

UNITED STATES PATENT OFFICE.

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MAKE-AND-BREAK SPARKING DEVICE FOR ENGINES.

1,066,453.

Specification of Letters Patent.

Patented July 1, 1913.

Application filed April 10, 1912. Serial No. 689,839.

To all whom it may concern:

Be it known that I, LESLIE CALWELL ADAMS, of the town of Penetanguishene, in the county of Simcoe, in the Province of Ontario, Canada, have invented certain new and useful Improvements in Make-and-Break Sparking Devices for Engines, of which the following is the specification.

My invention relates to improvements in make and break sparking devices for engines and the object of the invention is to devise a simple device which will be positive in operation and by which the time at which the spark is formed may be regulated and it consists essentially of the spark plug provided with the usual stationary and movable spark points, a vertical movable spring pressed rod, a sparker rod, a spring held latch or trigger pivotally connected to the spark rod and designed to be brought into engagement with the spring held rod at one end, a collar on the rod, a lever on the rocking rod of the movable spark point engaging at one end with the collar on the movable rod and spring pressed at the opposite end and a vertical movable spring pressed timing rod designed to engage with the opposite end of the latch or trigger and means for adjusting and holding the timing rod vertically as hereinafter more particularly explained by the following specification.

Figure 1, is a general perspective view of my device. Fig. 2, is a perspective detail of the spark plug looking from the rear. Fig. 3, is a perspective detail of the adjusting time lever.

In the drawings like letters of reference indicate corresponding parts in each figure.

A is a portion of the cylinder of the engine.

B is a sparker rod supported in the usual guide-ways connected to the engine cylinder and operated in the usual way.

B' is a latch or trigger pivotally supported on the sparker rod B by a pin B².

B³ is a pin extending from the lower horizontal arm of the latch.

B⁴ is a spring designed to exert an upward pressure on the pin B³ so as to hold the latch in its upper position so that the arm 2 of the latch is substantially vertical.

C is a spark plug provided with the stationary rod C' to which one terminal of the electric circuit is connected, the other terminal of course being connected to the frame

of the engine. The rod C' is provided with a stationary spark point C² at its inner end.

C³ is a rocking rod held in the spark plug provided at its inner end with a movable spark point C⁴. The spark points C² and C⁴ are normally held apart.

D and D' are bearings forming part of the spark plug casting.

D² is a nut provided with a sleeve D³ which is threaded into the bearing D.

E is a vertical movable spindle held within the sleeve D³ and bearing D'.

E' is a sleeve surrounding the rod E and resting upon the bearing D'.

F is a lever secured to the rocking rod C³ of the movable spark point C⁴. One end of the lever normally bears upon the top of the sleeve E'.

G is a vertical socket in which is held a spring pressed plunger G' bearing upon the opposite end of the lever F thereby tending to raise the opposite end of the lever.

H is a collar secured to the rod E immediately above the lever end 3 of the lever F.

H' is a compression spring extending between the bearing D and the collar H thereby normally bearing down upon the end 3 of the lever F so as to hold the spark points apart. It will thus be seen that as the sparker rod B rises the vertical portion 2 of the latch B' engages the lower end of the rod E raising it vertically against the compression spring H' and thereby raising the end 3 of the lever F so as to carry the spark points C² and C⁴ together.

I will now describe the means by which the latch B' is tripped so as to break the contact of the spark points. I and I' are supplemental bearings. I² is a vertical rod held in the bearings I and I'. J is a tooth projection extending from a suitable portion of the spark plug casting. J' is a disk secured to the rod I² and set at an angle to the rod and provided with radial teeth I⁴ and stop ribs I⁵ and I⁶. I⁷ is an arm forming a handle by which the disk may be turned around to any position required. The disk is connected to the rod I² by a set screw I⁸ extending through the handle I⁷ against the rod I². It will thus be seen that as the latch raises the vertical rod E as hereinbefore described the substantially horizontal portion of the latch engages the vertical rod I² as the spark points are brought together thereby gradually tilting the latch B' to trip it to release the rod E when the spark points

are brought together thereby breaking the contact between the spark points and forming the spark. To change the time at which the spark is formed all that is necessary to do is to swing the arm I^7 around thereby carrying the rod I^2 vertically by reason of the inclined disk J' bearing upon the tooth projection J against the pressure of the bearing I^{10} extending between the bearing I and the disk J' . The disk J' is held in any desired position to which it is set by reason of the radial teeth I^4 engaging the tooth J . The limit of movement of the disk is limited by means of the ribs I^5 and I^6 engaging the tooth J . It will be seen that the time at which the spark is made may be varied as desired.

From this description it will be seen that I have devised a very simple form of make and break spark device for engines which will be positive in its operation and which will regulate the time at which the spark is formed as desired.

What I claim as my invention is.

1. In a make and break sparking device for engines, the combination with the spark plug, stationary and movable spark points, a rocking rod supporting the movable spark point and the sparker rod, of a spring held latch pivotally connected to the sparker rod and substantially of L-shape form, a vertical spring held rod extending vertically above the vertical portion of the latch, a lever connected to the rocking rod of the movable spark point, a projecting portion on the movable rod with which the lever engages, a stop piece extending vertically over the horizontal portion of the latch and designed to engage the same to trip the latch, a toothed disk secured to the supplemental rod and set in an inclined direction to the rod, means for turning the disk, and an engaging stationary projection extending beneath the disk, as and for the purpose specified.

2. In a make and break sparking device for engines, the combination with the spark plug, stationary and movable spark points, a rocking rod supporting the movable spark point and the sparker rod, of a spring held latch pivotally connected to the sparker rod and substantially of L-shape form, a vertical spring held rod extending vertically above the vertical portion of the latch, a lever connected to the rocking rod of the movable spark point, a projecting portion on the movable rod with which the lever engages,

a downwardly projecting portion extending vertically over the horizontal portion of the latch and designed to engage the same to trip the latch, a disk secured to the supplemental rod and set in an inclined direction to the rod and having radial teeth and a stationary tooth projection designed to engage with the radial teeth of the disk as and for the purpose specified.

3. In a make and break sparking device for engines, the combination with the spark plug, stationary and movable spark points, of a rocking rod supporting the movable spark point, a sparker rod, a spring held latch pivotally connected to the sparker rod, a vertical spring held rod extending vertically above the vertical portion of the latch, a lever connected to the rocking rod of the movable spark point, a projecting portion on the movable rod with which the lever engages, a stop piece extending vertically over the horizontal portion of the latch and designed to engage the same to trip the latch, a disk secured to the supplemental rod and set in an inclined direction to the rod, said disk having a pair of oppositely disposed stops, teeth extending between said stops, means for turning the disk, and an engaging stationary projection extending beneath the disk, adapted to be engaged by said teeth and stops, as and for the purpose specified.

4. In a make and break sparking device for engines, the combination with the spark plug, stationary and movable spark points, of a rocking rod supporting the movable spark point, the sparker rod, a spring held latch pivotally connected to the sparker rod, a vertical spring held rod extending vertically above the vertical portion of the latch, a lever connected to the rocking rod of the movable spark point, a projecting portion on the movable rod with which the lever engages, a supplemental movable spring held rod extending vertically above the horizontal portion of the latch, and means for adjusting the rod vertically, said means comprising a disk loosely mounted on and at an angle to said supplemental rod having a hollow arm, a set screw passing through said arm and engaging said supplemental rod, teeth on said angular disk, and a toothed projection engaging said disk.

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Witnesses:

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