

No. 772,288.

PATENTED OCT. 11, 1904.

N. J. NEALL.

VENTILATED COIL FOR ELECTRICAL APPARATUS.

APPLICATION FILED JAN. 20, 1904.

NO MODEL.

Fig. 1.

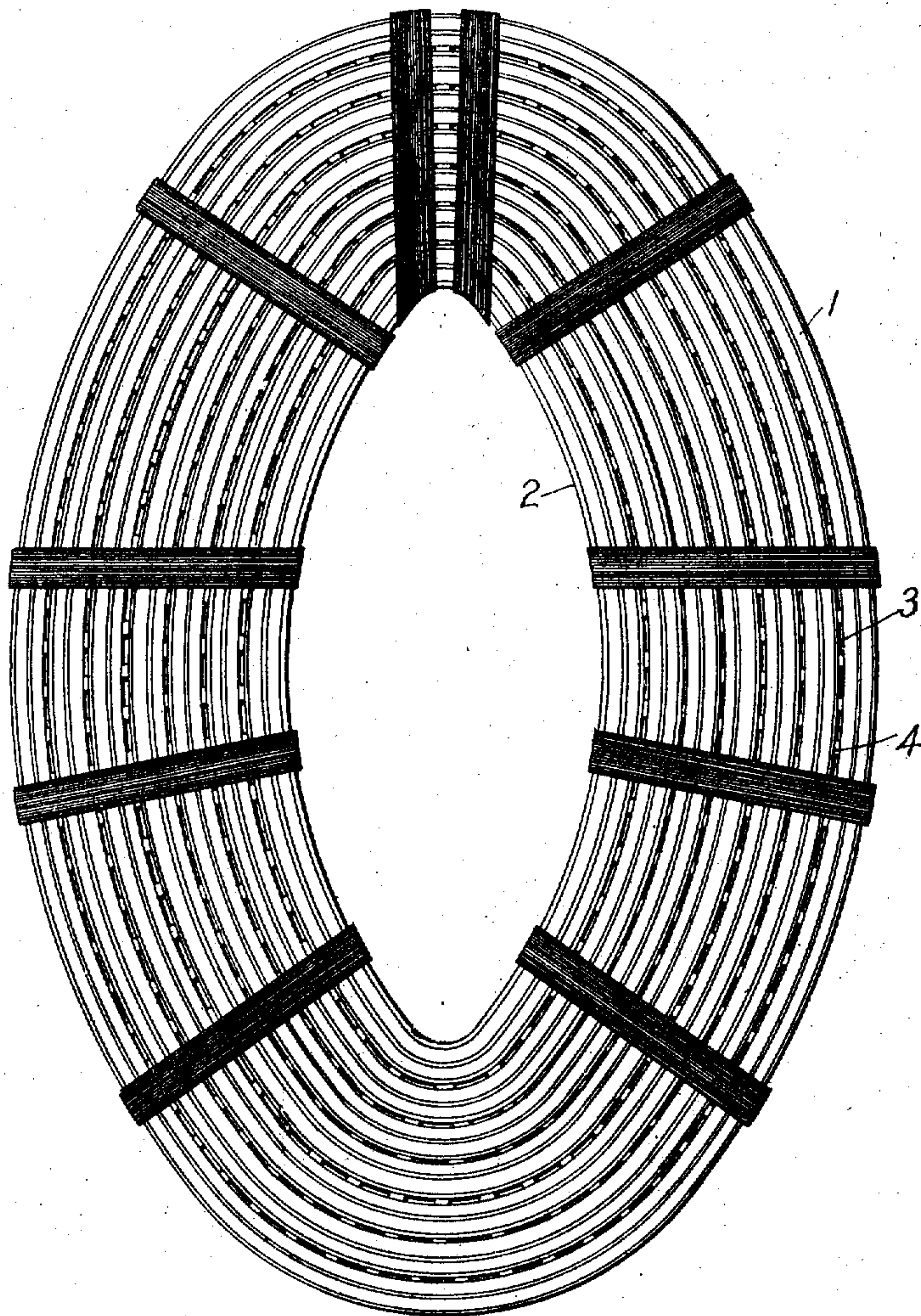
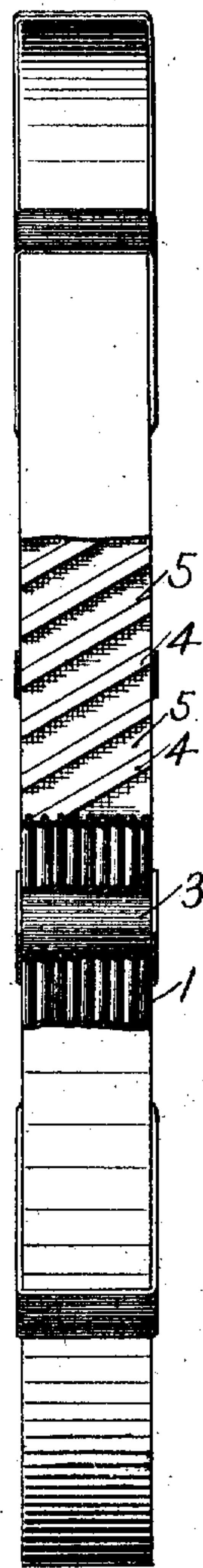


Fig. 2.



WITNESSES:

C. L. Belcher
Fred. H. Miller.

INVENTOR

Witt J. Neall
BY
Henry G. Shaw
ATTORNEY

UNITED STATES PATENT OFFICE.

NEWITT J. NEALL, OF EDGEWOOD PARK, PENNSYLVANIA, ASSIGNOR TO
WESTINGHOUSE ELECTRIC & MANUFACTURING COMPANY, A CORPORATION OF PENNSYLVANIA.

VENTILATED COIL FOR ELECTRICAL APPARATUS.

SPECIFICATION forming part of Letters Patent No. 772,288, dated October 11, 1904.

Application filed January 20, 1904. Serial No. 189,895. (No model.)

To all whom it may concern:

Be it known that I, NEWITT J. NEALL, a citizen of the United States, and a resident of Edgewood Park, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Ventilated Coils for Electrical Apparatus, of which the following is a specification.

My invention relates to coils for electrical apparatus, and particularly to such coils as are immersed in fluids for cooling and insulating purposes; and it has for its object to provide a simple and efficient form of insulation for such coils which facilitates the ventilation thereof.

In the accompanying drawings, Figure 1 is a face view of a choke-coil embodying my invention. Fig. 2 is an edge view of the coil shown in Fig. 1, portions being broken away to show the specially-constructed insulating and spacing material employed between layers.

Choke-coils, which are employed for the protection of apparatus from the effects of sudden changes of static potential, are generally immersed in oil or other suitable insulating fluid, as it is necessary that they be well insulated and ventilated.

I have provided a form of insulation to be placed between the layers during the winding of a coil such that the circulation of the fluid through the coil is greatly facilitated and the dissipation of heat thereby promoted.

Between adjacent layers 1 of the coil 2 are strips 3 of treated fuller-board or other suitable non-conducting material, which may project laterally somewhat beyond the layers in order to insure proper insulation. Secured to the alternate strips 3 in any suitable manner are narrow cleats 4 of fuller-board or other non-conducting material, said cleats being properly spaced and arranged diagonally across the strips 3.

The spaces 5 between the cleats 4 form diagonal transverse ducts between adjacent layers of the coil 2, through which the non-conducting fluid is free to circulate. The fluid in contact with the coil becomes heated and

rises to the surface, and as the more remote cooler fluid takes its place a continuous circulation is effected. When the coil is supported in an approximately vertical position, as is usual, the inclination of the ducts facilitates the circulation of the fluid, and consequently aids materially in the ventilation of the coil.

While I have shown my invention as applied to choke-coils, it is not my intention to limit its application to any particular class of coils as regards either their form or the service in which they are employed, and though the drawings show the special insulation placed only between alternate layers any other arrangement of layers and insulation may be made without departing from the invention.

I desire it to be further understood that my invention is not limited to the specific means here set forth for providing the ducts or passages for the circulation of the insulating and cooling fluid or to the specific form of such ducts or passages.

I claim as my invention—

1. A coil for electrical apparatus comprising a suitably-insulated conductor wound in a plurality of layers each having a plurality of turns and non-conducting material forming diagonal ventilating-ducts between the layers.

2. A coil for electrical apparatus comprising a suitably-insulated conductor wound in a plurality of layers each having a plurality of turns and non-conducting material forming diagonal, upwardly-directed ventilating-ducts between the layers.

3. A coil for electrical apparatus comprising a suitably-insulated conductor wound in a plurality of layers having a plurality of turns, non-conducting material between layers and diagonal, upwardly-directed ventilating-ducts formed by the said non-conducting material.

4. A coil for electrical apparatus comprising a suitably-insulated conductor wound in a plurality of layers each having a plurality of turns and non-conducting material between the layers having properly-spaced raised por-

tions disposed diagonally across the same to form ventilating-ducts.

- 5 5. A coil for electrical apparatus comprising a plurality of layers each having a plurality of turns of a suitably-insulated conductor, adjacent layers being separated by strips of non-conducting material having spaced cleats fastened diagonally thereto, the spaces between said cleats forming ventilating-ducts.
- 10 6. A vertically-disposed flat coil comprising a plurality of layers each composed of a plu-

rality of turns of wire, and separating-strips of insulating material having diagonal projections forming ventilating-ducts.

In testimony whereof I have hereunto subscribed my name this 15th day of January, 1904.

N. J. NEALL.

Witnesses:

R. B. INGRAM,
BIRNEY HINES.