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B. A. HARVEY ET AL
AUTOMATIC SWITCHING DEVICE

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Fig. 1.

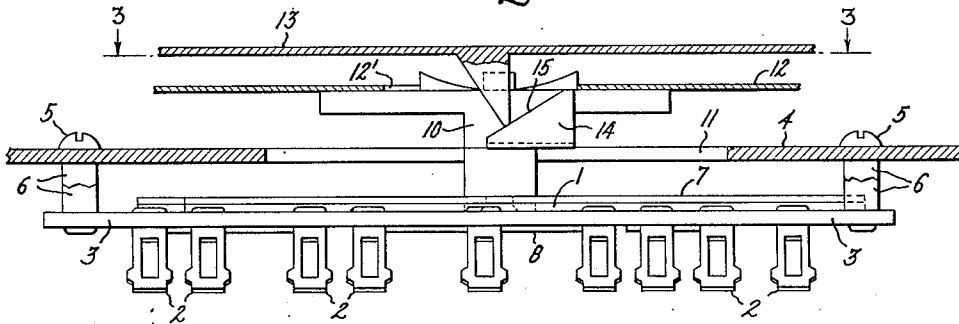


Fig. 3.

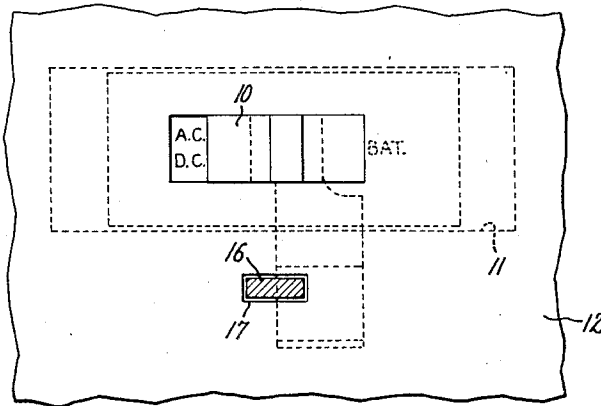
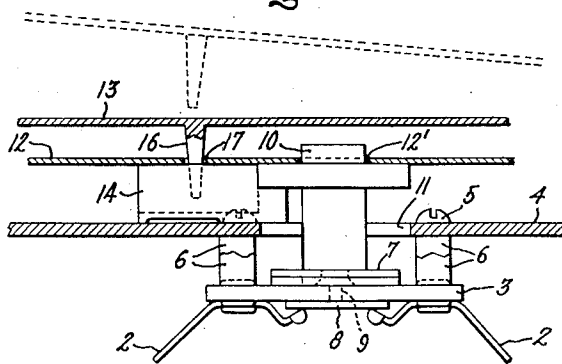


Fig. 2.



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AUTOMATIC SWITCHING DEVICE

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2 Claims. (Cl. 200—54)

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Our invention relates to radio receivers of the type adapted to be energized by a self-contained source of electrical power and more particularly to the above type radio receivers in which an antenna loop for the receiver is located within the door or cover of an enclosing cabinet.

In a receiver of the above character, the door or cover containing the antenna usually must be opened before the signal delivered to the receiver from the antenna is strong enough to be heard. Therefore, if the door should happen to be closed while the receiver is still operating, there is nothing to indicate this operating condition; and if the receiver is being energized by an internal power source such as a battery system, these batteries may be drained of considerable power before the operating condition of the receiver is discovered. An object of our invention, therefore, is to provide, in a receiver of the above type, a switching device which automatically disconnects the receiver from its internal power source when the antenna door assembly is closed.

In order to permit the utilization either of an external or internal power source with the above type receiver, it is customary to employ a ganged multiple contact switch which accomplishes the required circuit changes by a single movement of the switching armature. Therefore, a further specific object of our invention is to provide in a receiver of the above character a device which may be used in conjunction with a switch of the above type in order to disconnect the internal power source by automatically throwing the switch to its external power receiving position when the door is closed.

In general, our invention comprehends a multiple contact switch arranged in the form of a flat strip mounted beneath a flat supporting member which faces the door of an enclosing cabinet. In a preferred embodiment of our invention, this switch has a plurality of longitudinally displaced contact lugs which are connected in proper relation by the contacting members of an armature which moves laterally between an internal power connecting position and an external power connecting position. A switching handle rigidly secured to this contacting armature and extending through an aperture in the supporting member is fastened to a wedge shaped member which is inclined at a considerable angle from the outer surface of the supporting member. A projecting member is secured to the cabinet door or cover and is aligned above the inclined surface of the wedge shaped member when the armature is in its internal

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power connecting position and strikes this inclined surface when the door is closed thereby enforcing an automatic lateral movement of the armature to its external power connecting position.

The novel features which we believe to be characteristic of this invention are set forth with particularity in the appended claims. The invention itself, however, together with further objects and advantages thereof may best be understood by reference to the following description taken in connection with the accompanying drawing in which Fig. 1 is a front sectional view of a portion of a receiver and cabinet in conjunction with one form of a switching device embodying the invention, Fig. 2 is a side sectional view of the operating members illustrated in Fig. 1 and Fig. 3 is a plan view taken from the line 3—3 of Fig. 1.

Referring to Fig. 1, we have shown the invention in one form in conjunction with a multiple contact switch 1 having a plurality of contact lugs 2 longitudinally displaced on either side of an insulating supporting strip 3. This strip 3 is maintained in parallel spaced relation to a flat supporting member 4, which may be a receiver chassis, by a plurality of screws 5 and separating spacers 6. As can best be seen by reference to Fig. 2, a switching armature 7, composed of suitable insulating material rests on the supporting strip 3 and carries a plurality of flat contact-making conductive flanges 8 extending beneath the strip 3 through suitable longitudinal slots 9 formed therein. The flanges 8 make conductive contact between combinations of opposing and adjacent contact lugs 2 and accomplish the switching function by a limited lateral movement, together with the armature 7, between two predetermined positions.

In order to permit external operation of the switch 1, a switching handle 10, which may be an integral part of the switching armature 7 or a separate member secured thereto as illustrated in Fig. 1 and Fig. 2, is extended through a suitable aperture 11 formed in supporting member 4. This switch handle preferably has a T-shaped configuration adapted to fit beneath an encasing member 12, such as a receiver control panel, in order to limit the direction of movement of the switching handle 10 and to protect it from being easily broken. The top of the switching handle 10 may be extended as illustrated in the drawings through an opening 12' in encasing member 12 to permit the manual operation of this switch 1.

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In order automatically to operate the switch 1 when a door 13 of an enclosing cabinet (not shown) is closed, we provide a wedge-shaped member 14 secured to the switching handle 10 and resting on the outer surface of supporting member 4. One surface 15 of this wedge-shaped member 14 is inclined at a considerable angle from supporting member 4. It will be appreciated, of course, that the door 13 may contain or support an antenna loop for the radio receiver.

Secured to the door 13 at a point that is aligned to the upper portion of this inclined surface 15 when the switching armature 7 is in its internal power connecting position is a projecting flange or striking member 16. As indicated in Fig. 2, when the door 13 is closed, the projecting member 16 descends through an aperture 17 formed in encasing member 12 and strikes the inclined surface 15 of the wedge shaped member 14. The direction of the inclination of the surface of the wedge shaped member 14 is constructed to be such that the switching armature is forced by the striking member 16 to its internal power disconnecting position.

The position of the switching handle 10 and wedge 14 when the door is closed can best be seen by reference to Fig. 3. As illustrated in this figure, the position of the switch is preferably indicated by suitable markings on the top of the handle.

In the operation of the invention, an internal source of power such as battery system is connected to a proper combination of contact lugs 2 so that this internal power source is applied to the receiver when the switching armature 7 is in a position which aligns the wedge-shaped member 14 to the striking member 16. As explained above, the armature 7 will then automatically be moved to its other position thereby disconnecting the internal power source when the door 13 is closed.

Although the switch 1 may be employed to serve only as an internal power connecting medium, it will be appreciated that this switching arrangement may, in addition, be employed most advantageously to achieve the connection to an external power source by simply connecting suitable external power receiving terminals to the combination of contact lugs 2 which are interconnected when the switch 1 is in its internal power disconnecting position.

Although we have shown a particular embodiment of our invention, it will be understood that we do not wish to be limited thereto since many modifications may be made, and we, therefore, intend by the appended claims to cover all such modifications as fall within the true spirit and scope of the invention.

What we claim as new and desire to secure by Letters Patent of the United States is:

1. In a radio receiver having a self contained source of electrical power and an enclosing cabinet having a door holding the antenna for

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said receiver, means automatically to disconnect said power source from said receiver when said door is closed comprising, a flat supporting member located within said cabinet facing said door and having an aperture formed therein, a switch supported by said supporting member beneath said aperture and having a switching armature extending through said aperture, said armature being adapted and arranged manually to be moved laterally between an external power connecting position and an internal power connecting position, a wedge shaped member secured to the external portion of said armature and having one surface inclined to said supporting member, and a projecting member secured to said cabinet door above said inclined surface when said armature is in said internal power connecting position thereby to strike said inclined surface as the door descends and to move said armature away from said internal power connecting position when said door is closed.

2. In a radio receiver adapted to be connected to internal batteries or to an external power source and having an enclosing cabinet including a door, means automatically to disconnect said internal batteries from said receiver when said door is closed comprising a flat supporting member located within said cabinet facing said door and having an aperture formed therein, a multiple contact switch supported by said supporting member beneath said aperture, said switch having a switching armature arranged manually to be moved in a direction parallel to the plane of said supporting member between an internal battery connecting position and an external terminal connecting position, a manually operable switching handle secured to said armature and extending through said aperture, a wedge shaped member secured to said handle and resting on the outer surface of said supporting member, said wedge shaped member having one surface inclined to said supporting member, and a striking member projecting from said door at a point aligned to the upper portion of said inclined surface when said armature is in said battery connecting position thereby to strike said inclined surface as said door descends and to enforce a lateral movement of said armature away from said internal battery connecting position when said door is closed.

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