

J. A. SCHNEIDER.
INTERNAL COMBUSTION ENGINE TIMER.
APPLICATION FILED JUNE 29, 1909.

957,109.

Patented May 3, 1910.

Fig. 1.

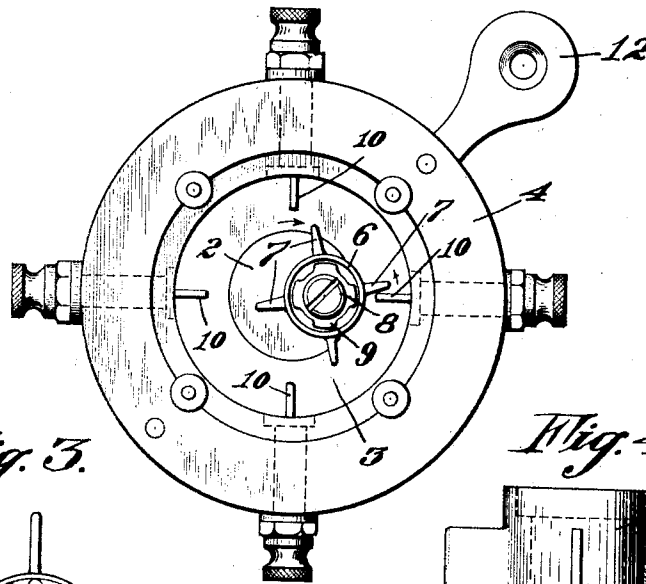


Fig. 3.

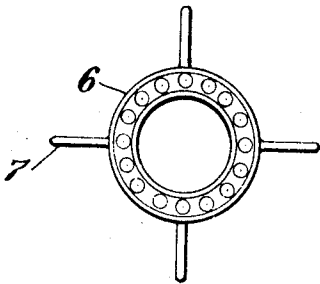


Fig. 4.

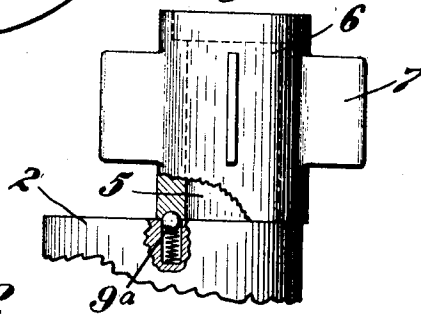
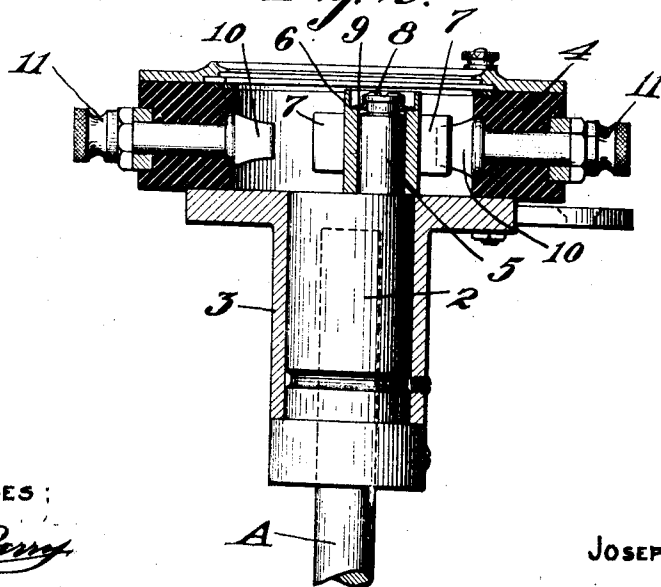


Fig. 2.



WITNESSES:

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UNITED STATES PATENT OFFICE.

JOSEPH A. SCHNEIDER, OF LAKEPORT, CALIFORNIA, ASSIGNOR OF TWO-THIRDS TO
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INTERNAL-COMBUSTION-ENGINE TIMER.

957,109.

Specification of Letters Patent.

Patented May 3, 1910.

Application filed June 29, 1909. Serial No. 505,078.

To all whom it may concern:

Be it known that I, JOSEPH A. SCHNEIDER, citizen of the United States, residing at Lakeport, in the county of Lake and State of California, have invented new and useful Improvements in Internal-Combustion-Engine Timers, of which the following is a specification.

My invention relates to a means for transmitting electrical currents such as are usually employed for ignition of combustible charges in internal combustion engines, in such a manner as to form an electric circuit and produce a spark in any one or more cylinders in the order in which the ignition or explosion is desired to take place.

It consists in the combination and arrangement of parts, and in details of construction which will be more fully explained by reference to the accompanying drawings, in which—

Figure 1 is a front view. Fig. 2 is a section taken through the axis of the device. Fig. 3 is an end view of a modified form of hub. Fig. 4 is an elevation of same partly in section.

For the purpose of producing successive ignitions or explosions in the cylinders of motor engines, a suitable spark-producing device is employed, and a device known as a "timer" is made revoluble in certain relation with the rotations of the crank shaft, this device producing contacts which complete electrical circuits at the desired point of compression of the charge within the cylinder, so that the electrical current being completed through these contacts will, through various well-known means, produce a spark at the desired instant which will ignite the charge within the cylinder.

In my invention, A is the shaft through which power is transmitted to revolve the internal portion of the apparatus, and this may have an enlarged portion formed with or fixed to it, as shown at 2. This portion is revoluble in a sleeve 3, and upon this sleeve is an outer annular casing 4 having an internal chamber within which the operative parts are contained. The end of the shaft 2 has formed upon or fixed to it, a pin 5. This pin is fixed eccentrically in the end of the shaft, and has mounted upon it a member 6 from which project radial arms 7. The hub portion 6 is freely turnable

upon the eccentric or crank-pin 5. It may be held in position by means of a screw 8, and an elastic or friction washer 9 which surrounds the screw, and its periphery presses upon the shoulder in the outer end of the part 6, thus producing a sufficient friction so that while allowing the hub with its arms 7 to revolve, it will be sufficiently retarded to prevent its moving too freely or rapidly.

Within the outer casing 4, and projecting radially toward the center, are arms or blades 10, and the length of these arms or blades is such that as the shaft or sleeve 2 revolves and carries the eccentric pin 5 around with it, one of the radial blades 7 will be brought into contact with one of the blades 10, when the eccentric is at the position nearest to the particular blade. It will be seen that by this revolution the eccentric will be brought sufficiently close to each of the blades 10 successively, so that one of the contact arms 7 will strike one of the blades, and as it passes it will act to revolve the device upon the eccentric, and at the same time produce a drawing or wiping movement across the blade, which will insure a perfect electrical circuit which cannot be weakened or prevented by the accumulation of lubricant between two metallic surfaces, as is frequently the case when ball or roller contacts are employed.

By means of holding screws, as at 11, the necessary connecting wires are attached to produce the circuit through the parts in the usual manner, and the advance or recession of the contacting parts with relation to each other may also be effected by the arm 12, by which one portion is advanced with relation to the other, so as to make the contacts earlier or later.

It will be seen that this device may be employed for a single, or a multiple cylinder engine, with equal effect.

The bearings may be of any suitable or well-known anti-frictional kind, and the peculiar revolving and rotating of the contact devices in unison successively transfers the contact points around the circle, and with the smallest amount of frictional revolution during the operation.

If preferred the inner end of the hub may be serrated or roughened, and a spring-pressed pin 9^a fitted to contact with the ser-

rations, the object of either, or of any equivalent device being to exert a frictional pressure which will allow the hub and its arms to turn with sufficient freedom, when passing over the arms 10, but preventing a loose or rebounding intermediate motion.

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

10 1. In an electrical timer, an exterior annular casing, a shaft revoluble about the common center, a pin fixed eccentrically to the end of said shaft, a hub revoluble upon the pin, widely separated contact points
15 projecting inwardly from the interior of the case, and widely separated points projecting outwardly from the circumference of the revoluble hub and coacting with the first-named points to impart an intermittent rotation to the hub.

20 2. An electrical timer consisting of a fixed annular casing having inwardly projecting contact points, a centrally journaled turnable shaft, a sleeve mounted to turn upon
25 said shaft, a pin projecting eccentrically from the end of the shaft into the interior of the casing, a hub having widely separated radially projecting contact points projecting beyond its circumference and each adapted to be carried into successive relation with
30 the points of the casing whereby the hub is intermittently rotated, and an elastic de-

vice pressing upon the hub to retard the rotary movement thereof.

3. In a commutator or timer an intermittently revoluble and eccentric traveling member, a wiper projecting beyond the circumference thereof and carried thereby and corresponding widely separated fixed points co-
40 acting therewith.

4. An intermittently revoluble and eccentrically traveling member having a plurality of projecting points or wipers arranged at equal distances around the circumference and projecting outwardly therefrom, and fixed
45 points corresponding with the number of independent ignitions, and over which the wipers successively pass.

5. A device or timer for producing intermittent electrical contacts, said device including fixed circularly disposed arms, a
50 hub having radially projecting arms or blades, an eccentrically intermittently revoluble pin or shaft upon which the hub is turnable to sweep its arms successively across
55 the fixed arms.

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

JOSEPH A. SCHNEIDER.

Witnesses:

E. G. BLASDEL,
C. HALLAM COLE.