(No Model.)

G. WESTINGHOUSE, Jr.

VENTILATING MEANS FOR ELECTRICAL APPARATUS.

No. 550,468. Patented Nov. 26, 1895.

Fig. 1.

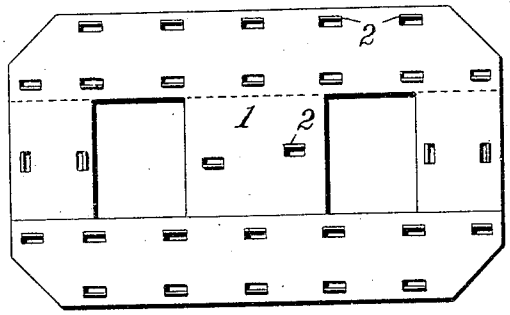


Fig. 3.

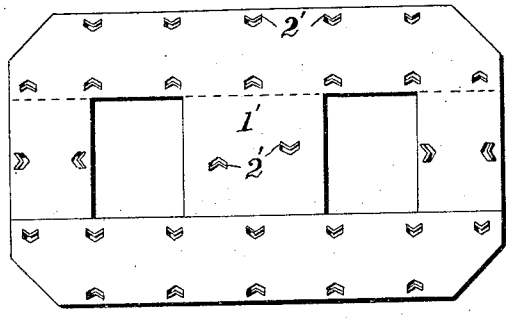


Fig. 2.

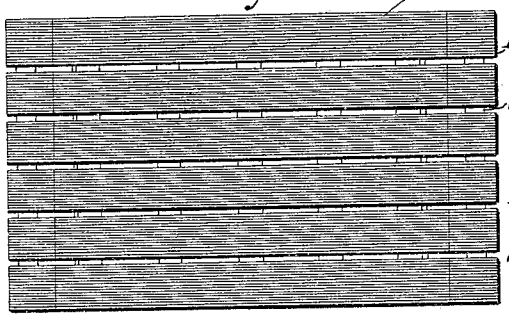


Fig. 4.

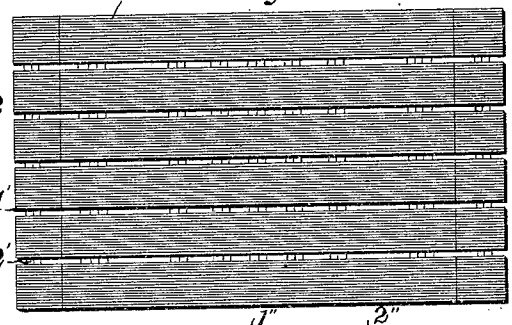


Fig. 5.

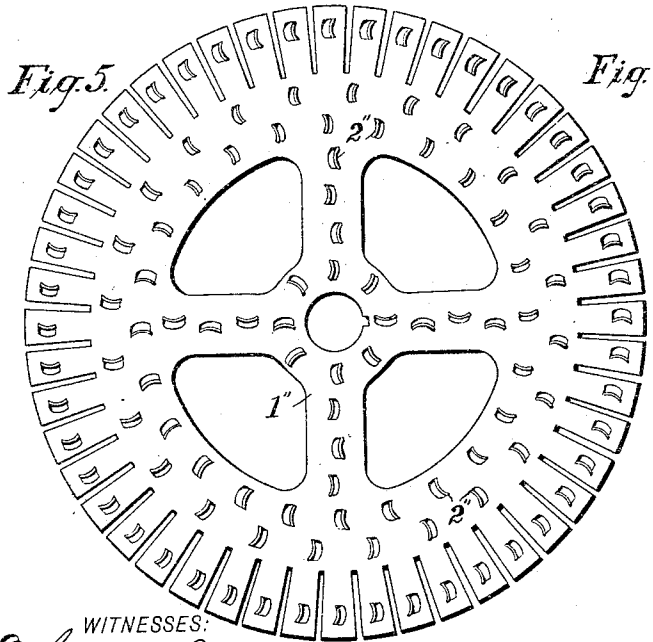
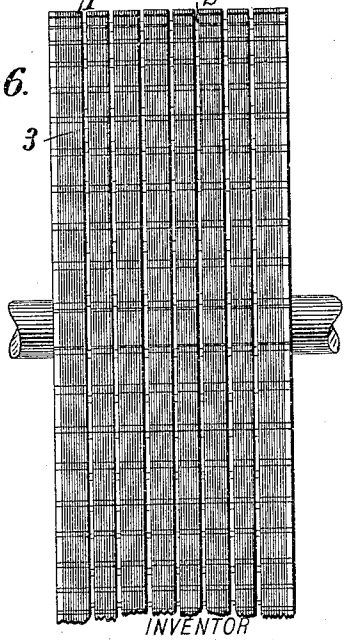


Fig. 6.



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VENTILATING MEANS FOR ELECTRICAL APPARATUS.

SPECIFICATION forming part of Letters Patent No. 550,468, dated November 26, 1895.

Application filed May 2, 1895. Serial No. 547,905. (No model.)

To all whom it may concern:

Be it known that I, GEORGE WESTINGHOUSE, Jr., a citizen of the United States, residing at Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Ventilating Means for Electrical Apparatus, (Case No. 642,) of which the following is a specification.

My invention relates to electrical apparatus, and more particularly to laminated iron cores for such apparatus; and it has for its object to provide a simple, cheap, and efficient means whereby such circulation of air may be maintained in and through such cores as will preclude the undue heating of the iron by reason of eddy currents set up therein by the inductive action of the coils carried thereby.

It is the usual practice to build up the iron cores of electrical apparatus of thin sheet-iron plates in order to prevent as far as possible the production of Foucault currents; but even when so constructed the cores become heated by such currents to an objectionable degree, particularly when of large size. It therefore becomes necessary in such cases to adopt some method of cooling the iron, and the simplest and most available method of effecting this result is by the circulation of air around and through the apparatus which tends to become heated. My invention has to do with this method of cooling and embodies a new means for producing the necessary ventilating-spaces.

In the accompanying drawings, Figure 1 is a face view of a converter-plate constructed in accordance with my invention, and Fig. 2 an edge view of a converter-core embodying in its construction several plates like that shown in Fig. 1. Fig. 3 is a view similar to Fig. 1, but showing a modification; and Fig. 4, a view similar to Fig. 2, but embodying in its construction plates like that shown in Fig. 3. Fig. 5 is a side elevation of an armature-core plate, illustrating a further modification; and Fig. 6, a view of a portion of an armature-core, some of the plates of which are constructed like that shown in Fig. 5.

Referring now more particularly to Figs. 1 and 2 of the drawings, 1 is a converter-plate provided with lips or projections 2, which may be stamped from the body of the plate by suitable dies and which project therefrom substantially at right angles to the face of the plate. As shown in this figure, these projections are rectangular in form and are cut from the plate on three sides, the fourth side being left uncut to serve as the connection between the projection and the body of the plate. Any number of these projections desired may be employed, and they may be arranged at any angle desired with reference to each other and the edges of the plate. For convenience these plates 1, provided with the projections 2, will preferably be of the same material of somewhat greater thickness, but in all other respects like the plates 3, which make up the main portion of the core; but, if desired, they may be made of some other material. The main portion of the core will be made up of plates 3, of the usual construction, clamped closely together; but at suitable intervals one of the plates 1 will be inserted, so that the projections 2, which may be of any convenient length, according to the width of air-space desired, will rest against the adjacent plate. There being a considerable number of these projections upon each plate, projecting substantially at right angles to its face, they will withstand the pressure applied to the core for the purpose of binding the laminæ closely together, and there will consequently be formed spaces at the desired intervals extending from one side of the core to the other through which the air may circulate.

In the form of plate 1′ shown in Figs. 3 and 4, the form of projection 2′ is somewhat different from that above described, it having two long sides, the meeting point of which constitutes the bearing end of the projection. The manner of building up the core and the results secured are the same as in the form already described.

In Figs. 5 and 6 the core-plate 1″ is shown as provided with lips or projections 2″, stamped from the body of the plate in substantially the manner heretofore described; but these lips or projections are curved laterally in order to give them additional strength to withstand the pressure applied to the core in order to bring the plates into the compact condition desirable in practice.

It is to be understood that any one or more of the forms illustrated and described may be employed in the building up of laminated cores for any variety of electrical apparatus, and I wish it also to be understood that my invention is not limited to the specific forms of lips or projections described, those illustrated being merely examples which I have found desirable in practice.

Other variations may be made by any one skilled in the art which would be within the spirit and scope of my invention.

I claim as my invention—

1. A core plate for electrical apparatus provided with spacing projections stamped from the body thereof, substantially as described.

2. A core plate for electrical apparatus having spacing projections stamped from the body thereof, and projecting substantially at right angles to its face, substantially as described.

3. A laminated core for electrical apparatus having ventilating spaces at intervals formed by projections stamped from certain of the plates and resting against the adjacent plates.

4. A laminated core for electrical apparatus having ventilating spaces formed by projections stamped from certain of the plates and projecting substantially at right angles to the faces thereof.

5. A laminated core for electrical apparatus having ventilating spaces formed by curved lips stamped from certain of the plates and projecting substantially at right angles to the faces thereof.

In testimony whereof I have hereunto subscribed my name this 29th day of April, A. D. 1895.

GEO. WESTINGHOUSE, JR.

Witnesses:
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HUBERT C. TENER.