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SEPARABLE LAMP SOCKET

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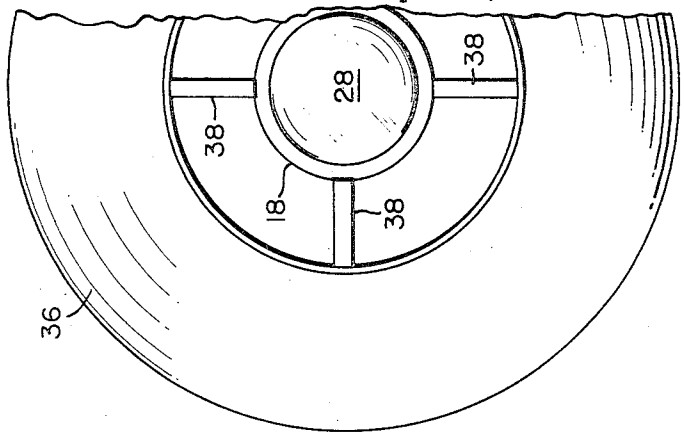


FIG. 2

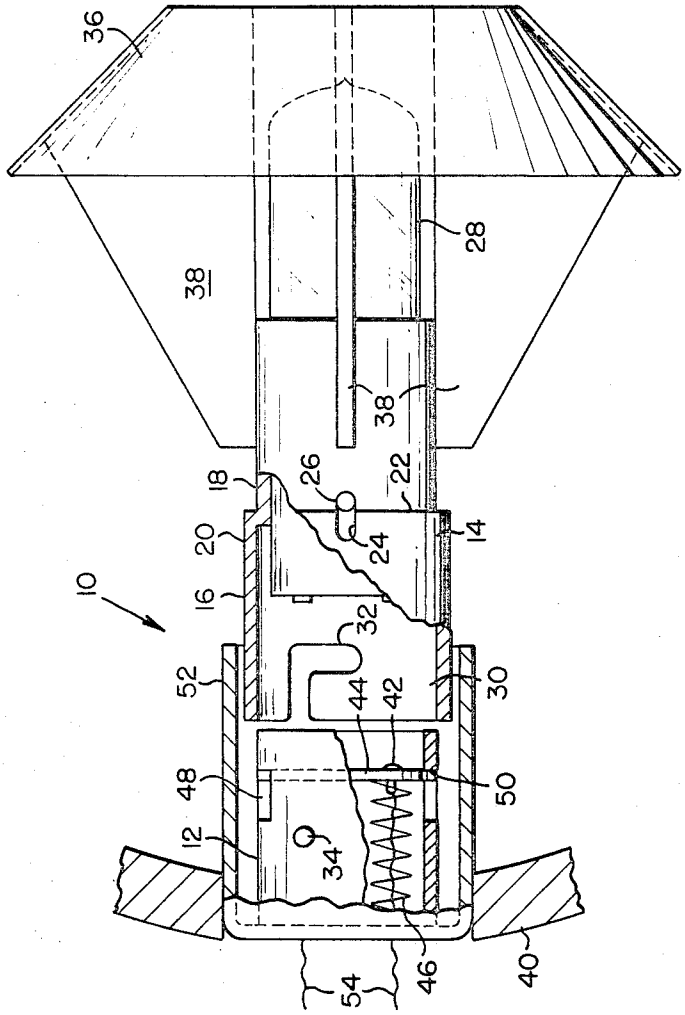


FIG. 1

INVENTORS
DONALD J. BRICKLE
JAMES A. BURLING

BY Theodore J. Roessel

ATTORNEY

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SEPARABLE LAMP SOCKET

Donald J. Brickle, Pittsford, and James A. Burling, Rochester, N.Y., assignors to Sybron Corporation, a corporation of New York

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ABSTRACT OF THE DISCLOSURE

A separable socket and lamp shield for bayonet type bulbs or the like including a pair of separable elements, one element containing spring biased electrical terminals and the second element being adapted to slidably receive and retain the bayonet bulb wherein the second element acts as a shield to prevent direct contact with the bulb and as a handle to facilitate connection of the separable elements against the bias of the electrical terminals.

BACKGROUND OF THE INVENTION

The present invention relates generally to a socket and shield for bayonet type bulbs or the like which facilitates removal or replacement of such bulbs, more specifically the invention relates to a separable socket for bayonet type bulbs which eliminates the need for handling the bulb when it is inserted or removed from the socket.

Bayonet type bulbs are well known in the art as this term is used to describe any type of bulb which is provided with a pair of lugs which fit into corresponding lug receiving slots formed in the socket, wherein the bulb is inserted into the socket and then twisted to seat the lugs in the lug receiving slots of the socket.

In such a bulb and socket arrangement it is difficult if not impossible to replace burned out bulbs immediately after they fail because of the necessity to grasp and twist the hot bulb to remove it from the socket. The danger of burn or injury is especially present where a bulb of high intensity is used such as the quartz or iodine lamps used in medical and dental examination lights. Moreover, when a bayonet bulb is being twisted to insert or remove the bulb from the socket, there is also a considerable danger of breaking the glass portion of the bulb if for some reason the metal portion and lugs of the bulb become locked in the socket. Breaking the glass portion of the bulb not only poses the threat of injury as the glass fails but also presents a problem of removing the metal portion of the bulb from within the socket.

Furthermore, since the lugs of the bulb are greater in diameter than the glass portion of the bulb, it is difficult when grasping the bulb portion by hand to apply sufficient torque to unlock the lugs from the receiving slots of the socket. This is especially true as stated hereinabove where the bulb is hot or where the bulb has been damaged so that there is a danger of the glass portion separating from the metal portion of the bulb as the bulb is twisted.

SUMMARY OF THE INVENTION

The present invention is characterized in one aspect, thereof, by the provision of a separable socket assembly having a fixed element which carries spring loaded electrical contacts, and a removable element, which slidably receives the bayonet bulb through one end of the removable element. The removable element is mated to the fixed element against the spring bias to connect the terminals of the bulb to the electrical contact of the fixed element. A hot burned bulb can be removed from the socket by grasping and turning the removable element to separate the socket elements and then inverting the removable element to permit the bulb to fall therefrom by gravity.

OBJECTS OF THE INVENTION

One object of the present invention is to provide a socket for bayonet-type bulbs which facilitates the insertion and removal of such bulbs from the socket.

Another object of the present invention is to provide a socket for bayonet type bulbs which eliminates the need for grasping the bulb by hand when the bulb is being inserted or removed from the socket.

Yet another object of the present invention is to provide a two-part socket for bayonet-type bulbs wherein the socket portions can be separated for purposes of replacing a burned out bulb without touching the bulb by hand.

DESCRIPTION OF THE DRAWINGS

FIG. 1 is a view of the separable socket of the present invention just prior to assembly, the socket being partly broken away and in cross section to show internal components; and

FIG. 2 is an end view of a portion of the separable socket.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to the drawings, FIG. 1 shows a separable socket of our invention generally designated at **10** to include a fixed socket element **12**, and a separable element or bulb housing **14**. Housing **14** is formed by a tubular wall **16**, having a first section **18** and an enlarged section **20** joined at shoulder **22**. A pair of diametrically opposed openings **24** are formed in the housing at shoulder **22** for receiving the lugs **26** of a bayonet-type bulb **28**. In this respect, bayonet bulb **28** is slidably inserted into housing section **18** through the enlarged section **20**, the passage of bulb **28** completely through the housing being prevented by the lugs which extend through openings **24** to engage the tubular wall **16** of section **18**.

Extending axially inwardly from one end **30** of bulb housing **14** is a pair of diametrically opposed, generally L-shaped slots **32**, the slots being adapted to receive corresponding lugs **34** carried by socket **12** to latch bulb housing **14** and fixed socket element **12** together.

Bulb housing **14** is also provided with a bulb shield comprising a cap member **36** and a plurality of fin-shaped supporting arms **38** which connect the cap to housing section **18**. The cap and supporting arms together provide a cage about the bayonet bulb **28** which prevents accidental body contact with a hot bulb. Cap **36** also provides a mechanical advantage means for removing a hot burned out bulb from the socket without touching the bulb by hand.

As shown in FIG. 1, socket element **12** is fixed by any suitable means to a paraboic reflector or the like indicated at **40** which forms no part of the present invention. Socket element **12** carries the electrical contacts **42** which are mounted on a sliding support **44**, the sliding support being biased against the base of socket **12** and towards bulb housing **14** by spring members **46**. Slots **48** formed in the wall of the fixed socket element act as guides for the movement of sliding support **44** and one end **50** of the slots acts as a stop to retain the sliding support within socket **12**. An outer socket member **52** is disposed about fixed socket element **12** and acts as a guide to facilitate assembly of bulb housing **14** and socket **12**. The numeral **54** represents the lead-in wires which connect electrical contacts **42** to a source of electricity not shown.

OPERATION

In operation the separable socket and bulb shield of the present invention can be assembled or disassembled to

change bulbs without touching a hot burned out bulb. In this respect, a new bulb is inserted into bulb housing **14** by dropping the bulb through the enlarged section **20** to seat bulb lugs **26** in openings **24**. Bulb housing **14** is then held by cap **36** and inserted into the outer socket member **52** and over socket **12** so that the socket lugs **34** are received into the L-shaped slots **32**. Cap **36** is then rotated to seat lugs **34** in the slots, locking the bulb housing and socket element together. As bulb housing **14** is inserted over socket **12**, bulb **28** engages electrical contacts **40**, and moves sliding support **44** against the spring bias. The compression of springs **46** not only insure the engagement of the electrical contacts to the bulb but also act to firmly seat bulb lugs **26**, which extend through openings **24**, against the tubular wall **16** to fix bulb **28** within bulb housing **14**.

When a bulb has burned out and requires replacement, cap **36** is merely turned by hand to unseat lugs **34** from the L-shaped slots **32** so that bulb housing **14** and fixed socket element **12** can be separated. With bulb housing **14** separated from socket element **12**, the housing can be inverted to permit the bulb **28** to slide by gravity from housing **14** through housing end **30**.

It should be noted that cap member **36**, being larger in diameter than lugs **34**, provides a mechanical advantage to facilitate the assembly or disassembly of the bulb housing from socket element **12**.

Thus, it would be appreciated that the present invention accomplishes its intentive objects providing a bulb socket for bayonet type bulbs and the like which facilitates the insertion and removal of such bulbs from a socket. In this respect, the construction of bulb housing **14** provides an operator with increased mechanical advantage with which to separate the housing **14** from socket **12** as set forth hereinabove. Bulb housing **14** also eliminates the need for applying a connecting torque directly to the bulb which in turn eliminates the danger of the glass body portion of the bulb breaking and becoming separated from the metal casing portion as the bulb is inserted or removed from the socket. Furthermore, the cage provided by cap member **36** and fins **38** act to shield the bulb which prevents both damage to the bulb and accidental body contact with a hot bulb.

Having thus described our invention in detail, what we claim as new is:

1. A separable bulb socket for high intensity bulbs and the like comprising:

(a) a fixed socket element;

(b) means carried by said fixed socket element including electrical contacts to connect said bulb to an electrical source;

(c) a housing retaining said bulb and releasably connected to said fixed socket element, said housing including axially aligned tubular sections, one of said sections being larger in diameter than another of said sections to permit said bulb to pass through said section of larger diameter and into said section of smaller diameter;

(d) stop means on said housing preventing the passage of said bulb through said tubular section of smaller diameter and;

(e) latching means on said section of larger diameter for engaging said fixed socket element to latch said socket element and housing together and urge said bulb against said electrical contacts.

2. A separable socket as in claim **1** wherein said bulb is a bayonet type bulb, the juncture of said tubular sections forming a shoulder and said housing having a pair of diametrically opposed openings through the tubular wall thereof at said shoulder to receive the lugs of said bayonet bulb, the engagement of said lugs through said openings with the wall of said tubular section of smaller diameter comprising said stop means.

3. A separable socket as in claim **1** wherein said latching means comprises:

(a) at least one lug carried by said fixed socket element; and

(b) a generally L-shaped lug receiving slot extending inwardly from one end of said section of larger diameter, said housing being inserted over said fixed socket element and rotated to seat said lug in said L-shaped slot.

4. A separable socket as in claim **1** wherein said housing further comprises:

(a) a plurality of fin-shaped elements attached to and extending radially and axially from said tubular section of smaller diameter; and

(b) mechanical advantage means carried by said fin-shaped elements facilitating the connection of said housing to said fixed socket element.

5. A separable socket as in claim **4** wherein said mechanical advantage means comprises a cap member extending across and supported by said fin-shaped elements, said fin-shaped elements and cap member together form a cage about said bulb.

6. A socket for bayonet-type bulbs and the like comprising:

(a) a fixed socket element including electrical contacts for connecting said bulb to an electrical source;

(b) a tubular, open ended housing slidably receiving said bulb therein with a portion of said bulb extending outwardly through one end of said housing said housing having a pair of diametrically opposed axially extending slots opening through a second end of said housing, the width of said slots being sufficient to accommodate the lugs of said bayonet type bulb and the ends of said slots engaging the lugs of said bulb to prevent said bulb from sliding through said housing; and

(c) latch means on said second end of said housing for releasibly engaging said fixed socket element to latch said socket element and housing together.

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MARVIN A. CHAMPION, Primary Examiner

J. H. McGLYNN, Assistant Examiner

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