June 8, 1965 M. S. SEMO 3,188,403

SELECTIVE MULTIPLE SWITCH

Filed Dec. 6, 1961

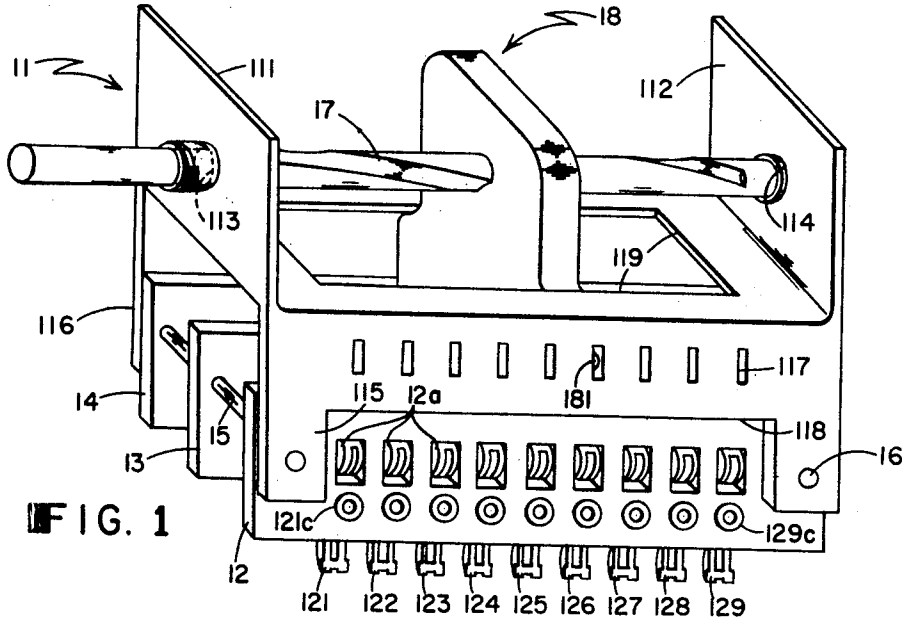


FIG. 1

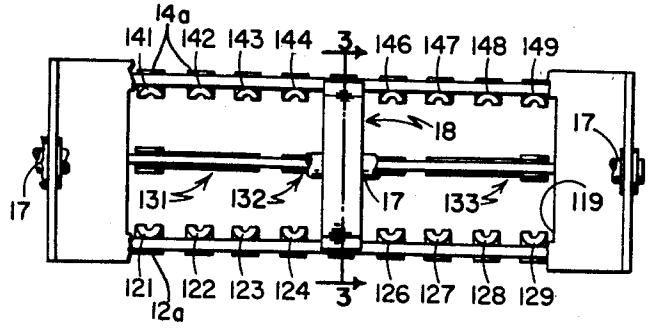


FIG. 2

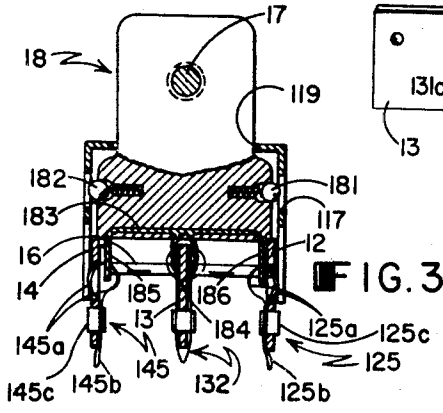


FIG. 3

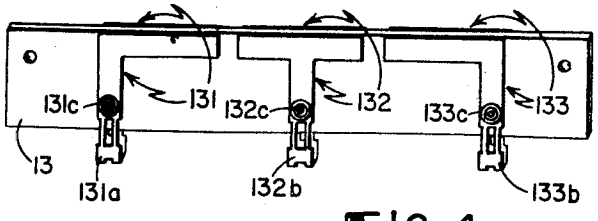


FIG. 4

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SELECTIVE MULTIPLE SWITCH

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1 Claim. (Cl. 200—5)

The present application is a continuation-in-part of the applicant's prior co-pending application, Serial No. 77,945, filed December 23, 1960, now abandoned.

This invention relates to a multiple switch.

In said application the applicant disclosed a multiple switch containing a series of separate pairs of contacts. Action of the switch causes the elements of one pair to be placed in electrical connection, and then those of adjacent pairs in cumulative fashion. The pairs of electrical contacts were divided between two adjacent flexible insulating strips. By means of a rotatable member a joining element interlocks the strips so as to bring the elements of each pair together cumulatively in a zipper type of action. This multiple switch is useful for switching or regulating a wide variety of electrical components but is only partially selective.

One object of the present invention is to provide a compact, inexpensive multiple switch which has wide selectivity.

A further object of this invention is to provide such a multiple switch which provides positive positioning.

The invention in its broad sense comprises a frame, a threadable externally operable rod supported on the upper portion of said frame, a connector member threadably movable on said rod, a plurality of insulating plates mounted on the lower portion of the frame, and a plurality of electrical contacts in each said insulating plate. The connector member has in its lower portion a spanning conductive element for providing electrical connection between a contact in one plate and a contact in another plate. Positioning of the connecting member is preferably achieved by spring-backed ball bearings which are positioned on the lateral lower surfaces of the connecting member and engage orifices on the side of the frame which are aligned with the contacts in the insulating strips.

Engagement of the connecting member can be selectively accomplished for any opposing pair of contacts. The conductive element in the contacting member is flexible and bent so as to slip in between the two resilient jaws of the electrical contact.

By means of this invention various combinations of conducting paths can be provided. Thus, where two insulating panels are used with each containing an array of contacts the invention can be used to selectively connect any single opposing pair of contacts. By wiring in the manner known to those skilled in the art such selective spanning can provide a wide variety of control conditions and networks. In addition to spanning selectively the invention can be used to connect two contacts to a third or provide 3-way connections where such may be desired, by incorporating a third insulating plate with contacts between the other two insulating plates.

One embodiment of this invention is illustrated in the appended drawings wherein:

FIGURE 1 is a perspective view.

FIGURE 2 is a top view.

FIGURE 3 is a transverse section along line 3—3 of FIGURE 2.

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FIGURE 4 is a side view of a middle insulating plate.

The illustrated embodiment comprises a frame **11** consisting of two side walls **111** and **112** having orifices **113** and **114** and front and rear walls **115** and **116**. The said front and rear walls have an array of orifices **117** and a cut-out bottom portion **118**. The frame has a top opening **119**.

Attached between the front and rear walls **115** and **116** are three insulating plates **12**, **13** and **14** which are somewhat co-extensive in length with the front and rear walls and register with the cut-out portions **118**. These plates are attached to the frame by stud members **15** and **16**. Each of the plates **12** and **14** has a series of spaced openings **12***a* and **14***a* respectively, through which the electrical contacts are mounted. Each contact has a double jawed spring portion in its upper aspect and a wiring portion in its lower aspect. These contacts are designated as numerals **121** to **129** for plate **12** and **141** to **149** for plate **14**. The double jawed portion of each contact is designated as *a*, the wiring portion as *b* and the attachment portion as *c*.

Rotatably mounted between the frame side walls in bearing orifices **113** and **114** is a control rod **17** on which is threaded control member **18**. Control member **18** is provided on its front and rear lower surfaces with spring-backed ball-bearings **181** and **182** which are arranged to be engageable with orifices **117** in the front and rear walls. In the lower portion of the control member is a conductive strip **183** which has downward protrusions **185** and **186** on each side which are engageable with the double jawed end of an electrical contact. The middle portion of the conductive strip has a downward double jawed extension **184** so as to be engageable with the double faced electrical contacts **131** to **133** on insulating plate **13**.

The operation of this invention is quite simple. If, for example, it is desired to selectively choose one of nine separate networks or circuits wiring is done to the contacts on plates **12** and **14**. By simply turning the control rod the control member is easily and positively slid along from one position to another and causes selective electrical connection between opposing members of a selected pair of electrical contacts as, for example, **121** with **141**, **122** with **142**, etc. Where a more complicated type of wiring is desired and a third lead is to be used either as an intermediate connection or for a 3-way connection, the middle panel **13** is also wired. The various possible combinations of networks or circuits are obvious to those skilled in the art.

Although only one embodiment has been described in detail, it is obvious that there are other forms and modifications of this invention. Thus, the arrays of electrical contacts can be mounted on a single insulating flat or cylindrical panel instead of on separate parallel insulating panels. Further, the construction of the electrical contacts used can be varied, the only requirements being that the contact be mountable or attachable to an insulating panel or strip, that the contact be wireable and that its contacting surface be engageable with the conductive means supported by the connector member.

I claim:

A selective multiple switch comprising: a frame, a control rod containing intermediate threading and sup-

ported by said frame, a connector member threadably moveable along said rod by rotation of said rod, and at least three arrays of separate electrical contacts; each array of contacts being mounted on a separate parallel insulating panel with the wiring ends in the same direction with the result that all the wiring ends extend from a single side of the switch; said insulating panels being supported by said frame; said connector member having conductive means which provides selective electrical connection between a contact in one array and a contact in a second array as said connector member is moved along said rod.

References Cited by the Examiner

UNITED STATES PATENTS

376,072	1/88	Cole	200—16
516,379	3/94	Muller	200—16
1,832,869	11/31	Macy	200—11
2,279,220	4/42	Baum	200—158

FOREIGN PATENTS

162,998	5/55	Australia.

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