R. VARLEY.

IGNITION APPARATUS.

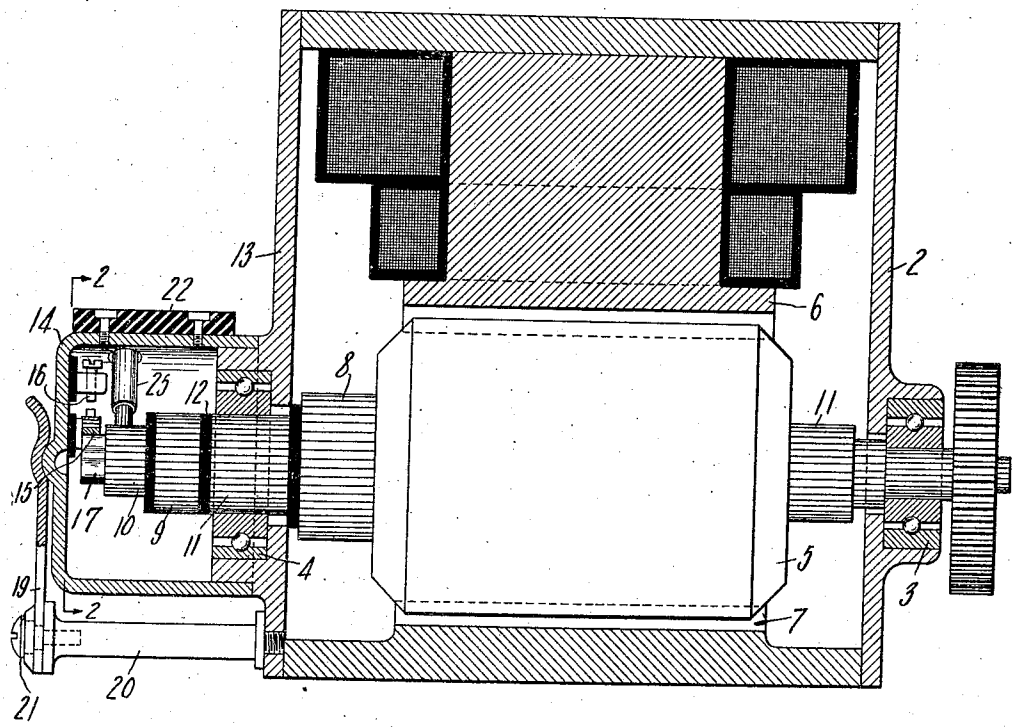
APPLICATION FILED DEC. 5, 1913.

1,146,976.

Patented July 20, 1915.

2 SHEETS—SHEET 1.

FIG. 1



WITNESSES

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INVENTOR

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his attorney

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2 SHEETS—SHEET 2.

FIG. 2

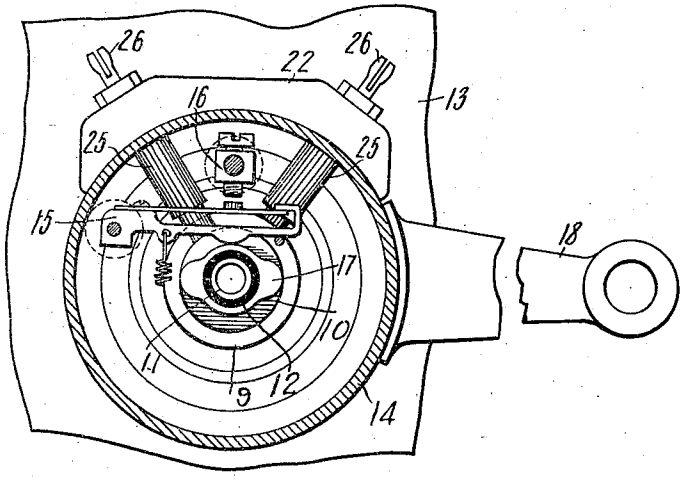


FIG. 3

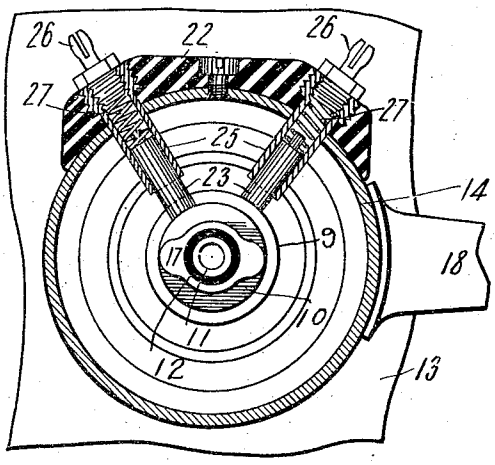
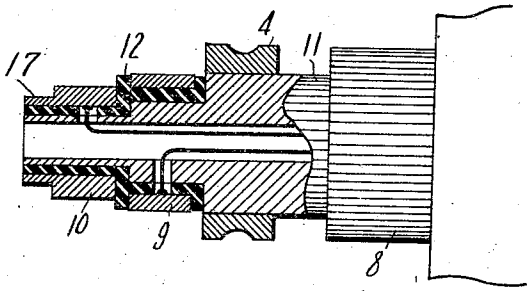


FIG. 4



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UNITED STATES PATENT OFFICE.

RICHARD VARLEY, OF ENGLEWOOD, NEW JERSEY, ASSIGNOR TO VARLEY DUPLEX MAGNET COMPANY, OF JERSEY CITY, NEW JERSEY, A CORPORATION OF NEW JERSEY.

IGNITION APPARATUS.

1,146,976. Specification of Letters Patent. Patented July 20, 1915.

Original application filed June 17, 1912, Serial No. 704,259. Divided and this application filed December 5, 1913. Serial No. 804,850.

To all whom it may concern:

Be it known that I, RICHARD VARLEY, a citizen of the United States of America, residing at Englewood, in the county of Bergen and State of New Jersey, have invented new and useful Improvements in Ignition Apparatus, of which the following is a full, clear, and exact description, reference being had to the accompanying drawings, which form part of this specification.

In my application Serial No. 704,259, filed June 17, 1912, I disclose and claim an electrical system for autovehicles. The present application is a division of the subject matter thereof and more particularly relates to the construction of the generator element therein shown and described. Its primary object is to provide an improved construction which permits of ready removal and replacement of the armature of the generator or magneto without the necessity of disassembling the collector rings and ignition contact or interrupter mechanism.

I also provide other features of construction, as will be hereinafter more fully described and claimed.

I will now describe my invention, referring to the accompanying drawings, so that others skilled in the art to which it appertains, may understand and construct the same, it being premised however, that changes may be made in the construction shown and described without departing from the broad principle of my invention.

Figure 1 is a longitudinal vertical sectional view of a generator or magneto involving my invention; Fig. 2 is an enlarged sectional view on the line 2—2 of Fig. 1; Fig. 3 is a similar view but omitting the contact pieces of the ignition circuit; and Fig. 4 is an enlarged sectional view of the armature shaft, showing commutator and collector rings mounted thereon.

In the above mentioned application Serial No. 704,259, I disclose a system employing a generator adapted to deliver continuous and alternating current, the former for utilization by a work circuit and the latter for energizing an ignition circuit for exploding the combustible charges in the cylinders of an engine. However, I do not desire to limit the present invention to embodiment in a generator of any particular type.

The frame 2 of the generator or magneto is provided with suitable bearings 3 and 4 in which is journaled an armature 5 disposed between the poles 6 and 7 of the generator. This armature may be directly driven by the combustion engine through any suitable connection and is shown as having a commutator 8 from which direct or continuous current may be taken for charging of a light or work circuit (not shown) and collector rings 9 and 10 from which alternating current may be taken for the purpose of energizing an ignition circuit (not shown). As shown in Fig. 4 the collector rings 9 and 10 are preferably carried by an armature shaft 11, being insulated therefrom by suitable insulation 12. The rings are preferably so disposed on the shaft (as shown in Fig. 1) as to be positioned outside of the casing where they are readily accessible for connection with the ignition apparatus and are also of such diameter that the shaft may be readily slipped into or removed from the bearings of the generator frame without the necessity of dismantling or removing the rings therefrom. That is, the rings 9 and 10 are of a diameter equal to or less than the opening in the bearing 4 so that when it is desired to remove the armature or to place it in position in assembling of the apparatus the collector rings may be readily passed through the bearing. This, as stated, also enables such construction as provides for simple connection of the collector brushes, and in Figs. 2, 3 and 4 I indicate a desirable manner of mounting in the collector brushes and interrupter or controlling mechanism of the ignition circuit. A front plate 13 of the armature frame is provided with a rotatively shiftable support or casing 14 carried by which is a contact lever 15 and a coöperative fixed contact 16 forming essentially the make and break or controller mechanism of an ignition circuit. An interrupter plate or cam 17 for rocking or actuating the lever 15, is shown as fixedly carried by the armature shaft and, as shown in Fig. 4, may be formed integral with the outer collector ring 10 which may electrically connect with the contact lever 15. The casing 14 has a suitable radial arm 18, as shown in Fig. 2, by which it may be rotatively shifted about the cam 17 to ob-

tain spark adjustment, in a well known manner, and holding the casing in position (see Fig. 1) is a spring arm 19 pivotally carried by a post 20 projecting from the generator frame, said post being provided with a nut or clamping arrangement 21 which serves to hold the arm in position. At the top of the casing is mounted a block of insulation 22 carrying collector brushes 23 and 24 which extend into the casing preferably at such angles as to conveniently position them at the top thereof. The brushes themselves are mounted in conductive sleeves 25 threaded into the block 22, which sleeves in turn may carry the usual split terminals or spring posts 26; these posts being screw threaded into the sleeves so that besides being detachable, they may form adjusting means for springs 27 which serve to urge the brushes against the collector rings.

It will be seen that the ignition contact mechanism and collector brushes may be readily removed intact with the casing from the generator frame, when it is desired to inspect, adjust, or clean the apparatus, and may be replaced with the same facility without disturbing or deranging the parts. The parts are also confined within a small compact space and do not project or extend obtrusively so as to be liable to injury or derangement.

While I have shown and described a certain form of construction, I do not desire to limit myself thereto, as the same may be embodied in different apparatus without departing from the broad idea claimed.

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

1. In apparatus of the character described, a generator frame, an armature therefor, a commutator, collector rings, a journal intermediate the commutator and collector rings, and a bearing for the journal, said collector rings being of a diameter not greater than that of the journal.

2. In apparatus of the character described, a generator frame, an armature therefor, a shaft for the armature, the generator frame having an opening through which the shaft projects, a bearing for the shaft, and collector rings carried by the shaft and disposed outside the bearing and being of a diameter no greater than the opening in the generator frame.

3. In apparatus of the character described, a generator frame, an armature therefor, a shaft for the armature, a commutator surrounding the shaft, a bearing for the shaft, and collector rings terminally carried by the shaft and disposed outside the generator frame, said collector rings being of a diameter no greater than the opening of the shaft bearing.

4. In apparatus of the character described, a generator frame, an armature therefor, a shaft for the armature, collector rings mounted on the shaft, a bearing for the shaft, positioned intermediate the armature and collector rings, electric contact mechanism, and means for actuating the contact mechanism, associated with the armature shaft.

5. In apparatus of the character described, a generator frame, an armature therefor, a shaft for the armature, collector rings mounted on the shaft, a bearing for the shaft, positioned intermediate the commutator and collector rings, electric contact mechanism, and means for actuating the contact mechanism, terminally carried by the armature shaft.

6. In apparatus of the character described, a generator frame, an armature therefor, a shaft for the armature, a bearing for the shaft, collector rings mounted on the shaft, outside of the bearing, and spark producing means including make and break mechanism associated with said collector rings.

7. In apparatus of the character described, a generator frame, an armature therefor, a shaft for the armature journaled in the frame, collector rings mounted thereon and disposed outside the frame, a support, and collector brushes carried by the support and arranged to bear upon the collector rings.

8. In apparatus of the character described, a generator frame, an armature therefor, a shaft for the armature, journaled in the frame, collector rings mounted thereon and disposed outside the frame, a casing inclosing the collector rings, and collector brushes carried by the casing and arranged to bear upon the collector rings.

9. In apparatus of the character described, a generator frame, an armature therefor, a shaft for the armature, journaled in the frame, collector rings mounted thereon, a casing inclosing the collector rings, electric contact mechanism housed in the casing, means for operating the contact mechanism, and collector brushes carried by the casing and arranged to bear upon the collector rings.

10. In apparatus of the character described, a generator frame, an armature therefor, a shaft for the armature, journaled in the frame, collector rings mounted thereon, a casing inclosing the collector rings, electric contact mechanism housed in the casing, means fixedly carried by the armature shaft, for tripping the contact mechanism, and collector brushes carried by the casing and arranged to bear upon the collector rings.

11. In apparatus of the character described, a generator frame, an armature therefor, a shaft for the armature, journaled

in the frame, collector rings mounted thereon, electric contact trip mechanism and means associated with one of the collector rings for actuating the trip mechanism.

12. In apparatus of the character described, a generator frame, an armature therefor, a shaft for the armature, journaled in the frame, collector rings mounted thereon, and electric trip mechanism, one of said collector rings being adapted to actuate the trip mechanism.

In testimony whereof, I have hereunto set my hand in the presence of two witnesses.

RICHARD VARLEY.

Witnesses:
M. A. KEELER,
M. A. BARTH.