March 24, 1931. L. C. GOAD 1,797,768

INSULATION FOR FIELD WINDINGS

Filed Dec. 29, 1928

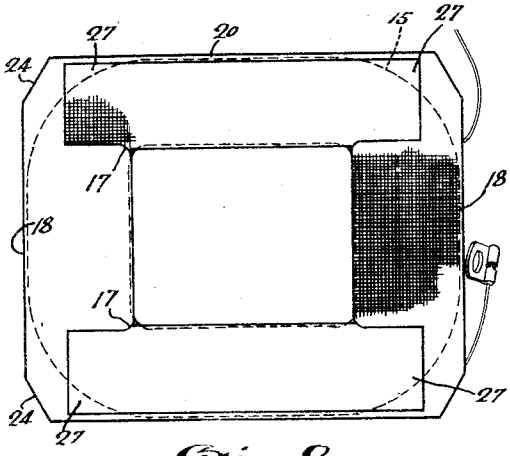


Fig. 2.

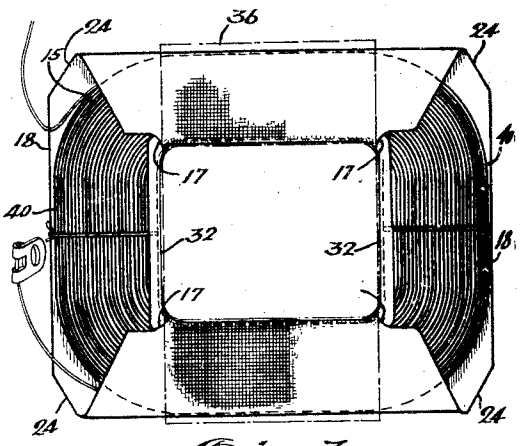


Fig. 3.

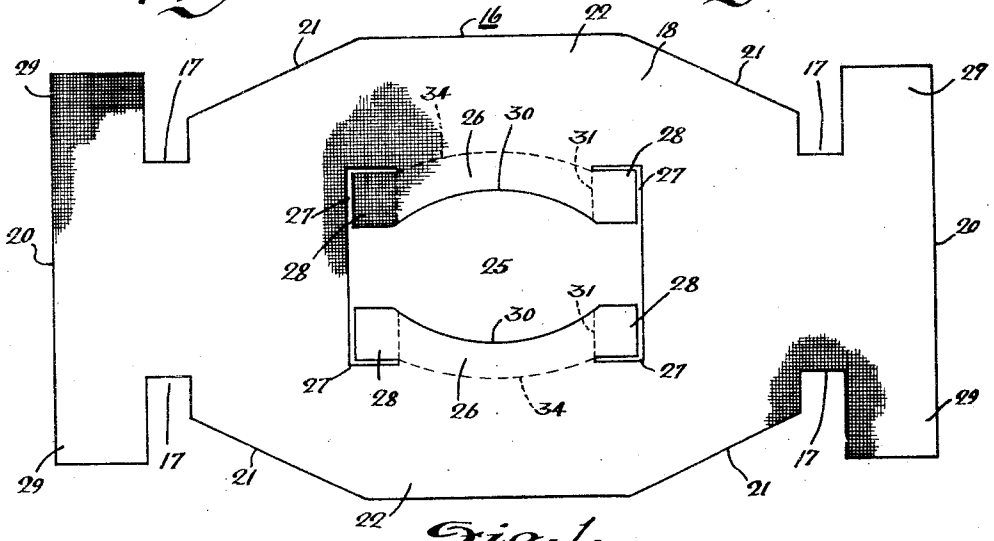


Fig. 1.

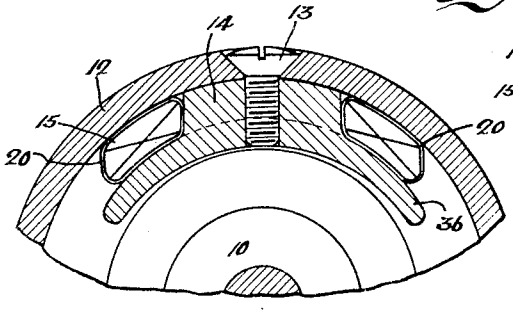


Fig. 4.

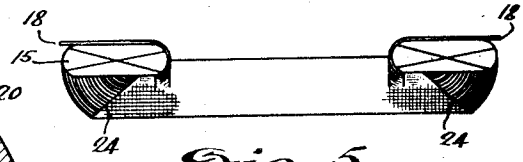


Fig. 5.

Inventor

Louis C. Goad

By Spencer Hardman and Fehr

his Attorney

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UNITED STATES PATENT OFFICE

LOUIS C. GOAD, OF MUNCIE, INDIANA, ASSIGNOR TO DELCO-REMY CORPORATION, OF DAYTON, OHIO, A CORPORATION OF DELAWARE

INSULATION FOR FIELD WINDINGS

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This invention relates to electric insulation and in particular to a method of and a blank for insulating a field coil used in dynamic electric machines.

The object of this invention is to provide a unitary piece of insulation or an insulating jacket for a field coil whereby the cost of production is greatly reduced by the material reduction of labor and a reduction in the amount of material used. This is accomplished by cutting from a piece of oiled linen, a blank having a coil shaped body. This coil shaped body has a pair of internal flaps each terminating in a pair of tabs for insulating parts of the inner periphery of the coil and it has a pair of external extensions for wrapping around the sides of the coil to insulate the sides and to secure the blank to the coil by means of the flanges of the T-shaped extensions engaging the coil. As it has been customary to insulate the field coils by wrapping tape around the coil it will be readily seen that the cost of production will be greatly reduced by the saving of the material and labor.

Further objects and advantages of the present invention will be apparent from the following description, reference being had to the accompanying drawings, wherein a preferred form of embodiment of the present invention is clearly shown.

In the drawings:

Fig. 1 shows a blank which has been cut and is ready to be wrapped around the coil.

Fig. 2 shows a plan view of the field coil, as seen with the convex side up.

Fig. 3 shows a plan view of the same coil, as seen with the concave side up.

Fig. 4 shows a sectional view of the coil mounted in the frame and insulated by this piece of insulating material.

Fig. 5 shows a cross sectional view taken through the ends of the coil.

In the drawings, the reference character 10 indicates an armature of a dynamic electric machine. The frame is indicated by the reference character 12 on which is mounted the pole piece 14 by means of a screw 13, threadedly engaging the pole piece 14 upon which is mounted a field coil 15. The blank 16 has a pair of dovetail grooves 17 near each end which divides the blank 16 into the main body portion 18 and the T-shaped extensions 20. The body portion 18 simulates the shape of the coil windings, the straight sides 22 corresponding to the ends of the coil, the bevelled edges 21 corresponding to the rounded corners of the coil and the portion intermediate the grooves 17 on each end corresponding to the sides of the coil. In the center, the aperture 25 permits the insertion of the core piece 14. This aperture has substantially the shape of a T whose stem is connected to a stem of an inverted T as viewed from one end of the blank 20. Intermediate the flanges 29 of the T and the inverted T and to each side of the stem, are the flaps 26 terminating in tabs 28. The edges of the flaps 26 are curved as seen at 30. The coil 15 may be placed over the center of the blank 16 with the convex side of the coil 15 adjacent the blank 16 the aperture 25 coinciding with the center of the coil 15 and the sides 22 of the blank 16 coinciding with the ends 40 of the coil 15. With the coil 15 in this position, the flaps 26 are turned inwardly towards the inner periphery of the coil substantially along the lines 34 so as to form an insulation for the inner edge of the coil ends 40, tabs 28 being folded substantially at right angles to the flap 26 along the lines 31 so as to reinforce the inner corners of the coil 15. After each of the flaps 26 have been turned inwardly and the tabs 28 at right angles to the flap 26 each of the T-shaped ends 20 of the blank 16 are wrapped around the sides of the coil so that the dovetail grooves 17 fit into the inner corners of the coil 15, the flanges 29 of the T-shaped extensions 20 extending over the ends of the coil to hold the insulation blank 16 in place during assembly of the coil 15 on the machine. From this it may be readily seen that the concave sides of the ends 40 are not insulated which is not necessary for the reason that a pole shoe 36 may be designed to extend parallel to the inner edges of the ends 40 of the coil 15. The flaps 26 insulate the ends 40 of the coil from the core of the pole piece 14. As the extensions 20 are wrapped around the sides of the

coil 15, these insulate the sides of the coil 15 from the pole shoes 36 and the core of the pole piece 14 and also insulates the coil 15 from the frame 12. The sides 22 of the blank 16 insulate the ends 40 of the coil 15 from the frame 12. From this it may be readily seen that wherever the coil 15 comes in contact with metallic parts of the machine, the blank insulates these parts from the coil 15.

While the form of embodiment of the present invention as herein disclosed, constitutes a preferred form, it is to be understood that other forms might be adopted, all coming within the scope of the claims which follow.

What is claimed is as follows:

1. A blank of insulating material for a coil, having substantially the shape of the coil with internal flaps to insulate the inner edge of the ends of the coil, each of said flaps terminating in a pair of tabs for reinforcing the insulation around the inner corners of the coil and having external extensions for wrapping around the sides of the coil to completely insulate the sides of the coil and to secure the blank to the coil.

2. A blank of insulating material for a field coil having substantially the shape of the coil, said blank having extensions for wrapping around the coil to insulate part of the coil, said extensions holding the blank on the coil when wrapped around the coil.

3. A blank of insulating sheet material for a field coil having an internal flap for insulating part of the coil and an external T-shaped extension for insulating part of the coil said T-shaped extension holding the blank in position.

4. A blank of insulating sheet material for a field coil having substantially a coil shaped body with a pair of external T-shaped extensions extending from the sides of the coil shaped body and a pair of internal flaps extending along the inner ends of the coil, the flaps forming the insulation for the inner edge of the ends of the coil, said flaps terminating in tabs for insulating and reinforcing the inner corners of said coil.

5. An insulated field coil comprising, in combination, a plurality of windings, and an insulating jacket, said insulating jacket having a body portion for insulating the convex side of the coil, having flaps for insulating the inner edges of the ends of said coil, said flaps terminating in tabs for insulating the inner corners of said coil and having T-shaped extensions for wrapping around the sides of said coil to completely insulate the sides, the insulating jacket being held on the coil by the flanges of the T-shaped extensions passing through the center of said coil locking the extensions.

In testimony whereof I hereto affix my signature.

LOUIS C. GOAD.