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R. R. TEICHNER ET AL

1,894,070

ELECTRIC SWITCH

Original Filed May 18, 1928

Fig. 1.

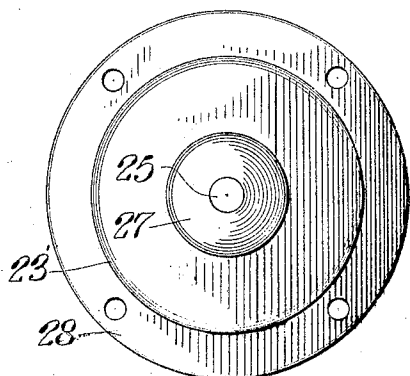


Fig. 2.

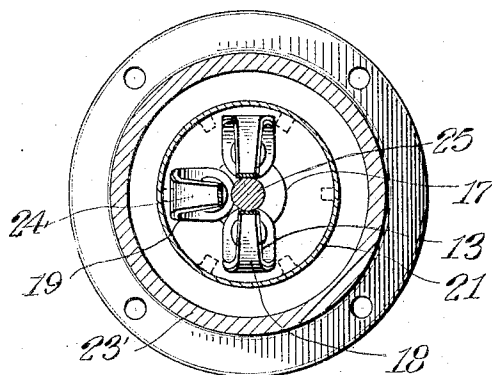


Fig. 3.

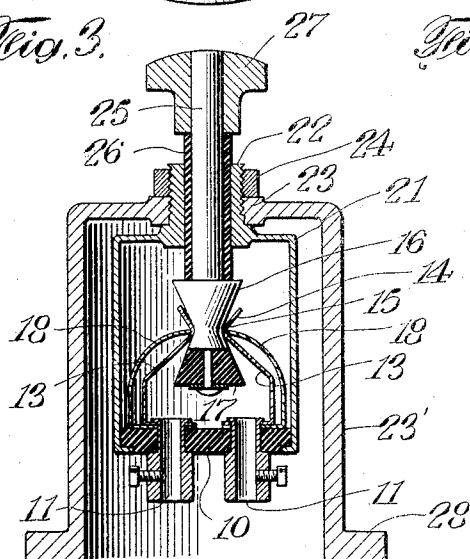


Fig. 4.

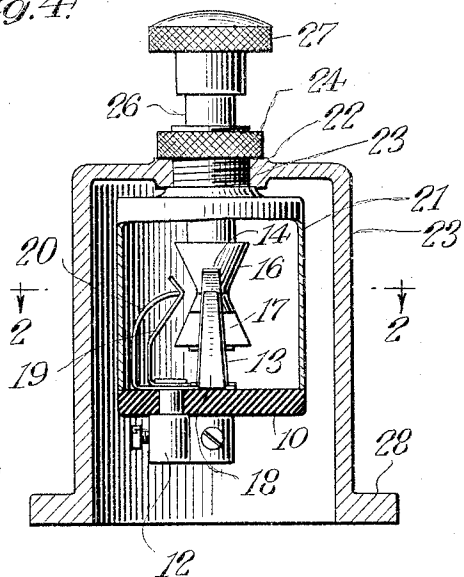
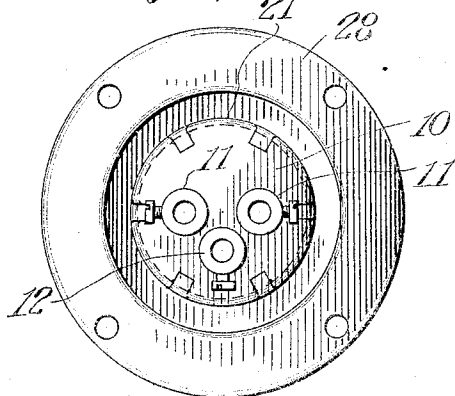


Fig. 5.



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ELECTRIC SWITCH

Application filed May 18, 1928, Serial No. 278,688. Renewed June 2, 1932.

Our invention relates to improvements in electric switches, and the object of the invention is to produce an extremely simple and positive switch of the slide plug spring leaf contact type, in which there are a plurality of terminal connections, and in which the switch is normally closed to two of the connections, but can be easily adjusted so as to cut in a ground or other connection or connections, and as easily adjusted to open the several circuits. The invention is especially intended to produce a simple structure in which the parts are all safely housed so as to be protected from any accumulation which may interfere with the action of the switch, and in which the spring contacts are reinforced by additional springs which make the action positive. The invention is also intended to make the contact plug of a form tapering from its middle towards its end portions, and with the spring contacts or leaf contacts engaging the plug in such a way that when it is moved in one direction the several contacts will be made, where it is normal two of the contacts will be closed, and when moved in another direction all the connections will be open. It is also intended to produce a switch which is well adapted for use on the fixture board of a motor car, and the switch is suitable for controlling various car circuits, although it can also be used for other purposes.

Reference is to be had to the accompanying drawing forming a part of this specification, in which similar reference characters indicate corresponding parts in all the views.

Figure 1 is a face view of the switch.

Figure 2 is a cross section on the line 2—2 of Figure 4.

Figure 3 is a longitudinal section of the switch.

Figure 4 is a broken elevation partly in longitudinal section and with the section at right angles to that shown in Figure 3, and

Figure 5 is a rear elevation of the switch.

The switch has an insulating base 10 which can most conveniently be circular, and closes one end of the casing 21 which will be hereinafter referred to. Supported on the base

are terminals 11 and 12. We have shown the ordinary tubular binding post type of terminal, but other forms might be substituted. The two terminals 11 are provided with leaf contact members 13 which extend inward into the casing 21 and are bent at the ends as at 14 so that their angles 15 adjacent the ends will contact with the smaller part of the switch plug 16 which is made to slide between the contact leaves or members. One end portion of the switch plug 16 is of insulating material 17, and the plug as a whole is shaped somewhat like an hour glass, tapering or flaring outward from the middle portion toward the ends.

In order that the contacts may be made positive and to enable light members 13 to be used, springs 18 are arranged behind them which are shown as fastened to the inner parts of the binding posts or terminals 11 and extend upward and contact with the upper portions of the members 13. In a position preferably at about midway between the members 13 and spaced apart from the plug 16, is a leaf member 19 which is like the member 13 and is connected with the terminal or binding post 12. This is also pressed inward by the reinforcing spring 20, but normally it is out of contact with the plug 16 as shown in Figure 4.

It will be seen, therefore, that normally the circuit will be closed through the terminals or binding posts 11, leaf member 13, and plug 16, but that if the plug 16 is moved inward the contact will be made with the member 19 and another line cut in which may be a ground circuit or other circuit connection, and obviously there might be more than one such connection, although one is shown. If, on the other hand, the plug is pulled outwardly, the several contact leaves will engage the insulating end 17 and the circuits will be open.

The case or casing 21 tightly seals the working parts of the switch so as to prevent any extraneous interference with them, and this case is provided with a threaded nipple 22 which engages and screws through the threaded part 23 of a housing 23', and can

be further locked in position by the nut 24 which screws on the nipple 22.

The switch plug 16 is carried by a spindle 25 which extends outward through an insulating bushing 26 and is provided with a knob 27 or equivalent means of operating it. The bushing 26 extends from the inner end of the knob 27 to the plug 16, but it should in any event extend far enough to properly insulate the spindle 25 from the adjacent conducting parts. The housing 23' serves as a further protection for the working parts of the switch, and it can be provided with a flange 28 having screw holes therethrough so that it may be conveniently applied to the fixture board of the car or to any other support.

It will be seen from the foregoing description that the structure is very simple and positive, and that it is not likely to get out of order, or the parts likely to become displaced. Further, as stated, a circuit will be closed through at least two of the contact leaves 13, and by pushing the switch plug inward another circuit or circuit connection can be made, while by pulling the plug outward all connections can be broken.

We claim:—

1. A switch comprising leaf contacts and a plug slidable between the contacts, said plug being smallest in its middle conducting portion and flaring toward the ends, with one end portion having the flaring part of insulating material.
2. An electric switch comprising a sliding plug moving between leaf contacts, said plug being smaller in its middle portion which is of conducting material and flaring toward its ends one flaring part of which is of insulating material, a pair of leaf contacts normally contacting with the middle portion of the plug, and another contact normally out of touch with the plug but lying within the path of its larger portions.
3. A switch having a sliding switch plug smaller in its middle portion which is of conducting material and larger towards its end portions, one flaring part of which is of insulating material, contact leaves normally engaging the middle portion of the plug, and reinforcing springs backing the contact leaves and pressing them towards the plug.
4. An electric switch comprising a sliding switch plug smaller in its middle portion which is of conducting material and flaring toward the ends, one flaring end portion being of insulating material, leaf contacts opposite the plug and with a pair normally engaging the smaller part of the plug, a third leaf contact normally out of engagement with the smaller part of the plug but within the path of the larger portions of the plug, and a casing for the aforesaid switch parts.
5. A switch having a sliding switch plug smaller in its middle portion which is of con-

ducting material and larger towards its end portions, one flaring part of which is of insulating material, contact leaves normally engaging the middle portion of the plug, reinforcing springs backing the contact leaves and pressing them towards the plug, a casing sealing the aforesaid switch parts, a housing enclosing the casing and adapted for attachment to a support, and a spindle sliding through one end portion of the casing and housing to actuate the aforesaid plug.

6. A switch according to claim 5 in which the casing has a nipple supported in the end of the housing and the spindle slides through the nipple and carries the plug.

7. A switch comprising a first contact member of generally hour-glass shape having its narrowest part and one flaring end formed of conducting material and with the other flaring end formed of insulating material, a second contact member mounted to engage the surface of the first contact member, the first and second contact members being movable relative to each other.

8. A switch comprising a first contact member of generally hour-glass shape having its narrowest part and one flaring end formed of conducting material and with the other flaring end formed of insulating material, a plurality of second contact members mounted to engage the surface of the first contact member, the first contact member being movable relative to the second contact members.

In testimony whereof, we have signed our names to this specification this 6th day of April, 1928.

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