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CLEANING ELECTRICAL COILS

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This invention relates to improvements in the art of reconditioning electrical apparatus and more particularly to electrical apparatus comprising coils of insulated wires.

Heretofore, electrical apparatus such as motors, coils, transformers, generators, and the like, have been cleaned with compressed air. In such cleaning, care must be exercised that pressures used are not too great, as binding tapes or other insulation may be loosened and dirt blown thereunder.

Another method commonly employed involves dipping the apparatus in a solvent such as carbon tetrachloride, benzine or gasoline. Such cleaning necessitates careful drying before the apparatus can be reused, and it is also objectionable in that a thin film of residual matter is left on the cleaned surfaces which prevents good adherence of subsequently applied insulating mediums as paint or varnish. This, together with the deleterious effect on the insulating coatings, frequently results in grounding of the electrical equipment thereby rendering it inoperative. Moreover, such methods involved either hazardous fire or working conditions since the materials used were either quite inflammable or gave off toxic vapors.

It is accordingly among the objects of the present invention to provide a method of reconditioning electrical apparatus which overcomes the foregoing difficulties of the prior art methods.

It is a further object to provide a method of reconditioning electrical apparatus which is very efficient and at the same time inexpensive to use.

It is another object of the present invention to provide a method of reconditioning electrical apparatus which permits insulating material to be quickly and readily applied after cleaning.

We have found that the inclusion of solid comminuted vegetable material such as corn meal, bran, hominy grits and the like, in an air stream directed under pressure, quickly cleans electrical coils and the like without any harmful effects on the insulation, and at the same time leaves the surfaces in condition for varnish or other insulating materials to be immediately applied thereto.

As an example of the use of our invention, we have applied the following procedure to cleaning a 1250 horsepower, 600 volt, direct current motor. After the removal of guards and cover plates, the armature winding was given a resistance check and the reading secured was 200,000 ohms, whereas 600,000 ohms is generally accepted as being the safe minimum requirement of this type and size of motor. Compressed air was then applied

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to the armature after which a second insulation test showed a reading of 400,000 ohms. Following this, corn meal was introduced into the air stream and the combined air and corn meal was thoroughly blown through all of the openings in the armature windings and commutator assembly. By regulating the air pressure within the range of between 15 to 30 pounds per square inch, clean surfaces can be obtained without harmfully affecting the insulation on the windings. The impingement of the particles of corn meal on the surfaces loosened the dirt and grease so that they were carried away by the air stream, and also any moisture or oil film present on the surfaces was absorbed and carried away by the corn meal particles.

After cleaning the surfaces with the corn meal and air mixture, the armature was then subjected to a stream of air without any corn meal or other substances entrained therein for the purpose of removing any particles of the corn meal therefrom. As a result of using the foregoing cleaning method, the various coils and bands of the armature present a shining and lustrous surface appearance. A final insulation test was then made and the reading was found to have increased to 90,000,000 ohms from the original reading of 200,000 ohms. In addition, all the exposed surfaces were absolutely dry so that it would have been possible to reassemble the motor and place the same in operation at once, if so desired. However, a protective coating of acid resistant insulating paint or varnish was then applied, and it was noted that the equipment treated by the foregoing method retained the protective coatings much better than equipment cleaned by prior art methods, even though the latter was thoroughly dried before such coatings were applied.

While we have described one specific embodiment of our invention, it will be understood that this embodiment is merely for the purpose of illustration and description and that various other forms may be devised within the scope of our invention, as defined in the appended claims.

We claim:

1. The method of dry cleaning electrical coils in motors, generators, and the like, characterized by blowing on the parts to be cleaned a stream of air having mixed therein solid comminuted vegetable material of the class comprising corn meal, bran and hominy grits.

2. The method of dry cleaning electrical coils in motors, generators, and the like, characterized by blowing on the parts to be cleaned a stream of air having mixed therein solid comminuted

vegetable material of the class comprising corn meal, bran and hominy grits, the pressure of said stream being between 15 and 30 lbs. per square inch.

3. The method of reconditioning electrical coils in motors, generators and the like, comprising blowing a stream of compressed air thereon, adding corn meal to said stream and continuing the blowing of the stream on the coils for a sufficient period of time to remove oil from the coils, stopping the addition of corn meal to the stream and continuing blowing the stream of air on the coils until the corn meal is removed therefrom, the pressure of said stream being regulated to between 15 and 30 lbs. per square inch.

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