Feb. 8, 1927. 1,616,654

J. R. GAMMETER

ELECTRIC COUPLING

Filed June 23, 1922

Fig. 1

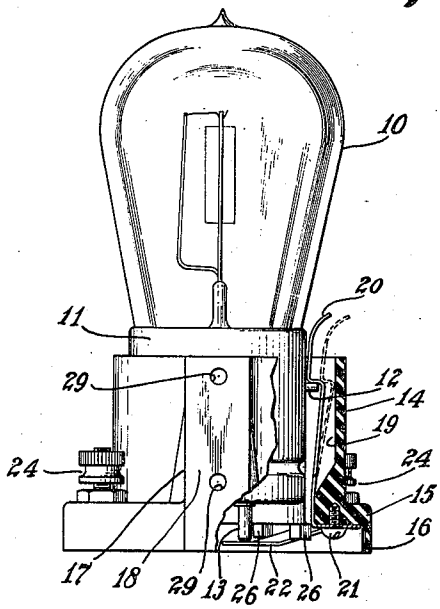
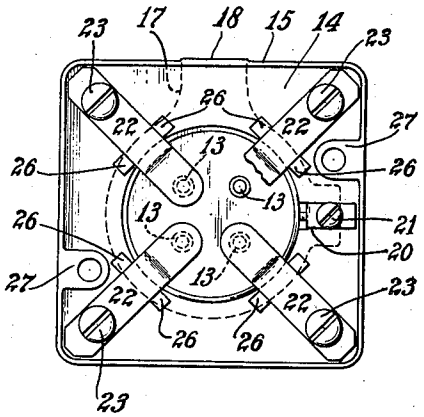


Fig. 2



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UNITED STATES PATENT OFFICE.

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ELECTRIC COUPLING.

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This invention relates to electric couplings, and particularly to such as are adapted for bulbs or coupling elements having more than two terminals, as in the case of vacuum tubes or bulbs used in wireless telephone apparatus. Certain imperfections inhere in connections heretofore used, requiring a rotary movement of the bulb to mount or unmount it, as in the case of a bayonet-lock connection, for example, in that the glass of the bulb is likely to be loosened if it be improperly manipulated, as by turning it the wrong way to disconnect the bayonet-joint, and poor electrical contact is sometimes obtained on one or more of the terminals.

My object is to overcome these difficulties, especially with respect to bulbs of a type now employed which are provided with a single indexing and latching stud on the side face of the base, and to that end I provide a connection adapted to be assembled by relative axial movement of its members without turning, thus avoiding liability to loosening of the glass bulb in its base and also enabling the electrical connection between the terminals on the bulb and those on the socket to be improved when necessary by moving the bulb-base in its socket without breaking the connections.

Of the accompanying drawings:

Fig. 1 is a side elevation of a bulb or vacuum tube and its socket, embodying a preferred form of my invention.

Fig. 2 is a reverse plan view of the same.

Referring to the drawings, 10 is the bulb, having a generally cylindrical base 11, from one side of which projects a stud 12, and from the bottom of which projects four terminal studs or posts 13, 13.

The socket comprises a sleeve 14 of hard rubber or other insulating material, preferably molded, of somewhat irregular form, having, as here shown, a through passage of generally cylindrical form adapted to receive the base 11 of the bulb, and an enlarged base portion 15, here shown as being rectangular and provided with a seating flange 16 around its outer periphery. The upper portion of the sleeve is here shown as being externally cylindrical except that on one side it is formed with a thickened wall 17 terminating in an attachment face 18 flush with a side of the base-portion 15, and on another side with a groove or recess 19 adapted to be occupied by and permit limited transverse movement of a spring-catch or cam-latch 20 having its lower end secured to the base-portion 15 of the sleeve, as by the screw 21, said cam-latch being formed with a hooked end portion adapted to be sprung out into the groove 19 by the stud 12 as the bulb is pushed into its socket, and to engage said stud to hold the bulb in its seat.

For contacting the respective terminal posts 13 of the bulb, spring terminals 22, 22 are secured at their outer ends to the under face of the base-portion 15 of the sleeve by bolts 23, 23, forming parts of the binding-posts 24 for the external wires. The free ends of said spring terminals extend radially inward to positions where they are adapted to be contacted respectively by the terminal posts 13 of the bulb-base and to be sprung thereby when the bulb is fully seated. Each of said spring contacts lies between a pair of guide-studs 26, 26 formed upon the base-portion 15 of the sleeve and adapted to prevent lateral displacement of the spring-terminal while permittng it to be flexed under pressure of the post 13.

The base flange 16 terminates in a plane below the lowermost position or part of any of the members heretofore described, and 27, 27 are bosses formed on the under side of the base-portion 15, said bosses having attachment faces lying in said plane, and being formed with tapped holes 28, 28 to receive anchor screws. The thickened wall 17 of the sleeve is also formed with tapped holes 29, 29 (Fig. 1), for the reception of attaching screws, the sleeve being thus adapted to be mounted on either a horizontal or a vertical support.

In mounting the bulb its base 11 is simply thrust axially into the socket or sleeve 14, without turning, the stud 12, guided in the groove 19, assuring that each of the terminal posts will move directly into contact with its respective spring-terminal 22 and no other. During this movement of the bulb the cam-latch 20 is automatically sprung out into the back of the groove by said stud, as indicated by dotted lines in Fig. 1, and retainingly engages said stud when the latter passes its hooked end portion, at which time the posts 13 have contacted the spring-terminals 22 with substantial pressure, the re-

action of said spring-terminals then assuring a constant, firm contact with each of the several posts. In case the contact surfaces become fouled or corroded, they may be cleared and improved contact had by rotatively wiggling the bulb as permitted by the greater width of the groove 19 than that of the stud 12, as shown clearly in Fig. 2, or by moving the bulb down and up in its socket, and thus scraping the posts 13 upon the spring-terminals. In dismounting the bulb the cam-latch 20 is simply sprung out by hand, whereupon the bulb is partly ejected by the force of the spring terminals so that the stud 12 rises above the latching shoulder of the cam-latch spring, and although the latter is then released the bulb continues to be so supported by the spring terminals or by the lateral pressure of the spring 20 against the end of the stud, that it may be freely withdrawn, or the bulb may be left in the socket but held by the spring 20 out of contact with the spring terminals if it is desired only to disconnect the bulb without removing it. The rubber socket member may be conveniently made in a single piece, as by molding, and the metal parts may readily be assembled therewith.

The device is susceptible of modification within the scope of my invention, and I do not wholly limit my claims to the exact embodiment here shown.

I claim:

1. An electric coupling comprising a sleeve-like socket member, the wall thereof being internally formed with a longitudinally disposed recess, a single cam-latch spring mounted on said socket member and extending longitudinally within said recess, and spring terminals mounted in said socket member, said cam-latch spring and said spring terminals being enclosed by said socket member except at the ends of the latter, and said cam-latch spring having a manually engageable portion projecting from the mouth of the socket member and so formed as freely to stand away from a plug member mounted in said socket member and engaged by said cam-latch spring.

2. A socket for a radio bulb having an indexing and latching stud projecting from the side face of its base, the said socket comprising a sleeve member adapted to receive said base and formed with a longitudinally disposed recess to receive said stud, spring terminals mounted in said sleeve and adapted to exert an axial thrust upon the terminals of the bulb when the latter is seated, and a cam-latch spring mounted on said sleeve member and adapted to engage the said stud to secure the bulb in the socket, said spring being so formed as to provide in succession from the base of the spring outward an abutment to interlock with the stud, a portion adjacent thereto adapted to deflect the spring as a cam-latch in the mounting of the bulb and alternatively to act against the stud to support the bulb out of contact with the spring terminals, and an outwardly bent terminal portion adapted to stand freely away from the bulb and the socket for ready manual engagement thereof.

3. A socket for an electric bulb having a cylindrical base and a single stud projecting from a side face thereof, the said socket comprising a sleeve adapted to telescope with the said base throughout a sufficient length to prevent cramping thereof, a single cam-latch spring mounted in the sleeve and adapted to engage the stud and having an end portion projecting from the sleeve and adapted to be freely engaged outside of the sleeve to release the bulb, and spring terminals mounted on the sleeve and adapted to contact with the terminals of the bulb and also to throw the bulb out of contact with them upon the release of the cam-latch spring from the stud, the cam-latch spring being formed with a face adapted upon release of the spring to engage the stud and thus hold the bulb out of contact with the said terminals.

In witness whereof I have hereunto set my hand this 20 day of June, 1922.

JOHN R. GAMMETER.