Oct. 11, 1949. A. W. WHITE ET AL 2,484,259

YOKE ASSEMBLY FOR DYNAMOELECTRIC MACHINES

Filed Nov. 29, 1944.

FIG. 1.

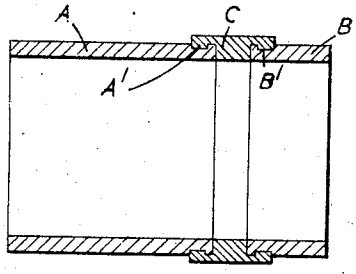


FIG. 2.

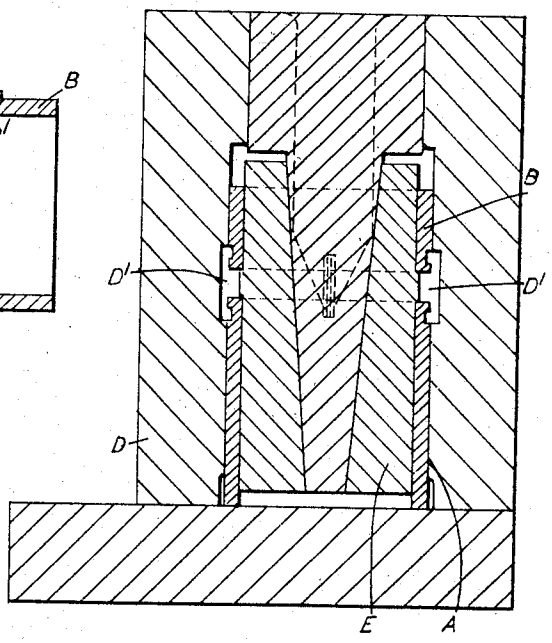
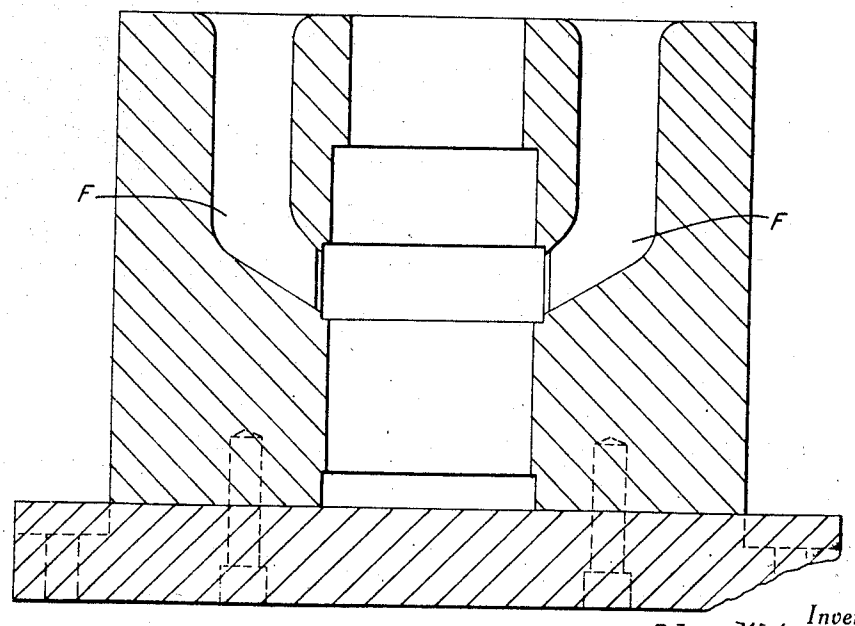


FIG. 3.



Inventors
Adam Watson White
Robert John Gilson
by Harry E. Bruaset
Attorney

Patented Oct. 11, 1949

2,484,259

UNITED STATES PATENT OFFICE

2,484,259

YOKE ASSEMBLY FOR DYNAMOELECTRIC MACHINES

Adam Watson White and Robert John Gilson, Greenford, England, assignors to The Hoover Company, North Canton, Ohio, a corporation of Ohio

Application November 29, 1944, Serial No. 565,596
In Great Britain December 24, 1943

1 Claim. (Cl. 171—252)

1

This invention relates to dynamo electric machines and in particular to motor generators of relatively small dimensions.

In such motor generators it is frequently necessary to connect the yokes of the motor and generator in a mechanical manner whilst providing a distance piece of non-magnetic material between them.

According to this invention the distance piece or spacer is so constructed that it serves the twin functions of separating the two yokes magnetically and connecting them together mechanically. Preferably this connecting piece is formed by casting, for example by die casting in a suitable die and is formed of aluminium or other non-magnetic material which can be die cast.

The yokes may be of cylindrical shape or approximately circular in cross-section and the method of uniting them consists in supporting the yokes on a core in a die so as to leave a gap between the ends of the yokes of the required dimensions. The wall of the die is recessed adjacent to the gap and the adjacent ends of the yokes are grooved, drilled or flanged and knurled so that when molten aluminium or other alloy is introduced into the die it will form a ring to fill the gap between the adjacent ends of the yokes and also to form a flanged ring or union which joins the two yokes together and prevents relative rotation between them.

One construction according to the present invention is shown in the accompanying drawings, in which—

Figure 1 is a vertical section through the yokes of a small combined motor and motor generator,

Figure 2 is a vertical section through a die in which the yokes are united, and

Figure 3 is a section through the die at right angles to Figure 2.

In the construction illustrated two cylindrical yokes A and B of magnetic material have external grooves A^1, B^1 formed on their adjacent ends. These grooves are knurled and the two yokes are connected together in spaced relationship by means of an aluminium or like ring C which is cast in place. The ring C serves to separate the two yokes magnetically and to unite them mechanically. During the casting operation the yokes A and B are accurately supported in a die

2

D on a split core E so that their ends are held apart to the required extent. A cavity D^1 surrounds the gap between the ends of the yokes and extends over their grooved or flanged adjacent ends. Conduits F lead into the cavity so that when molten aluminium or other non-magnetic alloy is poured into the conduits F, a ring C is formed which fills the gap between the ends and the cavity which embraces the knurled grooves A^1, B^1.

Obviously the shape of the combined connecting ring and spacing member may vary to suit individual requirements and the invention is not limited to yokes of substantially circular cross-section. The invention ensures an accurate, rigid and permanent union between the two yokes and obviates the use of machining operations which were hitherto necessary. Obviously more than two yokes may be connected in the manner above described.

What we claim as our invention and desire to secure by Letters Patent is:

A yoke assembly for a dynamo electric machine, comprising a pair of yokes having their adjacent ends spaced apart, a spacer between said adjacent ends of said yokes, means on said spacer overlapping and integrally connected to said adjacent ends for mechanically connecting said yokes and spacer into a unitary non-separable structure, said spacer being of non-magnetic material to separate said yokes magnetically.

ADAM WATSON WHITE.
ROBERT JOHN GILSON.

REFERENCES CITED

The following references are of record in the file of this patent:

UNITED STATES PATENTS

Number	Name	Date
336,458	Weber	Feb. 16, 1886
558,271	Falk	Apr. 14, 1896
768,738	Dunn	Aug. 30, 1904
928,198	Hibbard	July 13, 1909
1,343,451	Hertner	June 15, 1920
1,396,341	Rautenbach	Nov. 8, 1921
1,654,774	Arutunoff	Jan. 3, 1928
2,057,103	Lolley	Oct. 13, 1936