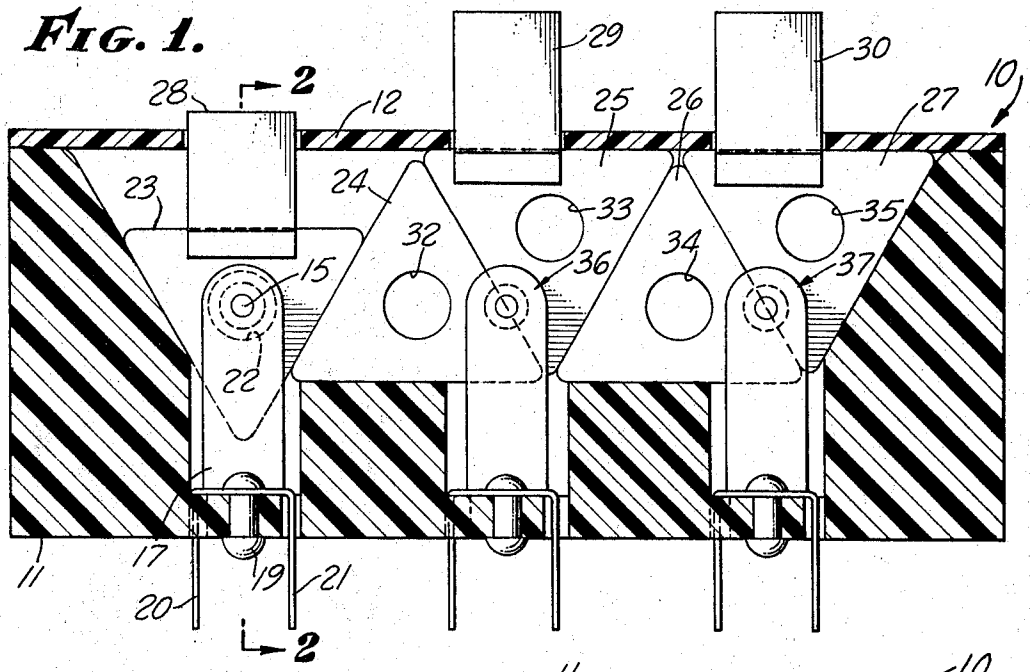
Nov. 4, 1969 R. C. POWELL 3,476,890

SWITCH

Filed Aug. 5, 1968

FIG. 1.



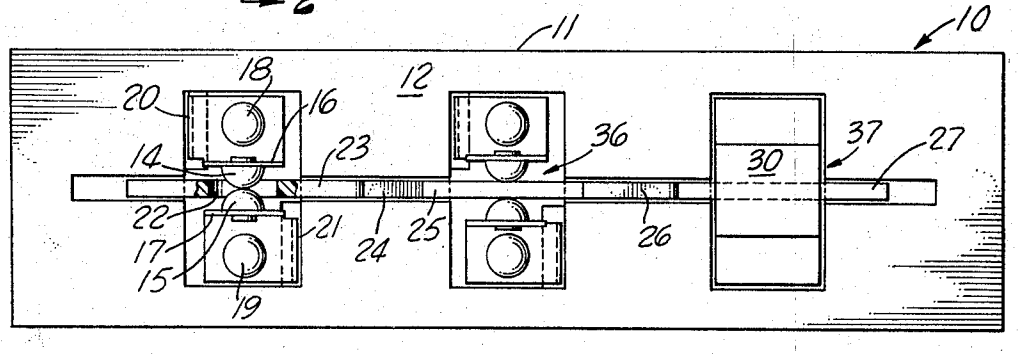


FIG. 3.

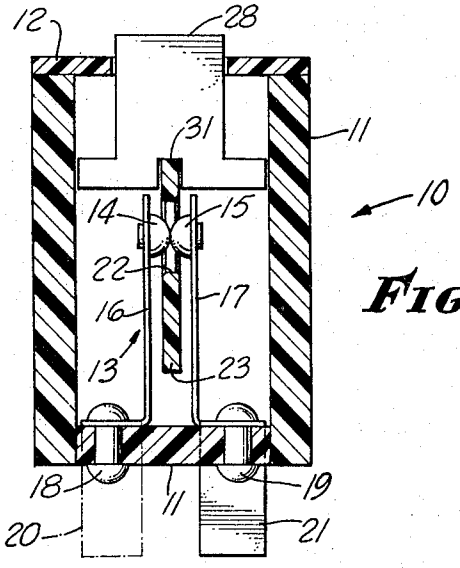


FIG. 2.

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SWITCH

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Int. Cl. H01h 9/26

U.S. Cl. 200—5 7 Claims

ABSTRACT OF THE DISCLOSURE

The invention relates to a push button switch of an economical construction. Insulating plates having the shape of equilateral triangles are positioned alternatetly in opposite directions. Depressing one of a plurality of push buttons causes the plates to shift in a housing slot. The plates have holes through which corresponding parts of contacts can make. Only one pair of contacts is permitted to make at one time due to the shifting of the plates between contacts.

Background of the invention

This invention relates to the switching art, and more particularly to a plural push button switch.

In the past, push button switches have had a complicated construction expensive to fabricate and to maintain.

Summary of the invention

In accordance with the device of the present invention, the above-described and other disadvantages of the prior art are overcome by providing a plurality of the mating triangular insulating plates which are shifted by push buttons in between pairs of spring biased contacts. All plates but one at a time slide between and keep all but one corresponding pairs of contacts from making through holes in the plates.

The invention may incorporate plates of an identical construction. The invention therefore, has an uncomplicated and economical construction.

The above-described and other advantages of the present invention will be better understood from the following description when considered in connection with the accompanying drawings.

Brief description of the drawings

In the drawings, which are to be considered as merely illustrative:

FIG. 1 is a longitudinal sectional view of the switch of the present invention;

FIG. 2 is a transverse sectional view taken on the line 2—2 of the device shown in FIG. 1; and

FIG. 3 is a top plan view of the device.

Description of the preferred embodiment

In the drawing in FIG. 1 a housing of an insulating material **10** is provided including a base **11** and a cover **12**. Three pairs of contacts are provided; one pair of which is indicated at **13** in FIG. 2. Contacts **14** and **15** are fixed to leaf spring conductors **16** and **17** which are fixed to base **11** by rivets **18** and **19**, respectively. Output leads are provided at **20** and **21**.

Note will be taken that contacts **14** and **15** are spring biased into engagement through a hole **22** in a triangularly-shaped insulator **23**. Other triangularly-shaped insulators **24**, **25**, **26**, and **27** are also provided in housing **10**.

All of the insulators **23**, **24**, **25**, **26**, and **27** are identical.

Push buttons to actuate the switch are provided at **28**, **29**, and **30**.

FIG. 3 is atop plan view of base **11** with cover **12** removed.

Cover **12** may be fixed to base **11** by any convenient means.

Push buttons **28**, **29**, and **30** have slots therein as indicated at **31** in FIG. 2.

Insulators **24**, **25**, **26**, and **27** have holes **32**, **33**, **34**, and **35** therethrough identical to holes **22** through insulator **23**. Holes **32** and **34** are not necessary to the operation of the device, and can be omitted if desired.

In one of the three alternative switch positions, a pair of contacts **36** may meet through insulator hole **33**. Similarly, a pair of contacts **37** may meet through insulator hole **35**.

If it is desired that contacts **36** engage each other and contacts **13** be disengaged, push button **29** is pushed downwardly as viewed in FIG. 1. In this case, contacts **36** will engage one another through insulator hole **33**. At the same time, insulators **33** and **34** will be pushed to the left as viewed in FIG. 1. At the same time, insulator **23** will be pushed upward so that contacts **13** cannot engage each other through hole **22**.

In the same manner, if push button **30** is depressed, all of the insulators **23**, **24**, **25**, **26**, and **27** will be moved to the left. Insulator **23** will again rise. Contacts **13** and **36** will therefore be insulated and contacts **37** will engage one another through insulator hole **35**.

In the same manner, push buttons **28** and **30** will cause contacts **13** and **37** to meet if depressed after push button **29** is depressed. The same is true of push buttons **28** and **29** after push button **30** has been depressed.

From the foregoing, it will be appreciated that the switch of the present invention may be made of relatively inexpensive component parts. Insulator **23**, for example, may be multiplied two or several other times. Many of the parts of the invention may therefore have an identical construction. The switch of the present invention is therefore relatively easy to fabricate and to maintain.

Many changes and modifications of the invention will, of course, suggest themselves to those skilled in the art. The particular embodiment shown and described herein is therefore not to be considered a limitation upon the invention.

What is claimed is:

1. A switch comprising: a housing having a longitudinal slot; at least two pairs of electrical contacts spring biased toward each other; first, second, and third triangularly-shaped insulating plates slidable in said housing slot; and a push button located over said first and third plates, said first and third plates having apexes pointing toward said contacts, said second plate pointing in a direction opposite that of said first and third plates, in between the same said first and third plates having holes therethrough through which corresponding sets of contacts may make, said push buttons being movable to a position inside said housing to cause all three of said plates to move in unison between contacts in a manner to allow only one pair of said contacts to make through the hole in one corresponding plate.

2. The invention as defined in claim **1**, wherein said push buttons have recesses to straddle corresponding plates, said housing having an aperteured cover to encompass said push buttons, said push buttons having lateral flanges to engage said cover, said contacts being mounted on leaf

spring conductors, said plates being identical and having the shape of an equilateral triangle.

3. The invention as defined in claim 1, wherein said push buttons have recesses to straddle corresponding plates.

4. The invention as defined in claim 1, wherein said housing has an apertured cover to encompass said push buttons.

5. The invention as defined in claim 4, wherein said push buttons have lateral flanges to engage said cover.

6. The invention as defined in claim 1, wherein said contacts are mounted on leaf spring conductors.

7. The invention as dfiened in claim 1, wherein said plates are identical and have the shape of equilateral triangles.

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