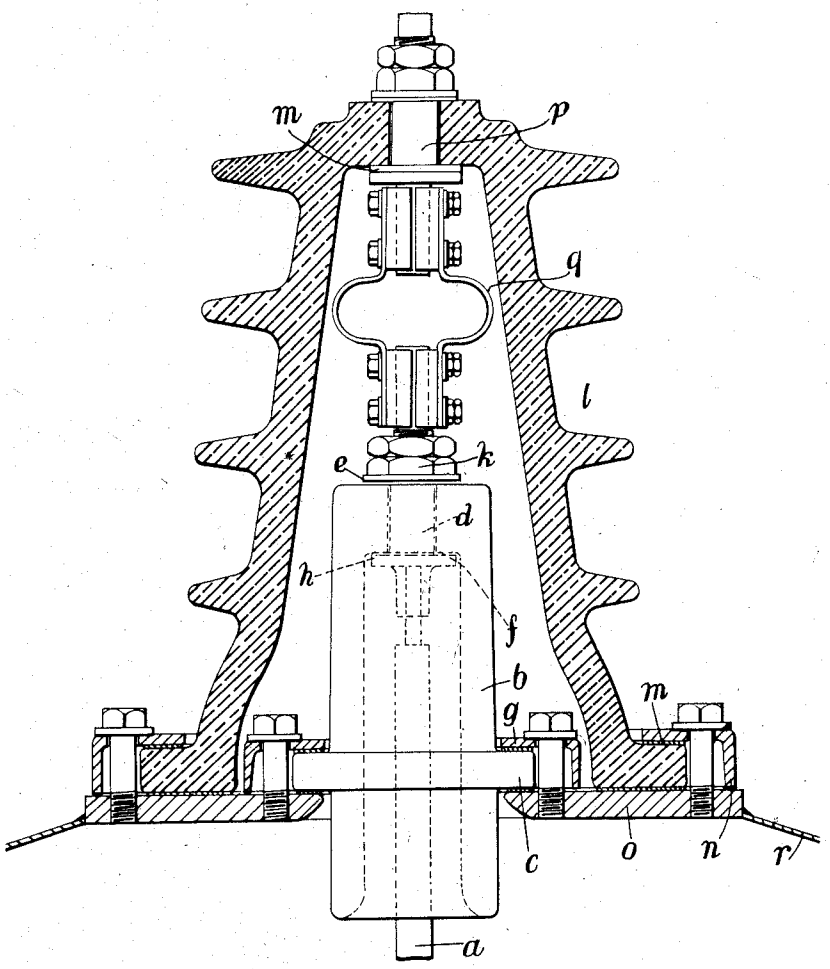
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ELECTRICAL INSULATOR BUSHING

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ELECTRICAL INSULATOR BUSHING

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This invention relates to insulator bushings for electrical apparatus of all kinds, for example oil-immersed transformers, induction regulators, condensers, surge absorbers, &c.

The invention is concerned with bushings for such apparatus adapted to be completely filled with oil or compound as distinct from bushings containing enclosed air.

The difficulties and drawbacks hitherto met with in apparatus of the kind indicated above are as follows:—

(1) Oil-tight joints especially with cemented porcelain parts are extremely difficult to make and maintain.

(2) In many cases, either due to their size or to risk of breakage, the porcelain bushings must be despatched separate from their apparatus. This frequently necessitates that the customers "dry out" the apparatus before installation.

(3) Porcelain bushings are easily broken in service; such breakage involves loss of oil or compound and may allow moisture to enter, thus necessitating fresh "dry out" of the apparatus.

(4) On account of the liability to breakage, spare complete bushing insulators must be kept in stock by the customer.

The present invention has for its object to overcome all these drawbacks and to provide some additional advantages.

The invention consists in a duplex bushing insulator for a conductor comprising an inner insulator member carrying a terminal in connection with the conductor, means for securing said member in liquid-tight fashion to the surface traversed by the conductor, an outer concentric easily replaceable insulator member, means for similarly securing said latter member to said surface, a terminal on said latter member and flexible leads connecting together said terminals.

The invention also consists in a duplex bushing insulator as set forth above wherein said means for securing the outer member include a clamping ring engaging a flat ring on said outer member.

The invention also consists in a duplex bushing insulator as set forth above, wherein the flexible connecting member is secured rigidly at its ends to said terminals.

The accompanying drawing illustrates diagrammatically one convenient construction in accordance with the present invention.

In carrying the invention into effect in the form illustrated I provide a bushing of double porcelain sheath construction.

The conductor *a* to be insulated is brought through the centre of the inner plain porcelain sheath *b*, which latter embodies a flange *c* and is connected to a terminal stem *d* fitted to the upper end of the sheath. The upper and lower surfaces of the flange *c* are flat and smooth, e. g. ground thus, and are adapted to be clamped in oil-tight fashion between a ring *g* and the surface *o* traversed by the conductor, this surface forming part of a casing *r* containing oil-immersed electrical apparatus (not shown).

The terminal stem *d* is also clamped against flat surfaces *e*, *f* at the upper end of the sheath *b*.

This form of oil-tight joints with flat porcelain surfaces is very easy to make and insure and simple to maintain.

An outer porcelain shell *l* is provided and this also has flat surfaces enabling its lower end to be clamped by a clamping ring *n* and washer *m* to the said traversed surface in oil-tight fashion. This outer shell may be furnished with rain sheds if desired for outdoor use.

The upper end of the outer shell is also furnished with a terminal stem *p* clamped thereto, the conductor stem *d* being connected thereto by flexible leads *q*.

The space between the inner and outer porcelain is filled with oil or compound, leaving a small air space for expansion. The outer shell being of relatively large diameter is

extremely robust mechanically. Breakage of this outer shell by any external force will not affect the inner porcelain so that the apparatus will still remain oil tight. Should the outer shell be broken it can easily and quickly be replaced without involving dismantling or "drying out" of the apparatus.

The only spare part necessary is the outer shell which involves a small proportion only of the total cost of the bushing.

The apparatus is sent out from the works, completely "dried out" and with the inner porcelain fitted. No "drying out" is required on site, and the customer merely has to fit the outer shell.

Having now described my invention, what I claim as new and desire to secure by Letters Patent is:—

1. A duplex bushing insulator for a conductor comprising an inner insulator member carrying a terminal in connection with the conductor, a flange of insulating material between the ends of said member, means for securing said flange in liquid-tight fashion to the surface traversed by the conductor, an outer concentric easily replaceable insulator member, a flange of insulating material on the said latter insulator member, means for similarly securing said latter flange to said surface, a terminal on said latter member and flexible leads connecting together said terminals.

2. A duplex bushing insulator as claimed in claim 1, wherein said means for securing the outer member include a clamping ring engaging a flat ring on said outer member.

In testimony whereof I have signed my name to this specification.

JOHN TURNER.