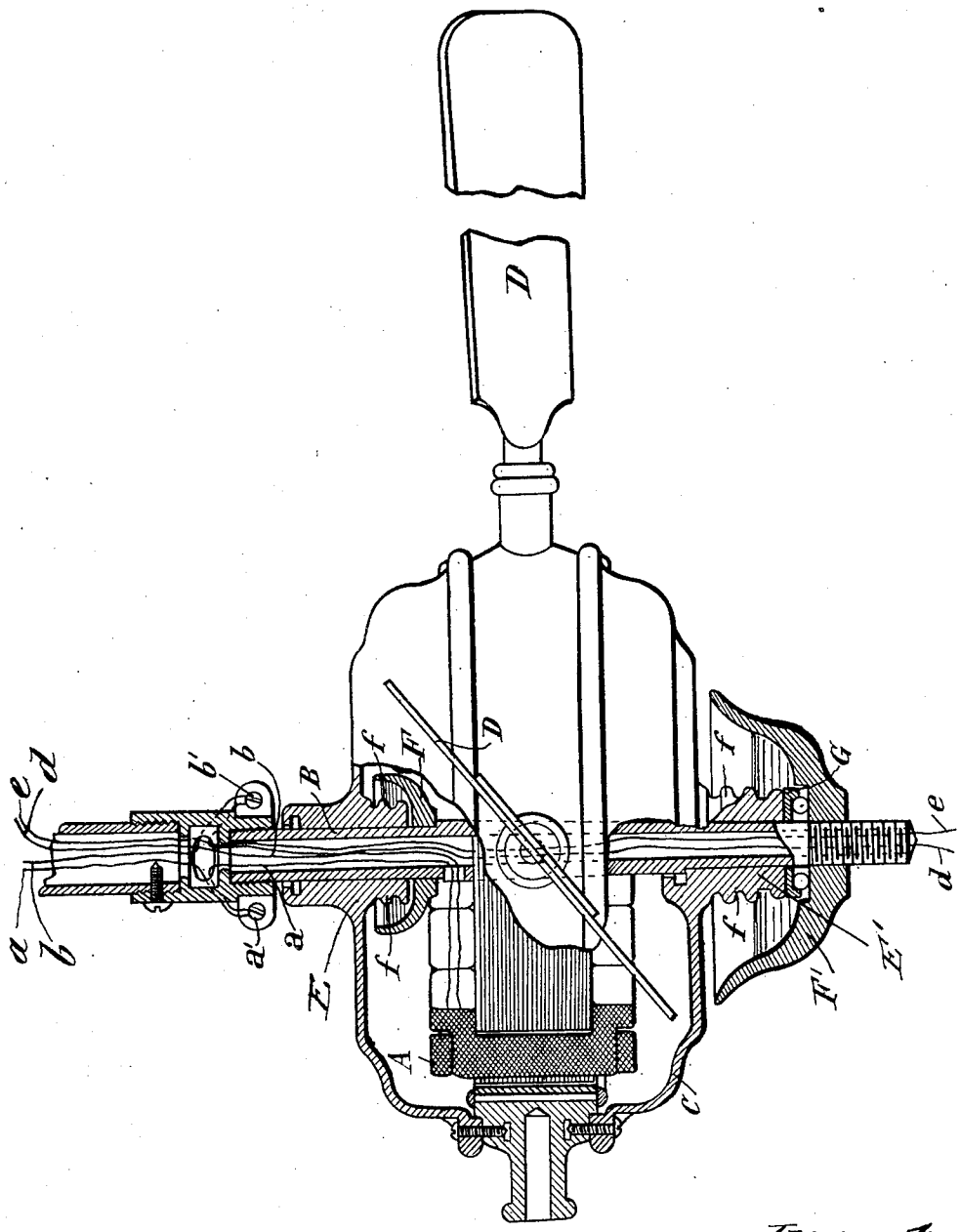
E. MARELLI.

ELECTRIC CEILING FAN.

APPLICATION FILED MAR. 23, 1908.

1,000,183. Patented Aug. 8, 1911.



Witnesses:

C. D. Kesler

Inventor

Ercole Marelli

By James L. Norris

Atty.

UNITED STATES PATENT OFFICE.

ERCOLE MARELLI, OF MILAN, ITALY.

ELECTRIC CEILING-FAN.

1,000,183. Specification of Letters Patent. Patented Aug. 8, 1911.

Application filed March 23, 1908. Serial No. 422,830.

To all whom it may concern:

Be it known that I, ERCOLE MARELLI, a subject of the King of Italy, residing at No. 10 Via S. Radegonda, Milan, in the Kingdom of Italy, have invented new and useful Improvements in Electric Ceiling-Fans, of which the following is a specification.

The present invention relates to improvements in electric ceiling fans, and particularly to fans of the type specified adapted to be actuated by an alternating current, the invention residing primarily in the production of a ceiling fan wherein the blades are attached to a combined casing and armature mounted on a stationary hollow shaft. This construction differs materially from the ordinary type of fan in which the casing is stationary, the blades being secured to the projecting lower end of the armature shaft. Such arrangement, however, is defective in that a relatively large air-gap exists between the armature and magnet, that a perfect adjustment of the armature and magnet is ordinarily impossible and that the shaft requires constant lubrication, with the consequent danger of the oil rising and being sprinkled about the room in which the fan is located. These defects are avoided in the present construction in which the magnet is completely inclosed by the casing, and the electrical connections and the magnetic fields are stationary, and in which a hollow stationary shaft is employed, such shaft enabling either an arc light or cluster to be attached to the lower end thereof, the conducting wires passing through its interior or bore.

The figure appearing in the accompanying drawing represents a sectional elevation of the preferred embodiment of the invention.

Reference being had to said drawing, and to the characters marked thereon, A designates in a general manner the field magnet, B the vertical shaft to which the latter is secured, and C the combined casing and armature.

The magnet A, which may have either triphase or single phase windings, is completely inclosed by the casing, the latter being suitably subdivided, (in three parts according to the present construction), in order to facilitate the mounting of the magnet, the armature proper being connected to the central part, as shown.

The element C, termed hereinafter the "rotor", is formed with a pair of collars E, E′ through which shaft B loosely passes, the lower collar E′ resting upon a step bearing G with which an oil cup F′ is provided, said cup being fitted upon the threaded lower end of the shaft. The upper collar E has a portion thereof extending within the interior of the rotor and projecting into a second oil-cup F carried by the shaft. Both collars are notched, as indicated by the letter *f*, the notches on the lower collar preventing the oil within cup F′ from rising along the outer surface thereof and from being sprinkled outside of said cup from centrifugal force.

Shaft B, which is hollow as well as stationary, provides a passage through which and through an opening communicating therewith, the conducting wires *a* and *b* are led to the magnet, the wires, during their passage being connected to the binding posts *a′* and *b′*. Hence, these wires are completely protected, and since they are stationary, will thus be maintained for a long period in a state of perfect insulation. The magnetic fields are likewise stationary, and for this reason, the current supply is facilitated. The employment of a hollow stationary shaft further permits the attachment of either an arc light or cluster to the lower end thereof, the conducting wires *d* and *e* passing through the shaft bore. Illustration of such attachment has, however, been omitted for the reason that it may be of any conventional type.

The rotor, as above stated, is constructed in sections removably connected together for the purpose of obtaining an accurate adjustment or positioning of the armature and magnet. The central section is formed with a series of radial openings in which the inner ends of the fan blades D are fitted.

What is claimed is:

An electric ceiling fan comprising in combination, a stationary shaft; a magnet secured thereto; a casing rotatably mounted on said shaft and completely inclosing said magnet; a pair of oil-cups secured to said shaft, one of said cups being arranged ex-

teriorly and the other interiorly of the casing; a pair of collars formed upon said casing and projecting into said cups, one cup being provided with a bearing upon which the adjacent collar rests; an armature located within said casing; and a series of blades secured to said casing.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ERCOLE MARELLI.

Witnesses:
B. CARLO SALVOTER,
M. SEARSDORFER, Jr.