

July 23, 1935.

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2,009,228

MAGNETO

Filed April 17, 1934

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Fig. 1.

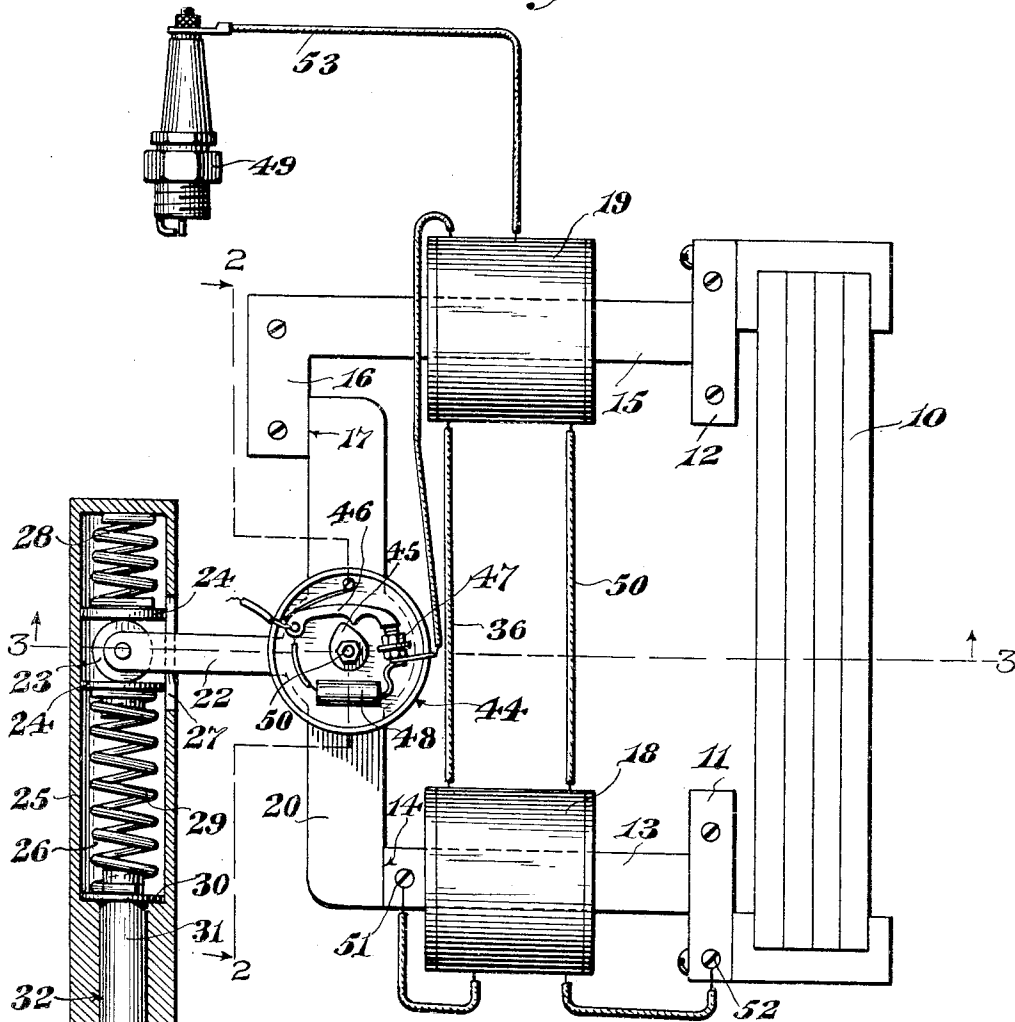
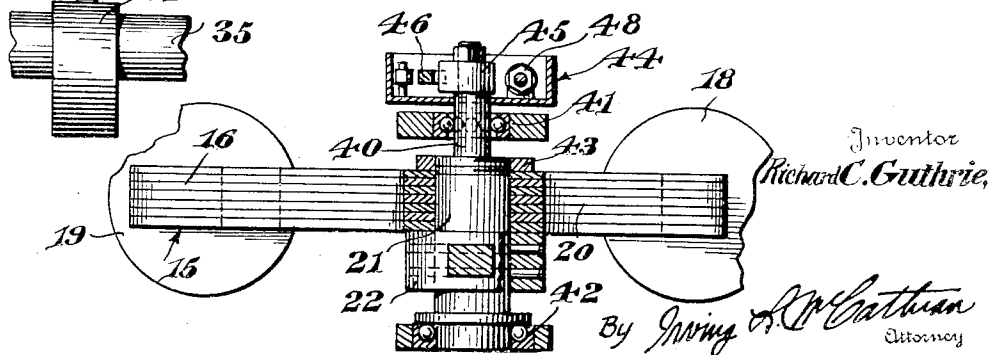


Fig. 2.



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Fig. 3.

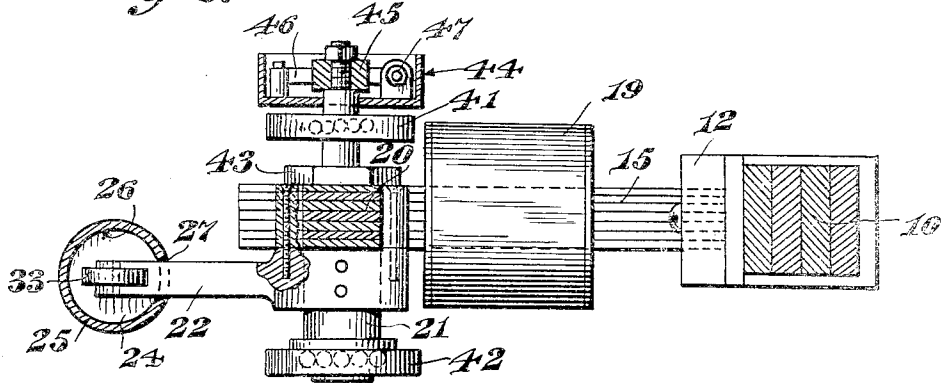


Fig. 4.

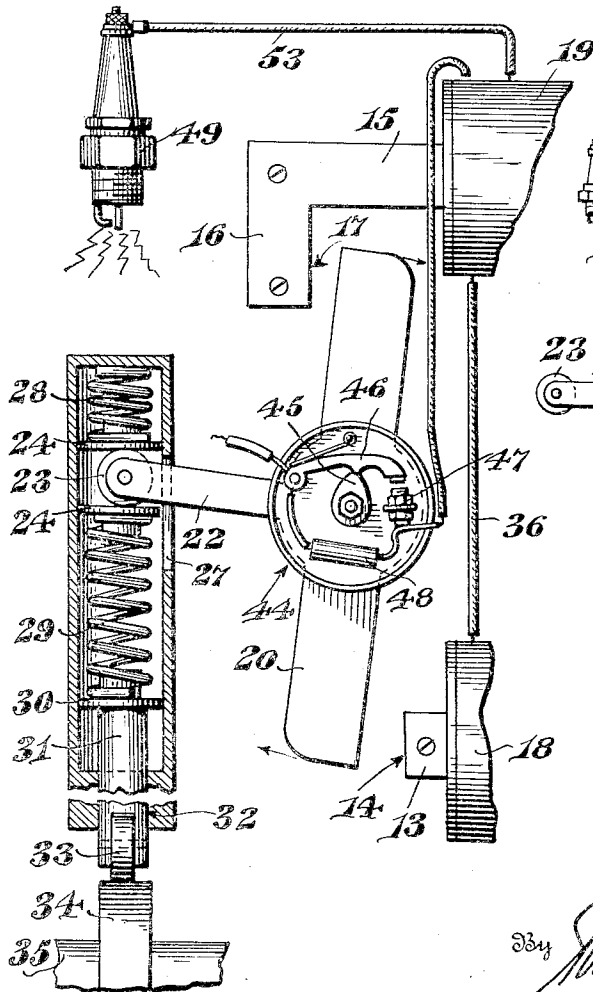
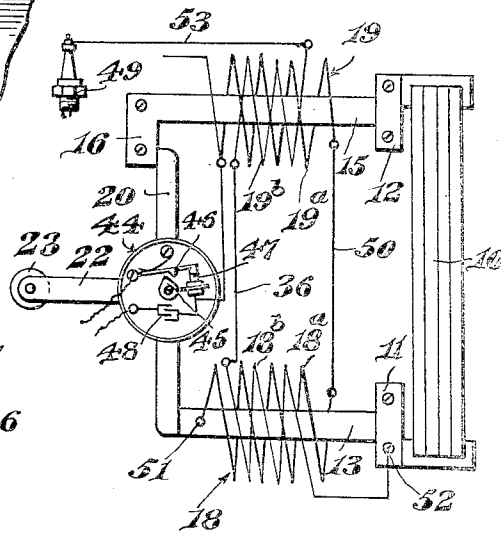


Fig. 5.



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UNITED STATES PATENT OFFICE

2,009,228

MAGNETO

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Application April 17, 1934, Serial No. 721,055

4 Claims. (Cl. 171-209)

This invention relates to magnetos, and has for its object the production of a simple and efficient magneto, the armature of which is mounted to produce a semi-rotary or oscillating movement, thereby producing an extremely quick break of the armature away from the contacting cores and consequently, producing a hot spark.

Another object of this invention is the production of a simple and efficient magneto, the armature of which is mounted for oscillating or semi-rotary movement, the armature being carried by a shaft which is mounted in suitable bearings to insure a quick break of the armature away from the contacting cores and thereby produce an extremely hot spark.

Another object of this invention is the production of a simple and efficient means for facilitating the moving of the armature in a semi-rotary or oscillating movement, the operating lever being actuated through the medium of a yieldable driving bar of a special construction.

Other objects of the present invention will appear throughout the following specification and claims.

In the drawings:—

Figure 1 is a front elevation of the magneto embodying my invention, certain parts being shown in section;

Figure 2 is a section taken on line 2-2 of Figure 1;

Figure 3 is a section taken on line 3-3 of Figure 1;

Figure 4 is a front elevation of a portion of a magneto showing the armature in an open position and certain parts of the driving bar supporting casing being shown in section;

Figure 5 is a diagrammatic view of the armature showing the electrical circuit in diagram.

By referring to the drawings, it will be seen that 10 designates the magnet of the magneto or igniter, the magnet 10 supporting at the ends thereof the core shoes 11, and 12, as clearly illustrated in Figures 1 and 5. The shoe 11 carries a core 13 having a flat contacting face 14 at its outer end and the shoe 12 carries a core 15 which core 15 is provided with an overhanging end 16 having a flat under contact face 17, as shown in Figure 1. The core 13 constitutes a straight bar, whereas the core 15 is substantially an inverted L-shaped construction. A coil 18 is mounted upon the core 13 and a coil 19 is similarly carried by the core 15, as shown clearly in Figure 1.

The armature 20 consists of an elongated bar and like the cores 13 and 15 may be constructed in the manner common to the trade, such as is

illustrated in the drawings, particularly in Figures 2 and 3. The armature 20 is carried by a supporting shaft 21, as shown clearly in Figure 2, and this shaft 21 also supports the armature lever 22, the armature lever 22 normally extending at right angles to the armature 20, as shown in Figure 1. This armature lever 22 carries a roller 23 at its outer end, which roller 23 is engaged by the spring-pressed head 24 mounted upon either side of the roller, as shown in Figure 1, these heads 24 being slidably mounted within the driving bar supporting casing 25. This casing 25 is provided with an elongated socket 26 and the casing 25 is provided upon one side thereof with a slot 27 through which the armature lever 22 extends, the aperture 27 being of sufficient length to permit the lever 22 to freely swing for the purpose of providing a semi-rotary or oscillating movement of the shaft 21. A spring 28 is carried in the outer end of the casing 25 and engages one of the heads 24 for contact with one side of the roller 23, and a coil spring 29 is carried within the opposite end of the socket 26 for engaging the head 24 for contacting with the opposite side of the roller 23. The inner end of the spring 29 engages the head portion 30 of the driving bar 31, which driving bar 31 is reciprocally mounted within the bore 32 formed in one end of the casing 25, as shown clearly in Figure 1. This driving bar 31 projects beyond one end of the casing 25, as shown in Figure 1, and carries a roller 33, which roller 33 contacts with the operating arm 34 carried by the cam shaft 35, as is common to the trade.

Attention is now invited particularly to Figures 2 and 3 of the drawings, wherein it will be noted that the shaft 21 is provided with a reduced portion 40, which reduced portion 40 is supported by means of a suitable ball-bearing 41. A suitable supporting ball-bearing 42 also engages the shaft 21 near its opposite end, as shown in Figures 2 and 3, thereby providing the minimum amount of friction and greatly facilitating the easy operation of the shaft, or the easy semi-rotation or oscillating movement of the shaft 21 through the action of the armature lever 22. The armature 20 may be held in position upon the shaft 21 in any suitable or desired manner, such for instance as through the medium of the securing nut 43 illustrated in Figures 2 and 3. It, of course, should be understood that the bearings 41 and 42 may be carried in any suitable or desired manner depending largely upon the particular type and character of engine upon which the present magneto or igniter is used. It should

be further understood that without departing from the spirit of the invention, roller bearings may be substituted for the ball-bearing rings 41 and 42, as illustrated in the drawings, but it is essential that the shaft be properly supported upon suitable bearings to reduce friction and to facilitate a quick and easy operation of the supporting shaft.

A contact point 47 is supported in any suitable or desired manner upon the reduced portion 49 of the shaft 21, and is preferably carried within the casing 44. A cam 45 is carried by the outer end of the reduced extension 40 of the shaft 21, as shown in Figures 2 and 3, and this cam 45 is adapted to actuate the spring-pressed arm 46 for opening and closing the breaker point 47. The usual condenser 48 is carried by the casing 44, and the usual electrical connection made for the purpose of actuating a spark plug 49.

Having described the mechanical structure of the device for the purpose of carrying out the functions of the invention, attention may now be directed to Figure 5 illustrating a diagram of the electrical circuits involved. As shown in Figure 5, the coil 19 is provided with a primary winding 19a and a secondary winding 19b. The coil 18 is provided with a primary winding 18a and a secondary winding 18b. The primary winding 19a is connected to the primary winding 18a by means of a suitable wire 50, and the primary winding 18a is suitably connected, as at 51, to the core 13. The secondary winding 18b is suitably connected, as at 52, to the core shoe 11, as shown in Figure 5, and the secondary winding 19b is electrically connected to the spark plug 49 by means of a cable or wire 53. The secondary windings 19b and 18b are connected by means of a wire 36.

It, of course, should be understood that certain detail changes in the electrical arrangement may be employed without departing from the spirit of the invention so long as such changes fall within the scope of the appended claims, and it should be borne in mind that one of the important features of the present invention is the mounting of the armature in such a manner as to permit the use of ball-bearings in order to provide a support which may be as near as possible absolutely free from any friction, particularly in view of the fact that it is necessary in the construction of a device of this character that a magneto have a quick acting armature, the quicker the armature breaks away from the contacting cores, the hotter will be the spark produced. The structure of the device above described therefore accomplishes this very purpose, in that a very quick acting armature will be pro-

vided which will insure an extremely hot and positive spark.

Having described the invention, what is claimed as new is:—

1. A magneto of the class described comprising an armature, cores associated with said armature, coils associated with said cores, a make and break means electrically connected to said coils, said armature having a projecting operating arm, a driving bar, means for operating said driving bar, and yieldable means having frictional contact with said driving bar for engaging said armature operating arm for imparting oscillating movement to said armature.

2. A magneto of the class described comprising an armature, cores associated with said armature, coils associated with said cores, a make and break means electrically connected to said coils, said armature having an operating lever extending at substantially right angles thereto, a roller carried by the outer end of said lever, a driving bar, a casing supporting said driving bar, means for actuating said driving bar, yieldable means carried by said driving bar and having frictional contact with one side of said roller, and yieldable means carried within said casing upon the opposite side of and having frictional contact with said roller for providing a return yieldable action whereby a positive semi-rotary movement may be imparted to said armature.

3. A magneto of the class described comprising an armature, cores associated with said armature, coils associated with said cores, magnets associated with said coils, means for electrically connecting the coils, a make and break means, means for electrically connecting the coils with the make and break means, means for connecting the make and break means to a source of electrical supply, means for connecting the coils to a spark plug, and means for imparting semi-rotary movement to said armature to provide an instantaneous break of the armature away from the cores.

4. A magneto of the class described comprising an armature, a shaft supporting said armature, bearings for supporting said shaft for eliminating friction from the operation of said shaft, magnetic cores associated with said armature and adapted to contact therewith, an operating lever for imparting an oscillating movement to said armature to insure an instantaneous break of the armature away from the cores, a make and break means associated with the armature, coils associated with said cores, and means for providing an electrical connection between the coils and the spark plugs of an engine.

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