R. A. OGLESBY.

COMBINED INTERNAL COMBUSTION ENGINE AND MAGNETO.

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1,275,294.

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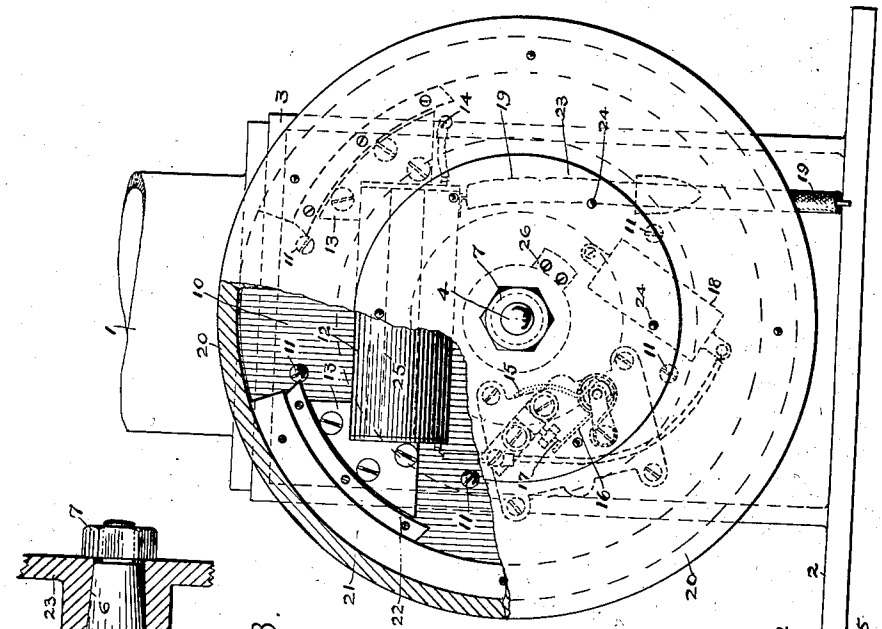


Fig. 2.

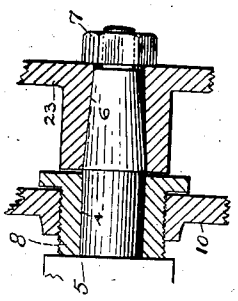


Fig. 3.

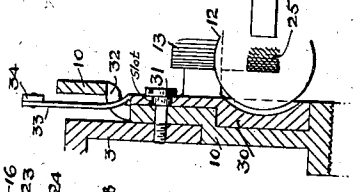


Fig. 4.

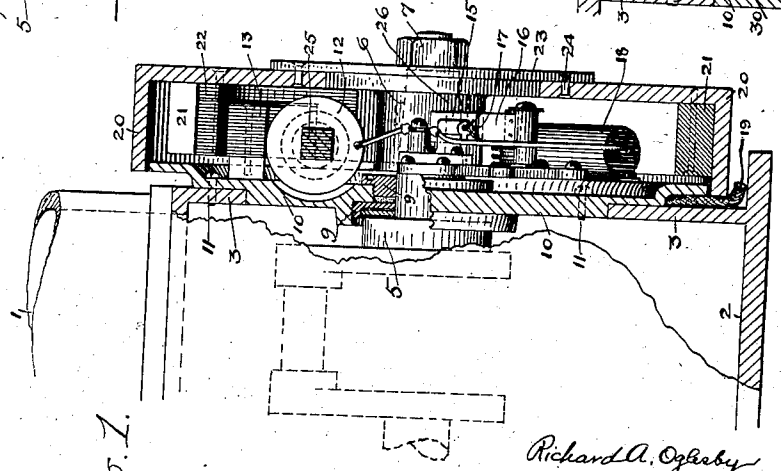


Fig. 1.

Richard A. Oglesby Inventor

By N. S. Amstutz

Attorney

UNITED STATES PATENT OFFICE.

RICHARD A. OGLESBY, OF SOUTH BEND, INDIANA, ASSIGNOR TO QUICK ACTION IGNITION COMPANY, OF SOUTH BEND, INDIANA, A CORPORATION OF INDIANA.

COMBINED INTERNAL-COMBUSTION ENGINE AND MAGNETO.

1,275,294. Specification of Letters Patent. Patented Aug. 13, 1918.

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To all whom it may concern:

Be it known that I, RICHARD A. OGLESBY, citizen of the United States, residing at South Bend, in the county of St. Joseph and State of Indiana, have invented certain new and useful Improvements in Combined Internal-Combustion Engines and Magnetos, of which the following is a specification.

My invention relates to a combined internal combustion engine and magneto and it appertains more especially to the distinctive features pointed out in the annexed claims.

The purpose of my invention is to provide a structurally combined magneto and crank case head of internal combustion engines; to provide a crank case head that shall at the same time support a magneto armature and provide a bearing for the crank shaft; that shall support a stationary magneto armature whether combined with the crank shaft bearing or not; that shall secure to the projecting shaft a rotatable casing adapted to support a field magnet the whole constituting a major or secondary fly wheel for the engine; and that shall be capable of utilizing any special forms or types of magnetos in which a stator is supported by an armature plate which at the same time serves as a part of, or is attached directly to the crank case, in concentric relation to the crank shaft.

With these and other ends in view I illustrate in the accompanying drawing such instances of adaptation as will disclose the broad features of the invention without limiting myself to the specific details shown.

Figure 1— shows by means of an elevation in partial cross section an adaptation of the invention to the crank case of an internal combustion engine.

Fig. 2— is a front elevation of Fig. 1.

Fig. 3— is a section of a plain bushed bearing.

Fig. 4— is an elevation in section of a supplemental armature plate and provision therefrom for spark advance and retard.

In its broadest sense this invention comprises the structural combination of the crank case of a prime mover with a built-in dynamo electric machine. The stationary element of such machine being supported by, or forming a part of, the crank case head and the moving member thereof being carried adjacent thereto by the main shaft of the prime mover.

An adaptation of the invention may comprise the features instanced in the accompanying drawing wherein a working cylinder 1 is supported on a crank case head 3 having a base 2 thereunder. The crank shaft 4 is carried in the head 3 at one end and another head at the other end. This shaft may have one or more collars 5 to take the end thrust of the shaft. A suitable bearing sleeve 8 or bushings 9 may be placed in the combined armature plate and head 10 which is held on head 3 by bolts 11.

The shaft 4 has a tapered end 6 on which the magnet supporting flanged hub 23 is secured by a nut 7. The flanged hub 23 supports the flanged magnet casing 20. These parts may constitute a major or secondary fly wheel or the casing 20 may only serve as a carrier for the magnet 21 to which it is suitably secured. Laminated pole ends 22 are also secured to the casing adjacent the ends of the magnet on each side of its air gap. As the shaft 4 revolves the magnet 21 is carried past the armature heads 13. These are attached to the armature plate 10. A core 25 joins them. On the core the armature coil 12 which may consist of a primary and secondary winding is placed. A ground connection is formed at 14.

The primary circuit is broken at 17 by a cam 26 attached to the magnet casing 20 whenever the cam engages shoe 15 of the circuit breaker arm 16. A condenser 18 may be connected across the break 17 and an external circuit terminal is formed at 19, the other side being completed through the "ground". It is immaterial for what purpose the generated current is used or in what way it is distributed.

The flanged supporting hub 23 is secured to the casing 20 by screws or rivets 24 or in any other manner desired. It is of course obvious that, if found expedient, the casing 20 and part 23 may be formed in one piece, though the possibility of standardizing the flanged hub 23 and adapting it to various sizes and shapes of fly wheels or casings 20 would not then be present. I may make these parts in any suitable way that the exigencies of variable practical demands may require.

It should be understood that this invention is not limited to the specific details of an instanced adaptation shown and described but broadly covers any form of combined magneto and crank casing heads.

Whenever it is desired to shift the arma-

ture position with respect to the recurrent position of the circuit breaking cam 26 I may provide a supplemental armature plate 30 having shouldered bearing in plate 10 and held thereon by means of shoulder screws 31 passing through curved slots in the plate 30. The screws also serve to hold plate 10 onto head 3 while at the same time permitting of rotative movement of the plate 30 on such screws. An arm 33 projects from plate 30 through a slotted hole 32 formed in plate 10 and a spark control link 34 is secured to its outer end. This provision is of course not needed if a fixed spark relation is to be served by the magneto.

What I claim is,

1. In internal combustion engines, a crank case, a shouldered end plate, a bearing therein central of the shoulder, a crank shaft in the bearing and projecting outside of the same, an armature coil supported adjacent the outer face of the plate, and a field magnet carried by the shaft external of the plate.

2. An internal combustion engine, comprising a cylinder and a crank case, a removable end plate to the crank case, a crank shaft having bearing in the said case and the end plate, means for retaining the plate in the case central of the shaft axis, a stationary armature supported to one side of the shaft on such plate, and a field magnet carried by the outer end of the crank shaft.

3. A prime mover, comprising a crank case, a bearing at one end thereof, a crank shaft therein, the case having an enlarged opening at the other end concentric with the shaft, a removable plate adapted to cover the opening, a bearing therein for the shaft, means for supporting the plate so as to maintain the bearing and opening in concentric relation, an armature coil supported by the plate to one side of the shaft, armature heads for said coil the other face of which is concentric with the shaft, and a field magnet carried by the shaft external of the plate the poles of which are also concentric with the shaft and adapted to function adjacent the armature heads.

4. In internal combustion engines a crank case having an enlarged opening at one end, a removable end plate, a bearing therein, a bearing in the crank case, a crank shaft rotatable in both bearings, means comprising an annular shoulder on such plate adapted to be supported by the enlarged opening, a stationary armature secured to the plate, and a field magnet coöperating therewith carried by the outer end of the shaft.

5. In internal combustion engines, a crank case, and a removable end plate therefor adapted primarily to support a crank shaft and secondarily a stationary armature, and a rotating field magnet carried by the shaft.

6. In internal combustion engines, a crank case, a removable end plate therefor, a bearing in the plate, a crank shaft rotatable in such bearing, a stationary armature supported by the plate, a fly wheel attached to the shaft external of the armature, and a field magnet attached to the fly wheel.

7. In internal combustion engines, a crank case, a shaft rotatable therein, a removable end plate for said case also serving as a bearing for shaft, an armature supported by the plate, a circuit breaker and condenser placed adjacent thereto, a field magnet attached to the shaft adapted to pass by the armature, and a cam carried by the shaft for periodically operating the circuit breaker as the shaft is revolved.

8. In internal combustion engines, a crank case, a removable end plate therefor, a crank shaft rotatable therein, a fly wheel a field magnet and cam carried by the shaft, an armature comprising a coil connected to a circuit breaker and condenser supported on the crank case end plate adjacent the path of travel of the field magnet, and adapted through such rotation to have periodic currents generated in its coil and the circuit breaker actuated by the cam as the shaft revolves.

9. In internal combustion engines, a crank case, a shaft rotatable therein, end plates for the case encircling the shaft, a supplemental plate held on an end plate and capable of movement thereon, an armature and circuit breaker carried by the supplemental plate, a field magnet rotated by the shaft, a cam also rotated by the shaft adapted to actuate the circuit breaker, and means for shifting the circuit breaker in an advancing or retarding direction to the cam as desired.

10. In a combined prime mover and dynamo electric machine, a crank case, a bearing at one end, a removable bearing plate at the other end, a crank shaft rotatable in both bearings, and means for preserving the alinement of the bearing plate independently of its fastenings, a stationary armature supported by the plate, and a field magnet adapted to coöperate with the armature carried by the shaft.

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

RICHARD A. OGLESBY.

Witnesses:

FREDERICK C. FRANK,

HORACE W. ASIRE.