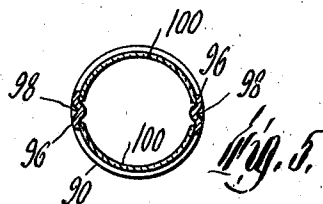
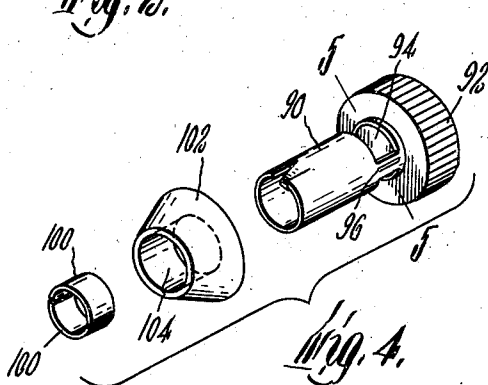
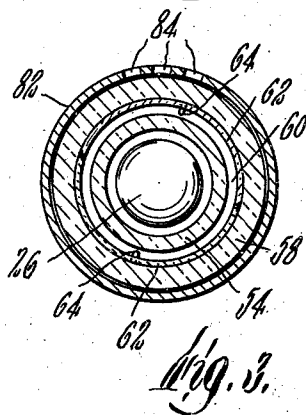
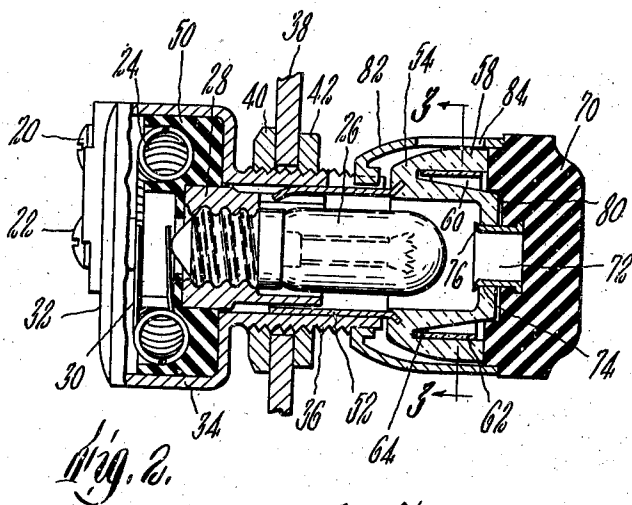
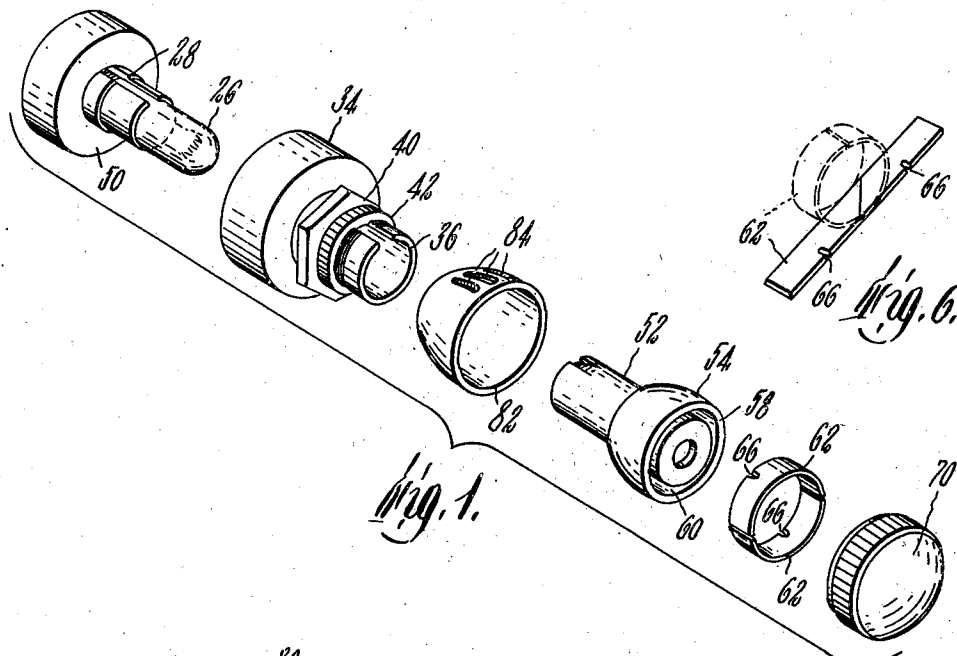


Jan. 17, 1939.

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CURRENT CONTROLLING DEVICE

2,144,138

Filed April 8, 1936



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UNITED STATES PATENT OFFICE

2,144,138

CURRENT CONTROLLING DEVICE

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Application April 8, 1936, Serial No. 73,217

2 Claims. (Cl. 177—311)

This invention relates to electric switches, and more particularly to switches including a rheostat, such as are designed for use in controlling the electric motor for heaters in automobiles. Switches of this kind are sometimes provided with tell-tale lamps which indicate whether the current is "on" or "off", and may also indicate in some measure to what extent the rheostat is "on", the fully "on" condition being that in which the circuit is closed but the resistance element of the rheostat is entirely cut out. It is desirable in switches and rheostats, which are to be installed on the dash of an automobile, that the light observable by the operator should be subdued so as not to interfere with the vision of the operator in night driving.

It is an object of the present invention to provide a structure which effectively fulfills desired conditions of service and which also is capable of comparatively easy and rapid manufacture.

For a more complete understanding of the invention, reference may be had to the description of certain embodiments thereof which follows and to the drawing of which—

Figure 1 is a perspective view showing separated parts of a rheostat switch embodying the invention.

Figure 2 is a section of the same on the longitudinal plane.

Figure 3 is a section on the line 3—3 of Figure 2. Figure 4 is a perspective view of separated parts of a modified form of operating member.

Figure 5 is a section on the line 5—5 of Figure 4.

Figure 6 is a perspective view of a multi-colored transparent strip.

The invention may be embodied in a switch or combined switch and rheostat of any suitable structure such as that illustrated in Figure 2 and described in detail in my copending application Serial No. 47,423, filed October 30, 1935. Such switch and rheostat structure includes a pair of binding posts or terminals 20 and 22, an elongated coiled resistance element 24, a tell-tale lamp 26 mounted in a metal socket 28, and a bridging conductor 30 constantly in contact with one terminal of the lamp 26, an end portion of the rheostat 24, and the central binding post 22. The rheostat and switch elements are contained within a housing which comprises a rear wall 32 of insulation and a cup-shaped housing member 34 secured to the wall 32 and provided with a sleeve 36 which is adapted to project through a supporting plate 38, such as the dash of an automobile, and to be secured thereto as by a pair of suitable nuts 40 and 42. In the form of switch illustrated

in Figure 2 of the drawing, the rheostat resistance element 24 is carried by a circular member 50 which is adapted to rotate within the cup-shaped portion of the housing 34. The metal socket 28 for the base of the lamp 26 is secured to the member 50 to rotate therewith.

An operating member is provided to rotate the member 50 as desired. The operating member illustrated in Figure 2 comprises a hollow metal shaft 52 which is rotatable within the sleeve 36, the outer end portion of the hollow shaft 52 projecting beyond the outer end of the sleeve 36 and being embedded in a hollow translucent member 54. The hollow shaft 52 is keyed to the socket member 28 in any suitable manner so that rotation of the operating member results in positive rotation of the member 50.

The translucent member 54 may be cup-shaped, as indicated in Figure 2, the cup being molded so that the outer end of the hollow shaft 52 is embedded in the lip portion thereof. As shown, the member 54 may be molded with an external skirt 58 which is spaced from the wall of the cup portion of the member 54 by a slot 60. Within this slot is disposed a colored transparent strip 62. This strip may consist of a plurality of separate pieces of different colors, such as a piece of green and a piece of red, or it may consist of a single strip bent into circular form in the manner shown in Figure 6. In molding the member 58, one or more small keys 64 may be formed in the bottom of the slot 60 to cooperate with corresponding notches 66 in the strip 62 so as to prevent the strip from creeping in the slot. Figure 6 illustrates a single strip which may comprise two colored portions permanently secured together at a diagonal line of juncture. By employing a strip of this type, the color of the transmitted light as the operating member is rotated changes from one color through an intermediate mixed color stage to the other color, instead of changing abruptly from one color to the other. The operating member also includes an end cap 70 which may conveniently be made of a moldable plastic, preferably opaque, this end cap being provided with a metal ferrule 72 partially embedded therein and projecting from its inner face. This ferrule is adapted to project through a central opening 74 in the bottom of the cup 54 and to be spun as at 76 to secure the end cap 70 permanently to the translucent cup member 54. This is done after the transparent strip 62 has been inserted in the slot 60. The inner face of the end cap 70 is preferably provided with a circular recess 80 adapted to receive the bottom of the cup 54 when

the operating member is assembled. The spinning of the inner end of the ferrule 72 draws the outer edge of the skirt 58 tightly against the face of the cap 70 and wedges the tapering wall surface of the cup into the recess 80, so that a tight unitary operating member is thus produced.

As is evident from Figure 2, the rays of light from the lamp 26 shine radially through the translucent member 54, most of these rays being tinged by the colored transparency 62. In order to screen a considerable portion of the transparent member 54, a metal shield 82 may be mounted on the sleeve 36 to project beyond the end thereof and to surround the translucent member 54. This shield 82 is provided with one or more apertures 84, three such apertures being indicated in Figure 1, through which rays of light may be observed by the operator. The shield 82 is preferably keyed to the sleeve 36 so that the openings 84 are maintained in the upper side of the shield 82.

Figures 4 and 5 illustrate a modified form of operating member consisting of a hollow shaft 90 on the end portion of which is molded a knob 92 which is preferably opaque. One or more apertures 94 are provided in the wall of the hollow shaft 90 near the knob 92, the openings 94 being arranged to be radially opposite the filament of the lamp when the operating member is in position for use. In the structure illustrated in Figures 4 and 5, two apertures 94 are provided, these apertures being spaced by connecting elements 96 which unite the main portion of the hollow shaft 90 with the outer portion which is partly embedded in the molded knob 92. The connecting elements 96 may be dented inward as at 98 to form abutments for the ends of a pair of strips 100 of transparent material which are sprung into nested position within the hollow shaft 90, these strips thus being held against creeping within the shaft. The strips are arranged to register respectively with the apertures 94. A translucent element 102 is provided to cover the apertures 94 so as to subdue the colored light passing therethrough. This translucent element may be in the form of a hollow cone as indicated in Figure 4 or may be any other suitable

shape as desired, it being provided with a central bore 104 to receive the hollow shaft 90 with a snug fit. The member 102 may thus be pushed onto the hollow shaft 90 until it engages the inner face of the end piece 92. Tight frictional engagement may be relied upon to hold this element in place.

It is evident that various modifications and changes of detail may be made in the specific embodiments of the invention herein shown and described by way of illustration, without departing from the spirit or scope of the invention as defined in the following claims.

I claim:

1. An operating member for an electric switch or the like, comprising a cup-shaped element of molded translucent material having a skirt extending back from the lip thereof to form a narrow cylindrical slot between said skirt and the side of the cup, said cup having an aperture in its bottom, a hollow metal shaft having an end embedded in the lip of said cup-shaped element, a colored transparent strip disposed in said slot, an opaque disk-like end element abutting the bottom of the cup and the edge of the skirt, and a ferrule having one end embedded in said end element and the other end projecting through said aperture and spun outwardly within said cup to anchor the end element thereto.
2. In a current-controlling device, a housing including a sleeve, means for mounting a light bulb within said housing so that a portion thereof projects beyond the end of said sleeve, and an operating member including a hollow shaft rotatable in said sleeve, an opaque outer end element, a hollow translucent element disposed between said end element and shaft and beyond the end of said sleeve, and a colored transparent strip nested within said translucent element, said sleeve having a hollow shield mounted thereon and projecting outward from the end thereof to enclose said translucent element, said shield having one or more apertures for limited observation of said translucent member therethrough.

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