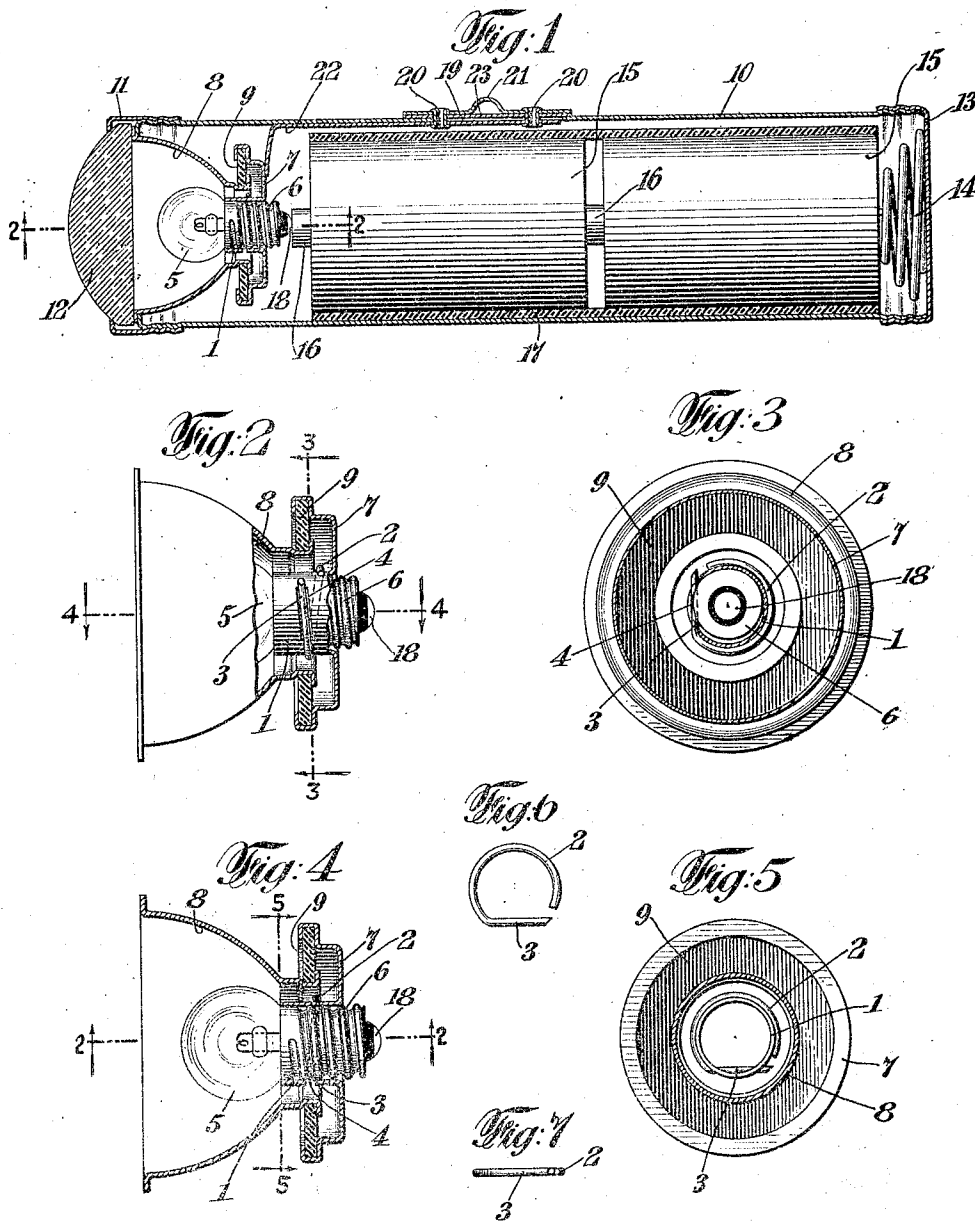


G. W. WACKER.
LAMP SOCKET.
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1,238,849.

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By his Attorney
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UNITED STATES PATENT OFFICE.

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LAMP-SOCKET.

1,238,849.

Specification of Letters Patent.

Patented Sept. 4, 1917.

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To all whom it may concern:

Be it known that I, GEORGE W. WACKER, a citizen of the United States, residing at Rutherford, in the county of Bergen and State of New Jersey, have invented certain new and useful Improvements in Lamp-Sockets, of which the following is a specification, reference being had therein to the accompanying drawings, forming part thereof.

My invention relates to sockets for incandescent electric lamps, and important objects of my invention are the secure holding of the lamp and the preserving of a good contact-making or circuit-completing relation. Another important object of my invention is inexpensiveness of manufacture. Other objects of my invention are simplicity of construction, durability, reliability and other objects and advantages which will hereinafter appear.

While my invention is adapted to a wide variety of uses and is capable of embodiment in different kinds of electric lighting fixtures and devices, in the accompanying drawings my invention is shown as embodied in a portable electric light or flashlight of the well known tubular type and of the variety in which the lamp socket of conductive material is insulated from a conductive lamp-supporting reflector; and the construction illustrated in the accompanying drawings, providing for the insulation of the lamp socket from the reflector and also providing for the carrying out of my present invention in a portable electric light or flashlight in which the lamp socket is insulated from the reflector, forms the subject of a separate application for patent filed by me on even date herewith as Serial No. 92,847.

I shall now describe the tubular portable electric light illustrated in the accompanying drawings embodying my invention and shall thereafter point out my invention in claim.

Figure 1 is a central longitudinal section of a tubular portable electric light embodying the lamp socket of my invention, with the circuit in the closed condition.

Fig. 2 is an enlarged elevation, partly in central longitudinal section on a plane indicated by the line 2—2 of Fig. 1 as

viewed from below, of the lamp socket and connected parts including the lamp and the reflector.

Fig. 3 is a transverse section on a plane indicated by the line 3—3 of Fig. 2 as viewed from the right, the lamp appearing in end elevation.

Fig. 4 is a central longitudinal section on a plane indicated by the lines 4—4 of Fig. 2 as viewed from above, and as seen in Fig. 1.

Fig. 5 is a transverse section on a plane indicated by the line 5—5 of Fig. 4 as viewed from the left.

Fig. 6 is a side view; and Fig. 7 an edge view as viewed from below in Fig. 6 of the split lamp-holding spring gripping ring before it is applied to the lamp socket.

In the tubular portable electric light or flashlight embodying my invention illustrated in the accompanying drawings, the lamp socket embodying my invention comprises a smooth cylindrical metal tube adapted to freely receive a lamp base and a gripping member shown as a split ring of spring wire which extends around and nearly encircles the tubular socket part 1, and which has a circularly curved socket-gripping part 2 and a straight end part 3 for gripping the lamp base, this straight end part 3 lying in and being shown as projecting beyond a transverse slot 4 in one side of the lamp-receiving tube or socket part 1, as is clearly shown in the several figures of the drawings.

The lamp socket embodying my invention illustrated in the drawings is adapted to receive or to be employed in connection with a miniature incandescent electric lamp having a bulb 5 provided with a usual electrically conductive screw-threaded base 6 which forms one terminal of the lamp. Accordingly the transversely slotted opening 4 in the side of the socket member 1 is slightly inclined so as to correspond to the pitch of the screw-threads of the lamp base 6. The split ring of spring wire having the curved socket-gripping part 2 and the straight lamp base engaging part 3 as originally made or before its application to the tubular socket member 1 is flat, as is illustrated in Figs. 6 and 7. After the application of this resilient split ring to the tubular socket member 1 the inclination of the

transverse slot 4 which receives the straight lamp base engaging end part 3 of the split ring causes the circularly curved part 2 to adjust itself so as to occupy a helical curve as appears in Figs. 1, 2 and 4 of the drawings.

The slightly inclined transverse slot 4 in the socket member 1 is shown as located about midway of the length of the tubular socket member 1. The diameter of the spring wire of which the resilient split ring is formed is such as to fit in the groove formed by the screw-thread on the lamp base 6 and the length of the transverse slot 4 in the tubular socket member 1 is such as to permit the straight end part 3 of the split ring to project into the socket member 1 a distance about equal to the diameter of the wire forming the split ring, as is clearly shown in the drawings. The circularly curved part 2 of the split ring resiliently grips the outside of the tubular socket member 1 and the straight end part 3 engages the lamp base 6 between the ridges formed by the thread thereon and presses upon the lamp base 6 so as to hold it within the socket member 1 and also so as to press the lamp base 6 into intimate contact-making or circuit completing relation with the opposite side of the electrically conductive tubular socket part 1, the lamp base 6 being resiliently gripped between the straight end part 3 of the split ring and the opposed inner wall of the tubular socket member 1, as is clearly illustrated in the drawings.

By using a little force or pressure the lamp base 6 may be snapped into place past the resiliently yielding straight end part 3 of the lamp-holding split ring, and the lamp may be similarly removed, but it is preferable to screw the lamp into place and to unscrew it for removal. The gripping of the tubular socket member 1 by the circularly curved part 2 of the split ring causes the straight part 3 to press upon the screw-threaded lamp base 6 as above noted and this pressure upon the lamp base 6 at one side thereof not only assures a good contact-making or circuit-completing relation between the conductive lamp base 6 and the conductive socket member 1, but also and of great importance the lamp base 6 is restrained from unscrewing out of the socket member 1, even if subjected to severe vibrations, such as would take place in some installations to which the lamp socket of my invention is adapted, for example, upon automobiles or with lamps for lighting trains. With the usual screw-threaded socket with which a screw-threaded lamp base such as 6 commonly coöperates, it is difficult to securely hold the lamp base in good contact making relation with its socket, this difficulty being completely overcome by my invention; also the heretofore commonly em-

ployed screw-threaded lamp socket is more expensive of manufacture than is the improved socket of my invention.

In the construction of tubular flashlight illustrated in the drawings as embodying my invention the inner end of the metallic tubular socket member 1 is supported by a circuit-completing contact plate 7 shown as formed of the same piece of metal or integrally with the socket member 1. The contact plate 7 is supported upon a metallic reflector 8 by means of an interposed annular insulating disk 9, the outer edge of the insulating disk 9 being engaged and gripped by the outer edge or peripheral portion of the contact plate 7 which is shown as turned over upon the edge of the disk 9, and the inner edge of the annular insulating disk 9 being similarly gripped by the inner edge of the metallic reflector 8, as clearly appears in the drawings, the body of the central portion of the contact plate 7 being offset out of contact with or in spaced relation to the inner edge of the reflector 8, and the lamp-receiving socket member 1 projecting outwardly into the central socket-receiving opening provided at the center of the reflector 8, it being noted that the socket member 2 and its split ring gripping member are both in spaced relation to and out of contact with the conductive reflector 8.

The particular portable electric light or flash-light illustrated in the drawings has a battery-containing and lamp-carrying casing shown as including a metal tube 10 which is screw-threaded at its opposite ends and at its front end is shown as provided with an intumed flange. At the front end of the tubular casing part 10 a usual flanged metal ring 11 is screw-threaded over the end of the tube 10 and holds in place thereon a usual lens 12, and the forward or peripheral edge of the reflector 8 is turned outward to form a flange which is shown as held between the lens 12 and the intumed flange on the tubular casing part 10, it being noted that the metallic reflector 8 is in electrically conductive relation with the metal casing tube 10. A usual metallic end cap 13 is screw-threaded over the rear end of the casing tube 10 and is provided at the inside with usual battery-supporting electrically conductive spiral thrust spring 14.

The metal casing contains a battery shown as comprising two cells having zinc terminals 15 and carbon end terminals 16 and contained in a usual paper insulating tube 17. The carbon terminal 16 of the battery cell adjacent to the lamp is in contact with the central terminal 18 of the lamp and the zinc cap 15 of the battery cell at the rear of the casing and which forms the other terminal of the battery is in contact with the conductive thrust spring 14 which is metallically electrically connected to the

whole metal casing, the electrical circuit through the lamp being only interrupted by the socket-supporting insulating disk 9 by which the metallic contact plate 7, the lamp socket having the tubular socket member 1, and the screw-threaded lamp base 6 forming the other terminal of the lamp, are insulated from the metal casing.

A circuit closer or circuit controller is provided for controlling electrical connection between the metal casing tube 10 and the metal contact plate 7, by bridging the insulation produced by the lamp-supporting insulating disk 9. The metal tube 10, has a longitudinal slot 19 therein forming a guide-way for tubular rivets 20 which secure together a manually actuatable slide 21 at the outside of the casing tube 10 and a longitudinally movable contact strip 22 at the inside of the casing. The contact strip 22 is turned inward at its forward end so as to overlap upon and engage the contact plate 7 in the closed circuit condition, which is shown in Fig. 1 of the drawings, thereby completing the battery circuit from the socket member 1 through the contact plate 7 and contact strip 22 to the metal casing tube 10.

Movement of the slide 21 backward will retract the contact strip 22 out of engagement with the contact plate 7, thereby opening the circuit. The open or the closed circuit condition will be maintained by friction of the slidable circuit-controlling parts, this friction being increased and also scratching of the polished outer surface of the metal tube 10 prevented by means of a strip 23 of fiber or other suitable material

which is held by the rivets 20 between the slide 21 and the outer surface of the casing tube 10.

The means for insulating the lamp socket from the reflector hereinbefore briefly described and which, as hereinbefore mentioned, forms the subject of a separate application for patent by me, provides for the convenient installation or utilization of the improved lamp socket construction of my present invention in a flashlight such as illustrated in the drawings in which the circuit conditions are controlled by insulating the lamp socket and circuit-controlling means are provided for bridging this insulation.

It is obvious that various modifications may be made in the construction shown in the drawings and above particularly described within the principle and scope of my invention.

I claim:

A cylindrical lamp-socket having a smooth wall and a slot therein inclined at the pitch angle of the screw-groove in a lamp base, and a resilient split ring having an arcuate portion closely embracing and fitting the outside of the socket and having a segment which enters and completely traverses said slot in position to enter and press upon said screw-groove of the lamp base when inserted into the socket, whereby the resilient ring is secured on the socket and the lamp base is secured in the socket.

In testimony whereof I have affixed my signature.

GEORGE W. WACKER.