A. L. SMITH.

ELECTRIC LAMP SOCKET.

APPLICATION FILED DEC. 11, 1918.

1,331,287.

Patented Feb. 17, 1920.

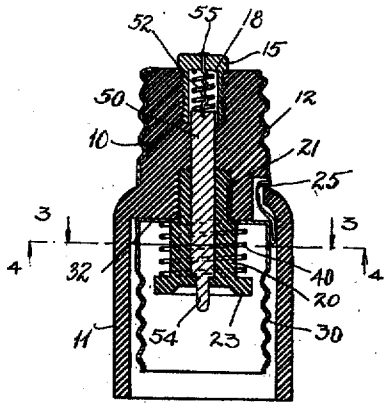


FIG. 2

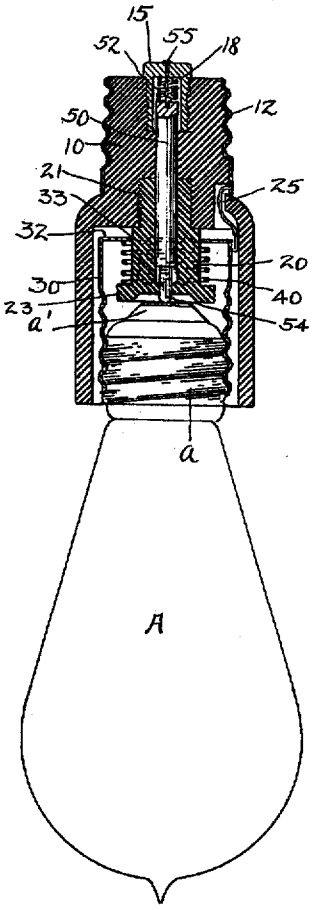


FIG. 1

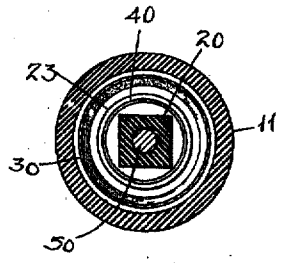


FIG. 3

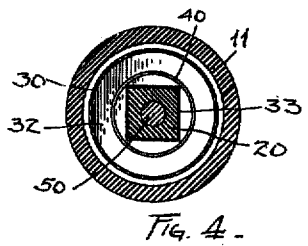


FIG. 4.

INVENTOR

Arthur L. Smith,

BY Baker & Macklin,

ATTORNEYS.

UNITED STATES PATENT OFFICE.

ARTHUR L. SMITH, OF ASHTABULA, OHIO.

ELECTRIC-LAMP SOCKET.

1,331,287. Specification of Letters Patent. Patented Feb. 17, 1920.

Application filed December 11, 1918. Serial No. 266,206.

To all whom it may concern:

Be it known that I, ARTHUR L. SMITH, a citizen of the United States, residing at Ashtabula, in the county of Ashtabula and State of Ohio, have invented a certain new and useful Improvement in Electric-Lamp Sockets, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings.

The object of this invention is to provide in a simple form a socket adapted to yieldingly hold an electric lamp, so that the filament of the lamp will be largely freed from vibrations of the support to which the socket is attached. In many installations, as for example, in the vicinity of heavy machinery, there is such continuous vibration that it is not feasible to use tungsten filament lamps in the ordinary sockets, the vibrations breaking the filaments very quickly. It has accordingly been customary in these places to employ carbon filament lamps, which give a diminished quantity of light and use an excessive amount of current.

In accomplishing my object I have provided a socket which has both the sleeve terminal and the base terminal yieldingly held, so that the lamp may be said to float under a spring retension. This socket has been demonstrated in practice and has earned the name of "shock-absorbing socket". The invention comprises the means by which I accomplish the result stated as hereinafter more fully described in connection with the illustrative embodiment shown in the drawings.

The drawings show my socket as an adapter—that is with a base adapted to screw into an ordinary socket—but other forms of base may be employed if desired. In these drawings, Figure 1 is a longitudinal section of the socket with a lamp in place; Fig. 2 is a longitudinal section of the socket idle; Fig. 3 is a cross section as indicated by the section line on Fig. 2 looking in the direction of the arrows 3 or toward the open end of the socket; Fig. 4 is a cross section on the same line looking in the opposite direction, as indicated by the arrows 4.

As shown in the drawings, 10 indicates the body of the socket, which is a suitable piece of insulating material adapted to be secured to a support and having a sleeve portion 11 adapted to house the usual securing portion of the lamp. As heretofore stated, the body base shown is in the form of an adapter and is accordingly provided with an external screw threaded sleeve 12 forming one terminal and a central button 15 forming the other terminal, though the socket may as well be of the permanent form as of the adapter type.

Secured in the body 10 is a forwardly extending insulating plug 20, this plug being shown as having a screw thread 21 by which it is secured to the body. The exterior of this plug is non-circular in cross section, square for instance, as indicated in Fig. 3. At its external end it has an overhanging flange 23. Loosely mounted within the sleeve 11 is a metal sleeve 30, ordinarily screw-threaded, but in any case formed to engage the exterior of an ordinary lamp and support it. This sleeve has at its inner end an inwardly extending flange 32 with a non-circular hole 33 through which it slidably embraces the non-circular exterior of the plug 20. The hole 33 is smaller than the flange 23 on the plug. Between this flange 23 and the flange 32 is a compression spring 40. This spring tends to press the sleeve inwardly, retaining it when the socket is idle in the position shown in Fig. 2.

The terminal designed to contact with the base of the lamp is shown as a rod 50 mounted centrally in the body and pressed toward the free end by a spring 52. This spring is shown as mounted in a recess 18 formed in the base plug 15. The end of the rod also extends into the recess. The rod is prevented from being forced entirely out of the recess by a reduced inner end of the rod 54, which occupies a reduced bore in the end portion of the plug 20. The rod, spring and plug are metallic, but to insure the best electric connection I prefer to connect a flexible wire 55 centrally to the plug and rod. The electric connection to the base of the lamp in the socket is thus provided. The sleeve 30 is electrically connected with the proper base terminal, in this case the external sleeve 12, by a suitable flexible conductor as 25.

The lamp A is placed in the socket in the usual manner, the lamp sleeve *a*, in the embodiment shown, screwing into the movable sleeve 30, and the base terminal *a'* of the lamp engaging the extreme end of the rod 50. Then the continued turning in of the lamp forces in the rod against the action of the spring 52 and at the same time draws outwardly the sleeve 30 against the action of the spring 40. The parts thus assume

the position shown in Fig. 1, wherein the lamp is yieldingly held both by the sleeve and at its base contact, the lamp thus floating under the counter-balancing spring pressure of the two springs 40 and 52. When so held, only a comparatively small portion of any vibration of the support for the socket is transmitted to the lamp.

It will be noted that the insulating sleeve of the body member extends a sufficient distance beyond the metallic sleeve within it, so that the metallic sleeve is entirely surrounded by the insulating sleeve whether the socket be idle, as shown in Fig. 2, or the lamp be in place, as in Fig. 1. When idle, the metallic sleeve projects sufficiently beyond the base terminal rod so that the lamp sleeve obtains a proper screw threaded hold on the metallic sleeve before the base of the lamp engages the base rod. During this preliminary turning the sleeve 30 is firmly held with its inner end against the body, by reason of the spring 40. Accordingly the lamp may be screwed into my socket as readily as into an ordinary socket.

It will be seen that my socket is simple in construction, neat in appearance and takes up little room, and there is nothing about it to get out of order. Experience has demonstrated that it holds the lamp in the desirable yielding manner, enabling tungsten filament lamps to be efficiently used around rumbling or vibrating machinery.

Having thus described my invention, what I claim is:

1. In a socket, the combination with a body, of a central terminal carried thereby and spring pressed outwardly, and a freely movable supporting sleeve spring pressed inwardly by means allowing it to tip laterally.

2. In a socket, the combination of a screw threaded freely movable sleeve forming one of the terminals and adapted to engage a screw threaded sleeve on the lamp, a member forming the other terminal and adapted to engage a base button on the lamp, and spring means tending to force the sleeve of the socket inwardly while allowing it to tip laterally and to force the said member outwardly.

3. In a socket, the combination with a body, of a central outwardly pressed terminal rod carried thereby, a screw-threaded terminal sleeve carried by the socket, said sleeve having an inward flange at its inner end, a spring within the sleeve bearing against said flange, the body having a part embracing the central rod which has means for forming an abutment for the spring.

4. In a socket, the combination with a body, of a base terminal carried thereby, said body having a plug for surrounding the base terminal, an inwardly pressed longitudinally movable screw-threaded terminal sleeve carried by the socket, a helical spring surrounding the plug and bearing at one end against the projection of the plug and at the other against a projection on the sleeve, and means for preventing the sleeve rotating.

5. In a socket, the combination with a body, of a central base terminal carried thereby, a screw-threaded terminal sleeve carried by the socket, said sleeve having an inward flange at its inner end, and a spring within the sleeve bearing against said flange and pressing it inwardly while allowing it to tip in any direction, the body having a part embracing the central terminal and provided with means forming an abutment for the spring.

6. In a socket, the combination of an insulating body having a sleeve portion, a metallic screw-threaded sleeve loosely mounted within the body, a spring within the body tending to force the metallic sleeve inwardly, and a central terminal mounted within the body, the body having a central plug portion, having an overhanging head forming an abutment for the spring.

7. The combination of an insulating body and a central plug non-circular in cross section carried by the body, a sleeve having means for engaging the lamp and having at its inner end a lateral flange with a non-circular hole which loosely embraces the plug, a spring surrounding the plug and bearing against said flange, and means for conveying current to the lamp.

8. The combination of an insulating body having an extension sleeve, and a central plug non-circular in cross section carried by the body, a screw-threaded sleeve within the body having at its inner end a lateral flange with a non-circular hole which loosely embraces the plug, and a spring surrounding the plug and bearing against said flange.

9. The combination of an insulating body and a central plug non-circular in cross section carried by the body, a screw-threaded sleeve having at its inner end a lateral flange with a non-circular hole which loosely embraces the plug, a spring surrounding the plug and bearing against said flange, a slidable rod loosely mounted within the plug, and a spring pressing said rod outwardly.

10. The combination of a body, a sleeve loosely mounted in the body, a plug carried by the body and having an overhanging head, said sleeve having an inward flange extending behind the head and loosely embracing the exterior of the plug, a compression spring between said head and said flange, and a central terminal mounted in the plug and projecting beyond the head of the plug.

11. The combination of a body having an external sleeve, an internally threaded metallic sleeve loosely mounted within said ex-

ternal sleeve, an insulating plug carried by the body and having an overhanging head, said metallic sleeve having an inward flange extending behind the head and loosely embracing the exterior of the plug, a compression spring between said head and said flange, and a central terminal mounted in the plug and projecting beyond the head of the plug.

12. The combination of an insulating body having an extended sleeve, an internally threaded metallic sleeve loosely mounted within the body sleeve, an insulating plug screwed into the body having an overhanging head, said metallic sleeve having an inward flange extending behind the head and loosely embracing the exterior of the plug, a compression spring between said head and said flange, a central terminal rod slidably mounted in the plug, and a compression spring mounted in the body and pressing said rod outwardly.

13. The combination of a body, an internally threaded metallic sleeve loosely mounted in the body and having an inward flange, a spring bearing against said flange, and a loosely mounted central terminal rod in the body, a spring pressing said rod outwardly relatively to the sleeve which is pressed inwardly relatively to the terminal rod, a metallic plug secured in the base portion of the body and having an electric connection with said rod, and a metallic sleeve mounted on the exterior of the body and having an electric connection with the loose sleeve within the body.

14. The combination of a body, an internally threaded metallic sleeve loosely mounted in the body, an insulating plug carried by the body having an overhanging head, said metallic sleeve having an inward flange extending behind the head and loosely embracing the exterior of the plug, a compression spring between said head and said flange, a central terminal extending into the socket portion of the body, a metallic plug secured in the base of the body and having an electric connection with said central terminal, and a metallic sleeve mounted on the exterior of the body and having an electric connection with the loose metallic sleeve.

15. The combination of an insulating body having an extended insulating sleeve, an insulating plug having an overhanging head and occupying said sleeve and screwing into the body, a central rod slidably occupying the body and plug, a longitudinally recessed metallic plug mounted in the end of the body and slidably embracing the end of the rod, a compression spring within the recess of the metallic plug pressing the rod outwardly, a movable internally threaded metallic sleeve within said insulating sleeve, said metallic sleeve having an inward flange at its inner end loosely embracing the insulating plug, and the hole in the sleeve and the exterior of the insulating plug being non-circular to prevent rotation of the sleeve, a compression spring mounted between the head on a plug and said flange, a screw-threaded metallic sleeve stationarily mounted on the exterior of the body, and an electric conductor connecting the movable internal metallic sleeve with the stationary external metallic sleeve.

In testimony whereof I hereunto affix my signature.

ARTHUR L. SMITH.