Sept. 27, 1938. U. QUINTAVALLE 2,131,523

IGNITION MAGNETO

Filed Sept. 1, 1936

Fig. 3

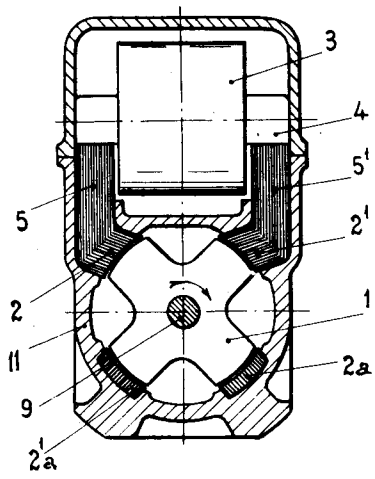


Fig. 1

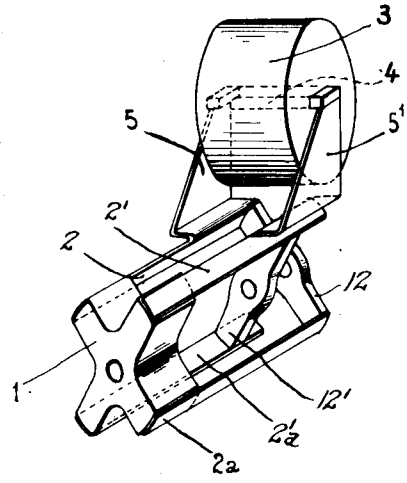


Fig. 4

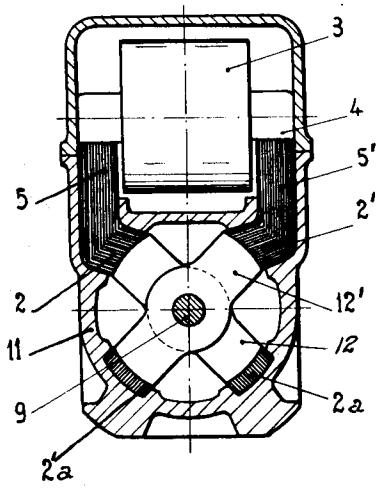
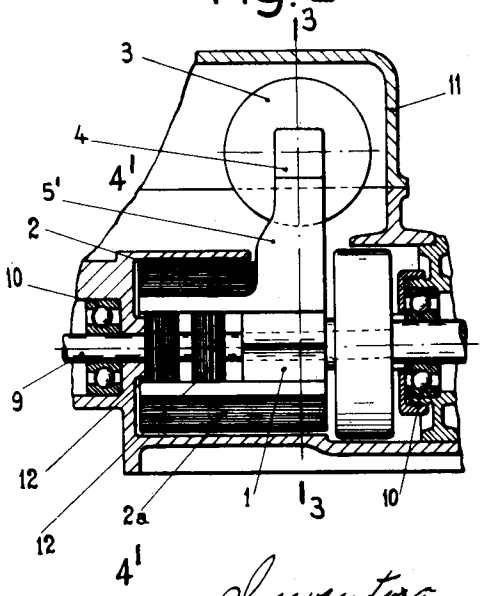


Fig. 2



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2,131,523

IGNITION MAGNETO

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Application September 1, 1936, Serial No. 98,984
In Italy September 20, 1935

5 Claims. (Cl. 171—209)

The present invention relates to ignition magnetos particularly for internal combustion engines and has for its object a structure for the magnetic path in said magnetos which reduces to a minimum the size of the parts and provides for a very high efficiency while the arrangement of the several members of said structure secures a full separation of the mechanically operative parts from the electric parts to impart a very high safety of operation in spite of most adverse conditions of use.

In the structure of this invention the core carrying the windings in which current is induced by effect of the movement of a magnet inductor with respect to pole shoes connected with said core, has each of its ends connected with an arm extending therefrom and in turn each of these arms has extensions providing pole faces having the same sign or polarity for cooperation with pole shoes or faces of the magnet inductor, the arrangement being such that in the respective revolution of the inductor and coil carrying structure all the pole faces having the same sign of said inductor are at the same time in register with cooperating pole faces of the said coil structure as essential to secure a high efficiency.

By the above outlined arrangement the coil may be easily located in any preferred position with respect to mechanically operative members of the magneto and may be entirely separated therefrom.

On the annexed drawing a construction in accordance with this invention is illustrated by way of example as embodied in a magneto having a structure provided with four pole faces and an inductor comprising a four arm star-shaped permanent magnet, and:

Figure 1 is a perspective diagrammatical view showing the respective position of the several parts;

Fig. 2 is a fragmentary longitudinal section of a magneto built up in the above stated manner;

Fig. 3 is a transverse section of the magneto shown in Fig. 2 on line 3—3 of Fig. 2;

Fig. 4 is a transverse section of said magnet on line 4—4 of Fig. 2;

In Fig. 1, 1 denotes a four-pole magnet inductor mounted to rotate in a stator which includes two pairs of poles having the same sign such pole pairs being referenced 2, 2a and 2', 2a'; 3 is the coil in which current is induced and said coil has a core 4 from whose ends two arms 5, 5' extend, such arms being directly connected with top stator pole-members 2, 2' respectively, while the lower stator pole-members 2a, 2a' are similarly connected with arms 5, 5' by means of bridges 12 and 12'.

Figs. 2–4 illustrate an actual embodiment of the above described structure; in Figs. 2–4, 1 denotes the rotary magnet inductor which extends in register with a longitudinal portion of the stator pole members 2, 2', 2a, 2a' as hereinafter described and is fast to a shaft 9 mounted to rotate in the magneto casing 11 by means of antifriction bearings 10, said shaft extending parallel to said pole members and substantially along the centre line of the space enclosed therebetween.

The stator includes said two pairs of parallel laminated pole members 2, 2', 2a, 2a' encircling the space where the magnet rotor 1 rotated, and side arms 5, 5' which are connected with respective ends of core 4 of coil 3 and with top ones 2, 2' of said pole members.

Said top pole members 2, 2' extend in the direction of the axis of rotation of shaft 9 through some extent beyond the extension of the magnet inductor 1 in said direction, and in such extended portions of pole members 2, 2' each of them has a bridge 12, 12' fastened thereon, the opposite end of bridges 12, 12' connecting with the respective lower pole members 2a, 2a' which provide opposite pole faces having the same sign (Figs. 2 and 4).

The lower pole members 2a, 2a' are thus connected with core arms 5, 5' by means of said bridges 12, 12' and top pole members 2, 2', all the pole members of the same sign being thus connected with the same respective core arm 5, 5' and end of core 4.

Said bridges 12, 12' consist of laminated members; they cross with each other in the space confined by the pole members 2, 2', 2a, 2a' and they have holes for the location of shaft 9 therethrough.

Of course the present invention is not restricted to described and illustrated arrangement and includes all equivalent arrangements within the spirit of appended claims; more particularly the magneto may include a larger number of pole members the number of bridges 12, 12' being then larger than two, such number being in any case one half the number of pole members.

What I claim as my invention and desire to secure by U. S. Letters Patent is:

1. In an ignition magneto having a rotor with pole faces and a stator including pole faces located around the path of said rotor pole faces in

positions to be confronted in pairs by pairs of pole faces of said rotor; pole bar members extending along and located around the axis of rotation of said rotor and providing said stator pole faces, bridges transverse to said axis and each interconnecting in a set said pole bar members whose pole faces are confronted simultaneously by pole faces of said rotor having one polarity, a core outside of the space enclosed by said pole bar members, means connecting each one of said pole bar member sets with one end of said core, and a winding on said core.

2. In an ignition magneto having a rotor with pole faces and a stator including pole faces located around the path of said rotor pole faces in positions to be confronted in pairs by pairs of pole faces of said rotor; pole bar members extending parallel with and located around the axis of rotation of said rotor and providing said stator pole faces, bridges transverse to said axis and each interconnecting in a set said pole bar members whose pole faces are faced at the same time by pole faces of said rotor having one polarity, a core extending transverse to said rotor axis and pole bar members, parts each connecting one of said pole bar member sets with one end of said core, and a winding on said core.

3. In an ignition magneto having a rotor with pole faces and a stator including pole faces located around the path of said rotor pole faces in positions to be confronted in pairs by pairs of pole faces of said rotor, pole bar members extending parallel with and located around the axis of rotation of said rotor said members confining a space intermediate them for location of said rotor and providing said pole stator faces in said space, bridges transverse to said axis and located beyond one end of said space, each of said bridges interconnecting in a set said pole bar members whose pole faces are faced at the same time by pole faces of said rotor having one polarity, a core outside of the space enclosed by said pole bar members, parts each connecting one of said pole bar member sets with one end of said core and a winding on said core.

4. In an ignition magneto having a rotor with pole faces and a stator including pole faces located around the path of said rotor pole faces in positions to be faced in pairs by pairs of pole faces of said rotor, pole bar members extending parallel with and located around the axis of rotation of said rotor and providing said stator pole faces, bridges transverse to said axis and each interconnecting in a set said pole bar members whose pole faces are faced at the same time by pole faces of said rotor having one polarity, two arms each extending from and transverse to a pole bar member of each of said sets, a core having its ends connected with said arms and a winding on said core.

5. In an ignition magneto having a rotor with pole faces and a stator including pole faces located around the path of said rotor pole faces in positions to be faced in pairs by pairs of pole faces of same rotor, pairs of pole bar members extending parallel with and located around the axis of rotation of said rotor and providing said stator pole faces said members of each pair having their said pole faces in positions to be faced at the same time by pole faces of said rotor having one polarity, bridges transverse to said axis and each interconnecting the pole bar members of each of said pairs, an arm extending from and transverse to a pole bar member of one of said pairs, a second arm extending from and transverse to a pole bar member of another one of said pairs, a core having its ends connected each with the end of one of said arms and a winding on said core.

UMBERTO QUINTAVALLE.