June 11, 1929. H. W. VICKERY 1,717,285

ELECTRIC CIRCUIT SWITCH

Filed May 15, 1926

Fig. 1

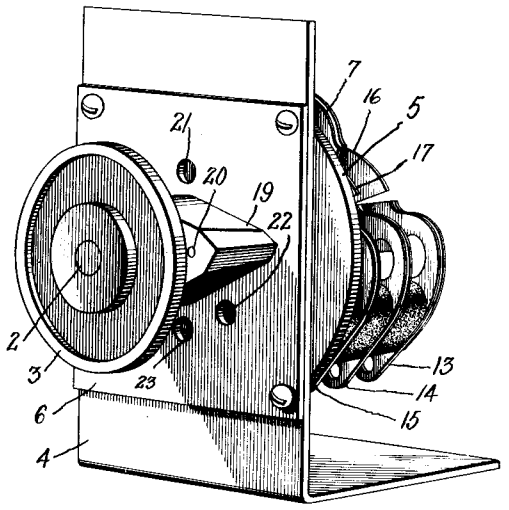


Fig. 2

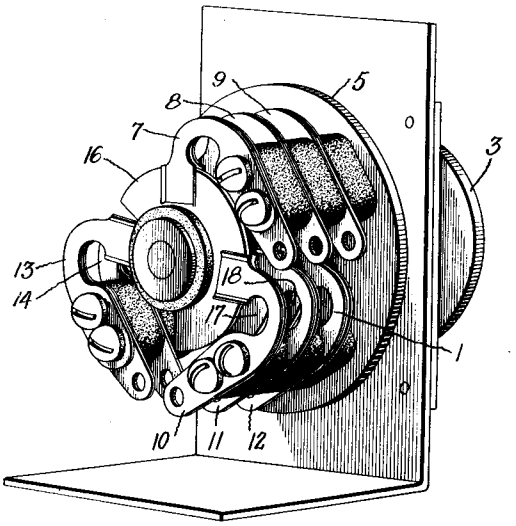


Fig. 3

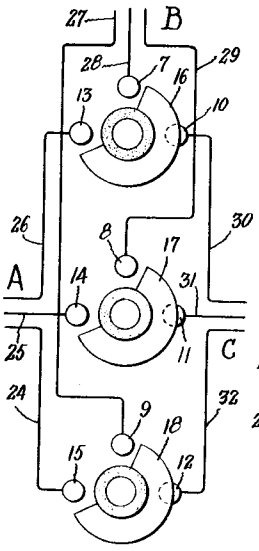


Fig. 4

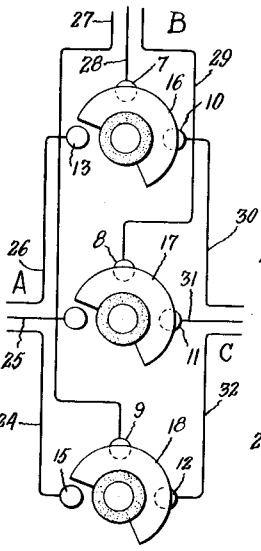


Fig. 5

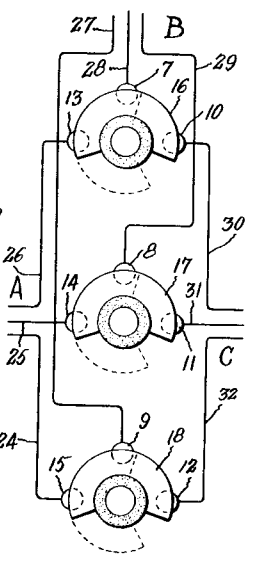
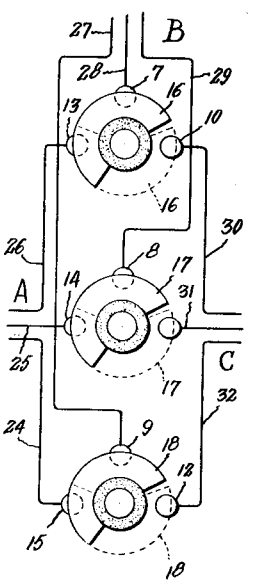


Fig. 6.



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Patented June 11, 1929. 1,717,285

UNITED STATES PATENT OFFICE.

HARRY W. VICKERY, OF LYNN, MASSACHUSETTS, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

ELECTRIC CIRCUIT SWITCH.

Application filed May 15, 1926. Serial No. 109,375.

My invention relates to electric circuit switches, and in particular to switches of the type especially adapted for use in interconnecting or isolating circuits which may be operated while interconnected, or independently.

My invention will be more readily understood by reference to the accompanying specification and claims, reference being had to the accompanying drawing in which Fig. 1 shows the switch of my invention in front perspective; Fig. 2 shows the device in perspective rear view; Figs. 3, 4, 5 and 6 are diagrammatic representations of the switch of my invention in connection with three sets of circuits; Fig. 3 shows the switch in one position, Fig. 4 in another position, and Figs. 5 and 6 in still different positions.

Referring more in detail to the drawing, it will be seen that the switch is provided with a shaft 2, to the front end of which there is attached a hand disk 3, by means of which the shaft is rotated. The switch may be mounted upon any suitable frame, such as the frame 4. The frame 4 is provided with a central opening, not shown, through which the shaft 2 extends. Behind the frame and spaced off from the frame by suitable bushings, not shown, I provide a plate in the form of a disk 5 suitably and rigidly secured to the frame 4, as for example by means of screws, not shown, extending through the bushings, the heads of which screws are covered by the square plate 6, the disk 5 being provided with threaded openings for engaging the screws whereby the disk 5 may be tightly drawn against the bushings. The disk 5 serves as a support for a number of groups of contact springs 7, 8, 9, 10, 11, 12, 13, 14 and 15, each being insulated from the other. These contact springs are assembled about the shaft 2 in three layers, so to speak, the rearmost layer comprising the springs 7, 10 and 13, the intermediate layer comprising the springs 8, 11 and 14, and the front layer springs 9, 12 and 15. Obviously, the number of layers may be varied and the arrangement of the springs may be varied. Secured to the shaft I provide a number of metal segments 16, 17, 18, one for each layer and each insulated from the other. Also permanently secured to the shaft I provide a bushing 19 within the forward portion of which I provide a plunger 20. The square plate 6, it will be seen, is provided with a number of openings 21, 22, 23, etc. With the particular form of construction shown in the drawing, six such openings are provided, only three of the openings being shown; the fourth one of the openings is located opposite the plunger 20, Fig. 1, and two other openings are located on the opposite side of the shaft 2 behind the hand member 3. Each one of these openings corresponds to a different position of the shaft, one opening corresponding to the position indicated in Fig. 3, another one corresponding to the position shown in Fig. 4, and so on, only four of the possible six positions being shown in Figs. 3, 4, 5 and 6 in solid lines, the other two positions being indicated in dotted lines. The plunger 20 is provided with a spring within the member 19 which forces the plunger into the openings 21, 22, etc. whenever the shaft is rotated to the corresponding position whereby the shaft is locked or latched in such a position.

Referring to Figs. 3, 4, 5 and 6, it will be seen that associated with the switch I have indicated three groups, A, B and C, of conductors. Group A comprises the three conductors 24, 25 and 26; group B comprises conductors 27, 28 and 29; and group C comprises conductors 30, 31 and 32. When the switch is in the position shown in Fig. 3, each of the groups A, B and C is isolated. When the switch is in the position shown in Fig. 4, groups C and B are connected, while group A is isolated. In the position shown in Fig. 5, the groups A, B and C are interconnected. In the position shown in Fig. 6, groups B and A are interconnected and C is isolated. In the position represented by the dotted lines in Fig. 6, groups A and C are interconnected, while group B is isolated. In the position indicated by the dotted lines in Fig. 5, groups A and B are again connected and group C is isolated. This position gives the same results as the position indicated in solid lines in Fig. 6.

It will be seen, therefore, that I provide a convenient and effective means of interconnecting different circuits or isolating them. The number of conductors in each group may of course be varied and even reduced to one.

It will be understood that while I have chosen to illustrate my invention in connection with the specific embodiment shown in the drawings, I do not wish to be limited to the specific structure shown, inasmuch as in view of the disclosure, variations may be made

without departing from the spirit of the invention or the scope of the claims contained herein.

What I claim as new and desire to secure by Letters Patent of the United States is:—

1. An electric circuit switch comprising three contacts each connected to a separate conductor, said contacts being located about an axis along a plane transverse the axis and a segment mounted to rotate about the same axis and extending in the same transverse plane in operative relation to said contacts, the segment being so proportioned and said contacts being so disposed with respect to each other and to the segment that by rotating the segment any two of said contacts may be connected through said segment independently of the third by placing the segment in a given position or all of the contacts may be connected together through said segment by placing the segment in a different position, whereby the conductors may be correspondingly connected.

2. An electric circuit switch comprising three contacts each connected to a separate conductor, said contacts being located about an axis along a plane transverse the axis and a segment mounted to rotate about the same axis and extending in the same transverse plane in operative relation to said contacts, the segment being so proportioned and said contacts being so disposed with respect to each other and to the segment that by rotating the segment any two of said contacts may be connected through said segment independently of the third by placing the segment in a given position or all of the contacts may be connected together through said segment by placing the segment in a different position, and all of the contacts may be disconnected from each other by placing the segment in a still different position whereby the conductors may be correspondingly connected or disconnected.

3. A switch for interconnecting and disconnecting electric circuits, said switch having three contacts each connected to an independent line, said contacts being located about an axis and a metal segment mounted to rotate about said axis and so placed and of such dimensions that the segment may engage all of the contacts simultaneously and the contacts being so disposed and the spread of the segment being such that any two of the contacts may be connected through the segment independently of the third one and all of the contacts may be disconnected from each other whereby said lines may be connected two at a time, all three at once, or all together disconnected by rotating said segment.

4. A switch for interconnecting and disconnecting electric circuits, said switch having three contacts each connected to an independent line, said contacts being located about an axis and a metal segment mounted to rotate about said axis and so placed and of such dimensions that the segment may engage all of the contacts simultaneously and the contacts being so disposed and the spread of the segment being such that any two of the contacts may be connected through the segment independently of the third one and all of the contacts may be disconnected from each other whereby said lines may be connected two at a time, all three at once, or all together disconnected by rotating said segment, said switch having also another similar segment, and similar corresponding contacts each connected to a similar independent line, said segments being mounted on the same shaft whereby the two segments may be operated simultaneously and the two groups of lines similarly interconnected or disconnected simultaneously.

In witness whereof, I have hereunto set my hand this 13th day of May, 1926.

HARRY W. VICKERY.