W. M. DANN.

TRANSFORMER.

APPLICATION FILED AUG. 7, 1911.

1,130,260. Patented Mar. 2, 1915.

Fig. 1.

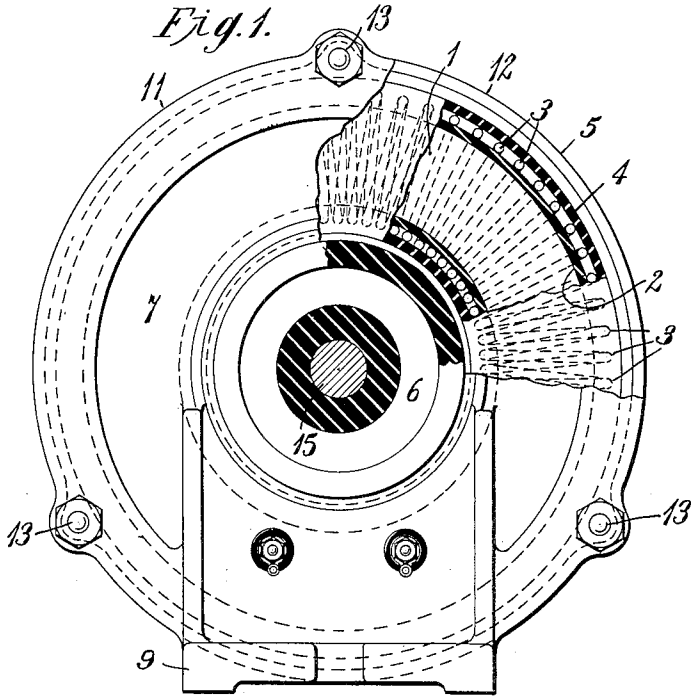
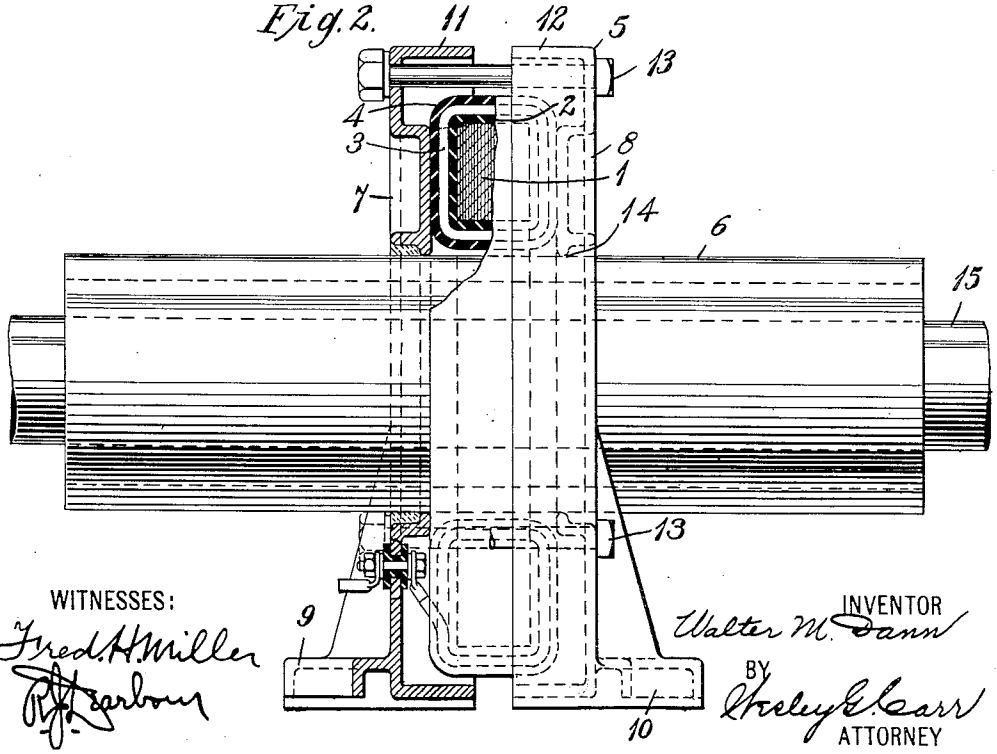


Fig. 2.



WITNESSES:

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TRANSFORMER.

1,130,260. Specification of Letters Patent. Patented Mar. 2, 1915.

Application filed August 7, 1911. Serial No. 642,882.

To all whom it may concern:

Be it known that I, WALTER M. DANN, a citizen of the United States, and a resident of Wilkinsburg, in the county of Allegheny and State of Pennsylvania, have invented a new and useful Improvement in Transformers, of which the following is a specification.

My invention relates to transformers and particularly to series or current transformers that are adapted for supplying energy to the tripping coils of circuit breakers and for similar purposes.

The object of my invention is to provide a simple and durable transformer of the class above indicated, which shall be so constructed as to minimize, if not entirely avoid, the possibility of injury by a sudden flow of current through the primary windings such as usually accompanies a ground or short circuit on a powerful generating system.

Figures 1 and 2 of the accompanying drawings are, respectively, an end and a side elevation, partially in cross section, of a transformer constructed in accordance with my invention.

Referring to the drawings, the transformer here shown comprises an annular laminated core member 1, having an insulating sheath 2, a secondary coil 3, the turns of which are uniformly distributed about the annular core member 1, an outer insulating sheath 4, a metal frame or casing 5, and an insulating tube 6.

The casing 5 comprises two annular members 7 and 8 having base or foot projections 9 and 10, on which the transformer may be supported and flanges 11 and 12, which substantially cover the outer surface of the insulating sheath 4. The two parts are fastened together by bolts 13 and each of them is provided with a central opening 14, through which the tube 6 extends. The tube is preferably held in position by insulating cement or some other suitable sealing compound. A conductor 15 extends through the tube 6 and constitutes the primary winding of the transformer.

The annular punchings or laminæ, of which the core member 1 is composed, are first assembled and insulated by the flexible wrapping or sheath 2, then the coil 3 is wound thereon and is insulated by the outer flexible wrapping or sheath 4. Finally, the end members 7 and 8 of the casing are bolted together to rigidly clamp both the coil and the core member of the transformer between them.

If a sudden rush of current should pass through the conductor 15, a corresponding rush would circulate through the winding 3, but, inasmuch as the turns of this winding are uniformly distributed about the core member and are clamped in position by the casing 5, the winding will not be displaced. This is evident from a consideration of the forces existing in the transformer when the rush of current occurs. It is well understood that a repulsion always obtains between the primary conductor and the secondary coil and this is greatly aggravated when the current traversing one of the windings is suddenly increased. As the turns of the secondary coil are uniformly distributed about the primary conductor in my transformer, the forces acting on the latter are neutralized. The casing effectively holds the secondary coil and the core member and, consequently, the transformer is specially adapted for very severe service.

It is evident that the structural details illustrated may be modified within the spirit and scope of my invention.

I claim as my invention:

1. A transformer comprising an annular core member, a winding therefor having its turns uniformly distributed about the core member, a pair of annular members substantially inclosing the winding, means for forcing said members toward each other in order to press said winding against opposite faces of the core member, and a tubular insulator extending through the opening in the core member.

2. A transformer comprising an annular core member, a winding therefor having its

turns uniformly distributed about the core member, an outer casing substantially inclosing the winding and comprising a pair of flanged end members and bolts for clamping their inner faces against the winding, and an insulating sleeve or bushing extending through the opening in the core member.

In testimony whereof, I have hereunto subscribed my name this 26th day of July, 1911.

WALTER M. DANN.

Witnesses:
W. A. CLARK,
B. B. HINES.