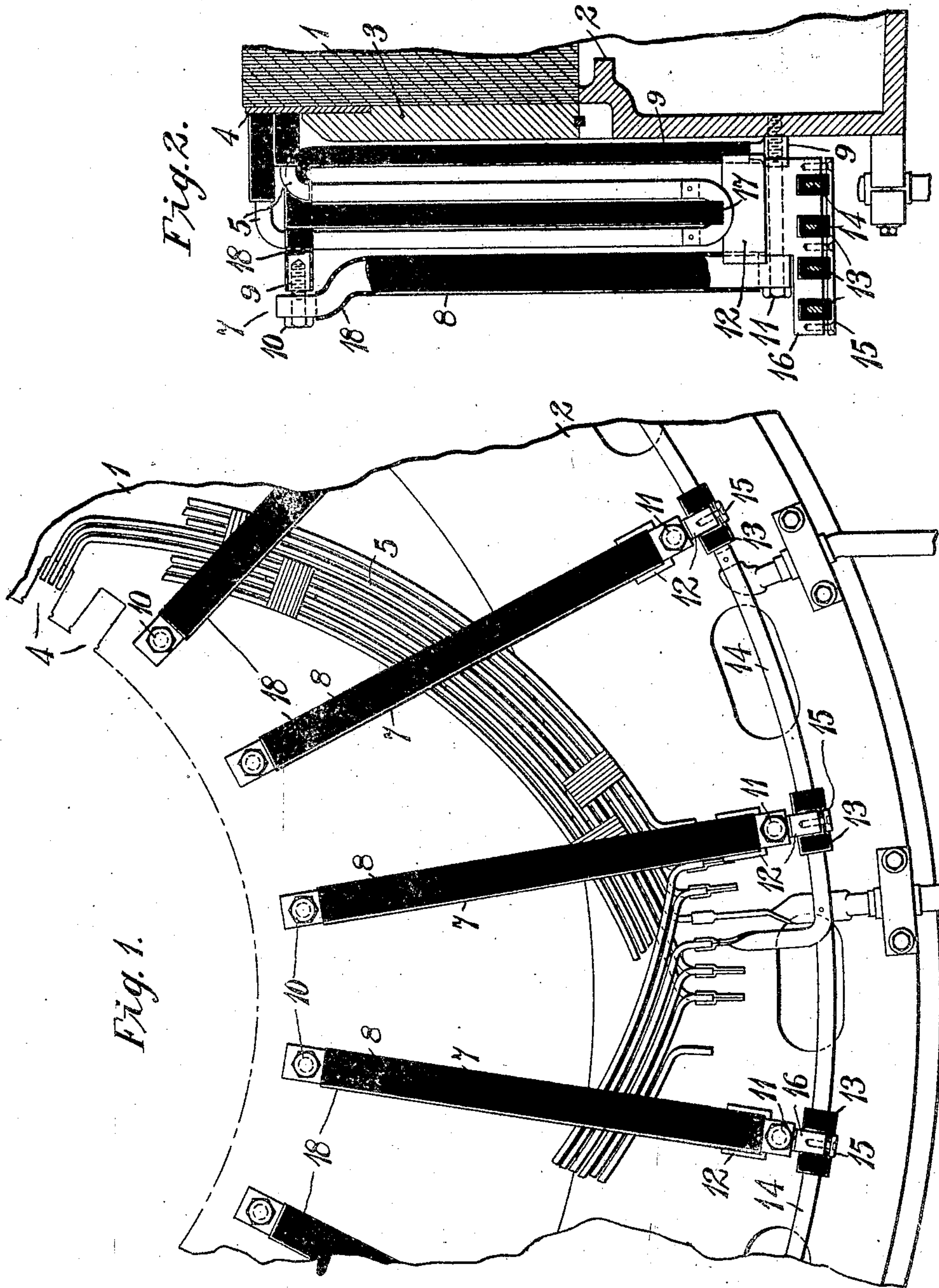


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COIL SUPPORT.  
APPLICATION FILED JAN. 10, 1908.

936,622.

Patented Oct. 12, 1909.



WITNESSES:  
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# UNITED STATES PATENT OFFICE.

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## COIL-SUPPORT.

936,622.

Specification of Letters Patent.

Patented Oct. 12, 1909.

Application filed January 10, 1908. Serial No. 410,230.

*To all whom it may concern:*

Be it known that I, ISRAEL L. GRIFFITH, a citizen of the United States, and a resident of Pittsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Coil-Supports, of which the following is a specification.

My invention relates to electrical apparatus, and it has special reference to means for supporting the coils of dynamo-electric machines.

The object of my invention is to provide an improved device of the class above indicated which shall effectually prevent warping or displacement of the coils to which it is applied, under mechanical and electrical strains, and which shall maintain a high degree of insulation.

As commonly constructed, the parts of armature coils which are not included in the core slots are subjected to tremendous strains which tend to violently distort the coils and inflict serious damage to them, in case the armature is short-circuited. This distortion may be due to the reaction, upon each other, of stray magnetic fields which are set up by the excessive short-circuited electric currents in different sets of armature coils, since the tendency to distortion is apparently greatest in machines of large output having comparatively few poles, and in which the ampere turns are concentrated in a small number of groups. The explanation included herein is not set forth, however, as necessarily specifying the exact cause of coil distortion, but is merely intended as a statement of a reasonable cause for a result which is unquestionable and which may be avoided by my invention, as has been fully demonstrated in practical service.

According to my present invention, I provide a support in the form of a yoke or clevis the ends of which may be secured to the core frame of a dynamo-electric machine by means of one or more bolts, a material advantage over similar supports of the prior art being effected by making the outer side of the clevis or yoke removable. In this way, a clamping action may be obtained not only between the ends of the clevis but also at all points between its side bars.

Figure 1 of the accompanying drawings is an end elevation of a portion of a stationary

armature equipped with coil supports constructed in accordance with my invention, and Fig. 2 is a section through a portion of the armature core which further discloses one of the coil supports shown in Fig. 1.

Referring to the drawings, a preferably laminated core structure 1 is supported by a stationary frame 2 and end plates 3 and is provided with a plurality of core slots 4 in which a material part of the winding of the machine is located.

The portion of the winding which is outside of the core slots constitutes end connectors 5 which may be disposed in any suitable manner, a well known involute type of end connectors being illustrated. This portion of the winding is most liable to be displaced or distorted if the machine is short-circuited or if current disturbances are otherwise produced. Consequently, coil supports are provided which comprise clevises or yokes 7 each having a removable side 8 which is secured to the end member 9 of the yoke by means of a bolt 10, the yoke itself being secured to the stationary frame 2 near its ends by any suitable means, such as bolts 11.

The supports are mounted in substantially radial planes and each of them is provided with a block 12 having a plurality of notches 13 in which cross-connectors 14 may be supported. The cross-connectors serve, in a well known manner, to interconnect the different poles of the winding and are secured in the notches 13 by plates 15 which are screwed to the blocks 12. The blocks 12 may be provided with projections 16 in order to increase their capacity for supporting cross-connectors 14. Insulating blocks 17 may be inserted between the outer and inner layers of the end connectors, being supported at one end by the winding itself and at the other by the end member of the clevis.

The yokes or clevises are provided with insulating coatings or wrappings 18 which may be built up of insulating tape and readily applied before the yokes are placed in position on the machine.

Although I have shown my improved coil support as applied to a specific winding, its use is obviously not restricted in this regard, and it will also be understood that my invention is not restricted to use in connection with the windings of stationary members of



electrical machines, whether generators or motors, except in so far as limitations may be imposed by the character of the winding or the service to be performed.

5 I claim as my invention:

1. A coil support for electrical apparatus comprising a body member of L-shape, a removable side member, and a clamping bolt which projects through corresponding ends  
10 of the said members.

2. A coil support for electrical apparatus comprising a yoke or clevis having one removable side, an insulating block and one or more bolts that project through the block  
15 and through the ends of the yoke or clevis.

3. In a dynamo-electric machine, the combination with a magnetizable core member having a plurality of slots, a winding partially located therein and a supporting frame  
20 therefor, of supporting means for the winding comprising a plurality of yokes, and means for clamping them to the frame, each of said yokes having a removable side.

4. In a dynamo-electric machine, the combination with a stationary slotted armature core, a supporting frame therefor, and a winding comprising a plurality of coils, portions of which are located in said armature slots, and other portions of which are located  
25 in planes substantially parallel to the ends of said armature core, of supporting means for the external portions of said coils, said means comprising a yoke or clevis one side

of which is removable, and means for clamping it to the armature frame.

5. In a dynamo-electric machine, the combination with a stationary slotted armature core, a supporting frame therefor, and a winding comprising a plurality of coils, portions of which are located in said armature  
35 slots, and other portions of which are located in planes substantially parallel to the ends of said armature core, of supporting means for external portions of said coils, said means comprising a yoke one side of  
40 which is removable and one or more bolts that project through the ends of the yoke and engage the armature frame.

6. In a dynamo-electric machine, a stationary armature, armature coils having end  
45 turns, cross-connectors between the coils of different poles, supports for the end turns which serve also as supports for the cross-connectors, said supports comprising a plurality of yokes or clevises mounted in sub-  
50 stantially radial planes, insulating blocks and one or more bolts that project through the blocks and through the ends of the yoke and engage the core member.

In testimony whereof, I have hereunto  
55 subscribed my name this 19th day of December, 1907.

ISRAEL L. GRIFFITH.

Witnesses:

BENJ. M. WILLIAMS,  
BIRNEY HINES.