D. B. HUGHES.

MAGNETO ARMATURE.

APPLICATION FILED MAY 10, 1912.

1,108,442. **Patented Aug. 25, 1914.**

Fig. 1

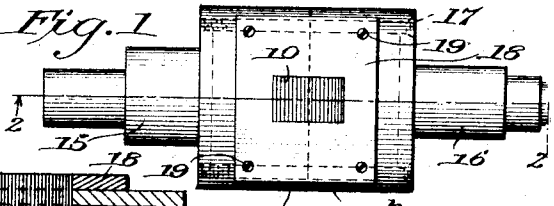


Fig. 2.

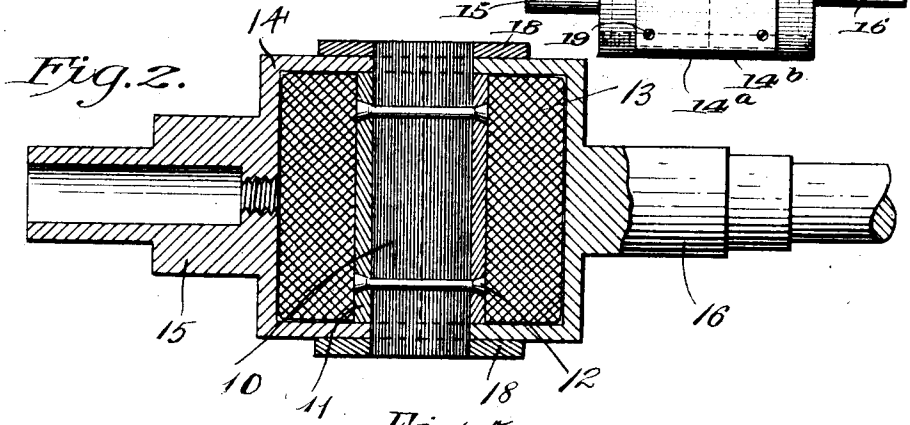


Fig. 3

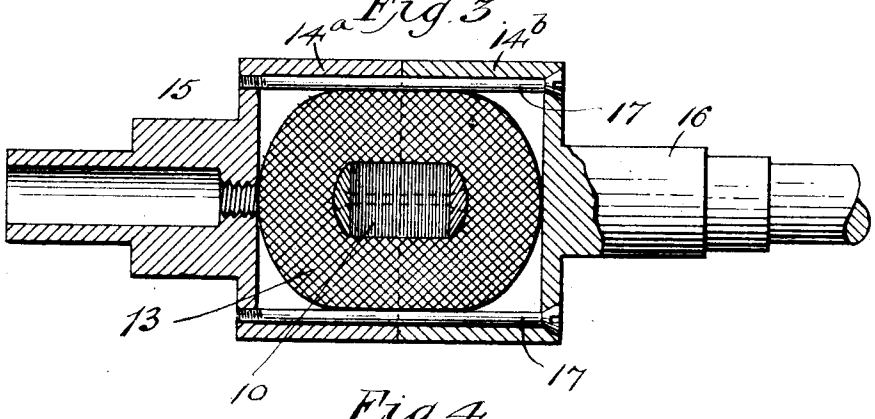
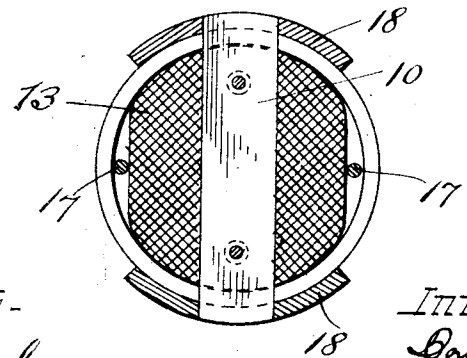


Fig. 4



Witnesses.

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UNITED STATES PATENT OFFICE.

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MAGNETO-ARMATURE.

1,108,442. Specification of Letters Patent. Patented Aug. 25, 1914.

Application filed May 10, 1912. Serial No. 696,336

To all whom it may concern:

Be it known that I, DOW B. HUGHES, a citizen of the United States, residing at New York, in the county of New York and State of New York, have invented a certain new and useful Improvement in Magneto-Armatures, of which the following is a full, clear, and exact description.

This invention relates to magneto armatures and has for its objects the provision of an armature which is strong mechanically, and efficient from electrical and magnetic standpoints; which enables the use of a form-wound coil; which is moisture proof, and proof against injury by coil destruction or injury due to insulation puncturing, and which is not difficult or expensive to manufacture and assemble.

The above and other objects are accomplished by my invention which may be briefly summarized as consisting in certain novel details of construction and combinations and arrangements of parts which will be described in the specification and set forth in the appended claims.

In the drawings, Figure 1 is an elevation on a reduced scale of an armature constructed in accordance with my invention; Fig. 2 is a longitudinal sectional view, substantially along the line 2—2 of Fig. 1; Fig. 3 is a similar sectional view, the section being taken at right angles to the section of Fig. 2; and Fig. 4 is a transverse sectional view through the center of the armature.

The magneto armature constructed in accordance with my invention includes a core 10 formed from a bundle of straight laminæ of the same dimensions transversely from one end to the other. These laminæ are held between side plates 11 by rivets 12, or other suitable means. A form wound coil 13 is placed about this straight bar of laminæ, and thence the coil and all but the ends of the core are inclosed within a non-magnetic casing 14 composed of two parts 14^a and 14^b, which are provided respectively with integral shaft extensions 15 and 16. These two parts of the casing are cup-shaped, and are firmly clamped together by screws 17 which may extend through the casing alongside the coil from one end of the casing to the other, as best shown in Figs. 3 and 4. The casing is notched at diametrically opposite points, and the ends of the core 10 extend outwardly through the openings thus formed. In case the casing is divided at the center line of the core, both parts of the casing will be notched, but I do not regard it as essential that the casing be divided along the lines shown. The ends of the core and of the side plates are rounded or turned concentrically with respect to the axis of the armature, and the longitudinal dimensions of the side plates with respect to the inner diameter of the casing are such that the ends of the side plates fit with a rather close fit against the inner wall of the casing. These side plates therefore constitute abutments or shoulders which prevent any endwise movement of the core relative to the casing.

Secured to the outside of the casing, centrally with respect to the core, are two tips 18 of steel or other magnetic material, which have openings shaped to receive the ends of the core, these tips being arc shaped and of a thickness such that the ends of the core are flush with the outer surfaces of the tips. The tips may be secured to the casing by screws 19 or equivalent means. Preferably, the circumferential lengths of the tips are such that when the armature is in neutral position, with reference to the field magnets (not shown), these tips will bridge the gaps between the tips of the field poles.

After the parts are assembled, the unoccupied spaces within the casing are preferably completely filled with some water-proof substance or composition which can be forced into the casing through any suitable opening which may be provided for that purpose.

It is believed to be unnecessary to explain the advantages further than to say that this construction answers the requirements of a magneto armature very effectively, and with it the advantages previously referred to are obtained. Additionally, attention might be called to the fact that there is no driving stresses transmitted from one part of the casing to the other through the laminated core. Consequently, it will be unnecessary that the laminæ be pressed together by hydraulic pressure or other means, as is frequently required in other machines of this character, wherein driving stresses are transmitted through the laminæ. Further, it may be noted that economy of space is effected by reason of the fact that the coil occupies practically all of the available space in the casing, the core being formed so that it will

extend well up under the pole tips or conforms to the shape of the casing opposite the pole tips.

Having thus described my invention, what I claim is:

1. A magneto armature comprising a two-part casing of non-magnetic material provided with shaft extensions, a core of laminæ extending transversely across said casing, a coil surrounding the core, and means for clamping together the two parts of the casing.

2. A magneto armature comprising a two-part casing, each part cylindrical in shape and provided with a shaft extension, a core comprising a bundle of laminæ extending transversely across the casing and through the walls thereof at diametrically opposite points, a coil surrounding the core within the casing, and means for clamping together the two parts of the casing.

3. A magneto armature comprising a two-part casing having integral shaft extensions, a core comprising a bundle of laminæ projecting transversely across the casing and through the walls thereof at diametrically opposite points, means for clamping together the two parts of the casing, and pole tips on the exterior of the casing and surrounding the ends of the core.

4. A magneto armature comprising a two-part casing provided with shaft extensions, a core comprising a bundle of laminæ extending transversely of the casing and through the wall thereof at diametrically opposite points, said core having shoulders or abutments engaging the inner wall of both parts of the casing, so as to prevent endwise movement of the core relative to the casing, a coil within the casing surrounding the core, and means for clamping together the two parts of the casing.

5. A magneto armature comprising a two-part casing of non-magnetic material provided with integral shaft extensions, a core comprising a bundle of laminæ extending transversely of the casing and through the wall thereof at diametrically opposite points, said core having shoulders or abutments engaging the inner wall of both parts of the casing, so as to prevent endwise movement of the core relative to the casing, a coil within the casing surrounding the core, means for clamping together adjacent faces of the two parts of the casing, and pole tips of magnetic material secured to the exterior of the casing centrally with respect to the core and having openings through which the ends of the core extend.

In testimony whereof I hereunto affix my signature in the presence of two witnesses.

DOW B. HUGHES.

Witnesses:
A. F. Kwis,
A. J. Hudson.