Oct. 19, 1926. 1,603,523

H. A. DOUGLAS

HANDLE CONTROLLED SWITCH

Filed June 18, 1926

Fig. 1.

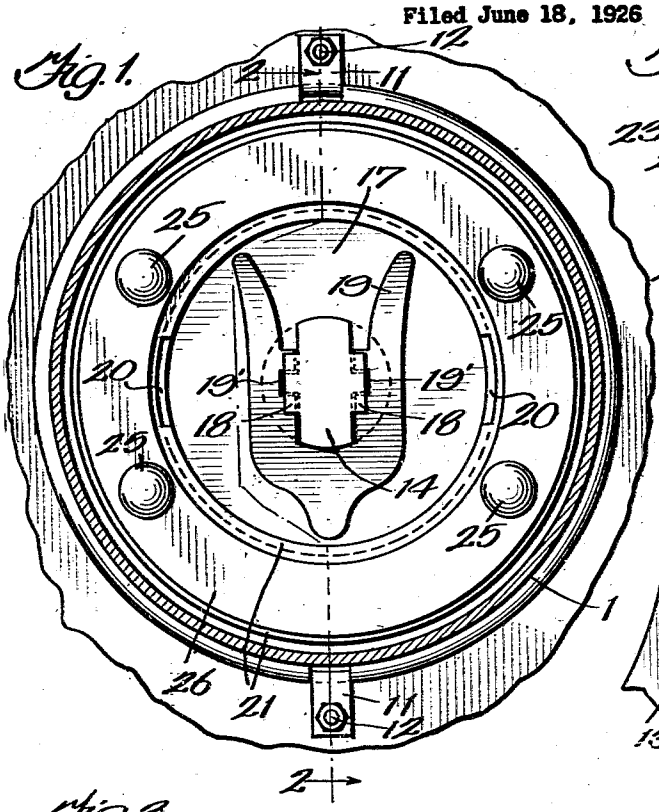


Fig. 2.

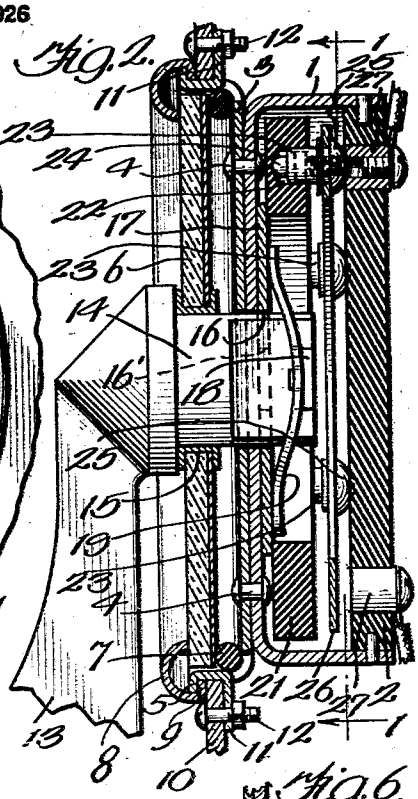


Fig. 3.

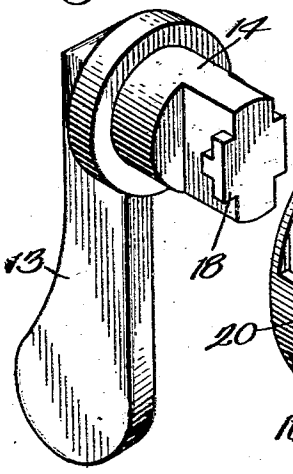


Fig. 4.

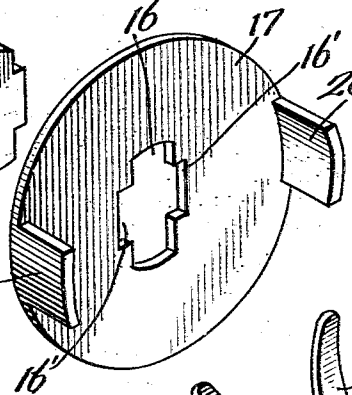


Fig. 6.

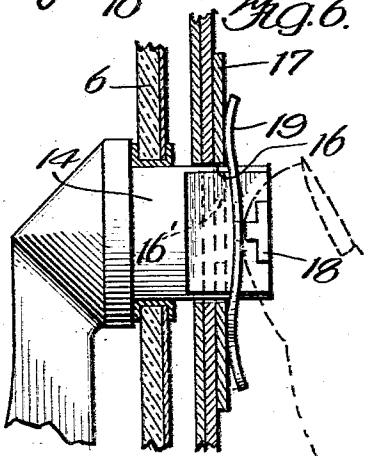
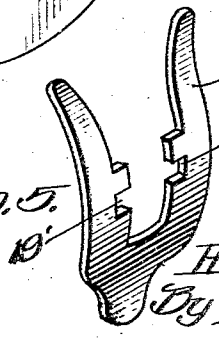


Fig. 5.



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UNITED STATES PATENT OFFICE.

HARRY A. DOUGLAS, OF BRONSON, MICHIGAN.

HANDLE-CONTROLLED SWITCH.

Application filed June 18, 1926. Serial No. 116,933.

My invention relates to switching mechanism employing handles that are mounted to turn and which are in controlling relation with switching mechanism within a switch casing.

My invention resides in the provision of improved means for assembling the hub portion of such a handle with the casing. In carrying out my invention, an assembling member is employed which is preferably a key assembled with the inner portion of the handle hub and which key extends laterally of said hub to hold it in assembly with the front end wall of the casing which is preferably, though not necessarily, an integral part of the casing. The key is upon the interior of the casing and faces the front end wall thereof. This key is preferably struck from a strip of spring metal and is inwardly bowed at its mid portion where it engages an abutment or abutments upon the handle hub, the key being between these abutments and the front end wall of the casing, the proportions being such that the key is somewhat flattened, against its own resilience, in order to hold the handle and its hub in a fixed zone with respect to the casing.

The invention will be more fully explained in connection with the accompanying drawing showing the preferred embodiment thereof in which Fig. 1 is a rear view showing the interior of the switch casing, the inner end of the handle hub, and the key for assembling the handle hub with the casing; Fig. 2 is a sectional elevation of a switch structure equipped with the device of my invention; Fig. 3 is a perspective view of the handle as it is preferably formed; Fig. 4 is a perspective view of an actuator that is coupled with the handle; Fig. 5 is a perspective view of the preferred form of key; and Fig. 6 is a view showing a part of the structure of Fig. 2 with its parts in the process of assembly.

The casing 1 is shown as being cylindrical and in the form of a cup having an insulating closure 2 separably assembled with the cup at the rim thereof. A plate 3 is riveted at 4 to the bottom wall 1′ of the cup which is the front end wall of the casing. This plate is extended laterally of the cup and is desirably dished and has a circular shoulder or flange 5. A light transmitting closure 6, preferably of glass, is contained within the dished portion of the plate 3 and is held in place by means of a gasket 7 on the inner side of the closure and by a clamping ring 8 upon the outer side of the closure. This clamping ring is formed with an inwardly extending shoulder 9 that is received between the shoulder 5 and the dash board 10 or other mounting. Ears 11 are struck from the plate 3 and are suitably secured to the mounting board 10 by means of bolts 12. The handle 13 has a hub portion 14 which is passed through the light transmitting closure 6, this hub portion turning in a sleeve 15 which is shouldered at its ends to afford an annular groove that receives the marginal portion of this closure that surrounds the opening in the closure through which the handle hub passes. The handle hub is flattened and is snugly received in the ends of an opening 16 formed in a contact actuating plate 17, this plate being in suitable controlling relation to the switch contacts, as will hereinafter appear.

The opening 16 has lateral enlargements 16′ through which the T-shaped lugs 18 upon the inner end of the handle hub are passed, these lugs 18 being inwardly spaced a slight distance from the plate 17. A U-shaped key 19 has the mid portions of its sides interposed between the lugs 18 and the plate 17, the free ends and the bight portion of the key being in engagement with the plate 17. The key 19 is formed of strip spring metal which is bowed at its mid portion and which needs to be somewhat flattened, as indicated in Fig. 6, in order to be passed between the lugs 18 and the plate 17. When the key is passed into position, it will, due to its own resilience, engage the lugs 18 upon the handle hub and bring this handle hub into its innermost position, the key, at the same time, pressing the plate 17 against the front end wall 1′ of the casing. The stem portions of the T-shaped lugs 18 are received in the notches 19′ that are formed upon the inner sides of the key 19. The heads of the T-shaped lugs limit the extent to which the key may spring toward its normal shape whereby the key is maintained under a suitable degree of compression to maintain the handle and the plate 17 in suitable assembly. The plate 17 is formed with prongs 20 that enter recesses provided in an insulating ring 21. This ring is formed with recesses 22 that receive the spring barrels 23 which enclose springs that press the plungers 24 forwardly until

they engage the bottoms of the recesses 22. The rear ends of the spring barrels 23 are formed into contacts 25 which are assembled with the ring 26. The springs in the spring barrels press the contacts 25 rearwardly either into engagement with the insulating closure 2 or into engagement with selected contacts 27 carried by said closure, according to the adjustment of the switch handle.

Changes may be made without departing from the invention.

Having thus described my invention, I claim:

1. In a switch, the combination with a casing having a front end wall; of a handle assembled with the casing to turn and having a hub portion extending into the interior of the casing through the front end wall of the casing; a contact actuator within the casing and coupled with the handle hub to be turned upon turning the handle; and a key upon the interior of the casing and assembled with the inner end of the handle adjacent the front end wall of the casing and extending transversely of the handle hub to hold the handle and casing in assembly, said contact actuator including a plate interposed between the front end wall of the casing and said key.

2. In a switch, the combination with a casing having a front end wall; of a handle assembled with the casing to turn and having a hub portion extending into the interior of the casing through the front end wall of the casing; a contact actuator within the casing and coupled with the handle hub to be turned upon turning the handle; and a spring assembling member upon the interior of the casing and interposed between an inner portion of the handle hub and the front end wall of the casing and serving to hold the handle hub and casing in assembly, said contact actuator including a plate interposed between the front end wall of the casing and said assembling member.

3. In a switch, the combination with a casing having a front end wall; of a handle assembled with the casing to turn and having a hub portion extending into the interior of the casing through the front end wall of the casing; a contact actuator within the casing and coupled with the handle hub to be turned upon turning the handle; and an assembling member upon the interior of the casing and interposed between an inner portion of the handle hub and the front end wall of the casing and serving to hold the handle hub and casing in assembly, said contact actuator including a plate interposed between the front end wall of the casing and said assembling member.

4. In a switch, the combination with a casing having a front end wall; of a handle assembled with the casing to turn and having a hub portion extending into the interior of the casing through the front end wall of the casing; a contact actuator within the casing and coupled with the handle hub to be turned upon turning the handle; and a key made of spring metal upon the interior of the casing and assembled with the inner end of the handle adjacent the front end wall of the casing and extending transversely of the handle hub to hold the handle and casing in assembly, said contact actuator including a plate interposed between the front end wall of the casing and said key.

5. In a switch, the combination with a casing having a front end wall; of a handle assembled with the casing to turn and having a hub portion extending into the interior of the casing through the front end wall of the casing; a contact actuator within the casing and coupled with the handle hub to be turned upon turning the handle; and a key made of spring metal upon the interior of the casing and assembled with the inner end of the handle adjacent the front end wall of the casing and extending transversely of the handle hub to hold the handle and casing in assembly, said key having a notch which receives a holding lug provided upon the handle hub.

6. In a switch, the combination with a casing having a front end wall; of a handle assembled with the casing to turn and having a hub portion extending into the interior of the casing through the front end wall of the casing; a contact actuator within the casing and coupled with the handle hub to be turned upon turning the handle; and a key made of spring metal upon the interior of the casing and assembled with the inner end of the handle adjacent the front end wall of the casing and extending transversely of the handle hub to hold the handle and casing in assembly, said key having a notch which receives a holding lug provided upon the handle hub, said contact actuator including a plate interposed between the front end wall of the casing and said key.

In witness whereof I hereunto subscribe my name.

HARRY A. DOUGLAS.