

March 17, 1970

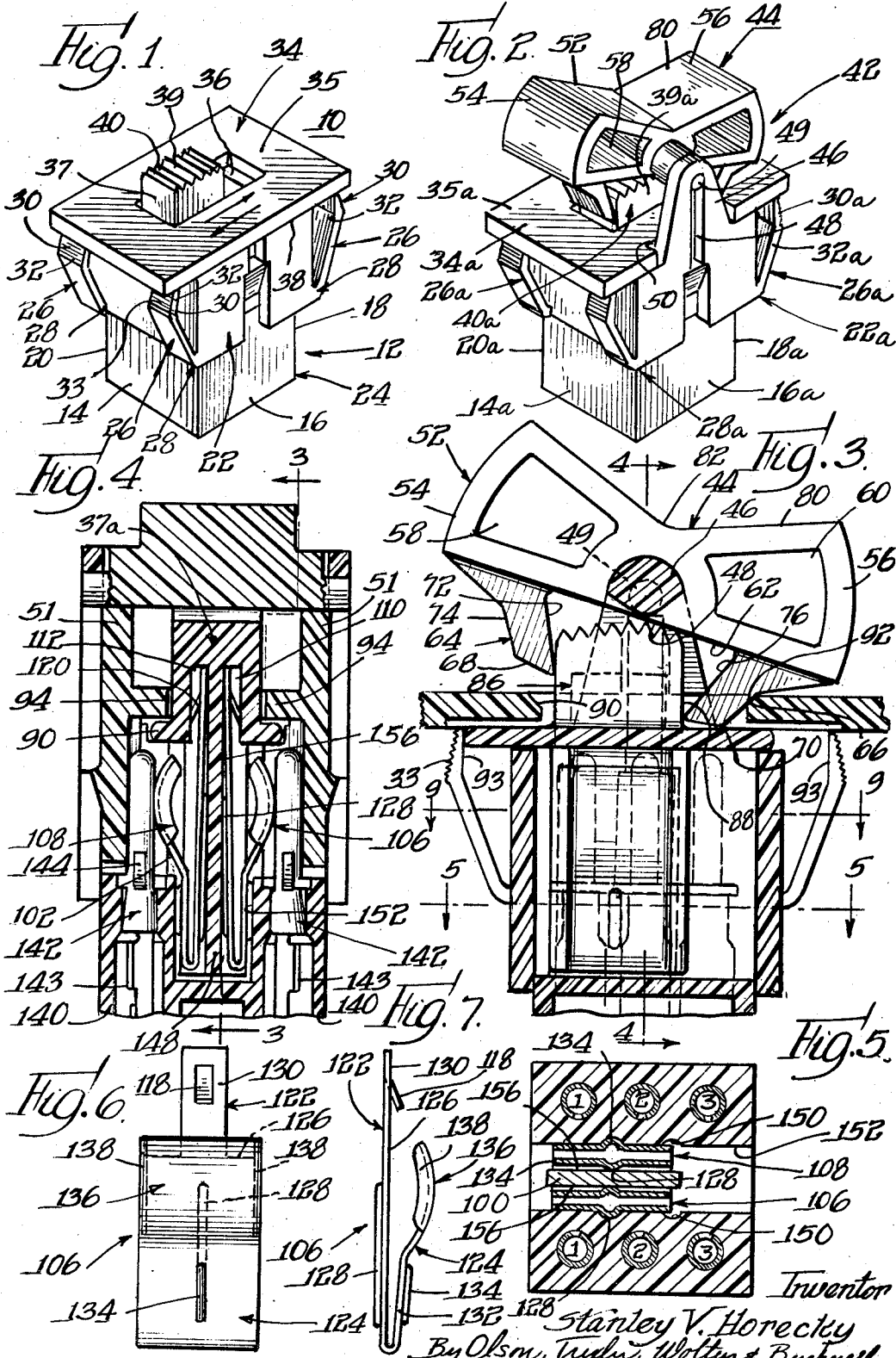
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3,501,599

ELECTRICAL SLIDE SWITCH WITH PREWIRED TERMINALS

Filed Dec. 19, 1968

5 Sheets-Sheet 1



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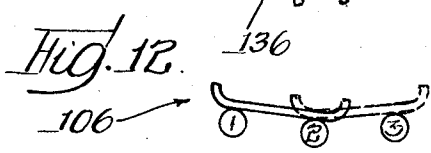
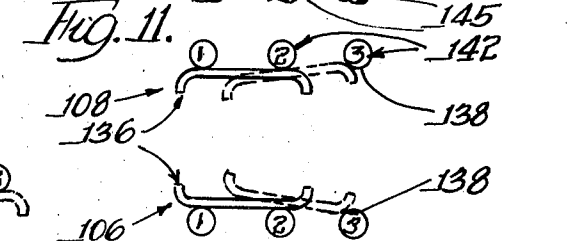
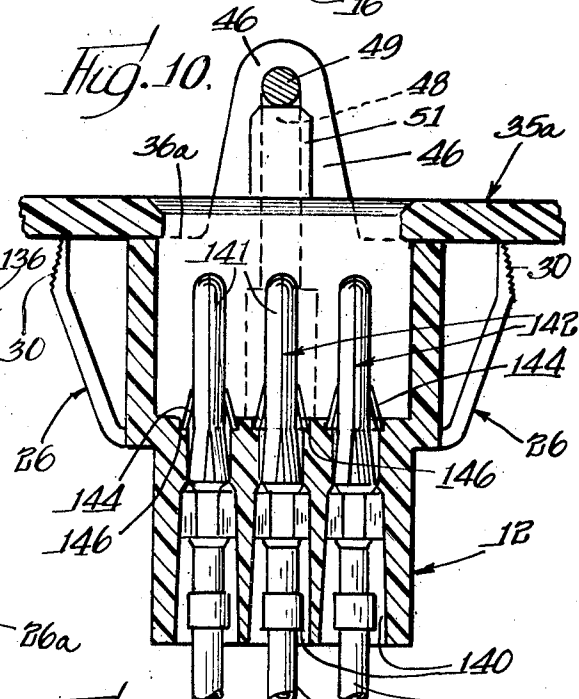
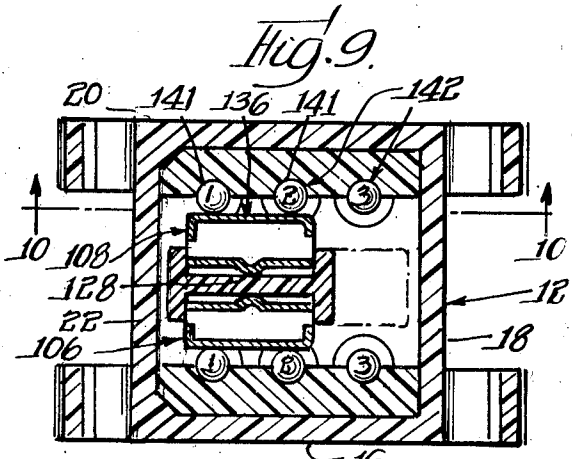
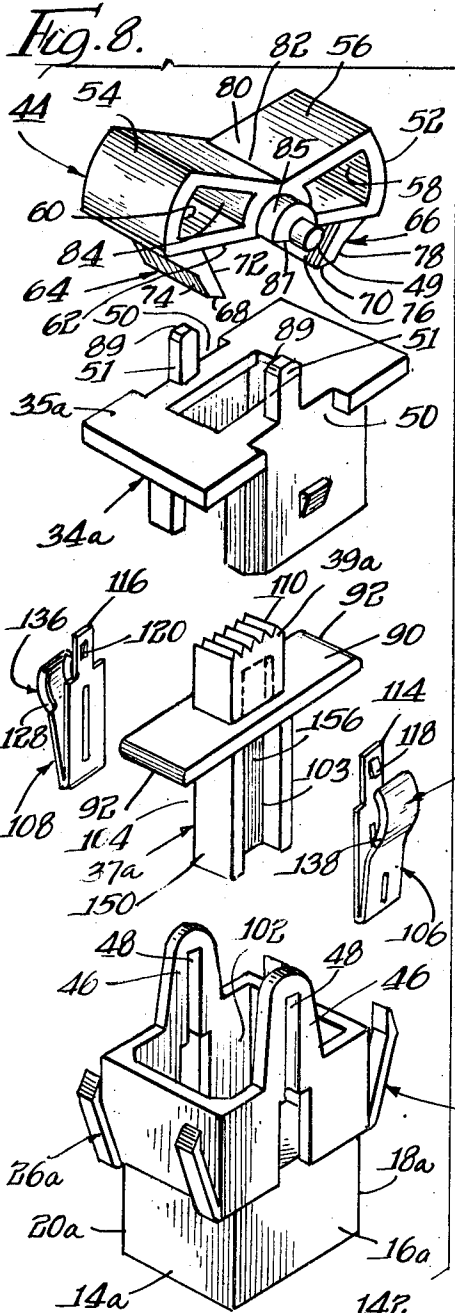
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3 Sheets-Sheet 2



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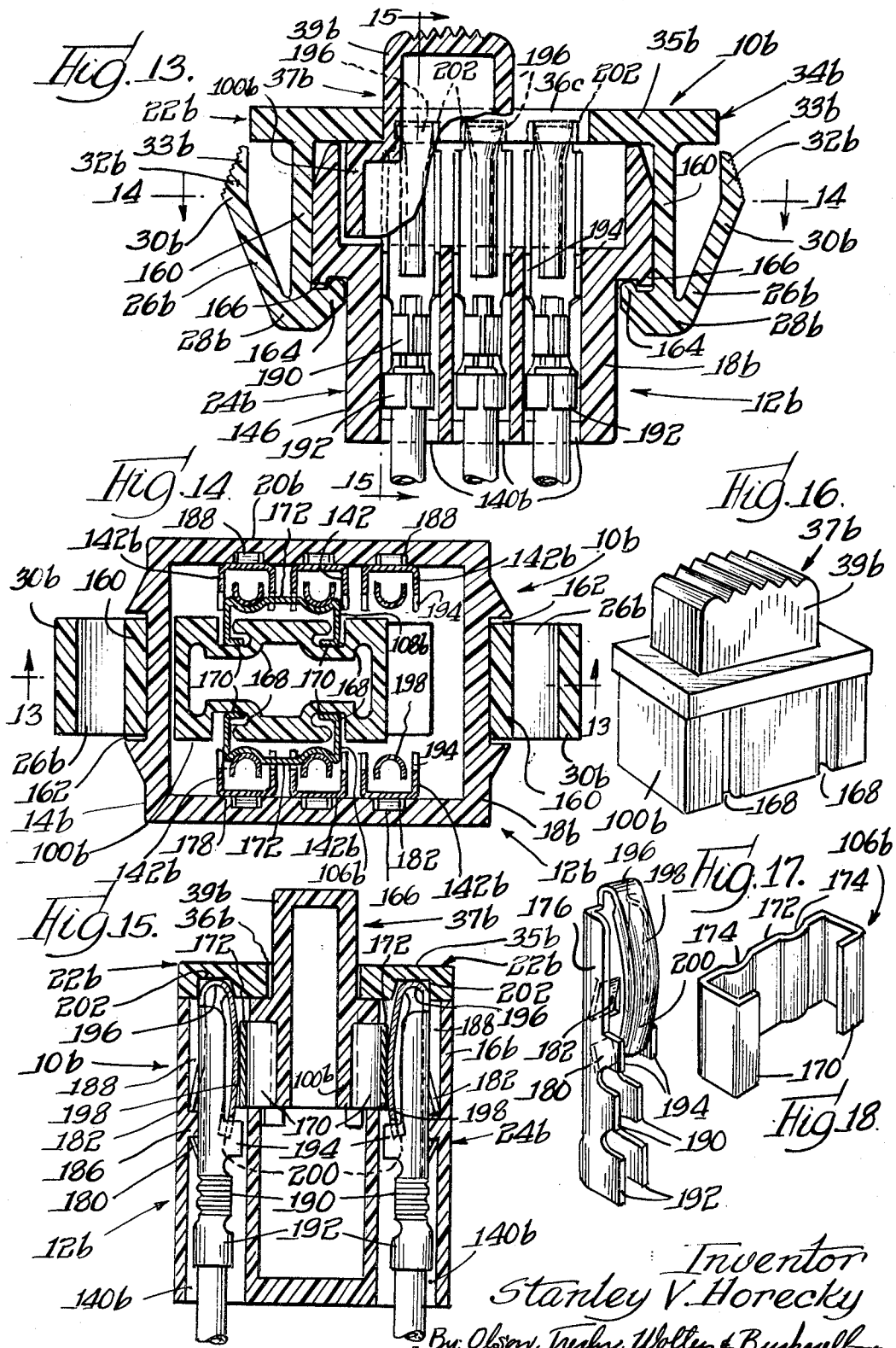
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ELECTRICAL SLIDE SWITCH WITH PREWIRED TERMINALS

Filed Dec. 19, 1968

3 Sheets-Sheet 3



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3,501,599

**ELECTRICAL SLIDE SWITCH WITH
PREWIRED TERMINALS**

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21 Claims

ABSTRACT OF THE DISCLOSURE

A slide switch comprising a switch housing with a cavity opening thereinto from one end and a plurality of apertures extending into the housing from the other end and communicating with the cavity. A wiper assembly including a pair of independent shorting bars or wipers is movably mounted in the cavity with a slide control lever extending outwardly therefrom. Prewired terminal pins are inserted into the apertures and extend into the cavity for engagement by the wipers. In one embodiment, an actuating member of a rocker assembly is pivotally mounted on the one end of the housing and includes a pair of projections which engage the slide control lever at opposite ends thereof. Depression of one end of the rocker actuating member causes the slide control lever to be moved in a corresponding direction to change the contacting position of the wipers with respect to the plurality of pin terminals; thus, breaking and making electrical connections between certain ones of the pin terminals.

BACKGROUND OF THE INVENTION

This invention relates to electrical switching devices and more particularly to electrical slide switches.

Conventional electrical slide switches are of the type wherein a connection thereto from an external circuit is provided by a lead wire which is connected to a screw terminal of the switch. The screw terminal is tightened down onto a bared conductor portion of the lead wire and the connection is completed.

When it is desired to change the external circuit connection, the screw terminal must be unscrewed, the wire conductor removed therefrom and another wire wrapped about the terminal, and the terminal screwed down thereon to make an electrical connection therewith. This procedure is not only time consuming, but requires the use of installation tools to connect the wires to the switch terminals.

Moreover, the mating terminals and wiper of a conventional slide switch are in a fixed relation with respect to each other. In the event the terminals are moved or dislodged from their locations, the switch may become inoperable.

SUMMARY OF THE INVENTION

Accordingly, it is an important object of the present invention to provide a new and improved electrical slide switch which overcomes the above-described disadvantages.

It is a more specific object of this invention to provide an electrical slide switch which utilizes prewired, insertable pin contacts as the terminals thereof.

It is yet another object of this invention to provide a slide switch of the last-mentioned type in which the slide-operated wiper contacts thereof compensate automatically for terminals which are out of alignment, to make adequate electrical contact therewith.

Briefly, an electrical slide switch according to the invention comprises a housing of insulating material includ-

ing a slide control extending from one end thereof; the slide control carrying a pair of wiper contacts extending into the housing and being movable to a plurality of positions. Prewired pin contact terminals, such as those illustrated in United States Patent No. 3,178,673, issued Apr. 13, 1965, J. H. Krehbiel, are insertable into apertures provided in the housing and serve as stationary terminals therefor. Upon moving the slide control, the wiper contacts are moved into engagement with predetermined ones of the pin contact terminals to complete connections therebetween. A preferred embodiment of the electrical slide switch includes a rocker member mounted onto the first-mentioned end of the housing in mechanical engagement with the slide control, so that by depressing a first or second end of the rocker member, a force is transmitted to the slide control to move it in a corresponding direction thereby to operate the switch accordingly.

DESCRIPTION OF THE DRAWINGS

A better understanding of the present invention and its organization and construction may be had by referring to the description below in conjunction with the accompanying drawings wherein:

FIG. 1 is a perspective view of an embodiment of an electrical slide switch according to the invention;

FIG. 2 is a perspective view of a modified embodiment of an electrical slide switch according to the invention;

FIG. 3 is an enlarged fragmentary, side sectional view of the electrical switch of FIG. 2;

FIG. 4 is a side sectional view of the electrical switch of FIG. 3, taken along the line 4—4 thereof;

FIG. 5 is an end sectional view of the electrical switch of FIG. 3, taken along the line 5—5 thereof;

FIG. 6 is a rear plan view of a wiper terminal of an electrical slide switch according to the invention;

FIG. 7 is a side view of the wiper terminal of FIG. 6;

FIG. 8 is an exploded perspective view of the electrical slide switch of FIG. 2;

FIG. 9 is an end sectional view of the switch of FIG. 3 taken along the line 9—9 thereof;

FIG. 10 is a side sectional view of the electrical switch of FIG. 9 taken along the line 10—10 thereof;

FIGS. 11 and 12 are diagrammatic representations of the relation between the stationary pin contact terminals and the removable wiper terminals of an electrical slide switch according to the invention wherein the stationary terminals are aligned and offset, respectively, in relation to each other;

FIG. 13 is a side sectional view generally similar to FIG. 10, showing a modified form of the invention taken substantially along the line 13—13 in FIG. 14;

FIG. 14 is a horizontal sectional view through the embodiment of the invention of FIG. 13, and taken generally along the line 14—14 in FIG. 13;

FIG. 15 is a vertical sectional view taken substantially along the line 15—15 in FIG. 13;

FIG. 16 is a perspective view of the slidable operating member;

FIG. 17 is a perspective view of the terminal used in the embodiment of the invention of FIG. 14; and

FIG. 18 is a perspective view of the corresponding wiper or bridging contact.

Referring now to the drawings in more detail, a first embodiment 10 of an electrical slide switch according to the invention is shown in FIG. 1 thereof. The switch 10 comprises a housing 12, preferably of a molded plastic construction, including four interconnected sidewalls 14, 16, 18 and 20 (see also FIG. 9). The housing includes an upper section 22 and a lower section 24, each of which has a square cross-section, with the upper section 22 being larger and overhanging the lower section, as shown. A

pair of outwardly and upwardly extending spaced-apart arms, each designated by the numeral 26, is integrally formed on each of opposite sidewalls 14 and 18 of the upper section 22 of the housing. Each of the arms 26 is connected at a first end 28 to the housing wall with the second, free end 30 thereof extending outwardly at an acute angle thereto. The free end 30 includes an inwardly bent portion 32 having a grooved or serrated, outwardly extending surface 33, best seen in FIG. 3. The arms 26 are resilient and enable the switch housing 12 to be tightly snapped into an aperture of a mounting panel or the like support surface (not shown).

An end plate assembly 34, also of a molded plastic material, including an end plate 35, is mounted on the upper end 38 of a switch housing 12. A slide control 39 of an insulating plastic operating member 37 of a wiper assembly 40 extends outwardly of the switch housing through an aperture 36 in the end plate 35, and is movable therein in the directions indicated by the arrows to operate the switch.

A second, modified embodiment of a slide switch 42 is shown in FIGS. 2-10 of the drawings. The switch is similar to that of FIG. 1 and includes many similar component parts. These parts are designated by like numerals in the figures with the suffix *a* added thereto.

The switch of FIG. 2 has been provided with a rocker assembly 44 for operating the slide control 39*a* by depression, rather than by direct sliding as in FIG. 1. To accommodate the rocker assembly, each of the opposite sidewalls 16*a* and 20*a* has been modified to include, integrally formed therewith, an upwardly projecting, triangular extension 46 (FIGS. 2 and 8). Each of the extensions includes a longitudinal slot 48 therein to accommodate mounting pins 49 of the rocker assembly. The end plate 35*a* of assembly 34*a* has been modified also with the addition of recesses 50 formed therein along opposite edges thereof for receipt therein of extensions 46, and to include upwardly extending mounting posts 51 adjacent recesses 50 and extensions 46.

The rocker assembly 44 includes an actuating or rocker member 52 of insulating material, preferably plastic, having identical "wing" shaped ends 54 and 56, each with an aperture 58 and 60, respectively, extending there-through to reduce the weight of the member. Actuating member 52 has a relatively flat base surface 62 with a pair of downwardly and inwardly extending projections 64 and 66 integrally formed therewith. The ends 68 and 70, respectively, of each of the projections are wedge-like and each includes a pair of cam surfaces 72, 74 and 76, 78, respectively, on opposite sides thereof.

The upper surface 80 of the actuating member 52 is curved or inclined, with the lowest point thereof being at the center 82 and rising toward opposite ends 54 and 56. A center dowel 84 (FIG. 8) is fixedly mounted transversely through the actuating member and includes a pair of projecting ends 85 extending outwardly of the actuating member on opposite sides thereof. Each of the projecting ends 85 has a flat lower surface 87 which rests upon the upper beveled surface 89 of a respective one of a pair of mounting posts 51 of panel member 35*a*. Each mounting pin 49 of actuating member 52 extends outwardly from a projecting end 85, is received in a respective longitudinal slot 48 of an extension 46 and is pivoted therein with projections 85 moving about beveled surface 89 of the support projections 51 in a restricted rotational or "seesaw" fashion. Projections 64 and 66 engage respective end surfaces 84 and 86 of the slide control, as shown in FIG. 3, so that in response to the depression of the high end (left end 54 as seen in FIG. 3) of the actuating member, a first cam surface 72 thereof engages the end surface 86 of control 39*a* slidably to move the latter and wiper assembly 40*a* within aperture 36*a* to operate the switch. As can be seen in FIG. 3, the edges 90 and 92 of the end plate 35*a* on opposite sides of the aperture

36*a*, are inclined so that the wedge-shaped end 68 or 70 of a corresponding projection 64 or 66, respectively, easily passes thereover while moving control 39*a*. A more detailed description of the operation of the slide switch with rocker assembly 44 will be given hereinafter.

The wiper assembly 40 and 40*a* of both switch embodiments 10 and 42, respectively, is illustrated in FIG. 8 and, as can be seen, comprises an operating member 37*a* of plastic material including a slide control 39*a*, discussed above, which extends through aperture 36*a* in end plate 35*a*. Formed integrally with the operating member, beneath control 39*a* is a relatively flat, rectangular plate 90. The ends 92 of the plate 90 as well as control 39*a* itself limit the movement of operating member 37*a*. The plate serves also to retain the wiper assembly in position in the switch housing. This is shown clearly in FIG. 4 wherein plate 90 can be seen extending outwardly beneath inwardly facing, opposing ends 94 of end plate 35*a* about aperture 36*a* therein.

The lower end 100 of the operating member 37*a* of wiper assembly 40*a* extends downwardly from control 39*a* into a cavity 102 provided in switching housing 12*a*. The lower end 100 of the operating member 37*a* includes a pair of recesses 103 and 104 (FIG. 8) formed in opposite sidewalls thereof to receive therein a pair of wipers 106 and 108, as shown in FIG. 4. The recesses 103 and 104 extend into the slide control 39*a* to form pockets 110 and 112, respectively, for the receipt of first ends 114 and 116, respectively, of wipers 106 and 108. The wiper ends are retained in pockets 110 and 112 by means of barbs 118 and 120 formed on the ends thereof for engagement with an inner surface of a corresponding wall, as shown in FIG. 4, to retain the wipers therein.

Each of the wipers, one of which is shown in FIGS. 6 and 7, is formed of a spring metal and is of a one-piece construction. Each wiper is U-shaped and is formed by reversely bending a single strip of metal. A first leg 122 of the wiper is longer than the other 124, and includes a main portion 126 including a reinforcing rib 128 formed thereon to provide rigidity thereto as well as for another purpose, as will be described hereinafter. An upper end portion 130 of the leg 122 is narrower than the main portion 126, so as to be received in a respective pocket, such as 110, in the slide control 39*a*, and, as mentioned above, includes a barb 118, formed therefrom for retaining the upper end portion 130 in the pocket, as described.

The other leg 124 of the U-shaped wiper includes a lower portion 134 which also has a reinforcing rib formed therefrom to provide rigidity thereto, and is connected to a wiper contact 136 formed at the free end of leg 124. The wiper contact is rounded in shape and convex, curving outwardly away from the center of the U-shaped wiper. The sides 138 of the rounded wiper contact extend about and are curved inwardly toward the center of the U to provide a good electrical connection with the stationary terminals of the slide switch in all instances, as will be explained hereinafter.

A plurality of cylindrical apertures, each designated by the numeral 140, is provided in the lower or base wall of the switch housing 12 (FIG. 4). Each of the apertures extends through the housing into cavity 102 therein so as to communicate therewith. A prewired terminal pin, such as 142, of a type shown in United States Patent 3,178,673, issued Apr. 13, 1965, J. H. Krehbiel, and having a cylindrical leading end 145 and rounded tip, is received in each of the apertures. The leading ends 145 thereof extend into cavity 102 to be in contacting engagement with a wiper contact 136 of a corresponding wiper 106, 108. Each of the pins 142 includes a crimping arrangement 141 at the trailing end thereof for crimp connecting a conductor, such as 145 (FIG. 10) to each terminal prior to insertion into the switch housing 12. Each of the pins 142 has a plurality of outwardly facing barbs such as 144 formed therefrom which engage shoulder portions such as 146,

formed in the sidewalls of each of the apertures 140 in housing 12; thus preventing inadvertent removal of the pins from the switch housing. The terminal may be removed, however, merely by bending the barbs to a position whereby the pin terminal may be withdrawn through a respective aperture.

As will be noted in FIG. 4, a pair of wipers 106, 108 is provided in each wiper assembly to be operated by slide control lever 39a. The wipers are separated by central portion 148 of the lower end 100 of operating member 37a, to form two independent wiper contacts for use with separate circuit configurations, if desired.

In the switch shown in the drawings, two sets of three contact pin apertures are provided in the base of housing 12 to accommodate a like number of prewired pin contacts 142 for engagement by the pair of wipers incorporated in wiper assembly 40a. In the case at hand, when the control lever 39a is moved in one direction, a respective wiper contact 136 of wiper 106, 108 engages the center and a first outer pin terminal to make an electrical connection therebetween, and when moved in the opposite direction, engages the center and other outer pin terminal.

Besides adding rigidity to leg 124 of the wiper, the rib 134 formed thereon serves the additional purpose of positively positioning the wipers and of preventing inadvertent movement of the wiper once positioned for contact with a pair of pin terminals. As can be seen in FIG. 5, recesses each designated 150 are formed in opposite inner walls 152 of housing 12. Two such recesses are formed on each wall, each being located approximately between the center and an outer pin terminal. As the slide control 39a is moved to position the wipers with respect to the pin terminals, rib 134 detents into one or the other of the recesses 150, depending on the direction of movement of the control 39a, to secure the wiper assembly in the chosen position. Thus, in FIG. 5, the wiper assembly being moved to the left will, as seen in FIG. 9, make contact with terminal pins, designated 1 and 2, to make an electrical connection therebetween in turn. Ribs 134 are received in the leftmost recesses 150, as seen in FIG. 5, to detent the wipers in a contacting relation with pins 1 and 2.

For purposes of affording a more complete understanding of the present invention, it is advantageous now to provide a functional description of the mode in which the component parts thus far described cooperate.

The slide switch embodiments 10 and 42 operate in essentially the same manner, the difference being only in the transmittal of operating force to the wiper assembly slide control level 39a. In the first case (embodiment 10) the force to move control 39a in the directions of the arrows (FIG. 1) so as to operate the switch is applied manually, directly to the slide control. In the second case (embodiment 42) force applied to the rocker assembly is transferred therefrom to the control by depressing one or the other end of the actuating member of the former. A description of the operation of the last-mentioned slide switch embodiment 42 is as follows.

Upon depressing the high end (FIG. 3, end 54) of the rocker assembly actuating member 52, a corresponding, downwardly extending projection, such as 64, engages the outer side surface 86 of the slide control 39a at a first cam surface 72. The actuating member 52 of rocker assembly 44, pivots over the end surfaces 89 of posts 51 of the end plate, allowing the projections 64 to move the control. Movement of the control 39a causes the entire wiper assembly 40a to be moved within the switch housing 12. The force used to move the assembly 40a is sufficient to urge rib 134 from the recess 150 in which it was lodged (FIG. 5) and to cause wiper contacts 136 to break contact, in a wiping manner, with pin 143 numbered 1 (FIG. 9).

A continuation of the application of force to the rocker actuating member 52 causes the end surface of projection 64 to engage the inclined surface 90 (FIG. 4) about 75

aperture 36a in plate 35a and to cam thereover until surface 74 of the projection 64 ultimately reaches a position like that of projection 66 (FIG. 3); i.e., inserted partially into aperture 36a and wedged between surface 86 of the lever 39a and inclined surface 90. In response to such movement, rib 134 of the wiper assembly moves from the first recess along surface 152 to the second recess therein, thereby to detent the wiper assembly 40a in a position wherein wiper contacts 136 engage pins 142, numbered 2 and 3 (FIG. 9) to provide an electrical connection therebetween. It should be noted that each of the wiper contacts 136 remains in wiping, contacting engagement with a corresponding center pin terminal 2 (FIG. 9), but breaks and makes contact with pins 1 and 3, depending upon the direction of movement of the wiper assembly 40a. Because the wipers are of a spring metal they are able to be twisted or pivoted within the housing so as to always make a wiping contact with mating pin terminals, and to insure a good electrical connection therebetween. This is illustrated diagrammatically in FIG. 11, wherein pin terminals 142 also also correspondingly numbered from 1 to 3 and wiper contacts 136 are shown in two positions; i.e., electrically connecting pins 1 and 2, and in the process of being moved to make contact with pins 1 and 3. It will be noted that when wiper contacts 136 are moved from the position at the left, towards pin 3, they twist or rotate so as to engage pin 3 at the rounded ends 138 of the wiper contacts. This causes a wiping of the contacts 136 against respective pins 3, as well as against pins 2, to clean any deposit or corrosion therefrom and in turn to insure a good electrical connection therebetween. Ultimately, the wiper contacts assume a position as shown at the left in FIG. 11, with the wiper contacts 136 being in direct engagement with both of the pins.

The twisting or pivoting movement of each of the wiper contacts 136 is provided by rib 128 formed on leg 122 of the wipers 106, 108, respectively (FIGS. 6 and 7). As shown in FIG. 9, ribs 128 of the pair of wipers rest against respective inner wall surfaces 156 of operating member 37a of the wiper assembly, and are capable of pivoting on ribs 128 thereon. In this manner, the wiper contacts 136 rock or twist to engage the respective pin terminals 142, with a thorough wiping action as the wiper assembly is moved back and forth to operate the switch.

Occasionally, pin terminals 142 are placed into respective apertures 140 in switch housing 12 and inadvertently assume positions which cause them to be out of alignment with each other. This will not affect the operation of the switch, however, since wiper contacts 136 are able to accommodate for such misalignment. An example of such positioning of the pin terminals is illustrated diagrammatically in FIG. 12 wherein the center pin terminals designated 2 are out of alignment with terminals 1 and 3. The upper pin terminal 2, as seen in the figure, is positioned toward the mating wiper contact 136 and the lower pin terminal 2 is positioned away from the other mating wiper contact 136. The pivoting action of wipers 106, 108 about respective ribs 128 causes the wiper contacts to make adequate contact with the pin members. Thus, in the case of the upper pin terminals (FIG. 12) wiper contact 136 pivots clockwise to interconnect pins 1 and 2 and counterclockwise to interconnect pins 1 and 3. The lower wiper 106, likewise, pivots in either a clockwise or counterclockwise direction, as the case may be, to interconnect respective pin terminals.

The pin terminals 142 as heretofore shown and described are in many instances entirely satisfactory. However, they are more or less cantilevered in position and have little resiliency in mounted position. Accordingly, I have invented an improved form of my slide switch. This switch is illustrated in FIGS. 13-17. The rocker operator, although not shown in these figures, is equally applicable. The parts are either the same as those previously described or are functionally equivalent thereto. Ac-

cordingly, like numerals are used to identify similar parts, with the addition of the suffix *b*, thus to avoid prolixity of description.

The upper housing section **22b** includes a pair of flexible cantilevered flanges **160** received in channels **162** on the lower housing section and carrying the arms **26b**. In addition, the flanges **160** carry inwardly directed hooks **164** latching beneath shoulders **166** of the lower body section to secure the body sections together in semi-permanent relationship.

The operating member **37b** is generally similar to that previously described. However, the lower end **100b** thereof is somewhat larger and is provided with downwardly and laterally opening L-shaped slots **168** receiving generally complementary shaped flanges **170** of the movable wiper or shorting contacts **106b** and **108b**. Each of these wipers more or less floats on the operating member, the slots **168** being of larger dimension than the flanges **170** and includes a contacting face **172** with spaced, vertical flutes **174** therein to detent the fixed contacts or terminal members.

The fixed contacts again comprise prewired, insertable terminals **142b** (again illustrated as six in number). The terminals **142b** (see particularly FIG. 17) are not of the round pin type as described heretofore. Each terminal **142b** includes a channel-shaped body **176**, the bight **178** of which backs flat against the appropriate sidewall **16b** or **20b**. Opposed, oblique struck out tangs or lances **180** and **182** engage horizontal divider walls **186** in vertical kerfs **188** in sidewalls **16b** and **20b** respectively to limit insertion and withdrawal of the terminals. Each terminal includes pairs of flanges **190** and **192** for crimping to bare wire ends and to the wire insulation of a conductor **145b**, and further includes a pair of parallel positioning or limiting flanges **194**.

The entering end of each terminal is reversely bent at **196** to provide an elongated, longitudinally arcuate contact finger **198** of generally arcuate cross section. The trailing end **200** of each terminal contact finger **198** is positioned between the pairs of flanges which limit lateral deflection of each finger when engaged by a wiper **106b** or **108b**.

As will be seen in FIGS. 13 and 15, the underside of the end plate **35b** is provided with recesses **202** respectively receiving the entering ends **196** of the terminals, thus acting with the lances **180** and **182** in the kerfs **188** accurately to position the terminals fore and aft in the direction of movement. Backing of the bodies **176** of the terminals against the sidewalls **16b** and **20b** prevents bending of the terminals away from the wipers **106b** and **108b**. The inherent resiliency of the metal of the terminals plus the reversely bent entering ends **196** insures resiliency of the contact fingers **198**. The arcuate cross section of the fingers and the shape of the contacting surfaces **172** (including the flutes **174**) of the wipers **106b** and **108b** insures a wiping and cleaning engagement between the terminals and wipers.

As in the previous embodiments, the terminals **142b** are crimped onto the conductors and are subsequently inserted into the housing from below.

In the embodiment of FIGS. 13-18 there is a pocket in the switch body between the terminals which will accommodate a small neon or incandescent bulb for illuminating the slider. In this connection it is contemplated that the slider is to be made of a clear plastic material, such as Lexan, for efficient light transmission. As will be understood, when a rocker is used in conjunction with a lighted switch, the rocker would also be made of clear plastic, or at least translucent. As will be apparent to those skilled in the art, the light or lamp can be wired or connected to the terminals, or else wired independently; in the latter case, the wires extending from the bulb extending through small holes in the bottom of the housing.

Thus, a slide switch according to the invention provides an efficient and easy to use electrical switching device

which offers a long life of reliable service. Furthermore, the switch is easy to assemble and disassemble, and insures good electrical connections for all purposes. The terminals are assembled to the wires by automatic machinery before insertion in the switch body whereby hand assembly of wires with the usual switch terminals is unnecessary.

While preferred embodiments of the invention have been shown and described, it should be understood that the invention is not limited thereto, since many modifications may be made. It is therefore contemplated to cover by the present application any and all such modifications as fall within the true spirit and scope of the appended claims.

What is claimed is:

1. An electrical slide switch comprising: a switch housing having a cavity opening thereinto from one end thereof and a plurality of apertures extending into said housing from the opposite end thereof and communicating with said cavity; each of said apertures having inner and outer shoulder means a wiper assembly mounted for movement in said housing and including wiper contact means extending into said cavity, and a slide control member extending outwardly of said housing for operating said wiper assembly; and prewired terminals mounted in said apertures and extending into said cavity in operable relation with said wiper contact means, whereby upon movement of said member in a first direction, said wiper contact means engages first predetermined terminals to complete an electrical connection therebetween, and upon movement of said member in a second direction, said wiper contact means engages second predetermined terminals to complete an electrical connection therebetween: each of said terminals having stop means thereon engageable with said outer shoulder means to limit insertion of said terminals and resilient latch means engageable with said inner shoulder means to resist withdrawal of said terminals.

2. An electrical slide switch comprising: a switch housing having a cavity opening thereinto from one end thereof and a plurality of apertures extending into said housing from the opposite end thereof and communicating with said cavity; a wiper assembly mounted for movement in said housing and including wiper contact means extending into said cavity, and a slide control member extending outwardly of said housing for operating said wiper assembly; and prewired terminals mounted in said apertures and extending into said cavity in operable relation with said wiper contact means, whereby upon movement of said member in a first direction, said wiper contact means engages first predetermined terminals to complete an electrical connection therebetween, and upon movement of said member in a second direction, said wiper contact means engages second predetermined terminals to complete an electrical connection therebetween; rocker means pivotally mounted on said one end of said switch housing and including means for engaging said slide control member, whereby upon pivoting of said rocker means in one direction, said engaging means causes said slide control member to be moved in said first direction and upon pivoting of said rocker means in a second direction, said engaging means causes said slide control lever to be moved in said second direction; said rocker means comprising an actuating member including a pair of outwardly extending projections, said projections slidably engaging opposite sides of said control member, said actuating member being mounted for rotational movement about an axis thereof on said housing, whereby upon movement of a first end of said actuating member in a first rotational direction, a first one of said projections causes said control member to be moved in a first direction and upon movement of a second end of said member in the opposite rotational direction, a second one of said projections causes said lever to be moved in a second, opposite direction.

3. An electrical slide switch as claimed in claim 2 wherein said slide switch further includes an end plate

assembly mounted on said one end of said housing and having an aperture therein through which said slide control member extends outwardly of said housing, said end plate assembly further including a pair of mounting posts extending outwardly therefrom on opposite ends thereof and wherein said actuating member includes a pair of projecting ends extending outwardly along the axis of rotation thereof and engaging respective free ends of said mounting posts for pivotal movement thereover in accordance with the rotational movement of said actuating member.

4. An electrical slide switch as claimed in claim 3 wherein said switch housing includes a pair of extension members, one on each side of said housing and each projecting outwardly from said one end thereof adjacent a respective one of said mounting posts, each of said extension members having an aperture therein for receiving, in pivotal relation, the extreme free end of a respective one of said pair of projecting ends of said actuating member, thereby to secure said actuating member on said housing.

5. An electrical slide switch comprising: a switch housing having a cavity opening thereinto from one end thereof and a plurality of apertures extending into said housing from the opposite end thereof and communicating with said cavity; a wiper assembly mounted for movement in said housing and including wiper contact means extending into said cavity, and a slide control member extending outwardly of said housing for operating said wiper assembly; and prewired terminals mounted in said apertures and extending into said cavity in operable relation with said wiper contact means, whereby upon movement of said member in a first direction, said wiper contact means engages first predetermined terminals to complete an electrical connection therebetween, and upon movement of said member in a second direction, said wiper contact means engages second predetermined terminals to complete an electrical connection therebetween; at least one inner wall of said housing including a plurality of spaced recesses therein; said wiper assembly comprising a member of insulating material including a control element extending outwardly of said housing for operating said switch and at least one wiper mounted on said operating member within the cavity of said housing, said wiper being formed of a strip of electrically conductive material with a first end of said strip being attached to said operating member and the second end thereof including a wiper terminal having a curved contact surface and being in contacting relation with said prewired terminals, said strip further including a rib formed thereon for receipt in one of said recesses in accordance with the movement of said wiper assembly, whereby upon movement of said control element in said first direction, said wiper contact is moved slidably to engage first predetermined terminals, with said rib lodging in a first recess to secure said wiper in a corresponding position, and upon movement of said control element in said second direction, said wiper contact is moved slidably to engage second predetermined pin terminals, with said rib lodging in said second recess to secure said wiper in a second corresponding position.

6. An electrical slide switch as claimed in claim 5 wherein said wiper strip is U-shaped, having a first and second leg, the free end of said first leg including means for attaching said end to said operating member and the free end of said second leg including said wiper contact, said wiper assembly further including a rib member interposed between said first leg and said operating member so that upon movement of said wiper contact into and out of engagement with certain ones of said prewired terminals, said wiper terminal is pivoted on said last-mentioned rib member, thereby to insure an electrical connection between said wiper contact and said terminals.

7. An electrical slide switch as claimed in claim 6 wherein said rib member is formed on said first leg of

said wiper strip and rests against said operating member upon the attachment of said wiper thereto.

8. An electrical slide switch as claimed in claim 5, further including an end plate assembly mounted on said one end of said housing and having an aperture therein through which said slide control element extends outwardly of said housing, and wherein said operating member includes a plate member extending outwardly therefrom transversely thereof and is located beneath said end plate assembly, said plate member being larger in area than the aperture in said end plate assembly to prevent inadvertent removal of said operating member from said housing.

9. An electrical slide switch as claimed in claim 5 wherein the end of said operating member opposite said control element extends into said cavity and includes a pair of recesses formed therein on opposite sides thereof, said operating member further including a pair of pockets, each of which extends into said control element and communicates with a respective one of said last-mentioned recesses, and wherein said wiper assembly comprises a pair of wipers, one mounted in each of the recesses of said operating member with the first end of each of said wipers being inserted and retained in a respective pocket in said control element.

10. An electrical slide switch as claimed in claim 9 wherein each of said wipers is formed of a single metallic strip having the shape of a U, including a first and second leg, the free end of the first leg including means for attaching said end to said operating member within a respective one of said pockets in said control element and the free end of said second leg including a curved wiper contact for electrically connecting a pair of prewired terminals of said switch.

11. An electrical slide switch as claimed in claim 10 wherein said first leg of each of said wipers includes thereon a rib member positioned against the end portion of said operating member opposite said control element for rockably moving said wiper thereover.

12. An electrical slide switch comprising: a switch housing of insulating material having a cavity opening into a first end of said housing and a plurality of apertures extending into said housing from the second, opposite end thereof, and communicating with said cavity, a first set of said apertures being in spaced-apart relation at one side of said second end of said housing and a second set of said apertures being in spaced-apart relation at the opposite side of said second end of said housing; a wiper assembly mounted for sliding movement in said cavity and including an operating member of insulating material having at a first end thereof a slide control member extending outwardly of said housing through said cavity opening and the second end of said operating member extending into said cavity and having recesses formed in opposite side walls thereof, each of said recesses opening toward a set of said apertures, said control element including a pair of pockets extending thereinto, one on each side thereof communicating with a respective one of said recesses in said operating member and a pair of wipers each formed of a strip of U-shaped metal, a first leg of each of said U-shaped wipers being received in a respective recess in said operating member with the free end of said leg being inserted into a corresponding pocket to retain said wiper on said operating member, and the second leg of each of said U-shaped wipers including at the free end thereof a wiper contact extending outwardly toward a respective set of said apertures; and a plurality of prewired terminals, one of which is removably mounted in each of said apertures to form first and second terminal sets, the leading ends of each of said terminals being positioned so as to be engaged by a respective wiper contact upon the operation of said slide control lever, whereby upon moving said slide control element in a first direction, said wiper contacts are moved correspondingly to make contact with first pre-

determined ones of said terminals of respective sets thereof, and upon moving said slide control element in a second, opposite direction said wiper contacts are moved correspondingly to make contact with other second predetermined ones of said terminals of respective sets thereof.

13. An electrical slide switch as claimed in claim 12, further including a rocker assembly mounted at the first end of said switch housing, said assembly including an actuating member pivotally mounted on said housing for rotational movement in a clockwise or counterclockwise direction, said actuating member including first and second projections extending from opposite ends thereof for slidably engaging respective, opposite sides of said slide control element, whereby, upon rotation of said actuating member in a clockwise direction, a first one of said projections slidably engages a corresponding side of said slide control element to move said element in said first direction, and upon rotation of said actuating member in a counterclockwise direction the second one of said projections slidably engages the opposite, corresponding side of said slide control element to move said element in said second direction.

14. An electrical slide switch as claimed in claim 12, further including an end plate assembly mounted on said first end of said housing having an aperture therein through which said slide control element extends outwardly of said housing, and a pair of mounting posts extending outwardly on opposite ends of said end plate assembly, and wherein said actuating member includes a pair of projections extending outwardly therefrom at opposite sides thereof, each of said projections resting on a respective one of said mounting posts, whereby said actuating member is pivotal thereon in a clockwise or counterclockwise direction.

15. An electrical slide switch as claimed in claim 12 wherein each of said wipers includes, along a first leg thereof, a first rib, said rib engaging said operating member, whereby said wiper is pivotal thereon to insure contact with said prewired terminals in the event said terminals are out of alignment with respect to each other.

16. An electrical slide switch as claimed in claim 15 wherein each of said wipers includes, along said second leg thereof, a second rib, and wherein each of said opposite inner walls of said housing, within said cavity, includes a plurality of recesses therein, whereby upon moving said slide control element to operate said switch, said second ribs are received in predetermined ones of said

recesses in said inner walls of said housing to prevent inadvertent movement of said wiper assembly.

17. An electrical switch comprising: a switch housing having a cavity therein and a plurality of apertures extending into said housing and communicating with said cavity; movably switch contact assembly mounted for movement in said housing and including movable contact means extending into said cavity, and a slide control member extending outwardly of said housing for operating said movable switch assembly; and prewired elongated terminals snapped into place in said apertures and extending into said cavity in operable relation with said movable contact means, whereby upon movement of said member in a first direction, said movable contact means engages at least a first predetermined terminal to complete an electrical connection, and upon movement of said member in a second direction, said movable contact means engages at least a second predetermined terminal to complete a different electrical connection, said movable contact means engaging side surfaces of said terminals.

18. A switch as set forth in claim 17 wherein each terminal comprises a body, a reversely bent entering end, and a rearwardly directed finger, said body being backed by sidewalls of said housing.

19. A switch as set forth in claim 18 and further including projections on said body lying on opposite sides of the finger to prevent undesired deflection thereof.

20. A switch as set forth in claim 17 wherein the movable contact means is floatingly mounted on an insulating part of said assembly by interlocking flange and slot means.

21. A switch as set forth in claim 17 wherein each terminal has an elongated body backed by a sidewall of said housing.

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