

F. HÄBERLI AND J. KÜBLER.
APPARATUS FOR THE HIGH VOLTAGE WINDINGS OF ELECTRICAL MACHINES.
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1,387,389.

Patented Aug. 9, 1921.

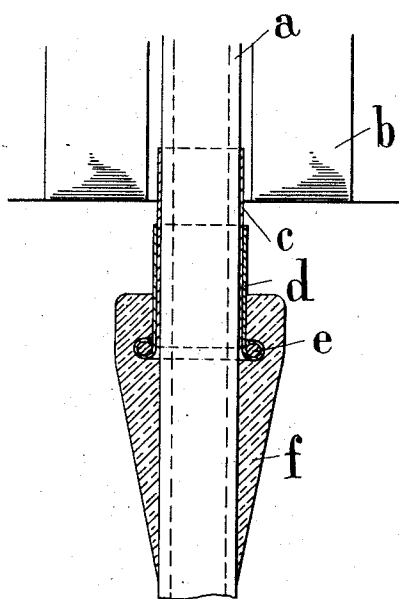


Fig. 1.

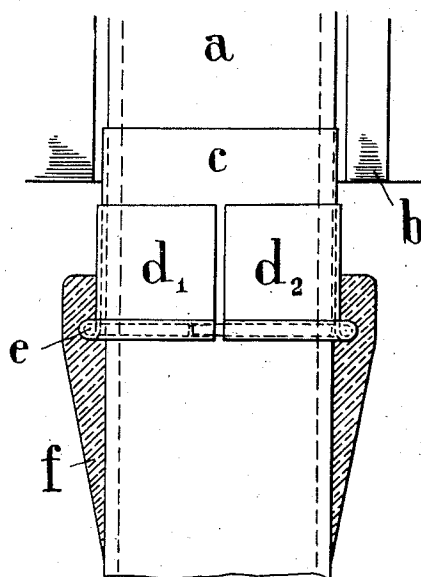


Fig. 2.

Inventors
F. Häberli
J. Kübler
By A. R. Herslake, Atty.

UNITED STATES PATENT OFFICE.

FRITZ HÄBERLI, OF ENNETBADEN, AND JOHANN KÜBLER, OF BADEN, SWITZERLAND,
ASSIGNORS TO AKTIENGESSELLSCHAFT BROWN BOVERI & CIE., OF BADEN, SWITZ-
ERLAND.

APPARATUS FOR THE HIGH-VOLTAGE WINDINGS OF ELECTRICAL MACHINES.

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Specification of Letters Patent.

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(GRANTED UNDER THE PROVISIONS OF THE ACT OF MARCH 3, 1921, 41 STAT. L., 1313.)

To all whom it may concern:

Be it known that we, FRITZ HÄBERLI, a citizen of the Swiss Republic, residing at Ennetbaden, Switzerland, and JOHANN KÜBLER, a citizen of the Swiss Republic, residing at Baden, Switzerland, have invented certain new and useful Improvements in Apparatus for the High-Voltage Windings of Electrical Machines, (for which I have filed applications in Switzerland July 19, 1919, No. 86,629, and in Germany June 17, 1920,) of which the following is a specification.

At the edges and corners of the metal parts of electrical machines in the neighborhood of the spot where the high-voltage windings emerge from the iron, there frequently occur glow or brush discharges that may lead to the destruction of the insulation of the coils.

The improved apparatus forming the subject matter of this invention, is designed to prevent the occurrence of such discharges and the consequent risk of destroying the insulation of the coils. This is achieved by providing the coil, at the spot where it emerges from the iron, with a conducting covering that projects beyond the mass of iron and is conductively connected to the said mass; the outer edge of said covering projecting from the iron being bedded under a layer of insulating material.

By a covering of this nature, the surface of the coil, at the spot where it emerges from the iron into the air, is brought artificially to the potential of the stator iron, that is to say, to earth potential, so that the boundary of the parts brought to earth potential in the neighborhood of the point of emergence of the coil, instead of being constituted, by the edges of the teeth, pressing fingers or pressing plates as hitherto, is now constituted by the edge of the conducting covering of the coil, and has thus been shifted from the aforesaid sharp parts outward to the surface of the coil. No discharges can occur between the coil which is provided with an earthed covering at the spot where it emerges from the iron, and adjacent metal parts which are connected to the framing of the machine and are thereby likewise earthed.

On the contrary, all discharges of the coil

are directed toward the edge of the conducting covering. Such discharges can be effectively suppressed by embedding this edge in a layer of insulating material. It is advisable, also, to make this edge of rounded-up shape so that it constitutes a ring of rounded cross section, surrounding the coil.

The practical construction of the improved apparatus may be effected by providing the coil at the spot where it emerges from the iron, first with a tight-fitting conducting covering, for instance, by pasting tin-foil upon it, or giving it a coating of metallic or conducting material, and then slipping over the said covering or coating, a tight-fitting sleeve of electrically conducting material.

In the accompanying drawings:—

Figure 1 shows one way of carrying out the invention with a sleeve d consisting of one piece, and

Fig. 2 another way with a sleeve consisting of two pieces d_1 and d_2 .

The insulated coil a is provided, at the spot where it emerges from the stator iron b , with a tight-fitting conducting covering c over which a sleeve d of conducting material is slipped. The outer edge of this sleeve, projecting from the iron, is provided with a ring e which surrounds the tube, and is inclosed on all sides by the insulating material f .

As shown in Fig. 2 of the accompanying drawings, the sleeve d is composed of two separate parts slipped from opposed sides over the conducting layer on the coil, so that when brought together they will surround the coil very tightly. The two parts, of which the sleeve is composed, are indicated by d_1 and d_2 in Fig. 2, but in other respects the corresponding parts are indicated by the same reference letters as in Fig. 1.

What we claim is:—

1. An apparatus for the high voltage windings of electrical machines including a stator, an insulated high tension conductor emerging therefrom and an electrically conducting covering of said insulated conductor, one end of the conducting covering being connected electrically to the stator, the

other end being removed spacially from the stator and protected from exposure to the air by an insulating sheath.

2. An apparatus as claimed in claim 1, characterized by the feature that the outer edge of the conducting covering, that is bedded under the layer of insulating material, is formed with a bead-like rounded cross-section surrounding the coil.

10 3. An apparatus as claimed in claim 1, characterized by the feature that the conducting covering is composed of a conducting layer at the surface of the coil and of

a two-part sleeve of conducting material having an outer edge, of a bead-like cross- 15 section the two parts or halves of said sleeve being slipped from opposite sides over the conducting layer and on to the coil, so that, when brought close together, the said two parts will constitute a tight-fitting ring sur- 20 rounding the coil.

In testimony whereof we have signed our names to this specification.

FRITZ HÄBERLI.
JOHANN KÜBLER.