

J. E. NOEGGERATH.
 MEANS FOR DECREASING WINDAGE LOSSES.
 APPLICATION FILED JULY 23, 1908.

957,243.

Patented May 10, 1910.

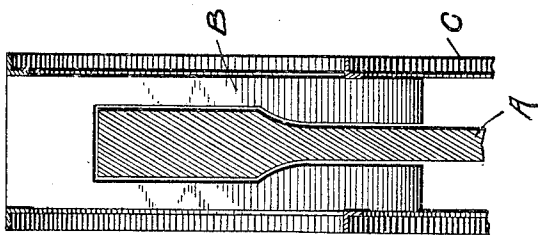


Fig. 2.

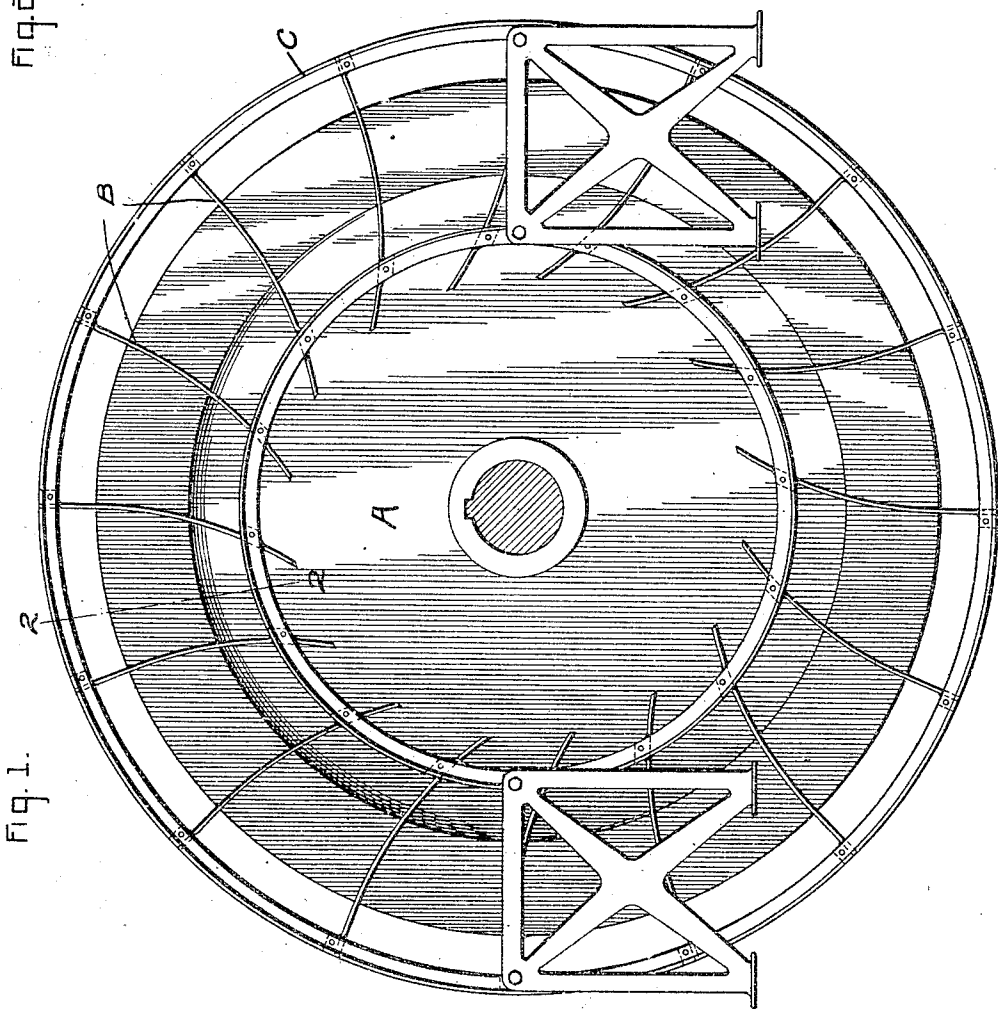


Fig. 1.

WITNESSES:

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INVENTOR:

JAKOB E. NOEGGERATH

by *Alfred H. Davis*
 ATTY.

UNITED STATES PATENT OFFICE.

JAKOB E. NOEGGERATH, OF SCHENECTADY, NEW YORK, ASSIGNOR TO GENERAL ELECTRIC COMPANY, A CORPORATION OF NEW YORK.

MEANS FOR DECREASING WINDAGE LOSSES.

957,243.

Specification of Letters Patent.

Patented May 10, 1910.

Application filed July 23, 1908. Serial No. 444,882.

To all whom it may concern:

Be it known that I, JAKOB E. NOEGGERATH, a citizen of the United States, residing at Schenectady, county of Schenectady, State of New York, have invented certain new and useful Improvements in Means for Decreasing Windage Losses, of which the following is a specification.

My invention relates to means for decreasing windage losses of rapidly revolving bodies, such as fly-wheels, etc.

It has been proposed heretofore to inclose fly-wheels in casings for the purpose of decreasing windage losses. Casings, however, are not wholly successful since the windage losses are still considerable and heat the casing so much that in some cases it is necessary to provide cooling means for the casing.

I have found that the windage losses of a rotating body are due to eddy currents produced in the air surrounding the body, the eddies just outside the periphery of the fly-wheel being in the form of circles tangent to the fly-wheel, while the eddies at the sides of the fly-wheel have irregular forms. I have further discovered that by placing a series of stationary vanes close to the fly-wheel and approximately perpendicular to the paths of the eddies the eddy currents are practically broken up and the windage losses are, consequently, greatly decreased.

My invention will be best understood by reference to the accompanying drawings, in which—

Figure 1 shows a fly-wheel provided with a stationary series of vanes arranged in accordance with my invention, and Fig. 2 shows a detailed view in cross-section on the line 2—2 of Fig. 1.

In the drawings, A represents a fly-wheel or other rotating body, the windage losses of which it is desired to decrease. The driving shaft on which the fly-wheel is mounted is shown in cross section.

B represents stationary vanes which are supported close to the surface of the fly-

wheel by a suitable frame C. These vanes are arranged in planes approximately perpendicular to the plane of rotation of the fly-wheel, and approximately perpendicular to the paths of the eddy currents which the rotation of the fly-wheel tends to produce. By breaking up these eddy currents they serve greatly to reduce the windage losses of the fly-wheel.

I do not desire to limit myself to the particular construction and arrangement of parts shown, but aim in the appended claims to cover all modifications which are within the scope of my invention.

What I claim as new and desire to secure by Letters Patent of the United States, is,—

1. In combination with a revolving body driven by means external to itself, means for reducing windage losses comprising a series of stationary vanes lying in planes substantially perpendicular to the plane of rotation of said body and extending close to its surface.

2. In combination with a revolving body driven by means external to itself, a series of stationary vanes arranged closely around the periphery of said body and adapted to break up the eddy currents which the rotation of the body tends to produce in the surrounding air.

3. In combination with a fly-wheel driven by means external to itself, a series of stationary vanes closely surrounding its periphery.

4. In combination with a revolving body driven by means external to itself, a series of stationary vanes arranged in and substantially perpendicular to the paths of the eddy currents which the rotation of the body tends to produce in the surrounding air.

In witness whereof, I have hereunto set my hand this 21st day of July, 1908.

JAKOB E. NOEGGERATH.

Witnesses:

BENJAMIN B. HULL,
HELEN ORFORD.