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T. J. KERWIN

SWITCHING SOCKET

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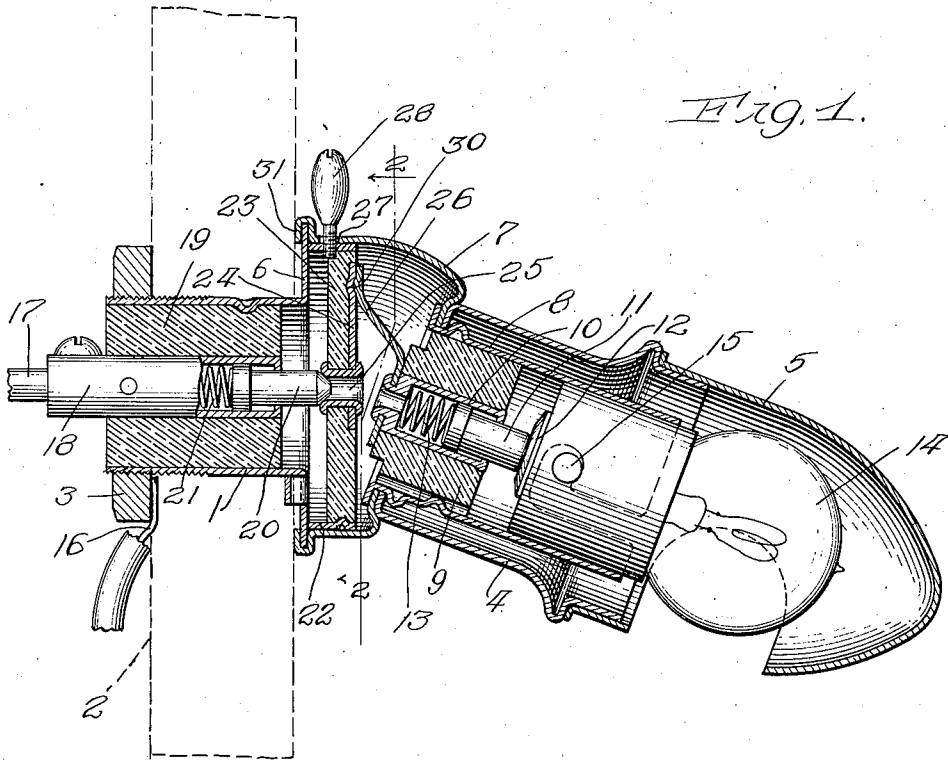


Fig. 2.

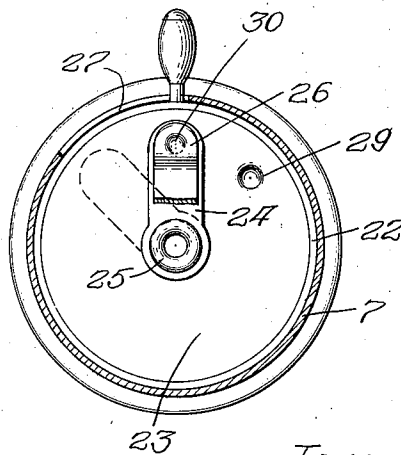
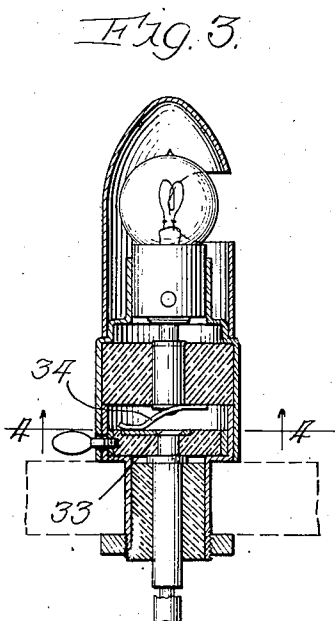
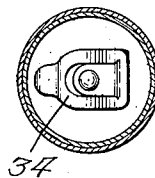


Fig. 4.



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UNITED STATES PATENT OFFICE.

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SWITCHING SOCKET.

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To all whom it may concern:

Be it known that I, THOMAS J. KERWIN, citizen of the United States, residing at Chicago, Illinois, have invented certain new and useful Improvements in a Switching Socket; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

My invention relates to sockets for electric lamps, its general objects being those of providing simple, compact and cheaply constructed means for turning the current on and off, and of providing a switching socket construction particularly adapted for use with the cowl lamps or instrument-board lamps of automobiles. More particularly, my invention aims to provide switching means adapted to be interposed between the separately mounted wire terminal and lamp terminal of a socket, and aims to provide simple means for insuring good contact between the switching portions and for latching the switching means either in its "on" or its "off" position. It also aims to provide a switching arrangement which can conveniently be housed by the elbow portion of a lamp socket constructed for holding the axis of the lamp oblique to the support for the socket. Still further and more detailed objects will appear from the following specification and from the accompanying drawings, in which—

Fig. 1 is a central and longitudinal section through a lamp socket embodying my invention, namely one of a type suited for use on the dash-board or instrument-board of an automobile.

Fig. 2 is a section taken transversely through Fig. 1 along the correspondingly numbered line of that figure.

Fig. 3 is a central and longitudinal section through a simplified embodiment having no bend in the casing.

Fig. 4 is a transverse section through the same, taken along the line 4—4 of Fig. 3.

In the embodiment of the drawings, my invention is shown as embodied in a socket having a rear end portion 1 in the form of a threaded bushing extending through a dashboard or instrument-board 2 and clamped to the latter by a nut 3. This forward portion of the socket casing com-

prises an outer shell 4 equipped for holding a cowl or reflector 5 and connected to the forward flange 6 of the said bushing by an intermediary tubular portion or connecting shell 7. This connecting shell is here shown as longer along its upper edge than at its lower edge, so as to tilt the lamp-holding portion of the socket, and is shown as secured to the cowl-holding shell 4 by suitable formations on the inner or lamp-receiving shell 8 of the socket after the manner more fully described in my Patent No. 1429884, dated Sept. 19, 1922.

Mounted within the inner or lamp-receiving shell 8 is an insulator 9 carrying the lamp terminal of the socket, which terminal consists of a tubular member 10 housing a plunger 11 continuously engaging the axial contact 12 of the lamp and pressed into such engagement by a spring 13, the lamp 11 being kept from sliding by the engagement of lateral projections 15 on the lamp base with the customary bayonet slot formations on the shell 8 of the socket.

One terminal of the circuit is desirably grounded to the metal casing portions of the socket so that current is conveyed through these to the usual brass collar on the lamp base, for which purpose I am indicating a wire 16 as clamped under the nut 3. The companion wire 17 is secured to a wire terminal element 18 mounted in an insulator 19 which is fastened within the bushing 1, and this wire terminal desirably includes a spring pressed plunger 20 continuously urged forward by a spring 21 housed within a bore in the main terminal portion 18.

Thus arranged, the socket includes two shell portions 1 and 8, each of which has one terminal of the socket mounted in the same, and these terminals extend substantially in continuation of each other but are continuously spaced from one another. To afford the required electrical connection between the two while also permitting this connection to be made and broken at the will of the user, I mount a switching member within the connecting shell 7 which forms the elbow of the socket casing. For this purpose, I desirably form the said connecting shell substantially cylindrical adjacent to its rear end, so that it will rotatably house the cylindrical collar 22 of

the switching member of my appliance. This collar has fastened in it a disk 23 of insulating material and the said disk has a contact arm 24 imbedded in its face and extending substantially radially of the disk. To anchor this contact arm in position, I desirably employ a tubular rivet 25 extending through the bore of the disk and having its rear end of such a size as to be entered by the tapering tip of the spring-pressed plunger 20 of the wire terminal. Then I provide the lamp terminal member with an extension, desirably in the form of a flat bronze spring 26 secured to the rear end of the lamp terminal part 10 and extending both radially and rearwardly from the latter so as to have its outer end portion yieldingly in contact with the forward face portion of the switching member. That is to say, if this switching member is turned so that the contact arm 24 aligns with the resilient contact member 26 as shown in Figs. 1 and 2, these elements will cooperate with the tubular rivet 25 and the plunger 20 in affording the electrical connection from the wire terminal to the lamp terminal of the socket. However, if the switching member is rotated so as to bring the contact arm 24 to one side of the contact member 26, the latter will bear against the forward face of the insulating disk 23, thereby interrupting the circuit.

To move the switching member for this purpose, I desirably equip the connecting or elbow portion 7 of the socket casing on its longer edge with a circumferential slot 27 affording an aperture through which a handle 28 extends, this handle being threaded into the collar 22 of the switching member. The ends of this slot 27 may afford stops for limiting the rotary movement of the switching member in both directions, but I desirably also provide means for preventing the switching member from being jarred out of its "on" or "off" position, as by equipping the contact member 26 with a nub directed rearwardly of the socket and providing a corresponding depression 29 in the insulating disk 23 and 30 in the exposed face of the contact arm 24.

Thus constructed, it will be evident that the switching arrangement of my socket is easily assembled, it being merely necessary to slip the switching member into position before the flange 31 is formed on the rear end of the connecting shell, and to screw the handle 28 into position. Then the resiliency of the contact member 27 and the spring 21 back of the plunger 20 cooperate in maintaining a good electrical connection when the current is switched on. Moreover, the extra length of the upper side of the connecting shell 7 (as required for tilting the lamp-receiving part of the socket) affords ample room for mounting the switching member

and for providing the contact member 26 with an adequate bend to give the needed resiliency, so that the total length of my socket is not materially increased over that required for the ordinary non-switching type.

However, while I have illustrated and described the socket of my invention in a highly desirable embodiment, I do not wish to be limited to the details of the construction and arrangement thus disclosed, it being obvious that the same might be modified in many ways without departing from the spirit of my invention or from the appended claims. For example, Figs. 3 and 4 show a simplified embodiment in which the wire terminal and the lamp terminal of the socket are in axial alinement, and in which the switching member is permanently pivoted on the rigid forward end 33 of the wire terminal, while the contact member 34 is somewhat different in shape from the corresponding member in Figs. 1 and 2.

I claim as my invention:

1. In a lamp socket, a shell, a spring pressed terminal-forming plunger carried by the shell, a circular collar rotatable in the shell, an insulating disk in the collar, a radial arm embedded in one face of the disk, a tubular rivet extending through the disk center and the arm to anchor the latter to the disk, said plunger having a tapering tip engaging in one end of the rivet, said arm having a depressed part and said disk having a depressed part to one side of the arm, and a fat spring forming the other terminal and having a nub formed to alternately engage in each of said depressed parts.

2. In a lamp socket, a shell, a spring pressed terminal-forming plunger carried by the shell, an insulating disk rotatable in the shell, a radial arm embedded in one face of the disk, means for securing the arm to the disk having a socketed end, said plunger having a tapering tip extending into said socketed end, said arm having a socket and said disk having a like socket to one side of the arm, and a spring terminal having a part engageable in the sockets of the disk and arm.

3. In a lamp socket, a shell having an intermediate angular part, a spring pressed terminal plunger extending into said part at one end thereof, an insulating disk rotatable in the angular part and having a contact, and a central opening, said plunger having a tapered tip extending into one end of the disk opening, a flat spring terminal and disposed in the opposite end of the angular part and engaging the disk and a carrier for said spring terminal connected to the shell and having said spring terminal arranged at an incline thereto.

4. In a lamp socket, a shell having an intermediate angular part, a spring pressed

terminal plunger extending into said part at one end thereof, an insulating disk rotatable in the angular part and having a contact and a spring terminal carried by the shell and extending into the opposite end of the angular part and engaging one side of the disk and a carrier for said spring terminal connected to the shell and having said spring terminal arranged at an incline thereto, the plunger engaging the opposite side of the disk. 10

Signed at Chicago, Illinois, July 26th, 1921.

THOMAS J. KERWIN.