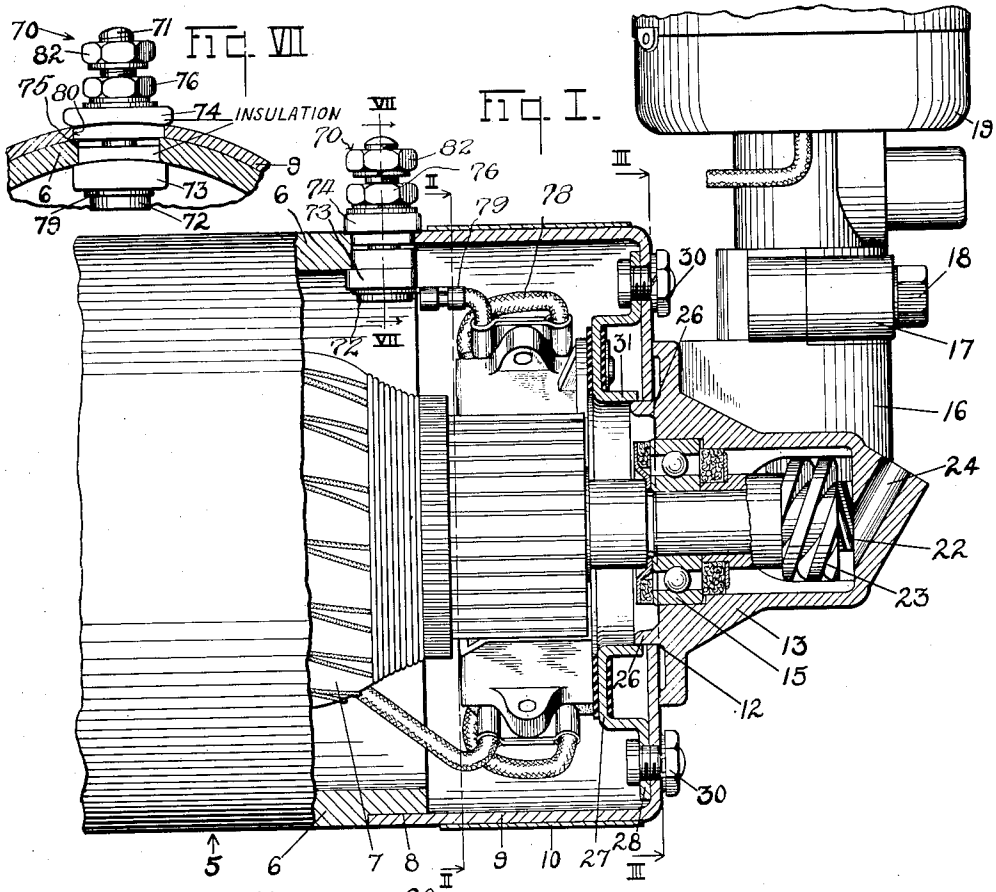
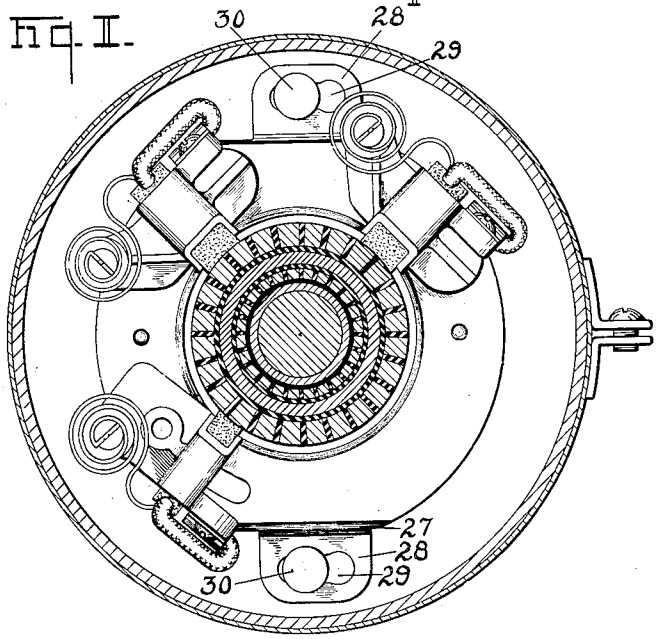
Dec. 23, 1924. 1,520,237

C. F. GILCHRIST

DYNAMOELECTRIC MACHINE

Filed March 4, 1920 2 Sheets-Sheet 1





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DYNAMOELECTRIC MACHINE

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FIG. IV.

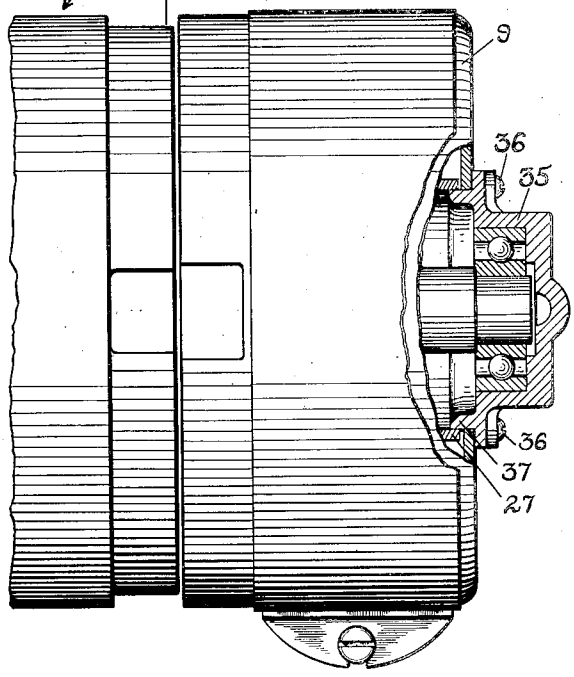


FIG. V.

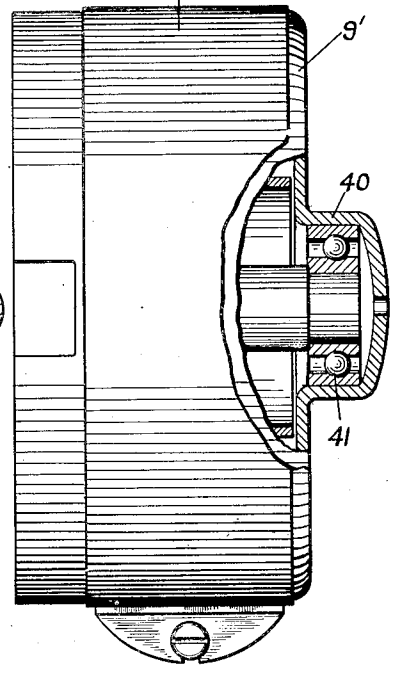


FIG. VI.

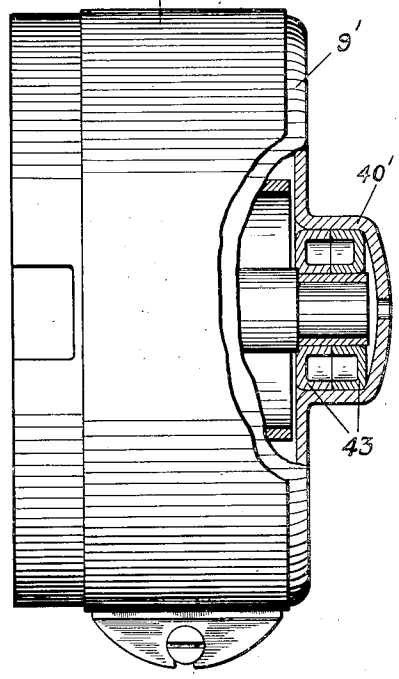
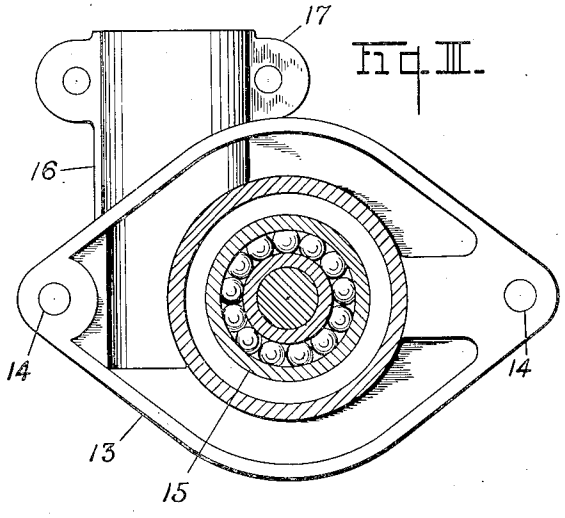


FIG. III.



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Patented Dec. 23, 1924. 1,520,237

UNITED STATES PATENT OFFICE.

CLARENCE F. GILCHRIST, OF TOLEDO, OHIO. ASSIGNOR, BY MESNE ASSIGNMENTS, TO THE ELECTRIC AUTO-LITE COMPANY, OF TOLEDO, OHIO, A CORPORATION OF OHIO.

DYNAMOELECTRIC MACHINE.

Application filed March 4, 1920. Serial No. 363,127.

To all whom it may concern:

Be it known that I, CLARENCE F. GILCHRIST, a citizen of the United States, residing at Toledo, in the county of Lucas and State of Ohio, have invented certain new and useful Improvements in Dynamoelectric Machines, of which I declare the following to be a full, clear, and exact description.

This invention relates to dynamo-electric machines, particularly of the enclosed type, such as are commonly employed as a part of the electrical equipment of motor vehicles, and it is an object of my invention to provide a structure which shall be better adapted to perform its intended functions yet be constructed of relatively few parts which may be accurately and quickly assembled thereby facilitating production in large quantities.

Further objects of this invention relate to economies of manufacture and details of construction as will hereinafter appear from the detailed description to follow. I accomplish the objects of my invention in one instance by the devices and means described in the following specification, but it is evident that the same may be varied widely without departing from the scope of the invention as pointed out in the appended claims. A structure constituting one embodiment of my invention, which may be the preferred, is illustrated in the accompanying drawings forming a part thereof, in which:

Figure I is a view of the commutator end of a generator involving my invention in partial vertical section.

Fig. II is a transverse sectional view taken on the line II—II of Fig. I.

Fig. III is a transverse sectional view taken on the line III—III of Fig. I.

Fig. IV is a top view of the generator shown in Fig. I with the end head detached and partially in section.

Figs. V and VI illustrate two modified forms of end head, the former adapted for use with a ball bearing and the latter adapted for use with a sleeve bearing.

Fig. VII is a sectional view taken on line VII—VII of Fig. I showing the binding post.

Referring to the drawings, the commutator end of a generator 5 is shown in Fig. I having a cylindrical frame 6 to which the pole pieces (not shown) are attached, and within which the armature 7 is mounted. The edge of the frame 6 is reduced in diameter at 8 and fitting over this reduced portion is an end head 9 which serves to cover the commutator and also support the bearing for this end of the armature shaft. The end head 9 is secured to the frame by bolts (not shown on the drawing) which engage the frame 8. Suitable openings are provided in this end head for giving access to the commutator and brushes, which openings are closed by a band 10. The end head 9 which is preferably constructed as a steel stamping is provided with a circular central opening 12 opposite and within which a bracket 13 is clamped to the end head by a pair of screws engaging in the openings 14 in the bracket. This bracket 13 serves as a support for the ball bearing 15 for the armature shaft and is provided with a vertical extension 16 for the purpose of supporting an ignition timing and distributing device, a portion of which is shown at 19. This vertical extension has a split portion 17 and a clamping screw 18 by which the timing and distributing device may be rigidly secured. The shaft of this device extends down into the bracket 13 and at its lower end is provided with a spiral gear 22 which meshes with a spiral gear 23 on the armature shaft. It will be noted that the bracket 13 not only supports the bearing for the armature shaft and the timing device, but also constitutes a housing for the aforementioned gears, protecting them from dust and preventing the loss of lubricating oil. An oil hole 24 is shown in this bracket member to facilitate the introduction of lubricant.

While the bracket 13 is secured to the end head by the aforementioned screws, accurate centering of this bracket is accomplished by providing it with a flange 26 which snugly fits the central opening 12 in the end head and this flange also serves the additional purpose of centering or piloting the brush holder ring 27. This brush holder ring, which is perferably stamped up from sheet steel, is provided with a pair of diametrically opposite ears 28 having elongated openings 29 through which extend securing bolts 30. By this means it is unnecessary to accurately locate the holes for the bolts 30 in the end head and in the ears 28, it being sufficient to provide ample clearance for the

bolts, since by means of the flange 26 and the cooperating flange portion 31 of the brush holder ring 27, this ring will always be maintained concentric with the shaft and therefore with the commutator. The slots 29 in the ears 28 permit of necessary adjustment of the brushes and by means of the bolts 30 the brush holder ring may be permanently secured in adjusted position. Where no timing device is to be used, a bearing supporting cap such as shown at 35 (see Fig. IV) may be employed secured by screws 36 or other suitable means to the outside of the end head and having a flange 37 corresponding to flange 26 fitting the opening in the end head as in Fig. I. This flange, like that previously described, extends inwardly and serves as a guide or pilot for the brush holder ring 27.

In the modified form shown in Fig. V, the end head 9 is constructed with an integral bearing projection 40 which in this figure is shown as supporting a ball bearing 41 for the armature shaft.

According to the modification shown in Fig. VI, the end head 9′ is provided with an integral extension 40′ as in Fig. V but, in this case, a sleeve bearing is used.

In order to enable the use of the same style end head for either a ball bearing or a sleeve bearing, the head is constructed with a projection 40 large enough to accommodate a ball bearing and when a sleeve bearing is used, suitable spacers are employed. These spacers are shown in Fig. VI as being a pair of rings 43 preferably steel stampings formed up channel shape in cross section. A spacer of minimum weight of material and of ample strength is thereby provided.

The binding post unit 70 is secured to the frame 6 at its upper part, and has a shank 71 with a head 72 and a pair of rectangular blocks of insulating material 73 and 74 mounted upon said shank. The block 73 is adapted to fit within a notch 75 cut into the edge of the frame 6 while the block 74 which is wider than the notch overlies the frame 6 and by means of the nut 76, the frame is clamped between the two blocks 73 and 74. Suitable connection is made between this post and one of the brushes by means of a flexible cable 78 having a terminal clip 79 secured under the head 72. After the assembled binding post has been slipped into the notch 75 and made fast, the end head 9, which is provided with a notch 80 of sufficient width and depth to receive the block 74, is slipped in place and secured by the bolts to which reference has been made previously. A second nut 82 is screwed on the shank 71 for the purpose of securing a wire or terminal for an external connection to the generator. It will be appreciated that, by means of the above construction, the binding post may be completely assembled as a unit before being added to the generator, and during the assembly of the generator it may be applied as a unit and connected to the proper brush and that thereafter the end housing 9 may be placed in position with the notch 80 receiving the binding post unit after which the parts may be clamped in position and secured. This, of course, results in a considerable saving of time which would otherwise be consumed and it therefore results in an increased economy of manufacture.

This structure is an improvement, in some respects, on the structure disclosed in my U. S. Patent No. 1,375,658, granted April 19, 1921 on an application filed July 8, 1917, and certain features disclosed in the present application are described and claimed in the said patent.

Inasmuch as the invention herein disclosed is susceptible of various other embodiments and as various changes might be made in the embodiment set forth, it is to be understood that all matter described above or shown in the accompanying drawing is to be interpreted as illustrative only and not in a limiting sense.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent, is:

1. In a dynamo-electric machine the combination with a frame having an end head with a central opening therein and a brush supporting ring within said end head, of a bracket for supporting a bearing for said machine and having a flange extending through said opening and forming a guide for said brush supporting ring.

2. In a dynamo-electric machine having an armature shaft, the combination of a frame having an end head with a central opening therein, an adjustable ring adapted to carry a plurality of brush holders, means for securing said ring to said head and a bracket mounted on the exterior of said end head for supporting a bearing for the shaft of said machine, said bracket having a flange fitting the said opening and projecting into said head to form a pilot for said ring.

3. In a dynamo-electric machine, the combination with an armature shaft and a frame having an end head, said head being provided with a central opening in the end thereof, a bracket mounted on said end head having a flange fitting said opening to position the bracket on the head, a bearing for said shaft carried by said bracket, said bracket being constructed to engage and support a timer having a shaft geared to said armature shaft.

4. A bearing bracket for a dynamo-electric machine having one portion adapted to be secured to an end of said machine and to

carry a shaft bearing for said machine and another portion for supporting a shaft at right angles to the first mentioned shaft, an intermediate portion of said bracket being constructed to form a housing for gear mechanism connecting said two shafts.

5. In a dynamo-electric machine, a frame, an end head engaging said frame, the adjacent edges of said frame and end head being provided with aligning notches, an insulated binding post engaging in said notches and means for clamping said binding post in position.

6. In a dynamo-electric machine, a frame, an end head therefor, the adjacent edges of said frame and end head having aligned notches, a binding post unit engaging said notches and having shoulders between which the frame is adapted to be clamped, said notches enabling the binding post unit to be previously assembled and inserted in the notches during the assembly of the machine.

7. In a dynamo-electric machine, a frame, an end head therefor, said frame and end head having overlapping portions, said portions being provided with aligning notches extending inward from the edges thereof, and a binding post unit comprising a pair of insulating sleeves having shoulders to engage said frame and means for clamping said sleeve to said frame, said binding post unit adapted to be inserted in assembled condition in said notches during the assembly of said frame and end head.

8. In a dynamo-electric machine, a frame, an end head engaging said frame, the adjacent edge of said frame having a notch, a binding post for said machine having means for clamping said frame, the arrangement being such that the binding post is insertable in said notch as a unit and the end head closes the notch.

In testimony whereof, I affix my signature.

CLARENCE F. GILCHRIST.