June 28, 1966 K. G. SINDAHL ET AL 3,258,570

AIR BLAST CIRCUIT BREAKER

Filed March 9, 1964

FIG. 1.

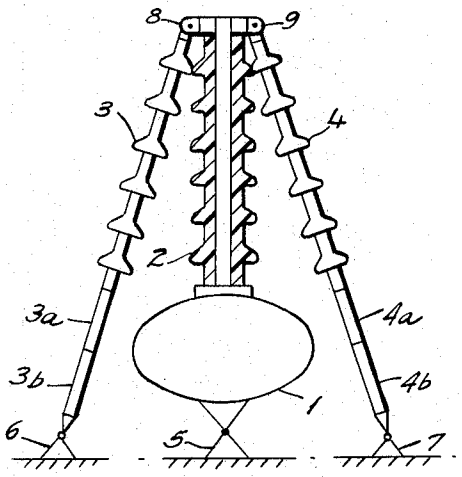


FIG. 2.

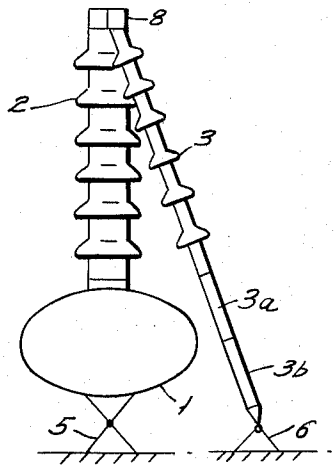
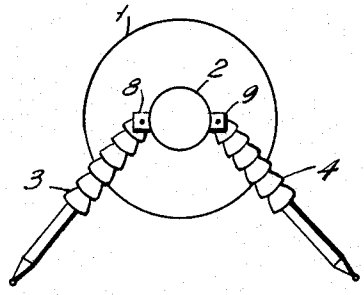


FIG. 3.



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AIR BLAST CIRCUIT BREAKER

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5 Claims. (Cl. 200—148)

This invention relates to a support structure for an air blast circuit breaker, and more particularly relates to a novel support structure which permits the permanent sealing between a compressed air tank and a hollow insulator support which conducts compressed air to interrupter structures carried by the support stand.

Air blast circuit breakers are well known to the art and generally include one or more series connected breaking contacts which are supported in insulated relationship with respect to ground by an insulation stand. In the case of very high voltage units, this stand will be very tall, and the elements thereof are difficult to align. Generally, a main compressed air tank is at the bottom of the stand, and elongated insulators, which are hollow, extend from the tank to the interrupting units mounted at the top of the insulator elements.

The hollow insulator then conducts compressed air from the main tank to the interrupter units so that it must be suitably sealed to the main support tank. Thus, some type of seal is required at the connection between the tank and the tall, hollow insulator.

There are very great demands made upon this sealing member, since the insulator is so tall (which could be of the order of twenty feet high), and is subjected to substantial forces during interruption of the interrupter units supported thereon. This seal must also seal against compressed air at very high pressures, and must additionally permit a certain amount of movement at least for alignment purposes between the insulator and the tank and the breakers supported on the insulator.

The principle of the present invention is to provide a novel stand structure wherein the hollow insulator is directly and rigidly secured to the tank with the tank then being pivotally supported with respect to the ground. Two additional insulators which are also pivotally supported then extend upwardly to form a tripod arrangement with the elongated hollow insulator column.

The connection between the three members is also made through pivotal connecting means whereby, when motion is required of the hollow insulator tube, the main compressed air tank directly secured thereto will also move, since it is now the bottom and pivotally supported member of one link of a tripod-type arrangement. If desired, the two additional insulator links may have link adjusting means to permit adjustment of the tripod arrangement.

Accordingly, a primary object of this invention is to provide a novel support stand for air blast circuit breakers.

Another object of this invention is to simplify the sealing between an elongated insulation pressure conduit and the main support tank of an air blast circuit breaker.

These and other objects of this invention will become apparent from the following description when taken in connection with the drawings, in which:

FIGURE 1 shows a front plan view of a support stand formed in accordance with the invention.

FIGURE 2 shows a side plan view of the stand of FIGURE 1.

FIGURE 3 shows a top plan view of the stand of FIGURES 1 and 2.

Referring now to FIGURES 1, 2 and 3, I have illustrated therein a support structure for air blast circuit breakers which includes a main compressed air-containing tank **1** which has a tubular hollow insulator **2** extending therefrom and rigidly connected thereto with the interior of insulator **2** communicating with the interior of tank **1**. The stand then includes additional links which include insulators **3** and **4**. The bottom of tank **1** is then pivotally connected to a ground support member **5** through any suitable pivotal arrangement such as a ball and socket joint. In a like manner, insulator links **3** and **4** are pivotally connected to ground support members **6** and **7** which may also be of the ball and socket joint type.

The top of insulator **2** then has a suitable upper support rigidly connected thereto which pivotally receives the upper ends of insulators **3** and **4** as by the ball and socket joints **8** and **9** respectively which are schematically illustrated in the figures.

Suitable interrupter structures would then be mounted atop the upper end of insulator **2**, with their interiors communicating with the compressed air conducted by the interior of insulator **2**.

It will be observed that links **3** and **4**, and the link including insulator **2** and tank **1**, form the three elements of a tripod arrangement. Each of these elements are pivotally connected to one another at the top, and are pivotally connected to their respective ground supports. Therefore, when any misalignment is caused, due to any reason, the link including insulator **2** and tank **1** will rotate as a unitary member, whereby substantially no pressure is applied to the seal connecting tank **1** and insulator **2**.

Thus, the type of seal used between members **1** and **2** is of a simplified nature, since it is no longer necessary to permit relative movement between these two structures, as was the case in the prior art where these members are independently mounted.

While the drawings show insulator support links **3** and **4** as typical insulator columns, it will be apparent that these insulators may have an adjustable length. By way of example, the lower sections of insulator columns **3** and **4** may be of metallic telescoping elements **3***a*–**3***b* and **4***a*–**4***b* respectively where these telescoping elements may be fixed in position by any suitable locking means.

With this arrangement, it will be clear that links **3** and **4** may be shortened or extended in any desired manner so as to appropriately position the main insulator column **2**, and the air blast interrupters mounted thereon.

Although this invention has been described with respect to its preferred embodiments, it should be understood that many variations and modifications will now be obvious to those skilled in the art, and it is preferred therefore that the scope of this invention be limited not by the specific disclosure herein but only by the appended claims.

The embodiments of the invention in which an exclusive privilege or property is claimed are defined as follows:

1. An insulation stand for supporting a gas blast circuit breaker at the upper end thereof; said stand having at least three elongated supports; and a stand support means; one of said supports comprising a compressed gas container tank and a hollow elongated insulator rigidly connected thereto and extending upwardly therefrom; the interior of said hollow elongated insulator communicating with the interior of said compressed gas container tank; the lower end of the other two of said elongated supports being pivotally connected to said stand support means; the bottom of said compressed gas container being pivotally connected to said stand support means; the upper ends of said three elongated supports being connected to one another.

2. The insulation stand substantially as set forth in claim 1 wherein said other two of said elongated supports have an adjustable length.

3. The insulation stand substantially as set forth in claim 1 wherein said upper ends of said three elongated supports are pivotally connected to one another.

4. The support stand substantially as set forth in claim 1 wherein said three supports define a tripod.

5. The support substantially as set forth in claim 4 wherein said hollow elongated insulator is vertical.

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