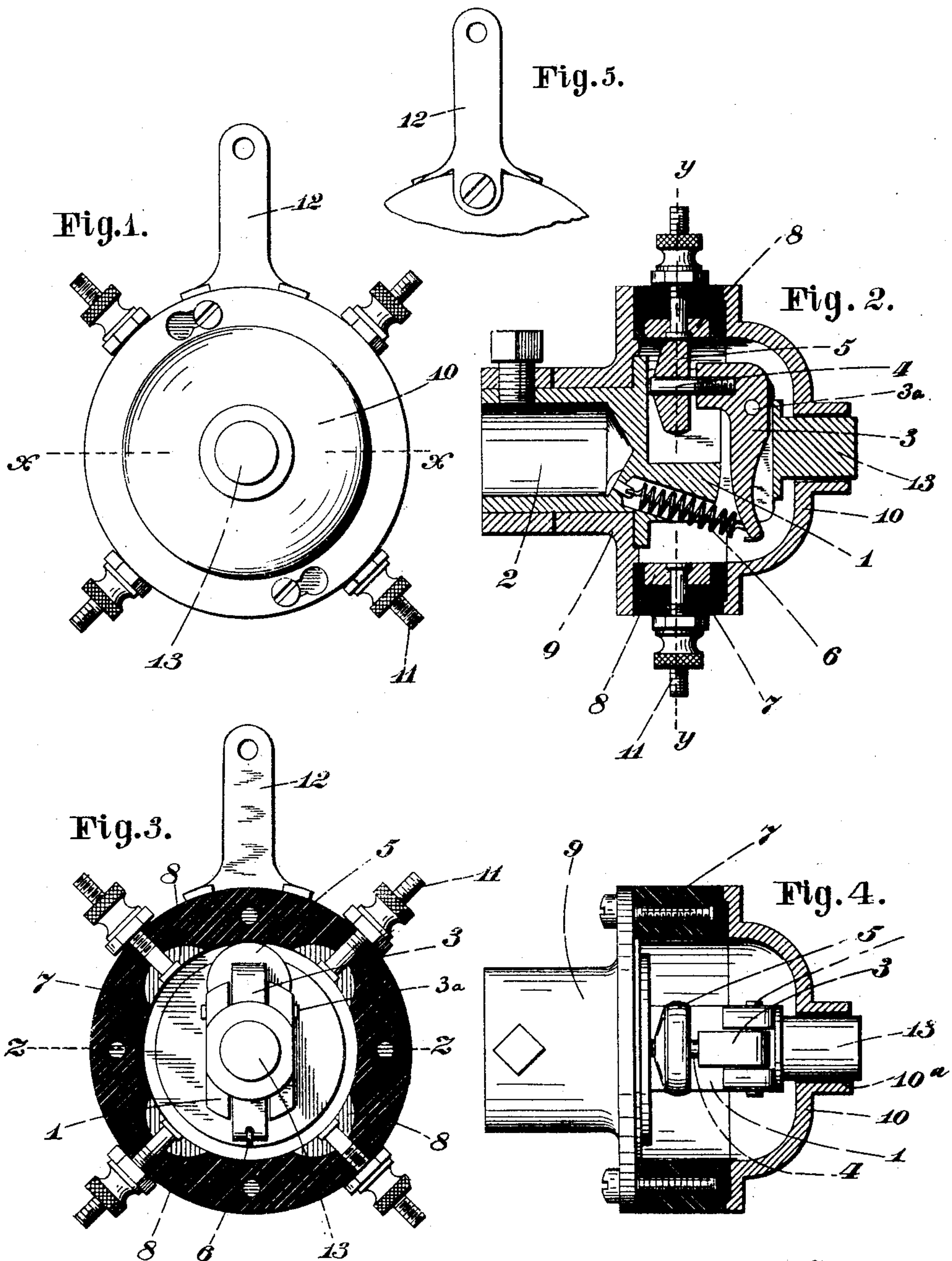


No. 860,710.

PATENTED JULY 23, 1907.

W. A. VAUSE.
SPARKING DEVICE FOR EXPLOSIVE ENGINES.
APPLICATION FILED MAR. 10, 1906.



Witnesses
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UNITED STATES PATENT OFFICE.

WILLIAM A. VAUSE, OF COLUMBUS, OHIO.

SPARKING DEVICE FOR EXPLOSIVE-ENGINES.

No. 860,710.

Specification of Letters Patent.

Patented July 23, 1907.

Application filed March 10, 1906. Serial No. 305,203.

To all whom it may concern:

Be it known that I, WILLIAM A. VAUSE, a citizen of the United States, residing at Columbus, in the county of Franklin and State of Ohio, have invented certain
5 new and useful Improvements in Sparking Devices for Explosive-Engines; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.
10 The object of this invention is to provide a simpler, more effective and durable sparking device for explosive engines than those heretofore proposed; and the invention consists in the construction herein shown and described, the invention not being confined in its
15 embodiment to precisely the forms shown in the accompanying drawings.

In said drawings—Figure 1 is a front end view; Fig. 2 is a sectional view on the line $x-x$ of Fig. 1; Fig. 3 is a sectional view on the line $y-y$ of Fig. 2, parts being
20 left in full; Fig. 4 is a sectional view on the line $z-z$ of Fig. 3 with parts shown in full, and Fig. 5 is a detail view of the arm for adjusting the device to control the time of sparking.

In the several views 1 designates a carrier provided
25 with a socket 2 for attachment to the cam shaft of the engine. Pivoted to this carrier on a fulcrum 3^a that stands in a plane at right angles to the axis of rotation of the carrier is a bent lever 3 having attached to its upper end, as shown, a small shaft or bearing 4, said
30 shaft or bearing extending approximately parallel to the axis of the carrier.

5 designates a contact wheel or roller that is journaled to rotate on the shaft or bearing 4. A coiled spring 6 secured to the carrier and to the lower end of
35 the lever 3, as shown, tends to throw the contact roller outwardly from the axis of rotation of the carrier.

7 designates an annulus of insulating material provided with contact blocks 8 having their inner surfaces flush with the inner surface of the annulus. This
40 annulus is secured between a flange on a collar 9 and a cup shaped cap 10, all forming a closed chamber.

The carrier 1 is journaled in the collar 9; and to relieve this collar of friction and wearing action by the outward pressure of the contact roller, the carrier is
45 also journaled in a central bearing provided in the cap piece 10.

It will be observed that by this construction the parts forming the closed chamber are supported on opposite sides of the revolving contact piece.

50 The periphery of the contact roller is curved or formed in cross section to provide a narrow bearing, and that face of the said roller which is more remote from the fulcrum 3^a is made convex. The small shaft or bearing 4 upon which the contact roller is mounted
55 is somewhat longer than the thickness of the roller.

The said roller, therefore, has a play laterally with respect to itself on the bearing. The narrow curved contacting rim or tread of the roller penetrates through oil or other foreign things on the surface of the contact blocks 8 and thus insures an effective contact. The
60 play of the roller on its shaft tends to keep the contact surfaces clean and to produce an even wear of the parts. As the force exerted by the spring 6 upon the roller causes the roller to move outwardly in an arc of which the fulcrum 3^a is the center, the wear on the
65 roller will be toward the inner or convex face, and as the surface wears down the fact that the face is convex prevents contact of the roller with that part of the carrier adjacent said face.

The contact blocks 8 are crescent shaped in cross
70 section and are seated in corresponding sockets in the insulating annulus. The number of blocks is made to conform to the requirements of the engine used, the sparker shown being for a four-cylinder engine. Electrical connection is made as usual through posts
75 11 connecting the contact blocks and wires leading to the explosion chamber.

The chamber carrying the insulating annulus is provided with the usual arm 12 whereby it may be
80 turned or adjusted to vary the time of sparking.

What I claim and desire to secure by Letters Patent is:

1. In a sparking device for explosive engines, the combination with a rotary carrier, of a lever fulcrumed to have the plane of its oscillation substantially longitudinal
85 with reference to the axis of rotation of the carrier, a contact device on said lever, and an insulating annulus containing a contact piece against which the contact device on the lever operates.

2. In a sparking device for explosive engines, the combination with a rotary carrier, of a lever fulcrumed to have the plane of its oscillation substantially longitudinal
90 with reference to the axis of rotation of the carrier, a contact device on said lever, a spring to act on said lever to throw the contact device thereof outwardly, and an insulating annulus containing a contact piece against which the contact device on the lever operates.

3. In a sparking device for explosive engines, the combination with a rotary carrier, of a lever fulcrumed to have the plane of its oscillation substantially longitudinal
100 with reference to the axis of rotation of the carrier, a contact wheel journaled on said lever to rotate in a plane substantially at right angles to the plane of oscillation of said lever, and an insulating annulus containing a contact piece against which the rotary contact piece operates.

4. In a sparking device for explosive engines, the combination with a rotary carrier, of a lever fulcrumed to have the plane of its oscillation substantially longitudinal
105 with reference to the axis of rotation of the carrier, a bearing on said lever, a contact device mounted on said bearing and having a play outwardly or axially thereon, an insulating annulus containing a contact piece against which the contact device of the lever operates.

5. In a sparking device for explosive engines, the combination with a rotary carrier, of a lever fulcrumed to have the plane of its oscillation substantially longitudinal
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with reference to the axis of rotation of the carrier, a bearing on said lever, a contact wheel journaled on said bearing and having a play outwardly or axially thereon, and an insulating annulus containing a contact piece
5 against which the contact wheel operates.

6. In a sparking device for explosive engines, the combination with a rotary carrier, of a lever fulcrumed thereon to have the plane of its oscillation substantially longitudinal with reference to the axis of rotation of the carrier, a bearing on said lever, a contact wheel journaled on
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said bearing and having a play outwardly or axially thereon, said wheel being convex on its face towards the fulcrum of the lever.

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

WILLIAM A. HAYES.

Witnesses:

ULYSSES R. PETERS,
BENJ. FINCKEL.