W. W. DEAN.

IGNITION GENERATOR.

APPLICATION FILED AUG. 22, 1916.

1,327,375.

Patented Jan. 6, 1920.

2 SHEETS—SHEET 1.

Fig. 2.

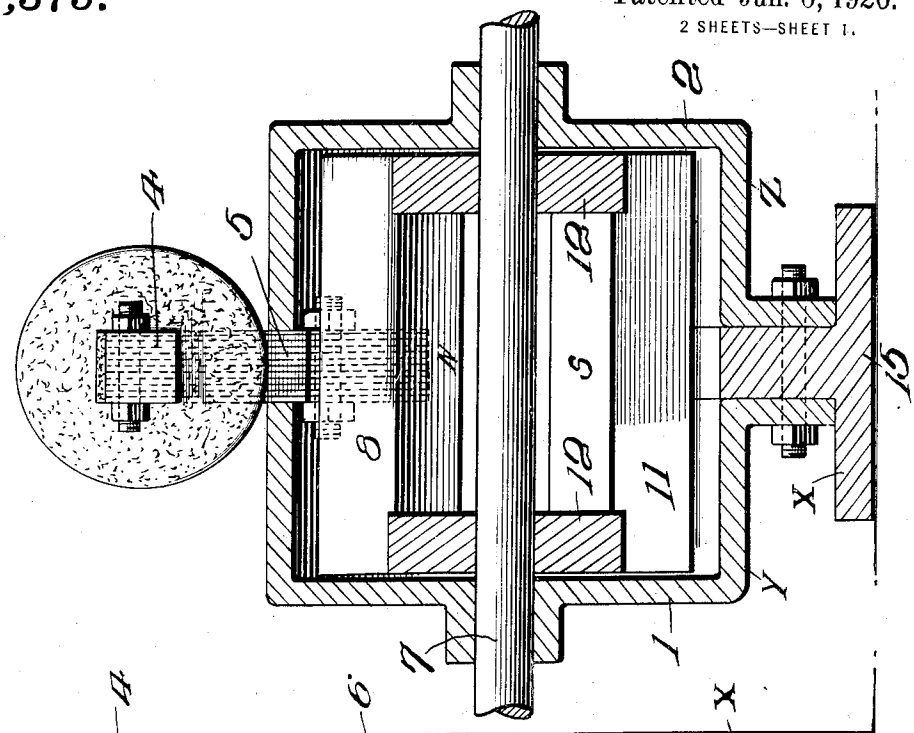
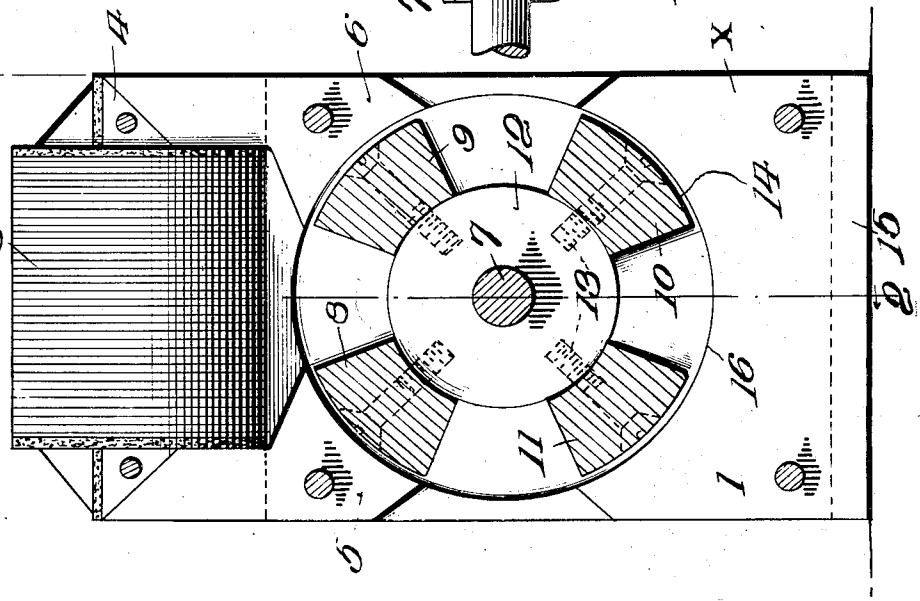


Fig. 1.



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2 SHEETS—SHEET 2.

Fig. 3.

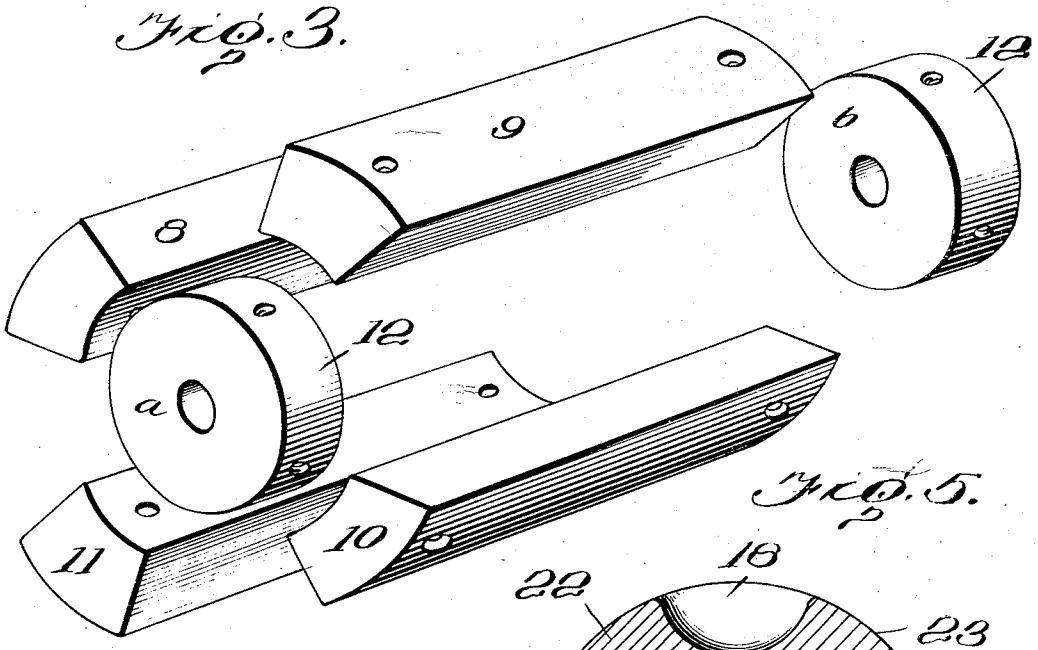


Fig. 5.

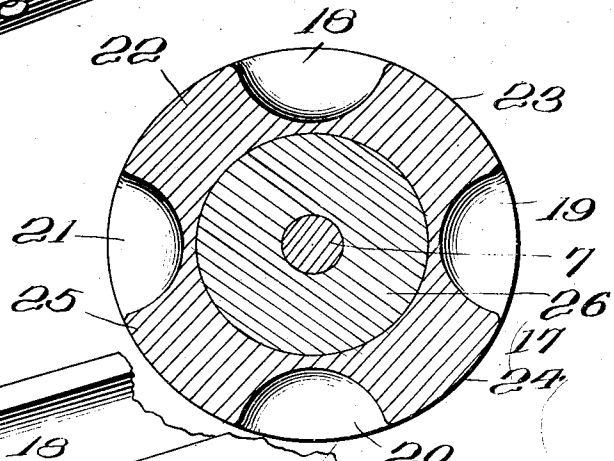
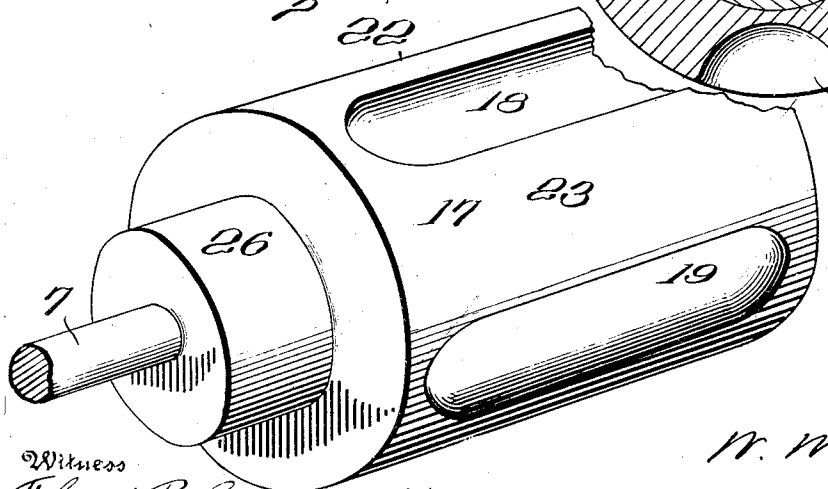


Fig. 4.



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UNITED STATES PATENT OFFICE.

WILLIAM WARREN DEAN, OF STAMFORD, CONNECTICUT, ASSIGNOR TO SPLITDORF ELECTRICAL COMPANY, OF NEWARK, NEW JERSEY, A CORPORATION OF NEW JERSEY.

IGNITION-GENERATOR.

1,327,375. Specification of Letters Patent. Patented Jan. 6, 1920.

Application filed August 22, 1916. Serial No. 116,358.

To all whom it may concern:

Be it known that I, WILLIAM W. DEAN, a citizen of the United States, residing at Stamford, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Ignition-Generators, of which the following is a specification, reference being had to the accompanying drawing.

The invention relates broadly to generators commonly used for ignition or the like and generally termed magnetos, and in detail to a magneto having a stationary current generating coil and a permanent magnet rotating between the pole pieces connected to the core of said coil.

An object of the invention is to provide a magneto of the above type with a rotor which is constructed so as to provide a relatively large magnet without unduly increasing the diameter of the rotor.

A further object of the invention is to provide a magneto wherein the rotor is cylindrical in form and provided at the center plane thereof with spaced sections so arranged that the poles of the cylindrical magnet are disposed in a center plane which is perpendicular to the axis of the rotor.

These and other objects will in part be obvious and will in part be hereinafter more fully described.

In the drawings, which show by way of illustration one embodiment of the invention:—

Figure 1 is a sectional view taken centrally through the magneto;

Fig. 2 is a sectional view on the line 2—2 on line 1;

Fig. 3 is a detached perspective view showing the parts of the rotor;

Fig. 4 is a perspective view showing a slightly modified form of rotor; and

Fig. 5 is a central sectional view through the rotor showing Fig. 4 midway between its ends.

The invention as shown in the drawing is embodied in a magneto for ignition purposes which consists of a permanent magnet mounted on a suitable shaft adapted to either oscillate or rotate in suitable bearings thus forming the rotor of the magneto. Associated with this rotor is a stationary current generating coil. Extending through the generating coil is a core having pole pieces connected thereto, which pole pieces art disposed relative to the permanent magnet as to receive flux therefrom. These features are broadly shown, described and claimed in my copending application, Serial No. 108,498, filed July 10th, 1916.

The present invention is directed more particularly to the construction of the rotor so that it may be made relatively large without unduly increasing the diameter of the rotor. Said rotor consists of a permanent magnet which may be in the form of a series of bar magnets extending parallel to the axis of the rotor and spaced from each other. Said bar magnets are connected to their supporting shaft by non-magnetic blocks which are preferably located at the ends of the bars. The pole pieces connected to the core of the stationary current generating coil are disposed midway between the ends of the rotor. In another form of the invention the rotor is made from a cylindrical magnet, the axis of the cylinder being coincident with the axis of the rotor and said cylinder being cut away intermediate its ends so as to form spaced sections and wherein the poles of the magnet are located in a plane at right angles to the axis of the rotor and intermediate to the ends thereof.

Referring more in detail to the drawings:—

My improved magneto consists of supporting side plates 1 and 2 which are preferably of non-magnetic material. Mounted on these side plates is a stationary current generating coil 3. Said coil has a core 4 which is connected to the pole pieces 5 and 6. The pole pieces 5 and 6 are bolted to the end plates 1 and 2 and this serves as a means for supporting the coil. Mounted in the end plates 1 and 2 is a shaft 7 and this shaft carries the rotor. As shown in the Figs. 1, 2 and 3 of the drawings, the rotor consists of four bar magnets 8, 9, 10 and 11. Adjacent each end of the bars there is a non-magnetic block 12. The bars are secured to these non-magnetic blocks by suitable bolts 13. The non-magnetic blocks 12 are in turn fixed to the shaft 7. It will thus be seen that the bar magnets are parallel with the axis of the rotor. The outer face of each magnet is curved as indicated at 14 and this curvature is about the axis of the rotor as a center. The pole pieces 5 and 6 are also curved about the axis of the rotor as a cen-

ter and are spaced from the outer faces of the bar magnets so as to form a suitable air gap. The pole pieces 5 and 6 have their center lines arranged at an angle of 90 degrees to each other and as a consequence said pole pieces 5 and 6 will simultaneously receive flux from the poles of adjacent bars of the magnet. The poles of the magnet are located in a plane at right angles to the axis of the rotor and midway between the ends thereof as indicated at N and S in Fig. 2 of the drawings. Located between the end plates 1 and 2 is a cast iron base 15 which projects upwardly between the end plates and is curved at 16. This cast iron plate serves to short circuit the poles of the adjacent bar magnets which are idle or which are not furnishing flux to the pole pieces 5 and 6. Said plate is separated from the pole pieces so that its presence does not affect the magnetism in the pole pieces. The arrangement of base for short circuiting the poles of the magnet is shown, described and claimed in my co-pending application, Serial No. 113,117, filed August 4th, 1916.

In Figs. 4 and 5 of the drawings I have shown a modified form of rotor. The rotor in this instance is in the form of a cylindrical piece of steel permanently magnetized. Said cylinder is cut away at the points 18, 19, 20 and 21 so as to leave projecting sections 22, 23, 24, and 25. These projecting sections are parallel with the axis of the rotor. There is a non-magnetic block 26 at each end of the cylinder which blocks are secured to the shaft 7. The location and method of operation of this form of rotor relative to the pole pieces 5 and 6 is precisely the same as in connection with the rotor shown in Figs. 1, 2, and 3.

It is obvious that minor changes in the details of construction and the arrangement of parts may be made without departing from the spirit of the invention as set forth in the appended claims.

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

1. An ignition magneto comprising a stationary current generating coil, a core therefor, pole pieces for said core, a rotor comprising a permanent magnet having a plurality of sections extending parallel with the axis of the rotor, said sections being spaced from each other and spaced from the center of said rotor, said pole pieces being located in a plane at right angles to the axis of the rotor and disposed midway between the ends of the respective magnet sections.

2. An ignition magneto comprising a supporting base, non-magnetic side plates bolted to said base, a stationary current generating coil located outside of said side plates, a core for said coil, pole pieces for said core, said pole pieces being secured to said side plates between the meeting edges thereof, a rotor comprising a permanent magnet located within said end plates and journaled therein, said rotor having a plurality of sections extending parallel with the axis of the rotor, said sections being spaced from each other and from the center of said rotor, said pole pieces of the core being disposed in a plane at right angles to the axis of the rotor and midway between the ends of the respective sections of the magnet.

3. An ignition magneto comprising a stationary current generating coil, a core therefor, pole pieces for said core, a shaft, non-magnetic blocks secured to the shaft, bar magnets secured to said blocks and arranged parallel with the shaft and forming a rotor, said bar magnets being spaced from each other and having alternately N. and S. poles, said pole pieces of the core being disposed midway between the ends of the respective bar magnets and disposed so as to receive flux from adjacent bar magnets.

4. An igniting magneto comprising a stationary current generating coil, a core therefor, pole pieces for said core, and a rotor comprising four spaced magnetic bars extending parallel with the axis of the rotor and having alternate N and S poles, said pole pieces being so disposed as to receive flux from adjacent poles of the magnet and a magnetic base so disposed relative to the magnet as to short circuit the poles thereof which are remote from said pole pieces.

5. An igniting magneto comprising a stationary current generating coil, a core therefor, pole pieces for said core, and a rotor comprising four spaced magnetic bars extending parallel with the axis of the rotor and having alternate N and S poles, said pole pieces being so disposed as to receive flux from adjacent poles of the magnet, a magnetic base so disposed relative to the magneto as to short circuit the poles thereof which are remote from said pole pieces, said magnetic base being separated from the pole pieces whereby the presence of the magnetic base does not affect the magnetism in said pole pieces.

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

WILLIAM WARREN DEAN.

Witnesses:
GEORGE R. CLOSE,
DOROTHY J. TILLEY.