

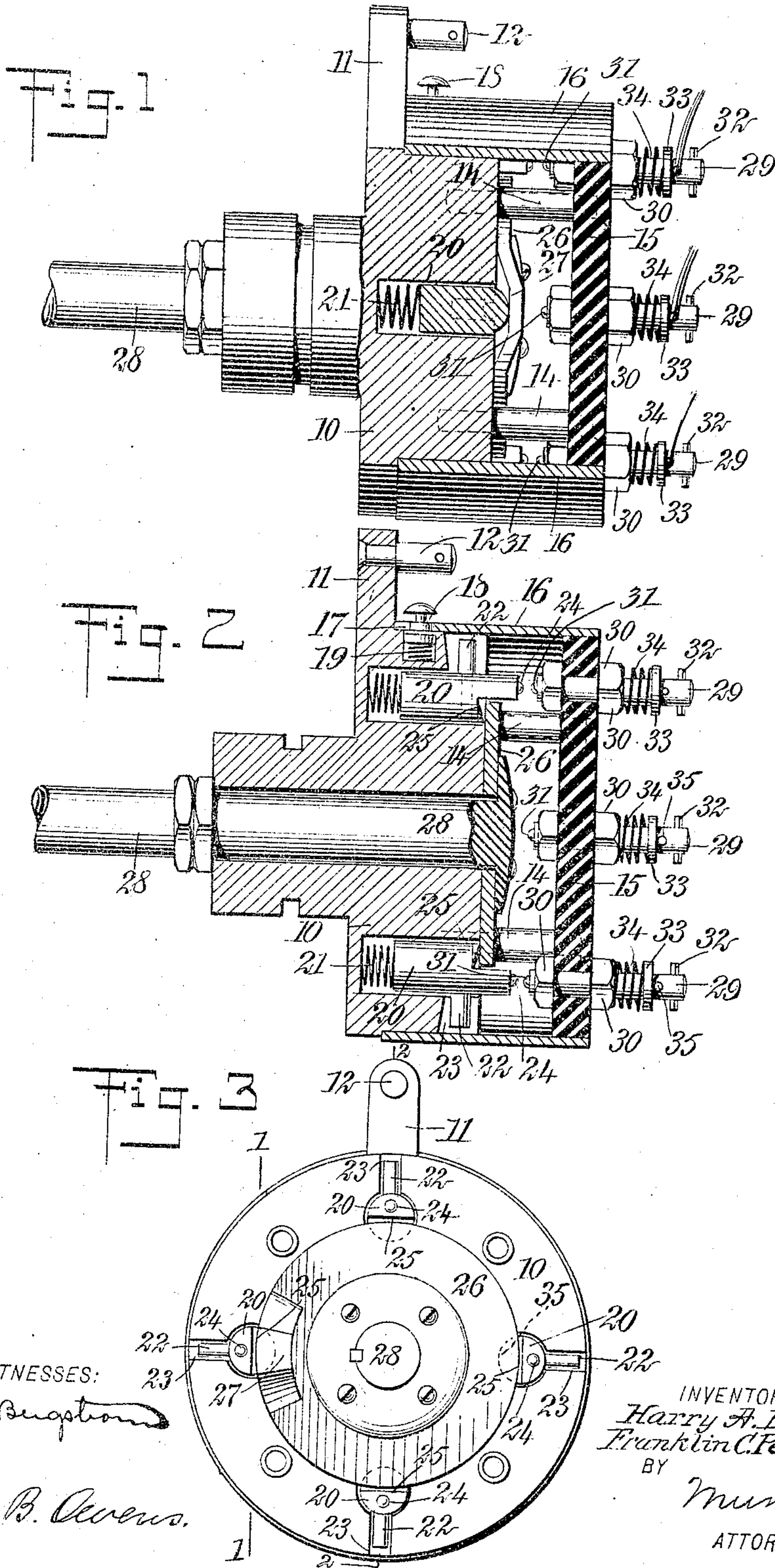
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PATENTED AUG. 20, 1907.

H. A. BUTLER & F. C. PETERSON.

TIMER.

APPLICATION FILED JAN. 27, 1906.



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UNITED STATES PATENT OFFICE.

HARRY A. BUTLER AND FRANKLIN C. PETERSON, OF HAVERFORD, PENNSYLVANIA

TIMER.

No. 864,077.

Specification of Letters Patent.

Patented Aug. 20, 1907

Application filed January 27, 1906. Serial No. 298,140

To all whom it may concern:

Be it known that we, HARRY A. BUTLER and FRANKLIN C. PETERSON, both citizens of the United States, and residents of Haverford, in the county of Delaware and State of Pennsylvania, have invented a new and Improved Timer, of which the following is a full, clear, and exact description.

The invention relates to certain novel improvements in timers or distributors intended especially for passing the electric spark in gas or oil engine ignition.

The invention resides in certain special features of construction by means of which the distributor is improved in point of durability and efficiency, all of which will be fully set forth hereinafter and particularly pointed out in the claims.

Reference is to be had to the accompanying drawings, which illustrate as an example the preferred embodiment of our invention, in which drawings

Figure 1 is a sectional view of the invention taken essentially on the line 1—1 of Fig. 3; Fig. 2 is a section on the line 2—2 of Fig. 3; and Fig. 3 is a side elevation of the device with its outer end and binding post removed.

The body 10 of the device is constructed preferably of brass. It is adapted to be mounted in any suitable position and by any suitable means so that it may be rotated slightly as will be understood to persons skilled in the art.

The body 10 is provided with a lug 11 having a pin 12 facilitating the connection of a link or other device therewith, by means of which the body may be adjusted at will to advance or retard the spark.

14 indicates stay bolts which serve to fasten in place securely and rigidly the insulating outer wall 15 of the timer. This wall is spaced from the side of the body 10, as shown in Fig. 1.

Extending over the parts 10 and 15 is a tubular cover 16 which is preferably of metal, and which is formed with a key-hole slot 17. This slot is adapted to be engaged by a spring actuated lock pin 18 held by the body 10, said lock pin having as shown in Fig. 2 relatively narrow and thick portions, the thick portion being designed to enter the larger part of the slot 17 to lock the cover in place, and the narrow portion of the pin being adapted to permit the removal of the cover. Said pin 18 is held in active position by means of a spring 19, and may be pressed back against the spring into inactive position. Said cover extends over the two parts 10 and 15 and completely incloses the interior of the timer.

The body 10 is provided with a number of contact pins 20, which are one for each cylinder of the engine in connection with which the timer is used. These pins are pressed outward by springs 21 and they are pre-

vented from turning by means of laterally projecting studs 22 playing in slots 23 formed in the body of the device.

Each contact pin is provided with iridium, platinum or other contact point 24, and is also formed with a shoulder 25 at the inner side of the pin. With the shoulders of these pins a cam disk or plate 26 coacts said disk as shown best in Fig. 3 being arranged against the inner side of the body 10 and running over the shoulders 25 of the pin.

The disk is provided with an off-set or notched portion 27 which lies out of the plane of the body or main part of the disk, and as the disk rotates over the shoulders 25 the off-set portion 27 is successively moved opposite the pin 20 permitting the spring 21 of said pin to force the pins outward, and as the off-set portion moves away from the pin, said pin is returned to its former position. It therefore follows, that by means of this arrangement the cam plate causes the contact pins to normally take the inactive position shown in Fig. 2, and that as the cam plate successively presents the off-set portion 27 to the pins, said pins are permitted to move outward into active position, as illustrated in Figs. 1 and 3. The cam disk 26 is fastened to the head of a shaft 28, and through this shaft said disk is driven. The shaft is revolutely mounted on the body and is adapted to have connection with a moving part of the engine to operate in correct unison therewith. This connection may be effected and the shaft may be mounted and driven by any desired means.

Fastened to the insulating outer wall 15 of the timer are a number of contact pins 29 which extend through the wall and are held rigidly in place by means of nuts 30. These pins 29 are provided at their inner ends with platinum, iridium or other suitable sparking points 31, and said points are adapted to be successively engaged by the points 24 of the pins 20. Said pins 29 are provided at their outer ends with stops 32, and 33 indicates collars which are freely slidable on the pins and are pressed downward by springs 34. The pins 29 have openings 35 therein adapted to receive the wires of the primary circuit. The springs 34 press the collars out against the wires, as shown in Fig. 1, thus securely holding the wires in contact, but avoiding the necessity and disadvantage of a thumb nut on each pin.

In the operation of the device the connections are made in the usual manner, the pins 20 forming one terminal and the pins 29 the second terminal. Upon the rotation of the shaft 28 and cam disk the contact pins 20 are successively permitted to move out into active position and then contact with the pins 29, thus closing the circuit at the desired time. The time of the spark

may be controlled at will by changing the position of the body 10 of the device with respect to the cam plate, such being effected by a hand lever or other device in connection with the lug 11 and pin 12. It will be observed that the contact between the pins 20 and 29 is instantaneous, thus saving current and also preventing danger of burning away the contact points. The device does not require adjustment after once being set, since the manner in which the parts are arranged allows the elements to take up wear automatically. Further, since there is an even strain on all of the parts, wear is evenly distributed and does not result in lost motion, as is commonly the case in timers or commutators. The cam or other shaft 28 can be run in either direction without necessitating the adjustment of any of the parts, and the simplicity of construction of the device insures durability and efficient operation.

Having thus described the preferred form of our invention, what we claim as new and desire to secure by Letters Patent is:

1. A timer comprising a sliding contact, means tending to press the contact in one direction, and a rotary cam member engaging the contact, said member normally restraining and periodically releasing the contact.
2. A timer comprising a sliding contact, means yieldingly pressing the contact in one direction, and a rotary cam disk engaging the contact and having an off-set portion periodically releasing the contact.
3. A timer comprising a sliding contact, means yieldingly pressing the contact in one direction, and a cam rotating in a plane disposed at an angle to the line of movement of the contact, the cam engaging the contact and having an off-set portion periodically releasing the contact.
4. A timer having a contact mounted to slide but not to turn, means yieldingly pressing the contact in one direction, and a cam disk running directly against the contact and normally restraining the same, the cam having an off-set portion periodically releasing the contact.
5. A timer having a contact mounted to slide but not to turn and provided with a shoulder, means yieldingly

pressing the contact in one direction; and a cam member running against the shoulder, the cam member normally restraining and periodically releasing the contact.

6. A timer having a sliding contact, means for preventing the contact from turning, means yieldingly pressing the contact in one direction, the said contact having a shoulder, and a cam disk running in a plane extending at an angle to the line of movement to the contact and engaging the shoulder of the same, said cam disk having an off-set portion adapted periodically to release the contact.

7. A timer comprising a body, a rotary cam disk, said body being adjustable relatively to the disk, a sliding contact mounted in the body and having a shoulder, and means tending yieldingly to press the contact in one direction, the cam disk normally engaging the shoulder of the contact and having an off-set portion periodically releasing the same.

8. A timer comprising a body, a movable contact thereon, means for controlling the movement of the contact, a second contact coacting with the first contact, an insulation wall mounting the second contact, said wall being secured to and spaced from the body, and a removable tubular cover extending around the wall and body.

9. A timer comprising a body having a cavity therein, and a slot adjacent to the cavity, a contact movable in the cavity, a lug projecting from the contact and fitting loosely in the slot, means yieldingly pressing the contact in one direction, and means for normally restraining and periodically releasing the contact.

10. A timer comprising a body having a cavity therein and a slot communicating with the cavity, a contact pin movable longitudinally in the cavity, said pin being formed with a shoulder adjacent to its operating end, a lug projecting from the pin and fitting in the slot of the body, means yieldingly pressing the contact pin in one direction, and a cam disk rotating in a plane extending at an angle to the line of movement of the contact pin, and bearing against the shoulder thereof, for the purpose specified.

In testimony whereof we have signed our name to this specification in the presence of two subscribing witnesses.

HARRY A. BUTLER.

FRANKLIN C. PETERSON.

Witnesses:

WILLIAM S. MANN,
FLOYD A. HYDEN.