulator seated on the bottom of the said shell and having a pair of spaced projections projecting into the aperture and respectively engaging the opposite edges of the aperture to prevent rotation of the insulator in the shell, the insulator also having an opening spaced circumferentially from the said projections, a wire terminal secured to the socket shell and extending through the said opening, a base contact secured to the insulator, and a second wire terminal secured to the base terminal and extending between the said projections and laterally engaging the projections so that the latter prevent the second wire terminal from rotating about the base contact.

4. An electric candle socket comprising a support having a riser shank and a horizontal support portion at the upper end of the said shank; a threaded socket shell having its base disposed above the horizontal support portion, a lower insulator engaging the bottom

of the said support portion, an upper insulator seated on the said socket shell base; a fastening member extending axially of the socket shell through said support portion, base and both insulators; and means interposed between the socket shell and the lower insulator for preventing relative rotation thereof about the fastening member.

5. An electric candle socket comprising a support having a riser shank and a horizontal support portion at the upper end of the said shank; a threaded socket shell having its base disposed above the horizontal support portion, a lower insulator engaging the bottom of the said support portion, an upper insulator seated on the said socket shell base; a fastening member extending axially of the socket shell through said support portion, base and both insulators; and a socket terminal fast upon and depending from the socket shell, the lower insulator having shoulders engaging the said terminal to prevent rotation of the socket shell with respect to the lower insulator about the fastening member.

6. An electric candle socket comprising a support having a riser shank and a horizontal support portion at the upper end of the said shank; a threaded socket shell having its base disposed above the horizontal support portion, a fastening member extending axially of the shell through the said base and the horizontal support portion, insulating means for insulating the shell base from the fastening member and the support portion, and a terminal fast on the said shell, the insulating means including a part interlocked with both the riser shank and the said terminal to prevent rotation of the shell about the fastening member.

7. An electric candle socket including a support, an intermediate insulator seated on the top of the support, a socket shell seated on the intermediate insulator, an upper insulator disposed within and resting on the base of the socket shell, a lower insulator underhanging the top of the support; and a single fastening member extending through the three insulators, the base of the socket shell and the top of the support for securing the said elements to each other, the fastening member serving also as the axial terminal of the socket, the insulators having aligned notches; in combination with a wire terminal secured to the socket shell and extending through the said notches to prevent relative rotation of the said insulators with respect to each other and to the socket shell, the lower insulator and the support having interengaging parts arranged to prevent relative rotation thereof.

8. An electric candle socket including a support, an intermediate insulator seated on the top of the support, a socket shell seated on the intermediate insulator, an upper insulator disposed within and resting on the base

of the socket shell, a lower insulator under-
hanging the top of the support; and a single
fastening member extending through the
three insulators, the base of the socket shell
5 and the top of the support for securing the
said elements to each other, the fastening
member serving also as the axial terminal of
the socket; in combination with a wire termi-
nal secured to the socket shell, and a second
10 wire terminal having a portion seated on the
upper insulator and mounted on the fasten-
ing member; the three insulators having two
sets of alined notches through which portions
of the two wire terminals respectively extend,
the lower insulator and the support having in- 15
terengaging parts arranged to prevent rela-
tive rotation thereof.

Signed at Chicago, Illinois, January 7th,
1927.

KARL K. NIELSEN.