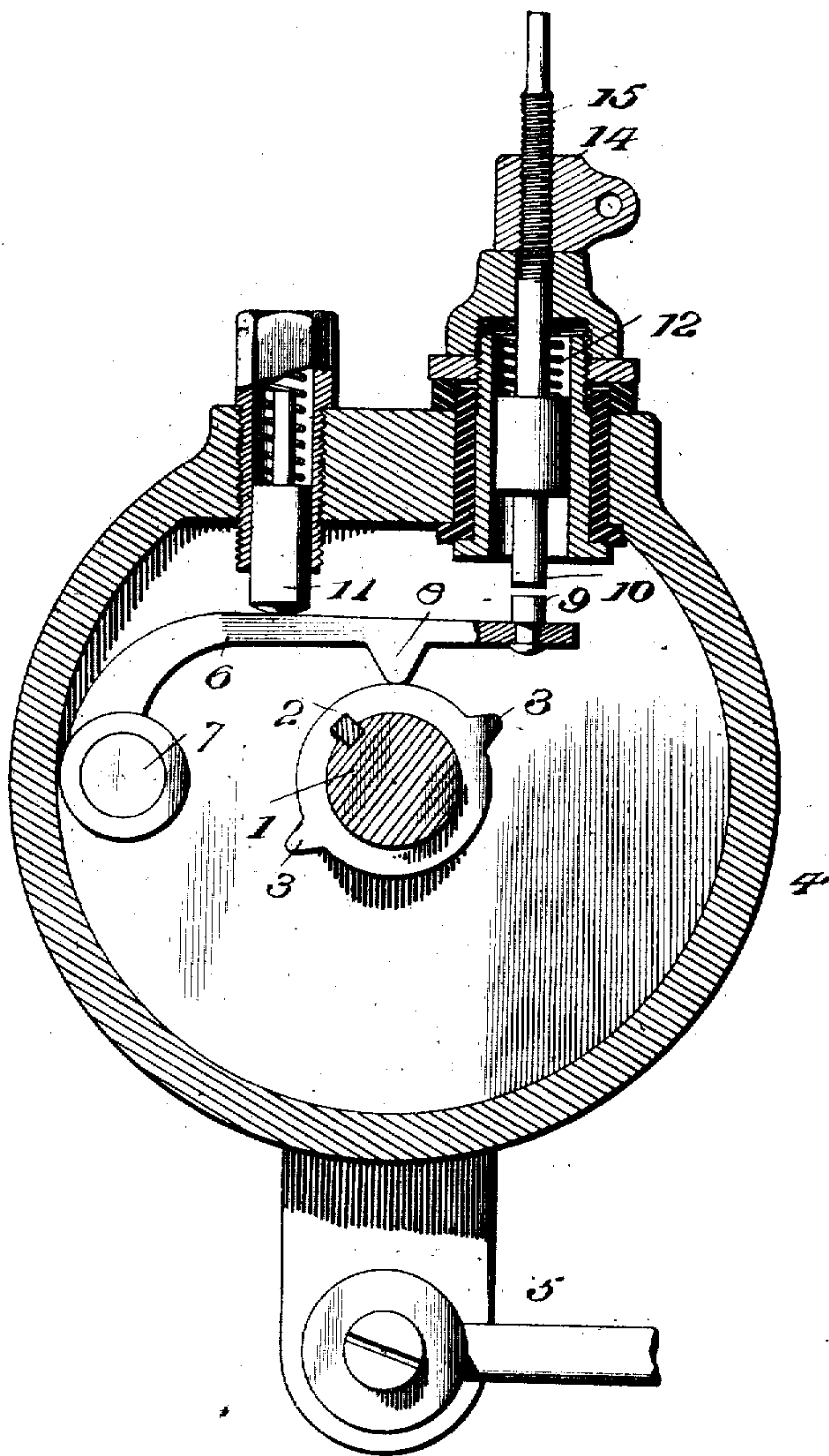


A. WINTON.
SPARKING MECHANISM FOR EXPLOSIVE ENGINES.
APPLICATION FILED JUNE 1, 1903.

915,644.

Patented Mar. 16, 1909



WITNESSES

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UNITED STATES PATENT OFFICE.

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SPARKING MECHANISM FOR EXPLOSIVE-ENGINES.

No. 915,644

Specification of Letters Patent.

Patented March 16, 1909.

Application filed June 1, 1908. Serial No. 159,640.

To all whom it may concern:

Be it known that I, ALEXANDER WINTON, a citizen of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented new and useful Improvements in Sparking Mechanism for Explosive-Engines, of which the following is a specification.

My invention relates to improvements in sparking mechanisms for explosive engines, and is especially intended for use in connection with explosive motors for driving motor vehicles, the objects and advantages of which will be pointed out hereinafter.

The accompanying drawing is a sectional view of a device embodying my invention.

My invention pertains to a make and break mechanism particularly intended for use in connection with the jump-spark principle of ignition, and which is so well understood by those skilled in the art, that the sparking plug (which forms no part of my present invention) is neither shown or described herein.

Referring now to the drawings, 1 indicates a shaft which carries a cam sleeve 2. The shaft 2 is operatively connected (in any desired manner) with the engine shaft and as here shown, the device is intended to be used in connection with a two-cylinder engine, and hence the cam sleeve 2 is provided with two cams 3, one for each cylinder. It is also well understood that the cam shaft 1 of the sparking mechanism is so timed with the engine shaft as to cause the cams 3 to operate the make and break device (to be presently described) at the proper moment. The device is also intended to be used principally in connection with an explosion engine of the four-cycle type, though it may be used with explosion engines of other types without affecting my invention.

A case 4 is concentrically arranged on the shaft 1 and is adapted to be oscillated around the shaft, through the medium of a suitable connection 5 under the control of the operator. Carried by the case 4 is a lever 6 pivoted at a point 7. This lever 6 is vibrated by the cams 3 and the lever is preferably provided with a cam engaging projection 8. The free end of the lever 6 carries a contact point 9 and this contact point 9 is adapted to engage a contact point 10 when the lever is forced outward by one of the cams 3 and to thus close the circuit, and to break the circuit when one of the cams 3 has passed the projection 8 and the lever is forced

by the spring pin 11 into the position shown in the drawing. The contact point 10 is normally forced inward through the medium of the spring 12 and the limit of the inward movement of the contact is controlled by means of an adjustable nut 14 carried by the outer screw-threaded end of the stem 15. The principal advantage of this construction is, that a rubbing contact is effected between the contact points 9 and 10. This result is brought about from the fact that the movement of the free end of the lever 6 is greater than the distance between the contact points thus forcing the spring depressed contact point outward, and also owing to the fact that the lever 6 is pivoted so that the contact 9 swings in the arc of a circle in respect to the contact 10. A further advantage of this construction is, that by means of the adjustable nut 14, the contact 10 can be allowed to move inward as it becomes burned or worn away. The rubbing action insures a bright contact surface and keeps the contact points in proper shape for the best results.

It will be observed that the lever 6 carrying the contact 9 extends eccentrically in respect to the shaft 1, and that the contact 10 extends in a tangential direction in respect to said shaft. This arrangement causes the contact 9 to have considerable transverse movement in respect to the contact 10, and in practice it is found that the transverse movement is sufficient to keep the contacts clean and bright, which is so essential to good results.

By means of the oscillation of the case 4 in respect to the cam shaft 1, the lever 6 can be moved in a direction around the shaft so as to cause the cams 3 to operate the lever early or late in respect to the position of the engine piston and thus varying what is known in the art as the "ignition lead". The variation of the ignition lead in explosion engines for motor vehicles, is found very desirable, and many ways have been devised for accomplishing that result. The means here shown is simple and effective, and enables the operator to start the engine with a "late lead" to prevent the engine kicking backward, and then to afterward advance the lead, which is found necessary to obtain the maximum power and the maximum speed of the engine. If the lead of the engine is set at the advance point, the operator in starting his engine, is likely to be "kicked" unless he is skilled in the starting of engines of

this type. In some motor vehicles the variation of the lead is automatically controlled, while the means here shown is a positive device positively under the control of the operator.

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

1. In a device of the character described, the combination of a rotating shaft carrying cams, a casing surrounding the shaft, a lever pivoted to the casing and engaging the shaft intermediate its ends, means for holding said lever in engagement with said shaft, a contact point carried by the lever and extending in a transverse direction in respect to the shaft, and a spring actuated contact extending in a corresponding direction to that of the contact carried by the lever, and the pitch of the cams being greater than the distance between the contacts, whereby the contacts have a longitudinal engagement and a relative transverse movement.

2. In a device of the character described, the combination of a rotating shaft carrying cams, a casing surrounding the shaft, a spring-actuated pivoted lever carried by the casing and engaging the shaft intermediate its ends, a contact point carried by the free end of the lever and extending in a transverse direction in respect to the shaft, and a spring contact extending in a corresponding direction to that of the contact carried by the lever, and the pitch of the cams being greater than the distance between the contacts, whereby the contacts have a longitudinal and a relative transverse movement.

3. In a device of the character described, the combination of a rotating shaft carrying cams, a casing surrounding the shaft, a lever

pivoted to the casing and engaging the shaft intermediate its ends, a spring actuated plunger bearing on the lever and normally holding it upon the shaft, a contact point carried by the lever and extending in a transverse direction in respect to the shaft but on opposite sides of the lever to that engaged by the shaft, and a spring-actuated adjustable contact extending in a corresponding direction to that of the contact carried by the lever, and the pitch of the cam being greater than the distance between the contacts, whereby the contacts have a longitudinal engagement and a relative transverse movement.

4. In a device of the character described, the combination of a rotary shaft carrying cams, a casing surrounding said shaft and loosely mounted thereon, means for holding the casing in its adjusted position on the shaft, a lever pivoted within the casing and engaging the shaft intermediate its ends, a spring actuated plunger bearing on the lever and normally holding it in engagement with the shaft, a contact point carried by the outer free end of the lever, a spring actuated contact extending in a corresponding direction to that of the contact carried by the lever, and carried by the casing, and said contact having a screw-threaded stem, and a nut on said stem for adjusting the same substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

ALEXANDER WINTON.

Witnesses:

THOS. HENDERSON,
GEO. H. BROWN.