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SUPPORT FOR SWITCH MECHANISMS

Filed Feb. 17, 1928

Fig. 1.

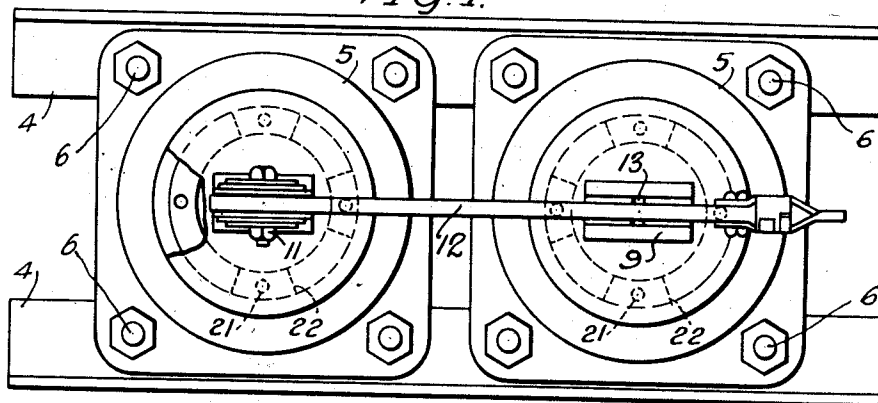


Fig. 2.

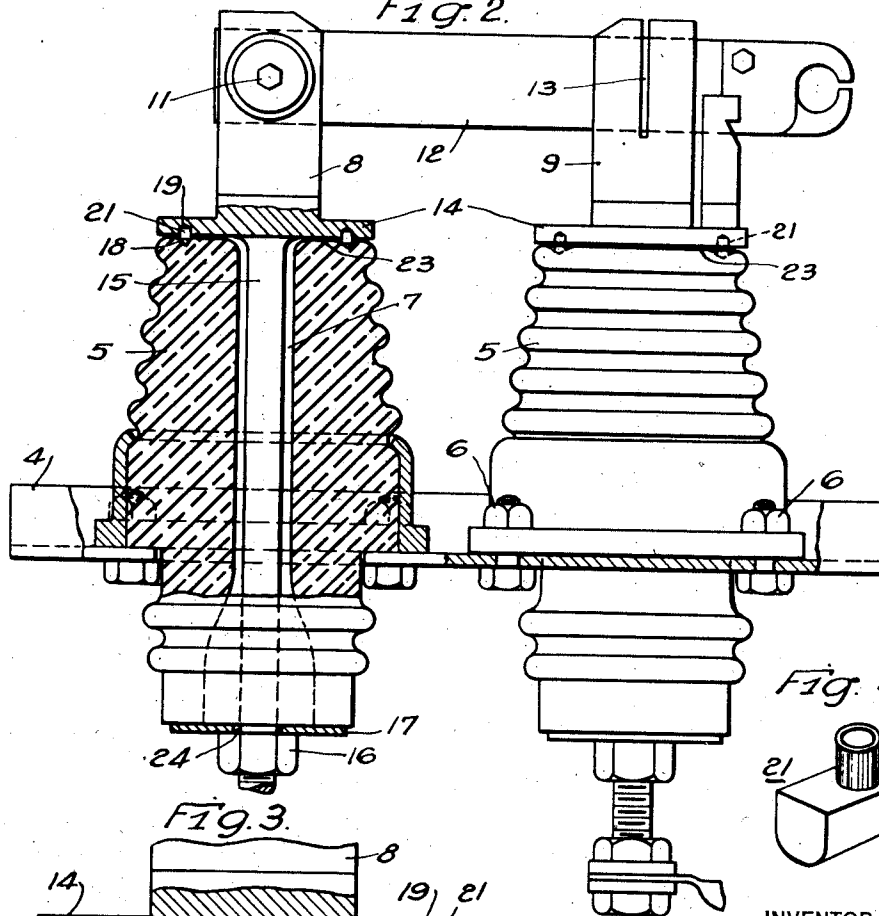


Fig. 3.

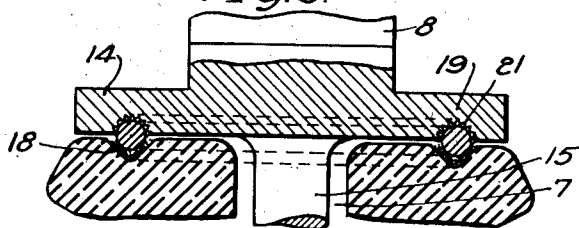
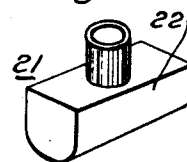


Fig. 4.



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SUPPORT FOR SWITCH MECHANISMS

Application filed February 17, 1928. Serial No. 254,976.

My invention relates to supports for switch mechanism, and particularly to disconnecting switches and the manner in which the hinge jaws and contact jaws thereof are secured to their insulating supports.

An object of my invention is to provide a mounting for contact and hinge jaws of disconnecting switches, wherein the jaws are securely anchored to the supporting insulator in such manner that they will not rotate with respect to the insulator during and after the assembly thereupon.

Another object of my invention is to provide a mounting for the hinge and contact jaws of a disconnecting switch having the above-noted characteristics, wherein the improved form of mounting is applicable to standard disconnect switch jaws with but little alteration to the jaws and to the insulator.

A further object of my invention is to provide a mounting for the jaws of disconnecting switches, wherein the base members of the jaws are maintained in spaced relation with respect to the ends or supporting faces of the insulators, in order to provide an air-circulating space which communicates with an open bore in the insulator, thereby providing ample ventilation of parts which may become heated during service.

These and other objects of my invention that will be made apparent throughout the further description thereof are attained by means of the apparatus hereinafter described and illustrated in the accompanying drawings, wherein;

Figure 1 is a top plan view of a disconnecting switch embodying features of my invention,

Fig. 2 is an elevational view of the disconnecting switch shown in Fig. 1, with a portion of the device shown in vertical section,

Fig. 3 is a sectional view in enlarged scale of a fragment of the device similar to that shown in Figs. 1 and 2, and

Fig. 4 is a perspective view of a soft metal lug.

Referring to the drawings, the disconnecting switch comprises a metal supporting frame 4 upon which insulating bushings 5 are

secured by means of bolts 6. The insulators are of the usual construction, except that the bore 7 which extends therethrough is enlarged at its lower end and the end is provided with an annular groove for a purpose to be hereinafter described.

The hinge jaw 8 and the contact jaw 9 are similar in construction, with the exception that the former is provided with a pivot 11 about which the switch blade 12 may be rotated into and out of engagement with the contact blade 9 which is provided with slots 13 to render it more resilient. Each blade is provided with a base plate or disc 14 having an integral threaded stud 15 that extends through the bore 7 of the insulator 5 and is secured thereto by means of a nut 16, a washer 17 being disposed between the end of the bushing 5 and the nut, as indicated in Fig. 2.

It has been found that disconnecting switch jaws have a tendency to rotate with respect to the insulator and when this occurs, it is very difficult, if not impossible, to close the switch into proper engagement with the contact jaw. Various forms of dowels have been used but their use necessitates very accurate alignment in order that the switch jaws may be disposed in true alignment when the jaws are assembled upon the insulators.

Due to the process under which insulators are formed, it is practically impossible to produce sockets for the dowel of sufficient accuracy to prevent movement of the switch jaws with respect to the insulators, and it is obvious that very little angular movement of the switch jaw with respect to the insulator will cause the switch blade to be moved sufficient distance as to render it impossible to close the switch blade.

In order to obviate this difficulty and to simplify the process of manufacturing the insulators, I have provided insulators with annular grooves 18 that are roughened by coating the surface of the grooves with sand before the porcelain insulator is fired. The jaw bases 14 are provided with a plurality of recesses 19 in which soft metal lugs 21, preferably made of lead or other compressible metal, that will indent under pressure, are placed in such manner that when the base

plates 14 are drawn toward the insulator, the enlarged ends 22 of the lugs engage the annular grooves in the insulators and flow into intimate contact with the roughened surface thereof. The jaws are, therefore, positively and frictionally prevented from rotating with respect to the insulator and the jaws will not shift with respect to the insulators and become misaligned under the most severe service conditions.

The lugs may be made of a metal alloy having the desirable degree of softness that will permanently retain the switch jaws in fixed position, and at the same time maintain the base plates 14 out of actual contact with the insulator 5, thereby providing an air circulating space 23 that communicates with the bore 7 of the insulator.

It will be noted that the washers 17 are provided with perforations 24 that register with the enlarged portion of the bore 7. By reason of this construction, air will be permitted to circulate through the bore and around the base plate 14 of the switch jaws and maintain them at relatively low operating temperatures.

In place of the four soft metal lugs 21, a soft metal ring may be substituted and the inner face of the base 14 may be roughened by knurling to provide frictional engagement with the soft metal ring. Such construction is illustrated in Fig. 3.

While I have illustrated but one embodiment of my invention, it will be apparent to those skilled in the art that various changes, modifications, substitutions, additions and omissions may be made in the apparatus illustrated without departing from the spirit and scope of my invention as set forth in the appended claims.

I claim as my invention:

1. The combination with an electrical conductor element and a supporting insulator therefor, each having a recess in the adjacent faces thereof, of a compressible insert disposed between the adjacent faces and fitting into the said recesses for preventing relative lateral displacement of the element and insulator and means for clamping said members together without affecting relative angular movement thereof.

2. The combination with a metal element and a supporting member therefor, each having recessed adjacent surfaces, of a relatively soft metal member disposed between the adjacent faces and adapted to flow into the recesses and lock the element and supporting member against relative movement in the plane of the adjacent faces and means for clamping said members together without affecting relative angular movement thereof.

3. An electrical device comprising an insulating support having a groove in the supporting face thereof having an irregular surface, and an electrical conductor element hav-

ing soft metal supporting lugs registering with the groove and adapted to be pressed into intimate contact with the irregular surface thereof for preventing relative movement of the element and support in the plane of the supporting face.

4. An electrical device comprising an insulating support having a bore extending therethrough and an annular groove in the supporting face thereof surrounding the said bore, a conductor element having a clamping member extending through the bore for securing the element to the support, and soft metal supporting lugs anchored to the said element for frictionally engaging the groove and preventing relative rotation of the element and the support.

5. An electrical device comprising an insulating support having a bore extending therethrough and an annular groove in the supporting face thereof, an electrical conductor having a base member provided with recesses and a clamping member extending through the bore in the insulating support for securing the conductor to the support, and soft metal lugs disposed between the bore member and the support, and adapted to be pressed into the said recesses and irregularities in the surface of the groove for preventing relative rotation of the element and the support.

6. An electrical device comprising an insulating support having an open bore extending therethrough and having a supporting face, an electrical conductor provided with a base and a clamp member extending through the said bore for securing the conductor to the support, and means disposed between the base and the supporting face of the support for holding the base and support in spaced relation to provide an air circulating space between the base and the support, and communicating with the said bore.

In testimony whereof, I have hereunto subscribed my name this 13th day of February, 1928.

HERBERT J. CRABBS.