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G. CORMACK, JR. & F. C. ZUMDAHL.
SPARKING IGNITER FOR EXPLOSIVE ENGINES.

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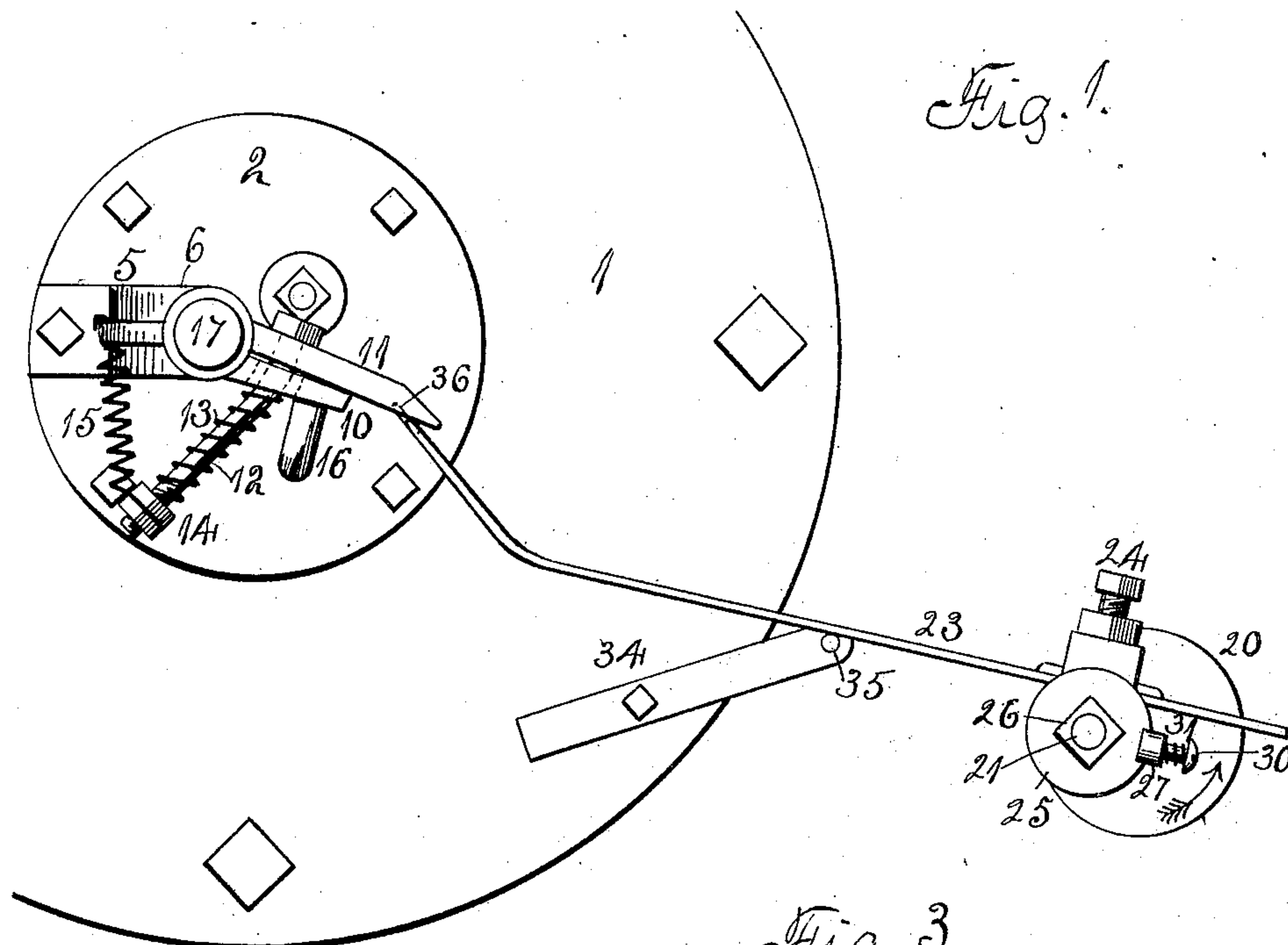


Fig. 1.

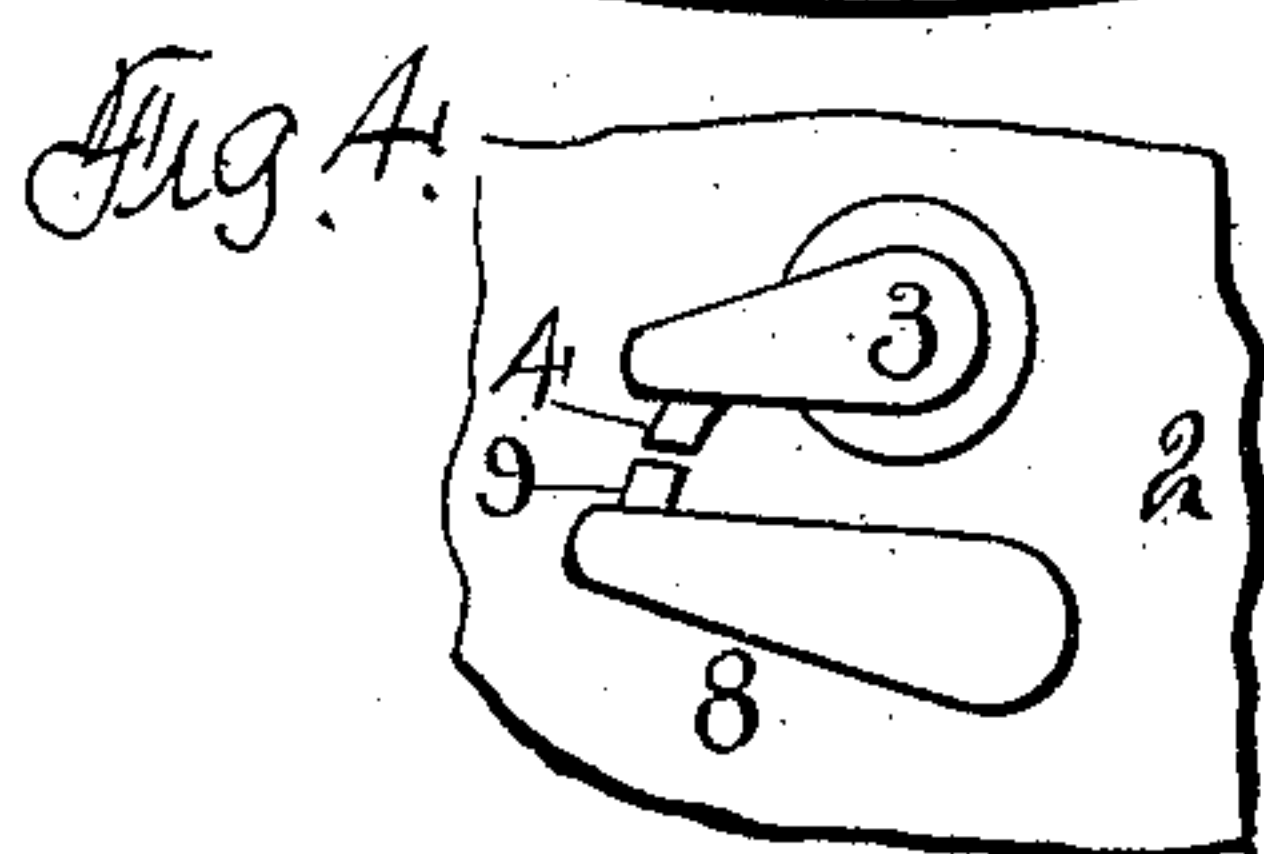


Fig. 4.

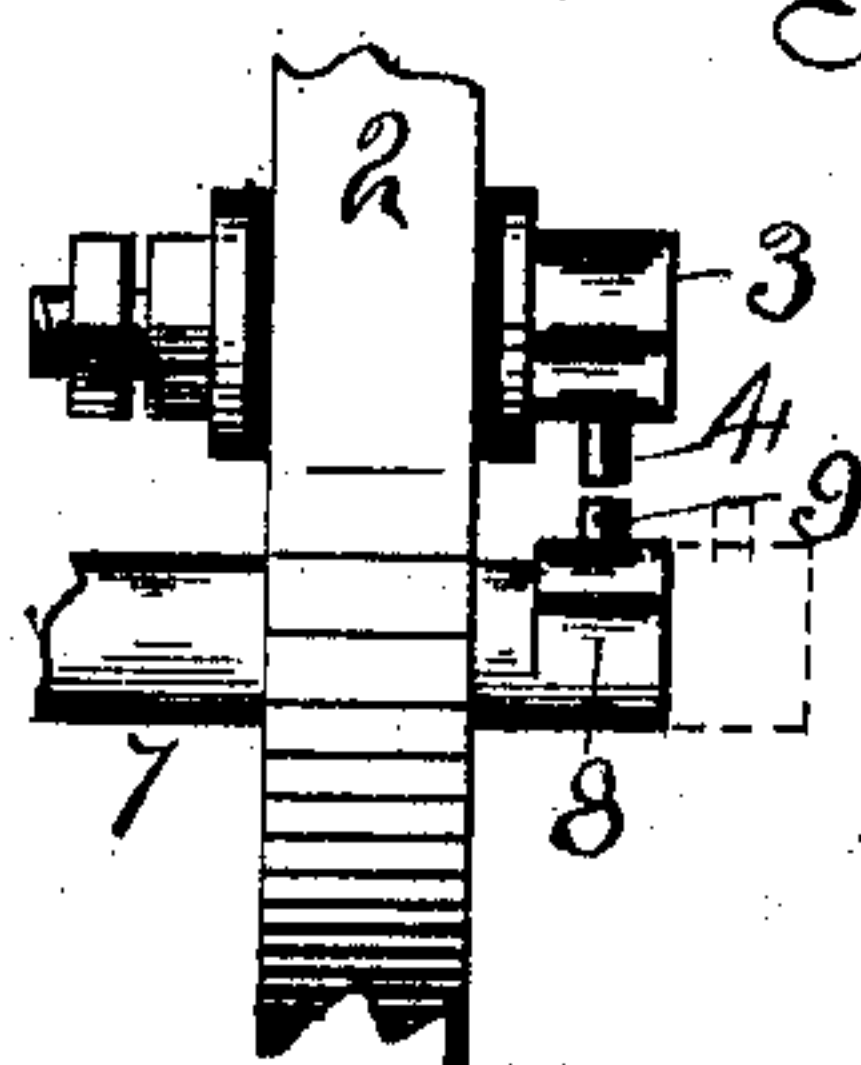


Fig. 3.

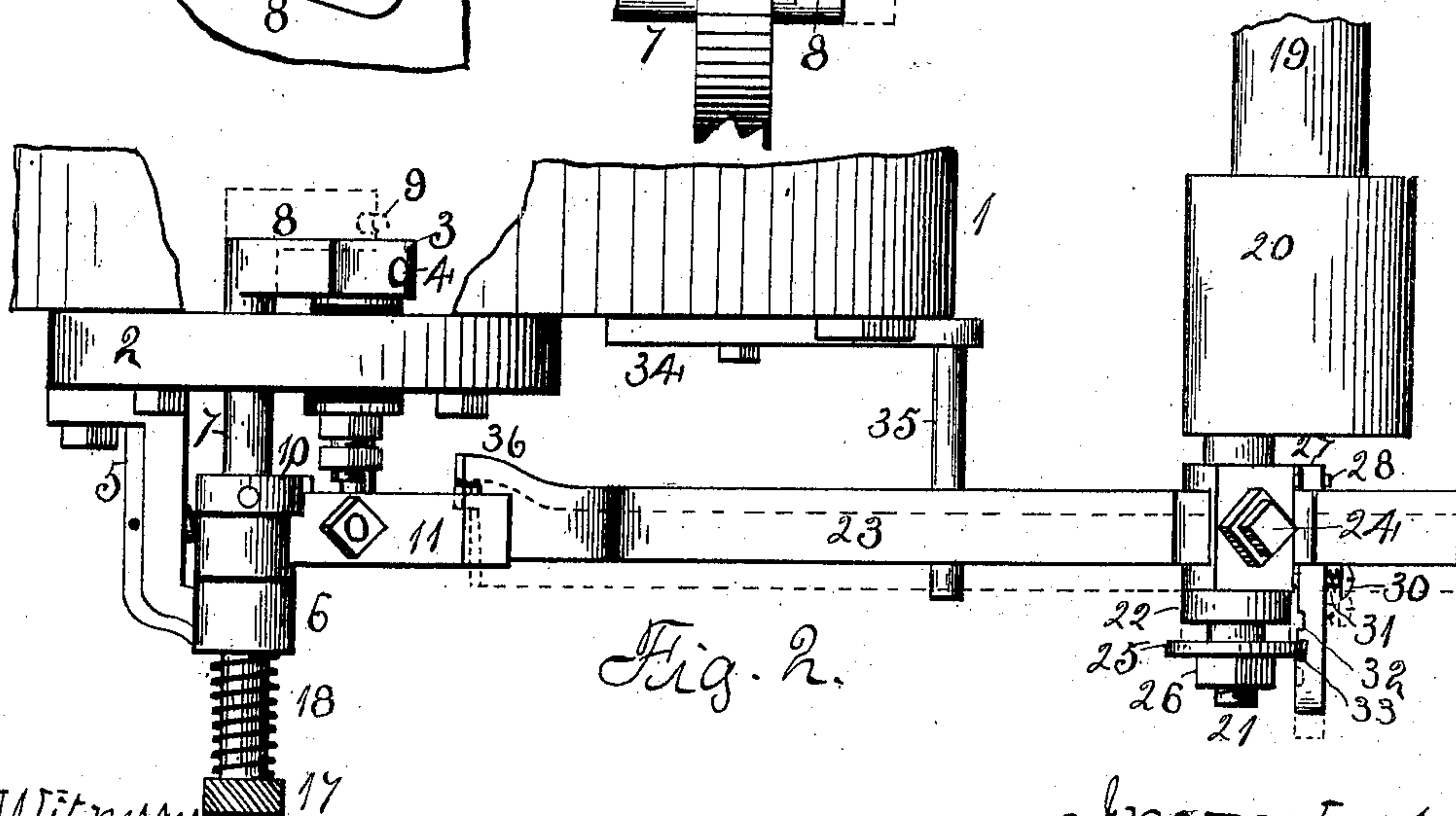


Fig. 2.

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UNITED STATES PATENT OFFICE.

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SPARKING IGNITER FOR EXPLOSIVE-ENGINES.

No. 813,081.

Specification of Letters Patent.

Patented Feb. 20, 1906.

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To all whom it may concern:

Be it known that we, GEORGE CORMACK, JR., and FREDERICK C. ZUMDAHL, citizens of the United States, residing at Rockford, in the county of Winnebago and State of Illinois, have invented certain new and useful Improvements in Sparking Igniters for Explosive-Engines, of which the following is a specification.

The object of this invention is to construct the supports for the points so that the points may be moved with respect to each other while in contact for the purpose of cleaning them.

The further object of this invention is to provide means whereby a late ignition may be had in starting the engine and changed to an earlier ignition when the engine is under way.

In the accompanying drawings, Figure 1 is a face elevation of an engine-head with our attachments in place thereon. Fig. 2 is a plan view of the head end of an engine with our improvements in place. Fig. 3 is a side elevation of the igniter points and supports. Fig. 4 is an inner face representation of the igniter points and supports.

To the engine-head 1 is secured a plate 2, supporting the igniter-points. The support 3 is insulated from the plate 2 and has a point 4 extending from its inner end. A bracket 5 is supported by the plate 2 and has an overhanging end 6, provided with a central opening. A spindle 7 is located in the central opening of the bracket 5; also in an opening through the plate 2. The end 8 of this spindle is bent at right angles to the spindle and supports a point 9.

The anvil-arm 10 is pinned to the spindle 7, and the hammer-arm 11 is loosely mounted on the spindle. A rod 12 has a connection with the hammer-arm 11 and passes through an opening in the anvil-arm 10. A coiled spring 13 surrounds the rod 12, and a nut 14 on the end of the rod serves to vary the tension of the spring. A spring 15 connects the free end of the rod with the bracket 5. The action of the spring 15 is to hold the anvil-arm 10 and hammer-arm 11 together against the stop 16. The spring 13 allows the hammer-arm 11 to separate from the anvil-arm 10 after the point 9 has come in contact with the point 4.

The spindle 7 has a head 17, and a spring 18

surrounds the spindle between the head and bracket. This spring 18 holds the point 9, carried by the arm 8, in alinement with the point 4, carried by the arm 3, so that the points may be brought together for the purpose of producing a spark. This spring also allows the spindle to be moved inward, so that the point 9, carried thereby, may be moved inward from the point 4 or snapped by the point for the purpose of cleaning both points. The points are held in contact at the time the spindle is pushed in, so that a rubbing action is had between the points.

A shaft 19 has a crank-head 20 secured to it, and a stud 21 extends from the crank-head. Upon the stud is mounted a collar 22, having a transverse opening, within which is located a bar 23 and which is held thereby by the screw 24 in a manner to permit of its lengthwise adjustment. The end of the stud 21 is reduced in size, and a disk 25 is held in connection therewith by the nut 26. To the collar is connected a latch 27 by the pin 28, and its free end is supported by the screw 30. A spring 31 surrounds the screw 30 between its head and the latch 27. The inner face of the latch 27 has two notches 32 and 33 of a size to receive the edge of the disk 25. When the notch 33 of the latch 27 is in engagement with the disk 25, the collar 22 will be held from lengthwise movement, at the same time allowing the stud to turn within it. By moving the latch 27 so that the notch 32 will engage the disk 25 the collar 22 will be carried with it, which will move the bar 23 into the position shown in dotted lines.

To the head of the engine is secured a bar 34, from which extends a rod 35. The free end of the bar 23 is provided with a side projection 36, extending beyond the end of the bar. The bar 23 rests upon the rod 35 about midway of its length. As the shaft 19 rotates in the direction indicated by the arrow the free end of the bar 23 will pass under the free end of the hammer-arm 11 and will engage said arm and raise it against the action of the springs 13 and 15, thereby moving the point 9 of the arm 8 into engagement with the point 4 of the support 3, and finally allowing the hammer-arm 11 to snap off the end of the bar 23, thereby producing a spark at the points.

It is better to start the engine with a late ignition. This we accomplish by moving the bar 23 into the position shown in dotted lines,

which will bring the extension 36 under the hammer-arm 11, thereby holding the bar 23 longer in contact with the said hammer-arm 11, and when the engine is under way the bar is moved into its solid-line position, which will give an earlier ignition.

We claim as our invention—

1. An igniter for gasoline-engines, comprising two points, one being movable, an arm having a connection with the movable point, and an operating-bar having one end provided with a notch forming two sections, said bar being movable transverse to its length to bring either section of the end under the arm, in order that the time of ignition may be changed.

2. An igniter for gasoline-engines, comprising two points, one being movable, an arm having a connection with the movable point, a rotary crank-pin, a collar supported by the crank-pin and having a movement in the lengthwise direction of the crank-pin, means

for holding the collar in its adjusted positions, and an operating-bar supported by the collar having a notch in one end capable of engaging the arm, in order that the time of ignition may be changed.

3. An igniter for gasoline-engines, comprising two points, one being movable, an arm having a connection with the movable point, a rotating crank-pin, a collar supported by the pin and having a movement in the lengthwise direction of the crank-pin, a disk supported by the crank-pin, a spring-actuated latch provided with a series of notches capable of receiving the edge of the disk and a bar supported by a collar having a notch in one end capable of engagement with the arm.

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