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1,572,869

A. H. ADAMS

ELECTROMAGNET

Filed Dec. 15, 1923

Fig. 1.

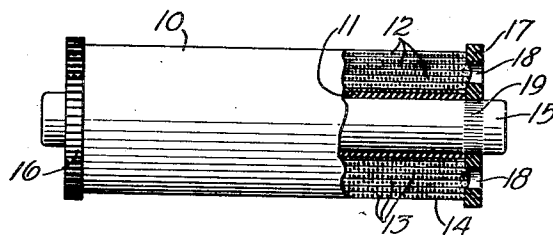


Fig. 2.

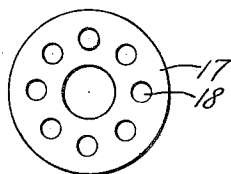
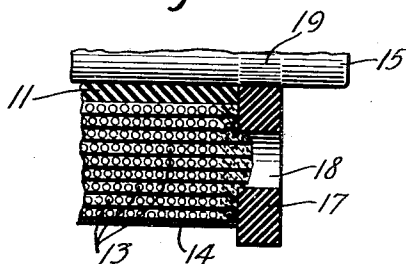


Fig. 3.



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UNITED STATES PATENT OFFICE.

ARTHUR HERMAN ADAMS, OF LAKEVILLE, CONNECTICUT, ASSIGNOR TO WESTERN ELECTRIC COMPANY, INCORPORATED, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

ELECTROMAGNET.

Application filed December 15, 1923. Serial No. 680,787.

To all whom it may concern:

Be it known that I, ARTHUR HERMAN ADAMS, a citizen of the United States, residing at Lakeville, in the county of Litchfield and State of Connecticut, have invented certain new and useful Improvements in Electromagnets, of which the following is a full, clear, concise, and exact description.

This invention relates to electromagnets and its object in general is to provide a convenient and economical form of structure in which the danger of damage to the winding by relative rotation between it and the spool head is eliminated.

In a large number of the commercial electromagnets, the ends of the windings are connected with terminal wires which are brought out to terminals on the spool head and it frequently occurs, particularly in the case where the windings are of the smaller sizes of conductors, that the conductors are broken by relative rotation of the winding and the spool head on the core.

In accordance with one of the features of this invention relative rotation of the winding, and spool head is prevented by securing these two parts together. Specifically the head is provided with apertures or depressions into which insulating material of the coil is pressed to lock the coil and head together.

Another feature of the invention relates to the method of producing the structure which consists in applying shellac or similar adhesive to the insulating material at the ends of the windings and pressing the head and winding together while the adhesive is in a plastic condition to force the adhesive and insulating material into the apertures of the spool head.

Other features and advantages will appear from the following description and by the claims appended hereto, reference being had to the accompanying drawings in which Fig. 1 is a longitudinal view of an electromagnet made in accordance with the features disclosed by this invention, showing the coil partially cut away. Fig. 2 is a front view of the spool head used in the magnet of this invention; and Fig. 3 is an enlarged detail sectional view through the coil and spool head.

The electromagnet shown in Fig. 1 generally consists of a coil 10 which is wound

around a relatively thick paper sleeve 11, each layer of wire 12 being separated from the other by means of thin paper sheets 13, each of which extends a small distance beyond the ends of coil 10 as shown in Fig. 1. A paper sheet 14 is provided for protecting and insulating the coil from any metal parts that may accidentally be brought into contact with the coil. The iron core 15 is provided at one end portion with a spool head 16 which is secured thereon in any suitable manner.

On each end portion of coil 10 there is laid a relatively thick coat of shellac which is adapted to fill the spaces between each concentrically disposed insulating paper sheet 13 as shown in Fig. 1. The spool head 17 is provided with a plurality of holes 18 and is adapted to be pressed on the opposite end portion of core 15 in position on the knurled portion 19 against one end of the coil 10 in such a manner as to force portions of the paper and wet shellac into the holes 18, as more clearly shown in Fig. 3, the portions of the paper and shellac thus serving as dowel pins for firmly holding the coil against rotary movement on the core.

What is claimed is:

1. In an electromagnet, an iron core, a paper filled coil mounted on said core, and a spool head having an aperture through which the core extends and additional apertures for receiving the paper insulation to prevent relative rotation between the coil and said core.

2. In an electromagnet the combination of a core, a coil thereon comprising alternate layers of conductor and insulating material, a spool head on the core and means for securing the insulating material of the coil to the spool head to prevent relative rotation of the coil and head.

3. In an electromagnet the combination of a core, a coil thereon comprising layers of conductor and insulating material and an apertured spool head adapted to engage the insulating material to prevent relative rotation.

4. In an electromagnet, a core, a coil thereon comprising layers of conducting material and layers of insulating material in sheet form extending beyond the ends of the layers of insulating material, and an apertured spool head pressed over the core

to force portions of the insulating material into the apertures of the spool head to prevent relative rotation of the spool head and the winding.

- 5 5. In an electromagnet, a paper filled coil, a core therefor, a spool head secured on one end of said core, another spool head adapted to be pressed on said core and against one end portion of said coil to impress indenta-
10 tions in portions of the paper for securing said coil on said core.

6. The method of securing a paper filled

coil on a core consisting in applying a coat of shellac to each end of the coil and pressing apertured spool heads on each end of 15 the coil for forcing portions of the paper and wet shellac into the apertures of the spool head for holding the coil against movement on the core.

In witness whereof, I hereunto subscribe 20 my name this seventh day of December A. D., 1923.

ARTHUR HERMAN ADAMS.