

Aug. 4, 1931.

W. R. UGGLA

1,817,216

GEARED ELECTRIC MOTOR UNIT

Filed Jan. 5, 1926

Fig. 1

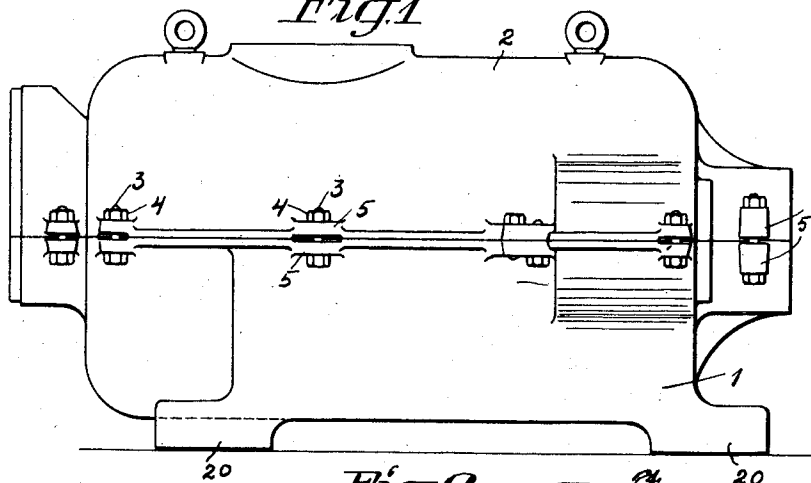


Fig. 2

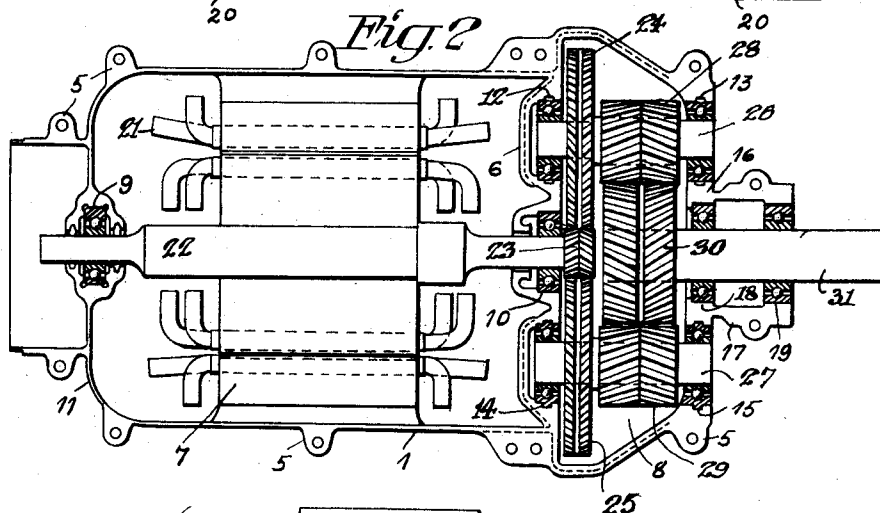
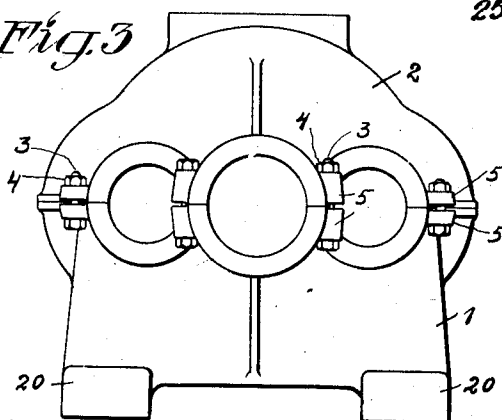


Fig. 3



W. R. Ugglæ

Inventor

By: Marks & Clark
Attys

UNITED STATES PATENT OFFICE

WILHELM ROBERT UGGLA, OF MORBY, STOCKSUND, SWEDEN, ASSIGNOR TO LUTH & ROSENS ELEKTRISKA AKTIEBOLAG OF STOCKHOLM, SWEDEN, A CORPORATION OF SWEDEN

GEARED ELECTRIC MOTOR UNIT

Application filed January 5, 1926, Serial No. 79,423, and in Sweden January 9, 1925.

The present invention relates to geared electric motor units and has particular reference to units of this character in which the electric motor and the gearing comprising the unit are mounted in a common casing comprising integral parts joined along a central longitudinal plane.

In geared electric units of this character the size of the motor does not increase with increasing power to the same degree that the size of the gearing increases with the same increase of power. In small units the portion of the casing housing the gearing may have approximately the same width as the portion of the casing housing the motor and in such units the casing for the gearing may be separate from the casing for the motor and secured in overhung relation to the latter by means of bolts or the like. With such construction the unit as a whole is ordinarily supported by feet provided on the motor casing. In larger units this arrangement involves difficulties rendering it impractical, due to the proportionately greater size in the larger units of the section of the casing for housing the gearing. In the larger units the relatively large gearing section does not permit this section to be supported in overhung relation because of the bending stresses which would be set up and because of the fact that the weight of this section would overbalance the weight of the motor section. This overbalancing of the weight of the motor by the weight of the overhung gearing would produce an unwieldy unit which would be extremely difficult to handle prior to permanent installation. For this reason units of this type have heretofore been provided with supporting feet on the separate portions of the casing housing the motor and the gearing but this form of construction also has involved difficulties due to the bending stresses set up in the unit which tend to cause misalignment of the moving parts of the unit when the casing is built up of parts joined along transverse lines intermediate the supporting feet of the unit.

The general object of the present invention is to eliminate the difficulties heretofore encountered with prior forms of construction

by the provision of a novel form of unit in which the motor and gearing portions of the unit are supported in a casing comprising two integral partitioned parts joined along a central longitudinal plane. The more specific objects of the invention together with its nature and the advantages to be derived from its use will be pointed out more fully in the following description of a preferred embodiment of the invention, illustrated in the accompanying drawings, in which:

Fig. 1 is a side elevation of a unit built in accordance with the invention;

Fig. 2 is a plan view of the unit shown in Fig. 1, with the upper part of the casing removed; and

Fig. 3 is an end elevation of the unit looking from the right of Fig. 1.

The casing of the unit is divided longitudinally into a lower or base part 1 and an upper or cover part 2, these parts being connected by means of bolts 3 and nuts 4. Bolts 3 pass through holes provided in the ears 5 projecting from the edges of the parts of the casing. The casing is divided into a motor section 7 and a gear section 8 by transverse partitioning means provided by the wall 6, the lower half of which is made integral with the lower part of the casing and the upper half of which is made integral with the upper part of the casing.

The motor section houses motor 21 having a shaft 22 journaled in ball bearings situated in the seats 9 and 10 provided in the end wall 11 and the transverse wall 6 of the casing respectively.

In the form of construction illustrated the gearing is of the speed reducing type and comprises a pinion 23 having herringbone teeth meshing with the herringbone gears 24 and 25 carried by the countershafts 26 and 27 respectively. Countershafts 26 and 27 are journaled in ball bearings seating in the bearing seats 12, 13, 14 and 15. Gears 28 and 29, of the herringbone type and carried respectively on shafts 26 and 27, mesh with the herringbone gear 30 on the driven shaft 31. Shaft 31 is in coaxial alignment with shaft 22 and is journaled in ball bearings mounted in the axially spaced seats 18 and 19 pro-

vided in the extension 17 of the end wall 16 of the casing. The shaft and bearing structure illustrated in Fig. 2 has been omitted from Fig. 3.

5 It will be noted that the bearing seats 12 and 14 are placed at the gear section side of the wall 6 and do not extend through the partition formed thereby, thus providing for what may be termed blind bearings at this
10 end of the countershafts. The provision of these blind bearings eliminates the possibility of leakage of lubricant into the motor section of the housing through these bearings.

As will be seen from the drawings the casing is divided in a plane passing through the center lines of the seats for the bearings. In other words, the center lines of the bearings coincide with the line of jointure between the upper and lower parts of the casing. This
15 permits ready removal of the various shafts and bearings, as well as the motor, from the unit upon removal of the upper part of the casing.

The lower part of the casing is provided
25 with longitudinally spaced supports comprising the downwardly projecting feet 20 situated adjacent to the ends of the casing. Due to the fact that the lower part of the casing is not divided transversely intermediate of
30 its ends and is further reenforced by the longitudinally rigid upper part or cover 2, the casing as a whole is extremely rigid and is not subject to distortion due to bending stresses. This construction insures against
35 misalignment of the shafts carrying the meshing gears and provides a construction particularly well adapted for relatively large units.

The specific form or shape of the casing
40 may obviously be altered within the scope of the invention as defined in the appended claims.

I claim:

1. A geared electric motor unit comprising a casing having a lower part and an upper part, said lower part having integral longitudinally spaced supports disposed adjacent to the ends of the casing and each of said parts including integral transverse partitioning means for separating the casing into a motor section and a gear section, a motor in said motor section, a shaft for said motor, a bearing for said shaft in said transverse partitioning means, counter shafts in said gear section, spaced blind bearings for said counter shafts in said partitioning means, gearing operatively connecting said motor shaft to said counter shafts within said gear section, the center lines of said bearings coinciding with the jointure between the upper and the lower parts of said casing, and means for rigidly connecting the parts of the casing to each other.

2. A geared electric motor unit comprising
65 a casing having a lower part and an upper

part, said lower part having integral longitudinally spaced downwardly projecting feet disposed adjacent to the ends of the casing, and each of said parts including integral transverse partitioning means for separating
70 the casing into a motor section and a gear section, a motor in said motor section, a shaft for said motor, a bearing for said shaft in said transverse partitioning means, counter shafts in said gear section, spaced blind bearings for one end of each of said counter shafts in said partitioning means, bearings for the other ends of said counter shafts in said casing, gearing operatively connecting said motor shaft to said counter shafts within said
75 gear section, the center lines of said bearings coinciding with the jointure between the lower and upper parts of said casing, and means for rigidly securing the parts of the casing to each other.

In testimony whereof I have hereunto affixed my signature.

WILHELM ROBERT UGGLA.