

S. B. DAUGHERTY & S. F. JOHNSON.
MAGNETO-ELECTRIC MACHINE.
APPLICATION FILED MAR. 21, 1910.

975,401.

Patented Nov. 15, 1910.

2 SHEETS—SHEET 1.

Fig. 1.

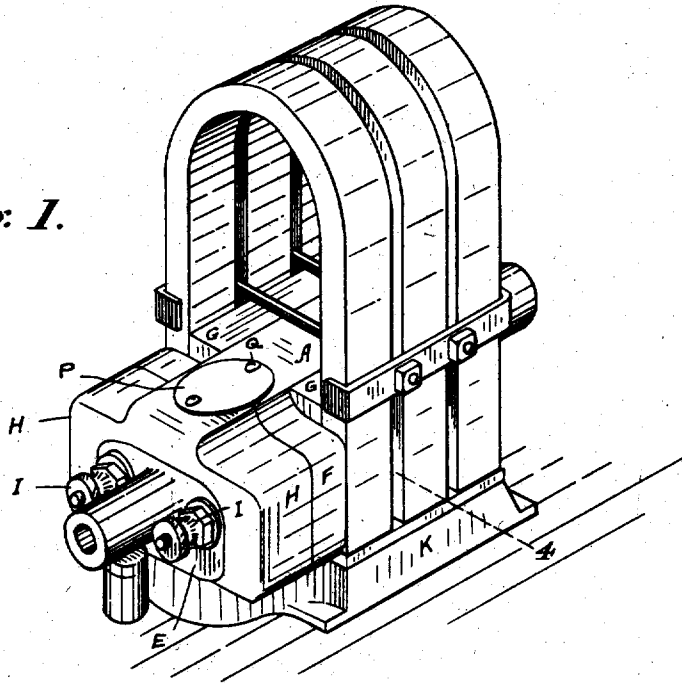


Fig. 2.

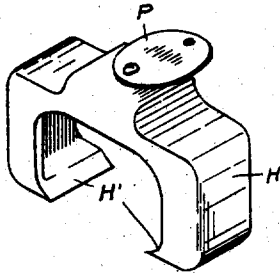
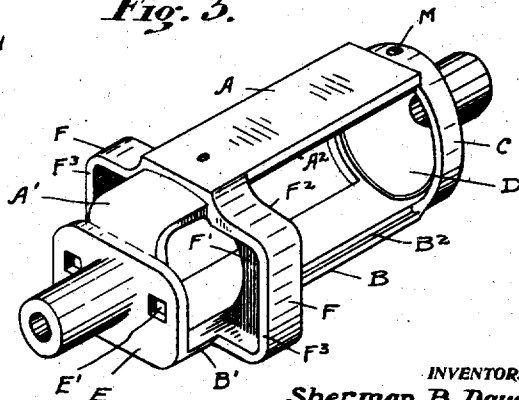


Fig. 3.



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2 SHEETS-SHEET 2.

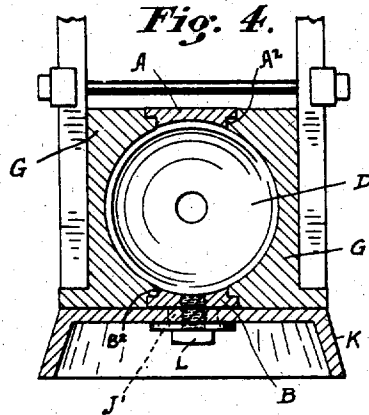


Fig. 7.

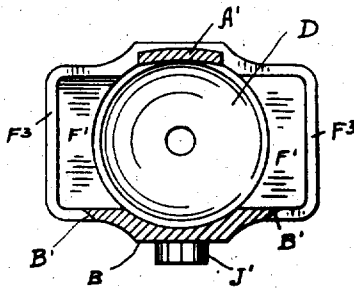


Fig. 6.

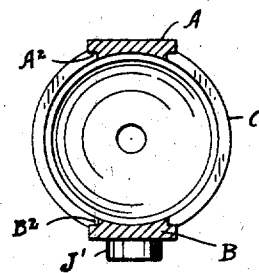
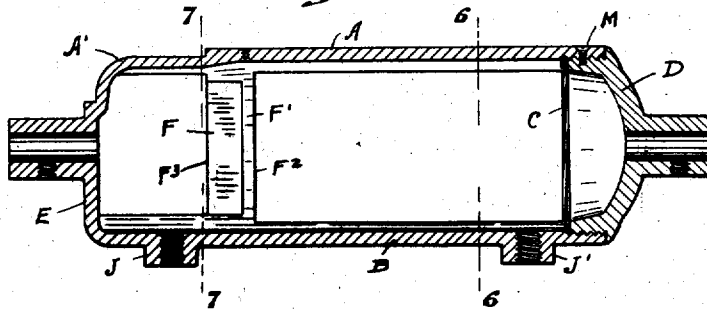


Fig. 5.



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UNITED STATES PATENT OFFICE.

SHERMAN B. DAUGHERTY AND SOLOMON F. JOHNSON, OF INDIANAPOLIS, INDIANA.

MAGNETO-ELECTRIC MACHINE.

975,401.

Specification of Letters Patent.

Patented Nov. 15, 1910.

Application filed March 21, 1910. Serial No. 550,668.

To all whom it may concern:

Be it known that we, SHERMAN B. DAUGHERTY and SOLOMON F. JOHNSON, citizens of the United States, and residents, each, of the city of Indianapolis, Marion county, in the State of Indiana, have invented new and useful Improvements in Magneto-Electric Machines, of which invention we declare the following to be a specification.

10 This invention relates to improvements in construction of magneto-electric machines, and has more especial reference to that class of magnetos wherein the pole-pieces held in the usual position with reference to the armature, are engaged on their outer sides by the ends of the magnets.

With the great advance made in recent years in the perfecting of the internal combustion engine as the motive power for automobiles, the magneto-electric machine as an ignition means has come into general use. In a machine of this type it is very desirable that the same shall be compact and of rigid construction, and that the working parts shall be entirely inclosed.

20 To the end of accomplishing these desirable results, the objects of our present invention are to improve the arrangement and means for retention in place of the armature, pole-pieces and magnets.

30 The objects of our invention are accomplished by and the same consists of the certain improvements effected in the frame construction whereby there is rendered practicable the retention in improved manner of the several parts of the machine, and whereby the assembling of the parts is materially simplified and the necessity of machine work is reduced to a minimum.

40 In the drawings, the several parts of the invention are designated by similar characters of reference throughout the several views.

Figure 1 is a perspective view of a magneto-electric machine in which our invention is embodied. Fig. 2 is a perspective view of the shield-cap removed. Fig. 3 is a perspective view of our improved frame, the shield cap and oil cups having been removed. Fig. 4 is a vertical transverse sectional view taken on the line marked 4 in Fig. 1. Fig. 5 is a longitudinal central sectional view of Fig. 3. Fig. 6 is a transverse sectional view taken on the line 6-6 in Fig. 5. Fig. 7 is a transverse sectional view taken on the line 7-7 in Fig. 5.

Our improved frame, as shown in Fig. 3, comprises top and bottom body-portions having end-portions so formed and combined therewith as to form or afford supports for the armature-bearings, there being transverse portions which act as braces for the top and bottom portions of the frame, and as abutments for the ends of the pole-pieces; the forward end of the frame being so formed as to provide ample room and fastening surfaces for the brush holders and for a cover-section, and then the rearward end being capable of the retention, removably, of the rear-end armature-bearing. This frame is capable of being cast in the form as shown, in a metal mold, and when so cast it is at once in form for the reception of the several parts constituting the electric machine proper, no machine work being necessary except to ream or smooth out the bores in which the armature shaft will operate.

The top and bottom portions A and B respectively of our improved frame, are joined by the ring C which has cast upon its internal face threads suitable to be engaged by the threaded rear-end portion D which carries a sleeve having a suitable bore for the end of the armature shaft. The front-end portion of the frame consists of the transverse plate E which carries a sleeve provided with a bore for the forward end of the armature shaft. This transverse plate is supported in integral connection with the top-portion A by the curved portion A'. At the rear and bottom part of this end plate extend the integrally formed side portions whose edges have the beveled faces B'.

F and F' designate rib-portions which have the webs F¹ that act as stiffeners and also afford a smooth rear wall surface F². These rib-portions perform the double function of bracing the entire frame, and of affording at their rear sides an abutment for the pole-pieces G; and their frontal sides F³, an abutment for the shield-cap H. The continuous longitudinal, off-sets A² and B² in the top-portion and bottom-portion A and B respectively, will receive the edges of the pole-pieces when the machine is assembled.

Provided in the end plate E are the holes E' suitable to receive the connections I for supporting the brush-holders upon the interior of the frame.

J and J' designate internally threaded bores provided on the underside of the

frame. The frame may be retained on a base K. In openings K¹ the bosses J J¹ will be inserted and then secured therein by the cap-screws L. The rear-end portion D when
 5 screwed to proper position in the ring C will be held against movement by the screw M.

Results of our invention are that while ample room is afforded for the armature, commutator and brushes, the pole pieces may
 10 be easily placed in position and when same are held against transverse movement by the tightening against their outer sides of the magnet bars, the displacement of same
 15 longitudinally is rendered impossible. There being no machining, and only a minimum amount of finishing necessary, this improved frame may be manufactured very economically. To complete the inclosure of the op-
 20 erative parts is the function of the shield-cap H which has the structure and form as shown in Figs. 1 and 2. This shield-cap which has the open rear and bottom, has such internal form, and the beveled faces H¹
 25 are of such shape that when it is slipped into position as shown in Fig. 1, its rear edge will abut snugly against the face F², the beveled faces will engage the beveled faces B¹ and its frontal face will close flush with the end-
 30 plate E. Carried by the shield-cap is a plate P which may be connected by a screw Q to the top-portion A of the frame. Any means may be used to secure this shield-cap removably in position as shown.

35 By our invention we provide a frame, which is capable of being complete merely in the casting, in practically finished readiness to receive the several parts, including the pole-pieces, magnets, armature and brush
 40 holders.

No considerable machine work will be necessary, thereby rendering possible the completing of a machine of the character described at a minimum expense. This
 45 frame besides performing the usual function of supporting the bearings for the armature shaft, performs the additional function of bracing and counter-bracing the pole-pieces and magnets, and this too with-
 50 out the necessity of any additional holding means or collateral parts. It also affords a very effective housing and shelter for all of the working parts of the machine. There are no screws or bolts to become loosened nor
 55 are there any projecting or protruding parts.

A magneto machine constructed around and embodying our invention will be strong, rigid and durable and vibration or loosening of any of the parts will be impossible.
 60 Assembling is rendered easy and the liability of moisture getting access into the working or live parts of the machine is remote. A casement or envelop is so formed that the machine is rendered capable of reliable op-
 65 eration under the most adverse conditions.

of moisture and storm, without likelihood of disorder or derangement.

What we claim as new and desire to secure by Letters Patent, is—

1. A frame for a machine of the kind described, comprising oppositely disposed longitudinal portions joined together at one end by a ring portion and at the other end by a transverse plate which carries a bearing, a rear-end portion which carries a bearing and is connected removably to the said ring-portion, and there being a rib-portion intermediate the ends of the frame and extending transversely from each side of the longitudinal portions, substantially as described.
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2. A frame for a machine of the kind described, comprising oppositely disposed longitudinal portions having continuous angular offsets in their opposite interior edges, the said longitudinal portions being joined together at one end by a ring-portion and at the other end by a transverse plate which carries a bearing, an end-portion that carries a bearing and that is connected removably to the said ring portion and there being a rib-portion intermediate the ends of the frame and extending transversely from each side of said longitudinal portions and having vertical webs, substantially as described and set forth.
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3. A frame for a machine of the kind described, comprising oppositely disposed longitudinal portions joined together at one end by a ring-portion, and at the other end by a plate which carries a bearing, a rear-end portion which carries a bearing and is removably connected to the ring-portion, and there being a rib-portion intermediate the ends of the frame and extending transversely from each side of the said longitudinal portions, a removable cap to fit over the longitudinal portions to form a closure between the end transverse plate and the rib portions, substantially as described.
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4. A frame for a machine of the kind described comprising the top and bottom portions A and B joined together at one end by the internally threaded ring portion C which carries a bearing, there being continuous offsets A² and B² in said top and bottom portions and which top and bottom portions are joined together at their front ends by the transverse plate E which carries a bearing and is provided with the openings E¹, a rear-end portion D which carries a bearing and is capable of being screwed into the ring-portion, rib-portions F having the webs F¹ and which extend transversely from and join together the top and bottom sections, the edges of the bottom portion between the rib-portions and the transverse plate having the beveled edges B¹, a removable cap having an open rear and bottom and provided with beveled faces H¹ to register with the
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aforesaid beveled faces B¹, and having an opening in its frontal side to close flush with the face of the transverse plate, substantially as and for the purposes described.

5 5. In a machine of the kind described, pole pieces therefor and means to force same toward each other, a frame for the support of the armature and brush holders which
10 frame comprises oppositely disposed longitudinal portions having continuous offsets in their opposite interior edges, and end por-

tions to join together the longitudinal portions and being extended transversely so as to engage the ends of the pole-pieces.

In testimony whereof we have signed our names to this specification, in the presence of two subscribing witnesses.

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Witnesses:

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ROBT. H. WARNER.