July 29, 1930. C. M. PETERSEN 1,771,498

SNAP SWITCH

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Fig. 1.

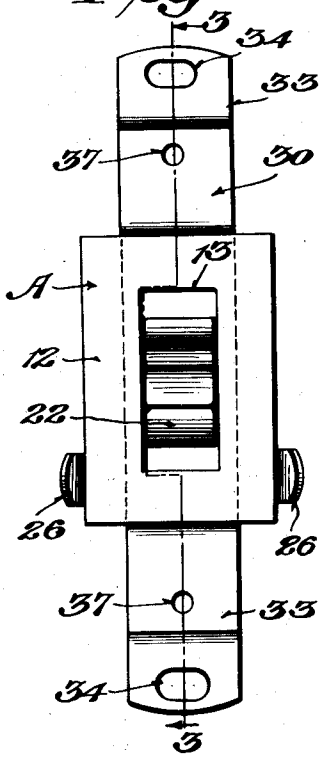


Fig. 2.

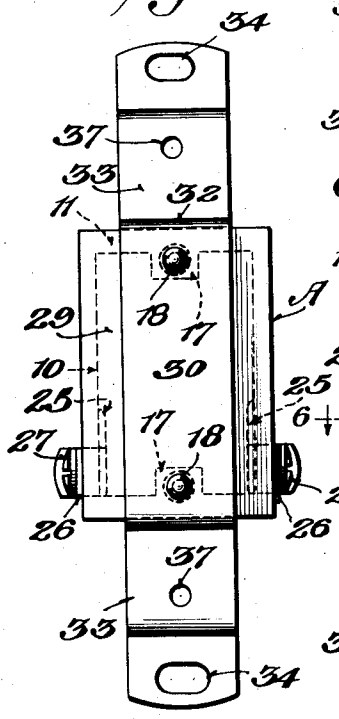


Fig. 3.

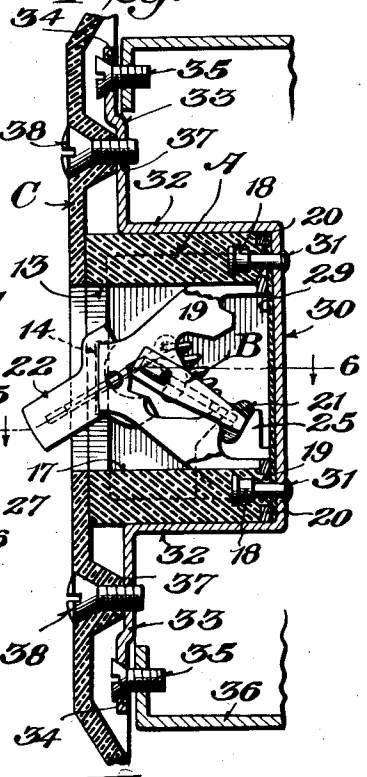


Fig. 4.

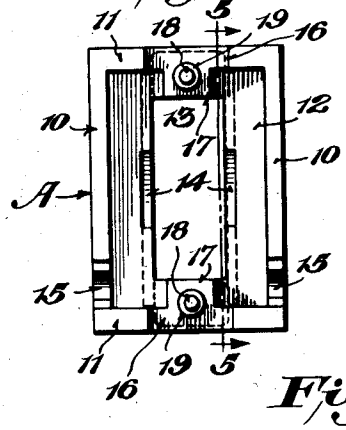


Fig. 5.

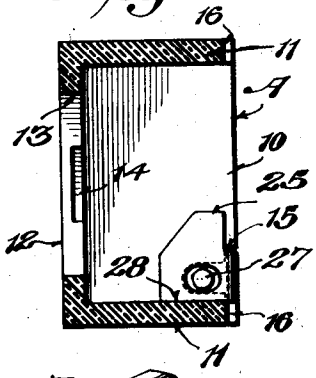


Fig. 6.

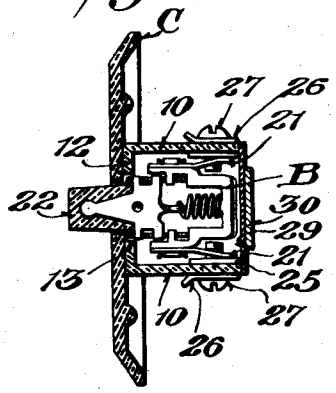
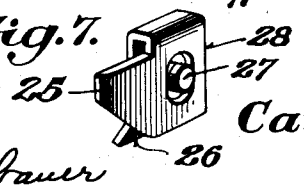


Fig. 7.



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SNAP SWITCH

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Fig. 8.

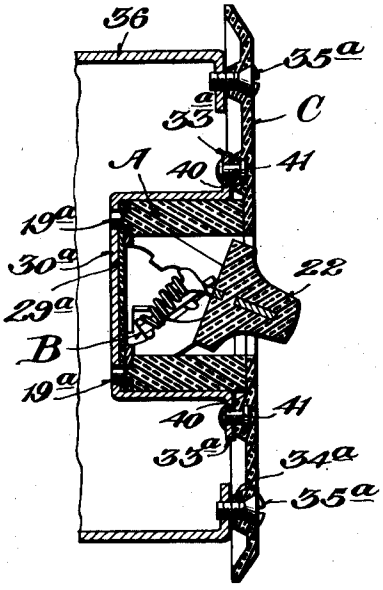
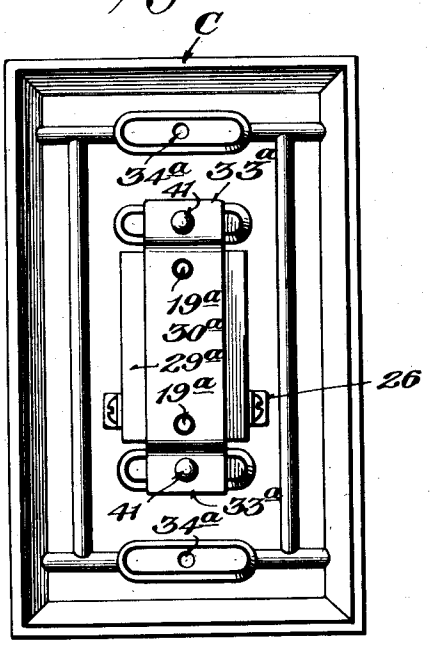


Fig. 9.



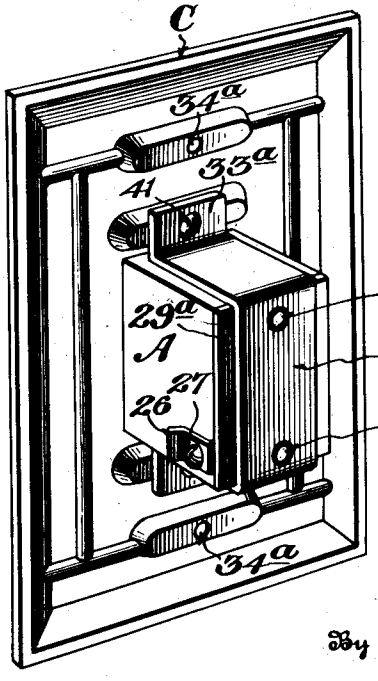


Fig. 10.

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UNITED STATES PATENT OFFICE

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SNAP SWITCH

Application filed June 20, 1929. Serial No. 372,472.

This invention relates to snap switches of the flush or wall type, and has in view, as a general and most important object, to provide various structural improvements in this class of switches to the end of producing a snap switch of compact form embodying a minimum number of parts which are cheap and easy to make, and especially adapted for rapid and economical assembly, all with a view to providing a switch which is of strong and durable construction and of low production cost.

With the foregoing and general object in view, the invention consists in the various novel and beneficial features of construction, combination and arrangement of parts as will be hereinafter more fully described, illustrated in the accompanying drawings and defined in the appended claims.

In the drawings, wherein like characters of reference denote corresponding parts in the different related views:

Fig. 1 is a front elevation of a form of the present snap switch structure which is adapted to have a face plate detachably connected therewith, the face plate in this view being removed.

Fig. 2 is a rear elevation of the switch structure shown in Fig. 1.

Fig. 3 is a longitudinal section on the line 3—3 of Fig. 1 showing the manner of connecting the face plate with the switch housing.

Fig. 4 is a rear elevation of the switch housing with the rear cover and the switch mechanism removed therefrom, the relation of the switch frame to said housing in the assembly of the device being indicated by dotted lines.

Fig. 5 is a longitudinal section on the line 5—5 of Fig. 4, showing one of the terminal contact members assembled with the housing.

Fig. 6 is a transverse section on the line 6—6 of Fig. 3.

Fig. 7 is a perspective view of one of the terminal contact members.

Fig. 8 is a view similar to Fig. 3 of a form of the invention in which the face plate is permanently assembled with the switch housing.

Fig. 9 is a rear elevation of the structure shown in Fig. 8; and

Fig. 10 is a perspective view looking towards the rear of the switch structure shown in Figs. 8 and 9.

Referring to both embodiments of the present invention herein illustrated, it will be observed that the device includes in its general organization a switch housing A, a switch mechanism designated generally at B, and a face plate C.

The switch housing A, which may be formed from any suitable material, into any desired size and shape, preferably is molded from insuluating material into the box-like form shown, same being inclusive of side and end walls 10 and 11, respectively, and a front wall 12 provided with an opening 13 for the accommodation of the handle of the switch mechanism B which latter is adapted for insertion into housing through the open rear thereof.

To either side of the opening 13 the inner face of the front wall 12 of the housing A is recessed as indicated at 14, while formed in the side walls 10 of said housing, near one of the end walls 11 thereof, are slots 15 which open through the rear faces of said side walls. In addition, the end walls 11 are centrally recessed as indicated at 16 and said walls preferably, but not necessarily, are provided with integral, inwardly directed ribs 17 extending from the bottoms of the recesses 16 any suitable distance towards the front wall 12, preferably entirely to said front wall.

Embedded during molding of the housing A in the end walls 11 thereof where said walls are reinforced by the ribs 17, are rivet inserts 18 which project a suitable distance beyond the rear face of the housing and which are surrounded by rearwardly projecting insulating formations 19 integral with the body A.

The switch mechanism B, which may be of any preferred type, is inclusive in the present instance of side frame members 19 joined together by bridge pieces 20, the switch mechanism proper being carried by said frame members and being inclusive of contact arms 21 located at the sides of said frame members

and adapted to be swung into and from engagement with complemental stationary contacts by rocking movement of a handle 22 in a manner which is well known and thoroughly understood by those skilled in the art.

In the assembled relation of the switch mechanism B with the housing A, the bridge pieces 20 which are apertured to receive the formations 19, are engaged over said formations and seated in the recesses 16 whereby their faces are disposed flush or substantially flush with the rear face of the housing. At the same time front portions of said frame members are engaged in the recesses 14, whereby the switch mechanism is held firmly at its front as well as at its rear against any lateral movement within the housing A.

When the switch mechanism B is positioned within the housing A as stated, the contact arms 21 are disposed, respectively, for movement in planes parallel and closely adjacent to the inner faces of the side walls 10 of the housing, these arms thus being adapted for cooperation with stationary contacts 25 disposed against the inner faces of said side walls 10.

Referring now to Fig. 7 of the drawings, it will be observed that the stationary switch contacts 25 in accordance with the present invention are formed in one piece with their related line wire binding plates 26. In other words, a sheet metal stamping of proper shape is bent into U-shape to provide a pair of spaced legs, these legs constituting, respectively, a switch contact 25 and a binding plate 26, the binding plate leg having a binding screw 27 threaded therein and the switch contact leg being apertured for the accommodation of said screw. These combined switch contact and binding plate elements are adapted to straddle the side walls of the housing A as shown, the switch contacts 25 lying against the inner faces of said side walls in position to be engaged by the switch arms 21 and the binding plates 26 lying against the outer face of said walls, the slots 15 being provided for the accommodation of the screws 27 and serving in conjunction with said screws to prevent movement of said contact and binding plate elements along the walls 10, in which connection it will be observed that straight edge portions 28 of the contacts 25 engage the adjacent end wall of the housing A whereby said contact elements are held against turning movement relative to the housing.

With the switch mechanism placed as aforesaid in said housing and with the switch contact and binding plate elements assembled with the side walls thereof, a sheet or sheets of insulation 29 apertured to receive the rivet inserts 18, is or are engaged over said inserts in closing relation to the rear face of the housing and a metal strip 30, apertured to receive said rivet inserts, then is engaged over the latter and against the insulation 29, said inserts finally being headed over as indicated at 31 to secure all of said parts in rigid assembly with one another.

The strip 30, which in general design is of U-shape, is inclusive of portions 32 lying against the ends of the housing A, these portions terminating in outwardly directed arms 33 which arms, according to the embodiment of the invention shown in Figs. 1 to 3 of the drawings, are apertured as at 34 for the accommodation of screws 35 for securing the device within an outlet box 36. In addition, said arms are formed with threaded openings 37 to receive screws 38 by which the face plate C is detachably connected with the device. On the other hand, according to the embodiment of the invention shown in Figs. 8, 9 and 10, the arms 33^a are of short length and formed only with apertures 40 to receive rivet inserts 41 which are molded into the face plate, these rivet inserts being headed over against the rear faces of the arms 33^a whereby the face plate is permanently assembled with the other portions of the device. The face plate C in this instance is formed with openings 34^a for the accommodation of screws 35^a for securing the device to the outlet box. Furthermore, in this embodiment of the invention, the rivet inserts 18 are eliminated, the end walls of the housing A being formed only with projections 19^a which enter holes in the insulation 29^a and the strap 30^a to hold said insulation and said strap against lateral movement relative to the housing.

Without further description it is thought that the features and advantages of the invention will be readily apparent to those skilled in the art, and it will of course be understood that changes in the form, proportion and minor details of construction may be resorted to, without departing from the spirit of the invention and scope of the appended claims.

I claim:

1. In a device of the class described, a switch housing of molded insulating material open at its rear for the insertion of a switch mechanism, projections integral with said body at the rear thereof, the frame of said switch mechanism having openings receiving said projections whereby the switch mechanism is held against lateral movement relative to the body, and means covering the rear face of said body and retaining the switch frame engaged with said projections.

2. In a device of the class described, a switch housing of molded insulating material open at its rear for the insertion of a switch mechanism, a switch mechanism within said housing, a U-shaped member straddling a wall of said housing providing a stationary switch contact within the housing lying against the inner face of said wall and

a line wire terminal outside of said housing lying against the outer face of said wall, and means covering the rear face of said housing and retaining said switch mechanism and said terminal contact member in assembly with said housing.

3. In a device of the class described, a switch housing of molded insulating material open at its rear for the insertion of a switch mechanism, rivet inserts molded into said housing and including portions projecting inwardly from said housing, integral formations on said housing projecting rearwardly therefrom and surrounding said rivet inserts, a switch mechanism within said housing inclusive of a frame having openings receiving said integral housing formations, and a cover for the rear of said housing provided with openings receiving said rivet inserts, said rivet inserts being headed over rearwardly of said cover to secure the latter and the switch mechanism in assembly with the housing.

4. In a device of the class described, a face plate provided with rearward rivet projections, a switch housing disposed against the rear face of said face plate, a switch within said housing, and a strap extending across the rear of said housing and secured by said rivet projections to said face plate whereby the latter is permanently assembled with said housing and whereby the switch mechanism is retained within said housing.

5. In a device of the class described, a face plate, a switch housing disposed against the rear face of said face plate and open at its rear for the insertion of a switch mechanism, a switch mechanism disposed within said housing, and a strap extending across the rear of said housing and permanently connected with said face plate.

6. In a device of the class described, a switch housing of molded insulating material open at its rear for the insertion of a switch mechanism, projections at the rear of said housing engaging the frame of said switch mechanism to prevent lateral movement thereof, means covering the rear face of said housing retaining the switch frame engaged by said projections, and means for fastening said covering means to the housing.

7. In a device of the class described, a switch housing of molded insulating material open at its rear for the insertion of a switch mechanism, a switch mechanism within said housing, projections at the rear of said housing engaging the frame of said switch mechanism to prevent lateral movement thereof, means covering the rear of said housing to retain said switch mechanism, and means molded into said housing for retaining said covering means in covering relation to the rear face of the housing.

8. In a device of the class described, a housing molded from insulating material, a switch mechanism within said housing, stationary contacts within said housing cooperating with said switch mechanism, means underlying said housing for retaining said stationary contacts in assembly with the housing, and means for fastening said contact retaining means to said housing.

9. In a snap switch, a molded insulating housing recessed from its rear face for the insertion of a switch mechanism and stationary contacts, retaining means underlying said body for retaining said switch parts in said recess, and common means for fastening said retaining means and said switch mechanism to said housing.

10. In a snap switch, a switch housing, a face plate, a switch mechanism and stationary contacts disposed within said housing, common means for securing said face plate, switch housing and stationary contacts in assembled relation, relative to each other, and means for fastening said face plate to an outlet box.

11. In a device of the class described, a switch housing and a face plate, a switch mechanism and stationary contacts within said body, a strap retaining said stationary contacts and said switch mechnism within said body, means fastening said strap to said face plate, and means for fastening said face plate to an outlet box.

12. In a device of the class described, a switch housing of molded insulating material open at its rear, a U-shaped member straddling a wall of said housing providing a stationary switch contact within the housing lying against the inner face of said wall and a line wire terminal outside of said housing lying against the outer face of said wall, and means covering the rear face of said housing and retaining said terminal contact member in assembly with said housing.

13. In a device of the class described, a face plate, a switch housing mounted on the rear face of said face plate and open at its rear for the insertion of a switch mechanism, a switch mechanism within said housing, and a strap extending across the rear of said housing and connected with said face plate.

In testimony whereof I hereunto affix my signature.

CARL M. PETERSEN.