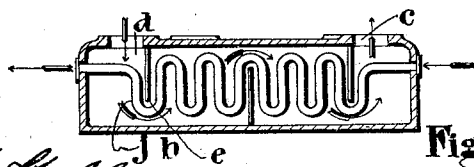
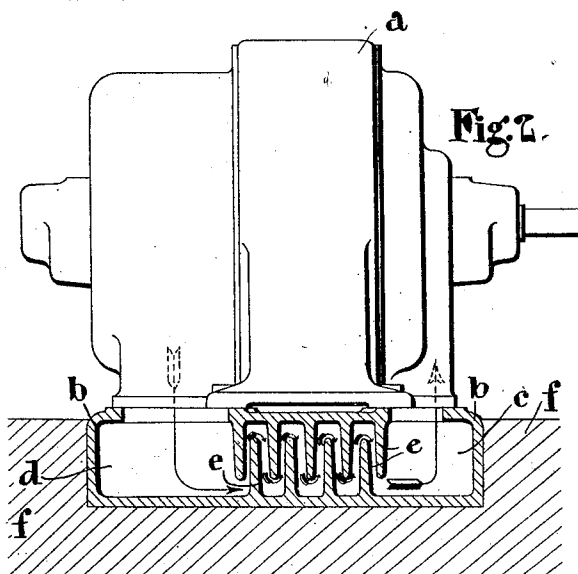
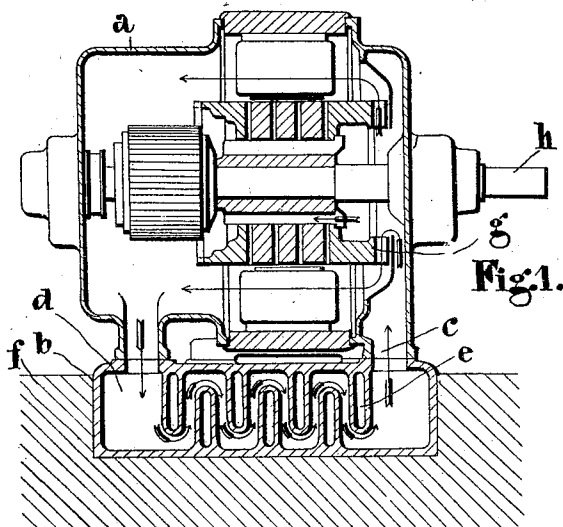


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 COOLING OF INCLOSED DYNAMO ELECTRIC MACHINERY.
 APPLICATION FILED MAR. 27, 1909.

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Specification of Letters Patent. Patented Mar. 29, 1910.

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To all whom it may concern:

Be it known that I, PAUL AMSLER, a citizen of the French Republic, and residing at Römerstrasse, Baden, Switzerland, have invented certain new and useful Improvements in and Relating to the Cooling of Inclosed Dynamo-Electric Machinery, of which the following is a specification.

This invention relates to the cooling of inclosed dynamo electric machinery.

It has heretofore been proposed in the matter of cooling inclosed dynamo electric machines to use a casing for the machine provided with ribs by which the heat is transmitted to the atmosphere and thus dissipated. Further, such an arrangement it has been suggested to augment by the use of a fan to blow air past the cooling ribs or by water cooling. Other proposals have been made, among which may be instanced that of blowing fresh air through the machine the air passing through supply and exhaust channels placed in the foundations of the same.

The object of the present invention is to obtain an improved cooling arrangement without the provision of special projections or the like on the dynamo electric machine which can also be used in cases where it is difficult to supply and exhaust air from outside through special channels and external cooling apparatus as referred to above.

The invention is based on a device which is known *per se*, viz., to circulate the same mass of air through the machine and through a special cooling arrangement (reservoir, cooling coils or the like), placed outside the machine and shut off from the surroundings.

Essentially the invention consists in constructing the foundations of the machine in such a manner that they can serve as a cooling device.

The invention is illustrated in the accompanying drawings in which—

Figure 1 is a sectional view thereof. Fig. 2 is an elevation partly in section showing a modification, and Fig. 3 is a horizontal section of another modification.

In the form illustrated in Fig. 1 the machine is denoted by *a*, the foundation plate by *b*, the cooling apparatus by *c*, and the foundation by *f*. The mode of operation of this form is as follows:—By means of a

fan *g* placed on the rotor shaft *h* and inside the machine, or else by means of the ventilating action of the rotor itself, the air is sucked in at *c* and exhausted at *d*. The air is thus driven between the ribs *e* and gives up its heat to the latter. This heat is distributed over the foundation plate and finally disappears into the immediately adjoining foundation (concrete etc.). The ribs *e* may as shown in Fig. 1 be made hollow and either water or fresh air circulated through them. A cooling coil may moreover be placed in the foundation plates, as shown in Fig. 3 in which the foundation plate *b* alone is shown having fluid educt at *c*, and an induct at *d*, cooling ribs *e*, in this case not hollow, and a cooling coil *j*, through which water or other cooling medium may be circulated.

In Fig. 2 is shown an arrangement in which there are neither hollow ribs nor is there a cooling coil, the electric machine being shown at *a*, foundation plate at *b*, the imbricated cooling ribs at *e*, the air educt at *c* and the induct at *d*, the ventilating means consisting as in Fig. 1 of a fan upon the rotor shaft or the rotor acting as ventilator.

The main advantage of the arrangement according to the present invention consists in this, that the same dimensions used for machines which are not inclosed can be adhered to, for it is well known that hitherto the dimensions of a machine had to be considerably increased when provided with a case, in order to be able to cope with the exceptionally large quantity of heat generated. Hence it will be seen that by means of the present invention such inclosed machines can be fully utilized in accordance with their dimensions. The production of the machine is consequently considerably simplified, since for all cases in which inclosed machines are specified, the same design can be used throughout and thus ribbed casings as well as air admission and exhaust channels which are difficult to construct are rendered superfluous.

The present device insures greater safety in comparison with other arrangements where water cooled casings with outside and inside ribs are used, and in which burning out of the windings is likely to occur due to the condensing moisture.

Having now described my invention what I

