

March 20, 1951

J. R. CALDWELL

2,545,940

ELECTRIC SWITCH

Filed Aug. 26, 1948

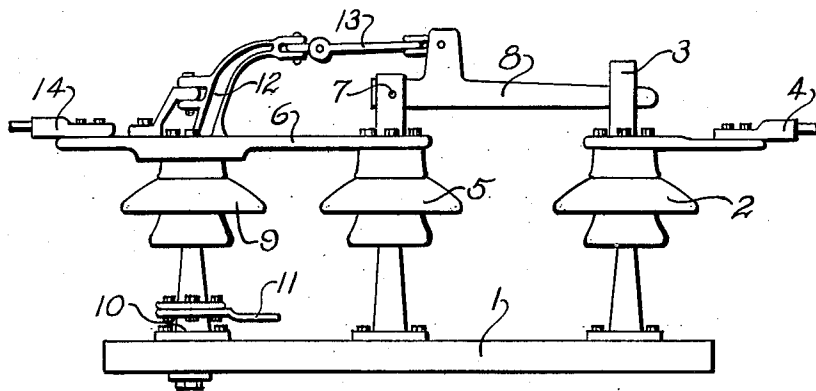


FIG. 1

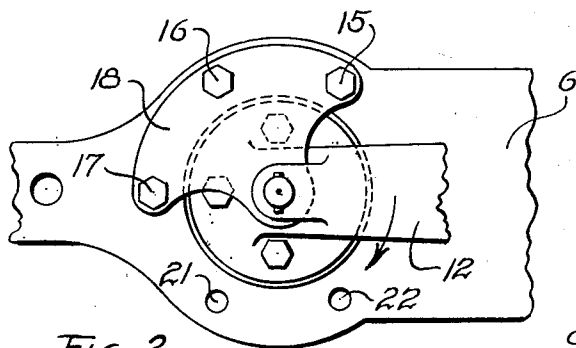


FIG. 2

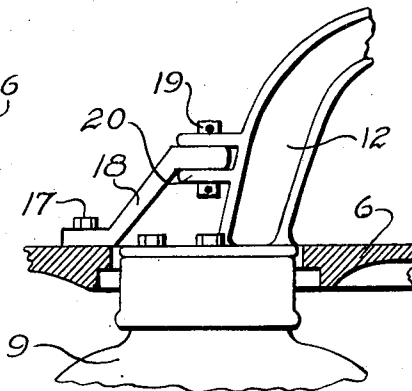


FIG. 3

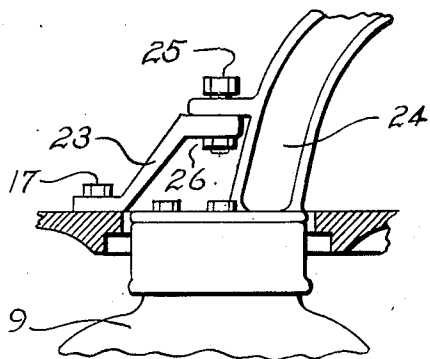


FIG. 4

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2,545,940

ELECTRIC SWITCH

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Application August 26, 1948, Serial No. 46,260

6 Claims. (Cl. 200—48)

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This invention relates particularly to high voltage electric switches of the type wherein the switch blade is pivotally mounted upon a stationary insulator unit and the blade is opened or closed by the rotation of an adjacent insulator unit upon which is secured a crank which is connected with the blade. To resist the stresses developed during operation and maintain a fixed spacing between insulators, a base member is generally secured rigidly to the stationary insulator and connected movably with the rotative insulator, and large diameter bearings have often been used, held by the said base and surrounding the lower part of the crank support. One purpose of this invention is to replace such elaborate large diameter bearings with a short solid pin bearing of relatively small diameter. Another purpose is to provide a device which can readily be interchanged between right-hand and left-hand operation. Other purposes will be evident from the description and the claims.

In the drawings, Figure 1 is a side view of a switch unit embodying the invention; Figure 2 is in larger scale a top view of the pin bearing and adjacent parts; Figure 3 is in partial section a side view of the parts shown in Figure 2; and Figure 4 is similar to Figure 3 but shows a modified design.

A steel channel 1 supports insulator 2 upon which is securely bolted jaw 3 with its line connection 4. Insulator 5 similarly supports base 6 with its pivotal mounting 7 for blade 8. Insulator unit 9 is rotatably mounted in bearing 10 and it is operable by arm 11. To the top of insulator 9 is bolted crank 12, which is connected by bar 13 with blade 8. The insulator unit and the crank bolted to it together form an integral rotative insulator assembly. Line connection 14 is secured to base 6, and in base 6 there is an annular opening which surrounds the upper part of insulator unit 9 but does not touch it. See Figures 2, 3 and 4. Secured to base 6 by bolts 15, 16, 17 is bearing member 18 which at its upper end is pivotally connected by pin 19 with the clevis 20 formed by two extensions which are integral with crank 12. Pin 19 is coaxial with bearing 10 and insulator unit 9. Two other tapped holes 21, 22 are so located in base 6 that the bearing member 18 can be moved readily to position where it is held by bolts at 17, 21 and 22. Then crank 12 can be rotated counter-clockwise, instead of clockwise as indicated in Figure 2.

Figure 4 shows a possible modification. Bearing member 18 is replaced by bearing member 23, and crank 12 is replaced by crank 24 which

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has only a single projection for the bearing. Bolt 25 is screwed into bearing member 23 and locked by nut 26. Thus crank 24 and bearing member 23 are pivotally connected. Another modification would be to have a single member of the pin bearing integral with the crank, and have the clevis a part of member 18.

The offset position of crank 12 on insulator 9 leaves room for pin 19 to be coaxial with insulator unit 9, and since bearing member 18 is substantially integral with base 6, pivotal pin 19 keeps the axis of crank 12 and the pivot 7 in fixed spaced relation to each other. Bearing at 19 also gives vertical and lateral support to base 6, supplementing the support given by insulator 5.

The drawings show only a simple form of switch designed for upright or vertical mounting. Modifications may readily be made for a switch intended for underhung mounting, and the pivotal bearing and crank here described may readily be used in switches which have more elaborate switch blade and contact jaw structures. And various other modifications may be made by one familiar with the art without departing from the spirit and purposes of this invention.

I claim:

1. In an electric switch, a stationary insulator with a switch blade movably mounted thereon, a second insulator rotative about a fixed axis, a base holding the said insulators in spaced relation, said base being rigidly connected with the stationary insulator and pivotally connected with the rotative insulator, a crank member rigidly secured to the rotative insulator, one part of said crank member being one member of a pivotal bearing, a second member of said pivotal bearing being rigidly connected with said base closely adjacent to the top of said rotative insulator, together with a pin connecting said two pivotal bearing members, the said pin being coaxial with said rotative insulator.

2. In an electric switch of the class described, a stationary insulator and an adjacent insulator rotative about a stationary axis, a base rigidly attached to said stationary insulator and being directly connected by a pivotal pin bearing and by no other direct means with the rotative insulator, the said pivotal pin bearing being coaxial with said rotative insulator, together with a crank rigidly secured to said rotative insulator and with the said crank being offset as to the said pivotal pin bearing.

3. In an electric switch of the class described,

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a stationary insulator and an adjacent insulator rotative about a stationary axis, a base rigidly secured to said stationary insulator and having an annular hole therethrough coaxial with the rotative insulator, a crank member secured to the rotative insulator and extending upward through the said annular hole but not touching it, one member of a pivotal pin bearing being integral with the crank member, the pin of said bearing being coaxial with said rotative insulator, a second member of said pivotal pin bearing being secured to said base member around part of the rim of said annular hole to allow clockwise rotation of said crank in opening the switch; the said second member of the pivotal pin bearing being readily changeable to another part of the said rim of the said annular hole, to allow counter-clockwise motion of the crank in opening the switch.

4. In an electric switch of the class described, a stationary insulator, an adjacent rotative insulator, a base secured to the stationary insulator and having an annular hole adjacent to but in fixed spaced relation to the top of the rotative insulator, a crank member secured to the top of the rotative insulator and holding above the rotative insulator and coaxial with it the pin of a pivotal pin bearing, one member of the said pivotal pin bearing being attached to a segment of the base member around the said annular hole and extending upwardly and inwardly to receive and hold the pin of said pivotal pin bearing.

5. In an electric switch of the class described,

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a stationary insulator, an adjacent rotative insulator, a conducting base secured to the stationary insulator and extending past the rotative insulator but not touching it, a crank member secured to the rotative insulator and carrying a pin for a pivotal bearing that is coaxial with the rotative insulator, a rigid connection from the base to the said pin which connection forms a part of said pivotal bearing.

6. In an electric switch of the class described, a stationary insulator, an adjacent rotative insulator assembly including a crank rigidly secured to the top of the rotative insulator, a base secured to the stationary insulator and extending past the rotative insulator assembly but not touching it, secured to the crank above the rotative insulator and coaxial with it one member of a pivotal pin bearing, the other member of said bearing being secured to the base adjacent to the top of the rotative insulator in position to allow clockwise rotation of the crank for operating the switch, the said other member being readily changeable to be secured to another part of the base in position to allow counter-clockwise rotation of the crank for operating the switch.

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REFERENCES CITED

The following references are of record in the file of this patent:

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Number	Name	Date
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