June 30, 1970 G. M. HIPPLE 3,518,391

SWITCH CONSTRUCTION WITH SWITCH BASE AND TELESCOPING COVER

Filed April 18, 1968

FIG-1

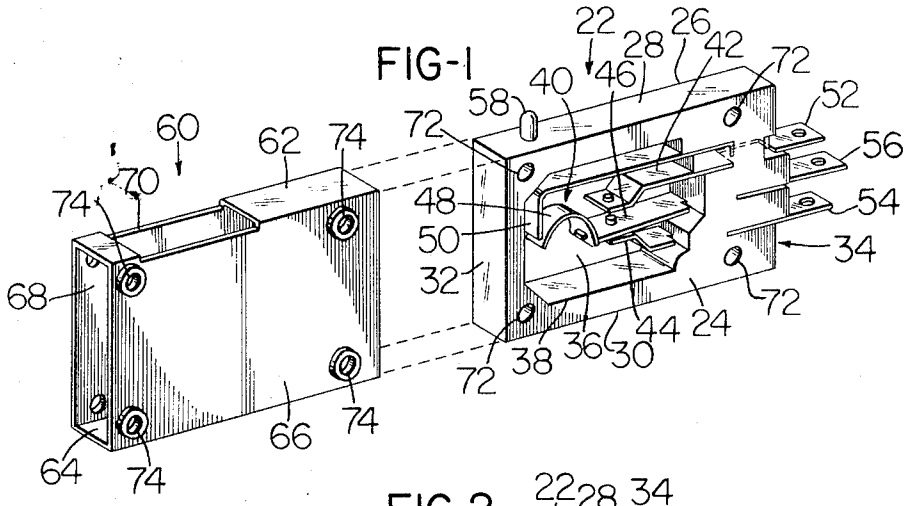


FIG-2

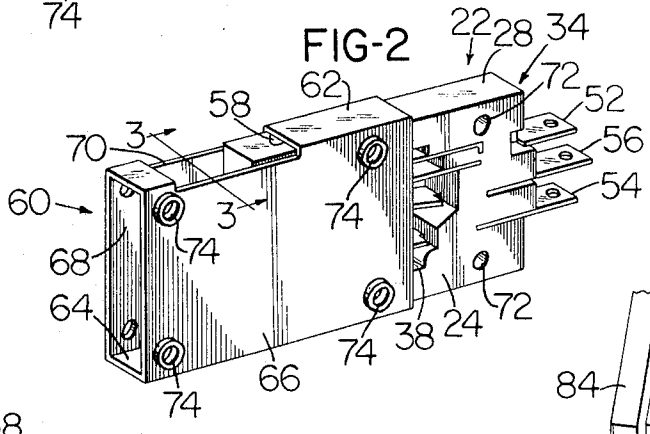


FIG-3

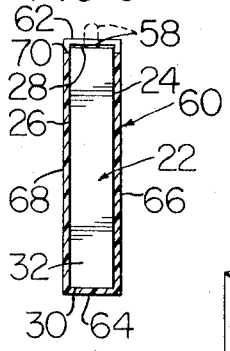


FIG-5

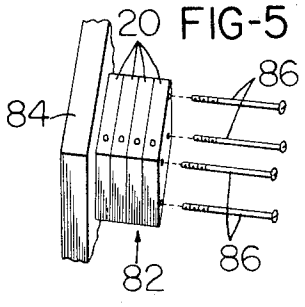
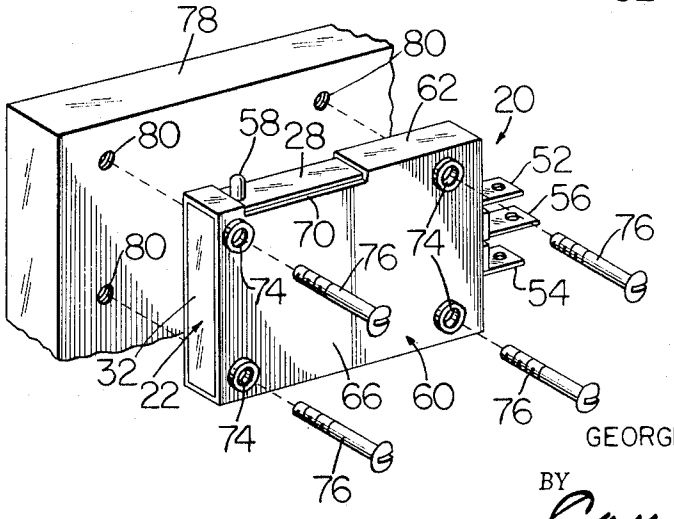


FIG-4



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SWITCH CONSTRUCTION WITH SWITCH BASE AND TELESCOPING COVER

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U.S. Cl. 200—168 8 Claims

ABSTRACT OF THE DISCLOSURE

This application discloses a switch construction with a flat sided switch base and a flat sided telescoping cover and method of making the same. The switch base has two pairs of adjoining opposed flat base sides and a pair of adjoining base ends, with the base encompassing a switch cavity and a switch access opening, with switch means in such cavity. A flat sided cover telescopes over the flat sides of the base and covers the switch in the cavity and the access opening and tightly seals the same. A switch actuator extends out of the base, and the cover has an actuator receiving opening to accept the actuator.

This invention relates to a switch construction with switch base and telescoping cover, and method of making the same.

One of the features of this invention includes a switch construction with a flat sided switch base and a telescoping flat sided cover so that the base and cover may be assembled by telescoping them similarly to the telescoping action of a match box.

Another feature of this invention includes an insulative switch base with two pairs of adjoining, opposed, flat, internally slidable sides and a pair of adjoining base ends, said sides and ends encompassing a switch cavity in said base, one or more of said base sides having a switch access opening means connected to said switch cavity, with a switch means in said cavity, and with an insulative switch base cover for said base, said cover having two pairs of adjoining opposed, flat, internally slidable cover sides slidably receiving, telescoping over, and covering said slidable base sides and covering said switch, said switch cavity, and said switch access opening means.

Another feature of this invention includes the immediately preceding feature, with said switch having a switch actuator extending out of one of said slidable base sides, and the corresponding cover side having an actuator receiving opening into which said actuator extends.

Another feature of this invention includes the immediately preceding two features and in which said actuator receiving opening is materially larger than said actuator to accept and make accessible other members extending from said last named base side.

Another feature of this invention includes the immediately preceding three features in which said internally slidable cover sides tightly seal against said slidable base sides substantially to seal said switch, switch cavity, and switch access opening means.

Other features are apparent from this description, the appended claimed subject matter, and/or the accompanying drawings, in which:

FIG. 1 is an exploded, perspective view of the switch means, switch base, and switch base cover in separated condition, and with the switch means in the switch cavity.

FIG. 2 is a view similar to FIG. 1, with the cover and base partially telescoped together.

FIG. 3 is a vertical cross section taken along the line 3—3 of FIG. 2.

FIG. 4 is an exploded perspective view of a switch construction according to this invention about to be secured to a support by fastener means or screws.

FIG. 5 is a perspective view of a plurality of switch constructions according to this invention assembled adjacent a support, and about to be secured thereto by fastener means or screws.

Certain words are used in this application indicating direction, relative position, and the like. Such words are used for the sake of clearness and brevity. Also, such words are used only in connection with the views of the drawings, and the parts so described, in actual use, may have different direction, relative position, and the like. Examples of such words are "upper," "lower," "vertical," "horizontal," and the like.

A switch construction **20**, according to this invention, may include an insulative switch base **22**, having two pairs **24**, **26** and **28**, **30** of adjoining opposed, flat externally slidable, base sides, and a pair **32**, **34** of adjoining base ends.

The adjoining sides **24**, **26**, **28** and **30** encompass a switch cavity **36** in said base. One or more of said base sides may have a switch access opening means **38** connected to said switch cavity **36**.

A switch means **40** may be placed and assembled in the switch cavity **36**. For example, such switch means may be of any switch blade construction, which is readily recognized by those skilled in the art. For example, such switch means may include stationary contact blades **42**, **44**, snap contact blades **46**, snap spring **48**, and actuator blade **50**, which are diagrammatically illustrated, as an example of such a switch means. The contact blades **42**, **44** and **46** may extend from the switch cavity **36** through slots in the base **22** and out of the base end **34** to provide electrical connector means **52**, **54** and **56**. The actuator blade **50** may be actuated up and down by the plunger or plunger means **58**, which passes through an opening in the base side **28** and which activates the switch means **40** through the medium of blade **50**.

An insulative switch base cover **60**, for the base **22**, may have two pairs of adjoining, opposed, flat, internally slidable, cover sides **62**, **64** and **66**, **68** slidably receiving, telescoping over, and covering the slidable base sides **24**, **26**, **28** and **30**. Such cover **60** may cover the switch means **40**, the switch cavity **36**, and the switch access opening means **38**.

The base **22** and the cover **60** may be telescoped, and untelescoped, in a manner somewhat similar to the telescoping action of a match box, as will be readily recognized.

The switch means **40** has the actuator means or plunger **58** extending out of the base side **28**, for example, and the corresponding cover side **62** has an actuator means opening receiving means **70** into which the actuator means or plunger **58** extends, as shown in FIG. 4.

The said actuator means receiving opening means **70** is materially larger than said actuator means so that it can accept and make accessible other members that may extend from such last named base side **28**.

The internally slidable cover sides **62**, **64** and **66**, **68** may be made so that they tighly seal against the slidable base sides **24**, **26**, **28** and **30** substantially to seal such switch means, switch cavity, and the switch access opening means **36**.

The switch base **22** and the base cover **60** may have, respectively, opening means **72** and **74** which may be aligned with each other when the base and cover are in the completely telescoped condition of FIG. 4. These openings **72** and **74** may receive any type of fastener means, such as screws **76**. Such fastener means or screws **76** may be used to lock the base **22** and cover **60** together against untelescoping action, if desired. Additionally, if desired, such opening means **72** and **74** may receive the

longer screws **76** illustrated in FIG. 4 which may be used simultaneously to lock the cover and base together, and to mount the switch construction **20** on any type of support **78**, which may be any type of supporting board with screw receiving openings **80**. This securely and conveniently locks the cover and base together and the switch construction **20** on the support **78**.

A plurality **82** of switch constructions **20** may be stacked or assembled together, as shown in FIG. 5, so that they may be secured to a support **84** by the screws or other type of fasteners **86** which may pass the aligned openings **72** and **74**, which have been previously shown and described in conection with the other figures. Thus, the plurality of switch constructions **20** may be readily mounted and secured to the support or board **84**.

A great advantage is obtained by the switch construction of this invention, and particularly because such construction may be assembled and made by a very simple method.

Such method may include forming the insulative switch base **22** with the two pairs of adjoining, opposed, flat externally slidable base sides **24**, **26**, **28** and **30** and with the pair of adjoining base ends **32** and **34**, and with such sides and ends encompassing a switch cavity **36** in such base **22** with one or more of such base sides having a switch access opening means **38** connected to such switch cavity **36**. The switch means **40** is placed in the switch cavity **36**. The insulative switch base cover **60** for the base **22** is made with the cover having two pairs of adjoining, opposed, flat, internally slidable cover sides **62**, **64**, **66** and **68** to receive and cover the slidable base sides **24**, **26**, **28** and **30**, and to cover said switch means, said switch cavity, and said switch access opening means. Then the base **22** and cover **60** are telescoped with the cover sides covering the base sides.

The coves **60** and base **22** may be made of any insulative material well known in this art, such as of the well known thermosetting or thermoplastic materials.

The method may include further steps to provide switch actuator means extending out of the side **28**, for example, and extending into the actuator means receiving opening means **70** into which the actuator means extends. In practicing the method, the opening means **70** may be made materially larger than the actuator means **58**, to accept and make accessible any other members that may extend from said last named base side **28**.

The plunger means **58** may be sufficiently pushed in to allow the cover side **62** to pass over the plunger means **58**, both during the telescoping and untelescoping operations.

The method may make the internally slidable cover sides **62**, **64**, **66** and **68** tightly to seal against the slidable sides **24**, **26**, **28** and **30** substantially to seal such switch means, switch cavity and the switch access opening means. Also, such method may provide the base and cover locking and/or mounting fastener openings **72** and **74** to secure the base and cover together against untelescoping action or to mount the switch construction **20** to a support **78** or to mount a plurality of such switch constructions **20** to a support **84**, as desired.

Thus a new, useful, and unobvious switch construction and method of making the same have been provided.

What is claimed is:

1. In combination:

an insulative switch base having two pairs of adjoining, opposed, flat, externally slidable, base sides and a pair of adjoining base ends, said sides an ends encompassing a switch cavity in said base, at least one of said base sides having switch access opening means connected to said switch cavity;

switch means in said switch cavity;

and an insulative switch base cover for said base, said cover being in sleeve form and having two pairs of adjoining, opposed, flat, internally slidable, cover sides slidably receiving, telescoping over, and covering at least part of each said slidable base sides and covering said swtich means, said switch cavity, and said switch access opening means.

2. A combination according to claim **1** with said switch means having a switch actuator means extending out of one of said slidable base sides and the corresponding cover side having an actuator means receiving opening means into which said actuator means extends.

3. A combination according to claim **2** in which said actuator mean receiving opening means is materially larger than said actuator means to accept and make accessible other members extending from said last named base side.

4. A combination according to claim **1** in which said internally slidable cover sides tightly seal against said slidable base sides substantially to seal said switch means, switch cavity and switch access opening means.

5. A combination according to claim **1** in which said base and cover have alignable fastener opening means to receive fastener means to secure said base and said cover together.

6. A combination according to claim **1** in which said base and cover have mounting fastener means receiving opening means aligned with each other when said cover covers said base.

7. A combination according to claim **6**, a support for said combination, and fastener means passing through said fastener means opening means and secured to said support.

8. A combination according to claim **6**, another combination according to claim **6** adjacent said first named combination, said combinations having aligned fastener means opening means; a support for said combinations; and common fastener means passing through said aligned fastener means opening means and secured to said support.

References Cited

UNITED STATES PATENTS

2,735,918	2/1956	Darr	200—168
3,198,925	8/1965	Starrantino	200—172
3,377,454	4/1968	Faggiano	200—168
3,392,254	7/1968	Long	200—168

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