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SERIES LAMP SOCKET

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Fig. 1.

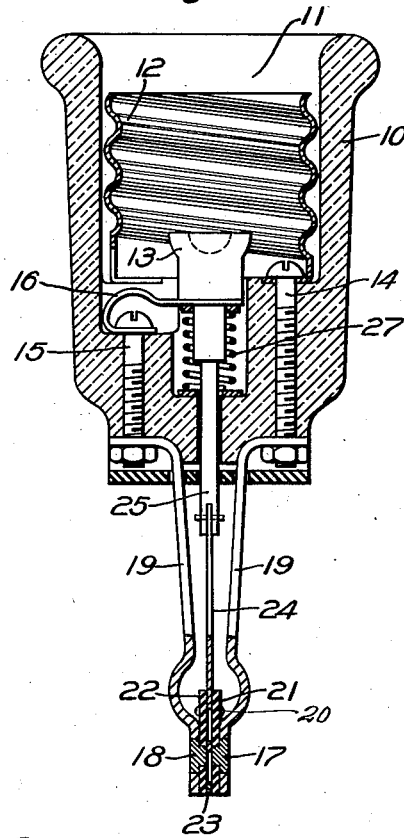


Fig. 2.

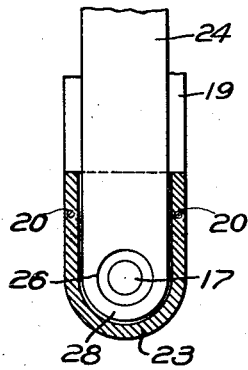


Fig. 3.

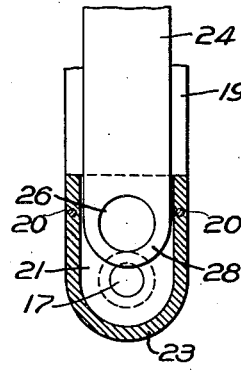
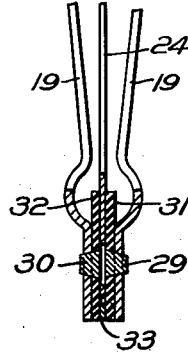


Fig. 4.



WITNESSES:

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SERIES LAMP SOCKET

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12 Claims. (Cl. 200—118)

My invention relates, generally, to lighting ap-
paratus, and, more particularly, to lamp sockets
for use in circuits where it is desired to main-
tain the circuit regardless of the condition of
the lamp.

In the operation of some lighting systems, and
especially, series street lighting systems, it is de-
sirable to provide for automatically shunting or
short-circuiting the socket and lamp in the event
of lamp failure.

Various devices have been provided for accom-
plishing this, among them being film cutouts and
other forms of cutouts or short-circuiting devices
which function in response to a predetermined
increase in voltage resulting from lamp failure
and which must be renewed or replaced after
each operation.

It is the object of my invention, generally
stated, to provide a lamp socket which shall be
of simple construction, efficient in operation, in-
expensive to manufacture and install and which
shall be safe and economical to use.

A more specific object of my invention is to
provide a lamp socket adapted for use in series
lighting circuits and the like, which embodies a
cutout or short-circuiting device which func-
tions in response to lamp failure and which may
be reset or reconditioned by the operation of
replacing the lamp.

A further object of my invention is to provide
for short-circuiting a lamp socket in response to
lamp failure and for maintaining the short-cir-
cued condition until the lamp is removed from
the socket and replaced.

Another object of my invention is to provide for
reconditioning a cutout device by the removal of
the lamp from the socket.

A still further object of my invention is to pro-
vide for utilizing the movements of one of the
contact members of a lamp socket for controlling
the functioning of a cutout or short-circuiting
device used therewith.

Another object of my invention is to provide a
combination lamp socket and cutout device of
such nature that the cutout device is automati-
cally reconditioned for operation in response to
the removal of the lamp from the socket.

Still another object of my invention is to pro-
vide a cutout device for use with lamp sockets
which does not require the replacement of new
elements after each operation or its removal from
the lighting unit in order to recondition it for a
subsequent operation.

These and other objects and advantages of my
invention will become apparent from the follow-

ing detailed description thereof, when read in
conjunction with the drawing in which:

Figure 1 is an elevational view, partly in section,
of a lamp socket embodying the principal fea-
tures of the invention,

Figs. 2 and 3 are enlarged views showing the
cutout reconditioning device in different positions,
and

Fig. 4 is a view showing a modified form of cut-
out device.

Referring now to the drawing, there is illus-
trated in Fig. 1, one embodiment of the invention
in the form of a lamp socket for use in series
lighting systems where it is desired to prevent
any interruption of the circuit in the event of
failure of one or more lamps.

The device as illustrated comprises a body mem-
ber or base 10 of the usual socket shape com-
posed of porcelain, moulded material, or the like,
having a suitable depression 11 therein in which
is mounted a stationary contact member 12 in
the form of a threaded shell disposed to receive
the base of a lamp (not shown) and a movable
central contact member 13.

The contact members 12 and 13 may be con-
nected to the circuit by means of the terminal
bolts 14 and 15, respectively, the bolt 14 being
connected directly to the contact shell 12 and the
bolt 15 being connected to the center contact 13
by means of a flexible connector 16 in order to
permit this contact member to be moved relative
to the base for a purpose which will appear more
fully hereinafter.

In this embodiment of the invention, the cut-
out or short circuiting device comprises a pair
of spaced contact elements 17 and 18, composed
of any suitable metal, such, for example, as lead,
which are supported from the base 10 of the
socket by means of prongs 19 secured to the ter-
minal bolts 14 and 15, as shown. The contact ele-
ments 17 and 18 are held in spaced relation to
provide an arcing space or air gap by means of
insulating washers 21 and 22 which are secured
to the lower ends of the prongs 19 in any suitable
manner and a spacer 23, the washers and spacer
being held together by means of suitable rivets 20
as shown in Figs. 2 and 3. As shown in Figs. 1, 2
and 3 of the drawing, the rivets 20 are positioned
a sufficient distance from the contacts 17 and 18
as to clear the flat parallel faces of the prongs 19
to avoid any possibility of short circuiting the
prongs.

As it will be readily understood, the cutout is
connected to the line circuit in parallel relation
to the contact members 12 and 13 of the lamp

socket, the spacing between the contact elements 17 and 18 of the cutout being such that an arc will be established therebetween in response to a predetermined increase in voltage across the socket terminals such as would result upon the failure of the lamp. This arcing causes the formation of a point contact between the contact members 17 and 18, such that they are fused together to effectively short circuit the contact members 12 and 13 of the socket.

In order to provide for reconditioning the cutout without removing the cutout or the socket from the lighting fixture provision is made for automatically separating the contact elements 17 and 18 and thereby re-establishing the air gap in response to the removal of the lamp from the socket.

In this instance, this function may be performed by a metallic tongue 24 which is connected to the movable center contact 13 by means of a shaft 25, which extends through a suitable opening in the bottom of the base member 10, as shown, the other end of which is positioned between the insulating washers 21 and 22 of the cutout. This end of the tongue 24 is provided with an opening 26 which is of somewhat larger diameter than the arcing face of the contact elements 17 and 18, and which is positioned directly opposite these contact elements when the center contact member 13 is in its fully depressed position.

In order that the operation of the tongue 24 to recondition the cutout may be effected automatically in response to the removal of the lamp which has failed, the center contact member 13 is provided with a suitable biasing spring 27 which functions to bias the contact member to its upper position, as shown in Fig. 1. It will be apparent that upon the removal of the lamp from the socket contact member 13 is forced upwardly by the spring 27, thereby causing the tongue 24 to be moved upwardly between the contact elements 17 and 18 of the cutout to the position as shown in Fig. 3.

The movement of the tongue 24 to its upper position effectively re-establishes the spacing or air gap between the arcing faces of the contact elements 17 and 18, thereby reconditioning the cutout for a subsequent operation. The tongue 24 also performs the function of effectively short-circuiting the lamp socket until the center contact member 13 has been again depressed to its lower position, thereby positioning the tongue as shown in Fig. 2. This is accomplished because of the fact that the lower tip 28 of the tongue remains in contact with the arcing faces of contact elements 17 and 18 at all times after the center contact member 13 has been released until it is again depressed. Therefore, it is evident that the lighting circuit is automatically maintained while the lamp which has failed is being replaced and the cutout reconditioned for a subsequent operation.

In Fig. 4 there is shown a slightly modified form of cutout device which may be formed as a unit supported by the prongs 19. In this embodiment the contact elements 29 and 30, of lead or other suitable material, may be secured to the insulating plates 31 and 32 and these plates together with the spacer 33 secured together as a unit by means of suitable rivets similar to the embodiment shown in Figs. 2 and 3. The contact members 29 and 30 extend outwardly from the surface of the insulating plates to provide connecting elements disposed to engage with suitable openings

in the prongs 19 to support the cutout element from the socket.

As will be readily understood the cutout element may be readily removed by spreading the prongs 19 in the event that it should become damaged.

In view of the foregoing, it is now apparent that I have provided a combination socket and cutout of a very simple construction, which may be used over and over again without requiring the removal of the socket from the lighting fixture or the replacement of any parts following each lamp failure.

Since certain changes may be made in the above construction and different embodiments of the invention may be made without departing from the spirit thereof, it is intended that all matter contained in the above description or shown in the accompanying drawing shall be interpreted as illustrative and not in a limiting sense.

I claim as my invention:

1. In combination, a lamp socket having a contact element disposed to receive a lamp base, and a cutout device connected to the socket and operable when subjected to a predetermined voltage to short-circuit the socket, said cutout device being operable in response to the removal of the lamp base from the socket to recondition itself for a subsequent operation.

2. In combination, a lamp socket having a contact element disposed to receive a lamp base, and a cutout device connected to the socket and operable when subjected to a predetermined voltage to short-circuit the socket, said cutout device comprising spaced contact elements and a movable element positioned therebetween and actuated in accordance with the insertion and removal of the lamp base into and out of the socket.

3. In combination, a lamp socket having a movable contact member actuated by the removal and insertion of a lamp base, a cutout device connected with the socket operable in response to lamp failure to short circuit the socket, and means actuated by the movable contact member upon the removal of the lamp for reconditioning the cutout device and by the insertion of a lamp for again rendering the cutout device operable to short circuit the socket.

4. In a lamp socket, in combination, a base, a stationary terminal mounted on the base adapted to receive a lamp base, a movable terminal normally biased to one position and disposed to be actuated to a different position by the insertion of the lamp base into the stationary terminal, cutout means supported by the base adapted to function in response to lamp failure, and means actuated by the movable terminal upon removal of the lamp base for reconditioning the cutout means for operation and for rendering the cutout means effective upon the insertion of a lamp base into the socket.

5. A lamp socket comprising a stationary contact member disposed to receive a lamp base, a movable contact member actuated in one direction by the insertion of a lamp base into the stationary contact member and in another direction in response to the removal of the lamp from the socket, a cutout device connected in parallel with the contact members of the socket, and means actuated in accordance with the movements of the movable contact member for rendering the cutout device effective to shunt the stationary and movable contact members upon failure of the lamp and to recondition the cutout

device in responsive to the removal of the lamp from the socket.

6. A lamp socket comprising a stationary contact member disposed to receive a lamp base, a movable contact member actuated in one direction by the insertion of a lamp base into the stationary contact member and in another direction in response to the removal of the lamp from the socket, a cutout device connected in parallel with the contact members of the socket, and means actuated in accordance with the movements of the movable contact member for rendering the cutout device effective to shunt the stationary and movable contact members upon failure of the lamp and to recondition the cutout device in response to the removal of the lamp from the socket, said means being disposed to cooperate with the cutout device to maintain a shunting circuit across the stationary and movable contact members dependent upon the removal of the lamp base from the socket to a predetermined degree.

7. A lamp socket comprising a stationary contact member disposed to receive a lamp base, a movable contact member actuated in one direction by the insertion of a lamp base into the stationary contact member and in another direction in response to the removal of the lamp from the socket, a cutout device connected in parallel with the contact members of the socket, said cutout device having spaced contact elements disposed to become fused together in response to failure of the lamp, and means actuated by the movable contact member in response to the removal of the lamp from the socket for reestablishing the spacing of the contact elements of the cutout device and for maintaining them connected together until a lamp base is inserted into the socket.

8. A lamp socket comprising a stationary contact member disposed to receive a lamp base, a movable contact member actuated in one direction by the insertion of a lamp base into the stationary contact member and in another direction in response to the removal of the lamp from the socket, a cutout device connected in parallel with the contact members of the socket, said cutout device having spaced contact elements disposed to become fused together when subjected to a predetermined voltage resulting from a failure of the lamp in the socket, and a tongue member actuated in accordance with the movements of the movable contact member of the socket disposed to reestablish the original spacing of the contact elements of the cutout device.

9. A lamp socket comprising a base, stationary

and movable terminal members mounted in the base, said stationary terminal member being disposed to receive a lamp base, said movable terminal member being actuated by the insertion and removal of the lamp base, a cutout device supported by the base externally of the socket, and means actuated in accordance with the movements of the movable terminal for rendering the cutout device effective when the lamp base is inserted into the socket and for reconditioning the cutout device for operation when the lamp base is partially removed from the socket.

10. A lamp socket comprising a base, stationary and movable terminal members mounted in the base, said stationary terminal member being disposed to receive a lamp base, a cutout device supported by the base, said cutout device comprising spaced contact members connected in parallel-circuit relation with the lamp carried by the socket and disposed to become joined together on failure of the lamp, and means actuated by the removal of the lamp from the socket for separating the contact members of the cutout device.

11. A lamp socket comprising a base, stationary and movable terminal members mounted in the base, said stationary terminal member being disposed to receive a lamp base, a cutout device supported by the base, said cutout device being operable to short-circuit the contact members of the socket upon failure of the lamp, and means actuated by the movable contact member of the socket in response to the removal of the lamp which has failed for conditioning the cutout device for another operation.

12. In combination, a lamp socket provided with a stationary contact member disposed to receive a lamp base and a spring biased movable contact member disposed to be depressed in response to the insertion of a lamp base into the socket, a cutout device comprising spaced contact elements connected to the socket contact members and disposed to become connected together to short circuit the socket contact members in response to an arc formed therebetween on failure of the lamp, and a metallic member connected to the movable contact member having an opening in one end thereof which is positioned opposite the contact elements of the cutout device when the movable contact member is depressed by the lamp base and which is moved relative to the contact elements of the cutout when the lamp base is removed from the socket, thereby to recondition the cutout device for a subsequent operation.

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