

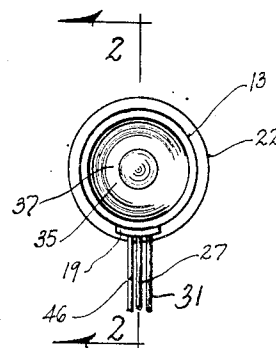
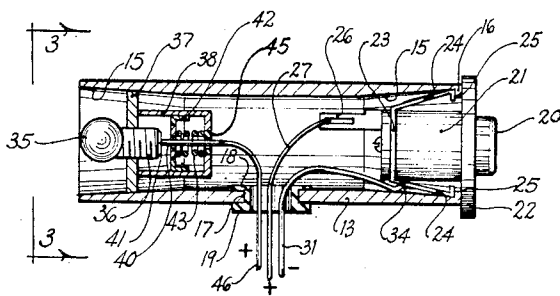
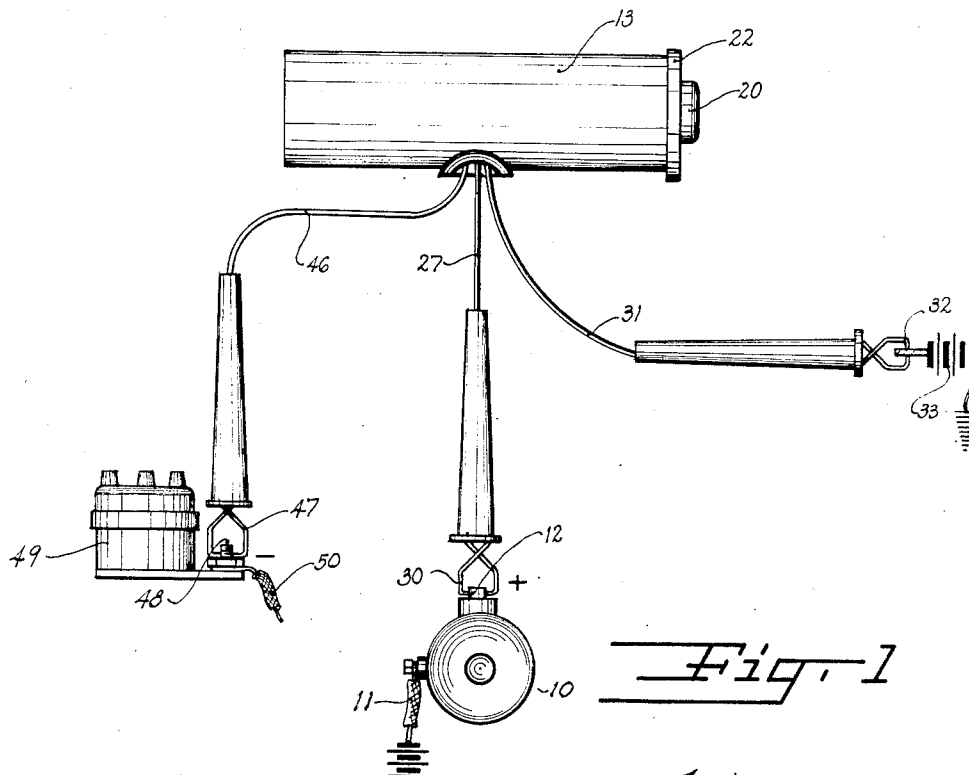
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MOTOR CONTROL AND PISTON POSITION INDICATING DEVICE

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MOTOR CONTROL AND PISTON POSITION
INDICATING DEVICE

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2 Claims. (Cl. 177—311)

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This invention relates to a device for causing rotation of the crankshaft of an engine through predetermined degrees at the will of the operator so that the tappets of the engine may be adjusted.

An object of the invention is the provision of a device for aiding in properly setting tappets of an engine when the crankshaft of the engine of the automobile is revolved and then stopped at the firing position of each piston in the various cylinders so that the mechanic may reset the tappets of the valves with full tolerance for each cylinder, a push button independent of the usual starting mechanism of the automobile adapted to close a circuit to the starter motor whereby the crankshaft of the engine and the rotor of the distributor will be revolved, a lamp being in circuit with the distributor rotor and being illuminated to indicate that the piston has reached the firing position.

Another object of the invention is the provision of a device for closing electric circuits to a starter motor and a lamp for moving the pistons consecutively to the firing positions and for indicating said positions so that the mechanic may reset the tappets of the valves of the engine, a manually operated switch controlling the movements of the pistons to the firing positions and the stopping of said pistons when the lamp is lighted.

A further object of the invention is the provision of a simple and efficient device having electric wires extending therefrom which are adapted to be attached respectively to the rotor of the distributor, the starting motor and the ground of an automobile, the device including a housing for a push button switch and a lamp connected by one of the wires to the distributor so that when the switch is closed temporarily, the crankshaft of the engine of the automobile will be revolved and the lamp will be illuminated when a piston in a cylinder reaches the firing position, the piston being stopped at this time by the release of the push button whereby a mechanic may reset the valve tappets of said cylinder, successive rotation of the crankshaft by increments bringing the remaining pistons to the firing positions for adjustment of the tappets of the valves.

This invention is best understood from a consideration of the following detailed description taken in connection with the accompanying drawing forming part of the specification, nevertheless, it must be borne in mind that the invention is not confined to the disclosure but is susceptible of such changes and modifications as shall define no material departure from the salient features of the invention as expressed in the appended claims.

In the drawings:

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Figure 1 is a side view in elevation of my device for causing the pistons of an automobile engine to be moved to the firing positions in order to reset the valve tappets;

Figure 2 is a longitudinal vertical section of the main body of the device, taken along the line 2—2 of Figure 3; and,

Figure 3 is an end view in elevation of the device as indicated by the line 3—3 of Figure 2, showing a lamp and reflector in said end.

Referring more particularly to the drawings, 10 designates a starter motor for turning over the crankshaft for starting the internal combustion engine of an automobile. The starter motor is rotated when the usual push button on the dash is pressed for closing a circuit to a solenoid which, in turn closes a switch in the circuit of said motor. The motor 10 has a ground at 11 and a positive contact 12 which forms a terminal of the solenoid circuit.

A cylindrical housing 13, formed of metal, has its opposite ends open. The inner walls of the housing as shown at 14 and 15 and at the ends of said housing are tapered with the wider portions of the taper being at the open ends of the housing. The tapered end 15 has an internal flange 16. An opening is formed in the bottom of the cylinder and a circular insulating member 17 is applied to the opening. Spaced flanges 18 and 19, engaging respectively the inner and outer faces of the housing, retain the insulating ring or member in place.

A push button switch 20 is mounted for reciprocation in a casing 21 which has a flange 22 seated on one end of the housing 13. A wire ring 23 is mounted in an annular groove at the inner end of the casing and two diametrically disposed spring arms 24 extend outwardly from said ring. The free end of each arm has an inbent portion 25 which engages the inner face of the flange 16. It will be noted that the arms diverge so that when the casing is forced inwardly of the housing, the spring arms will be moved progressively towards the casing by the flange 16 until the free end of said arms clear the flange whence the inbent portions 25 will snap into locking position at the inner face of said flange. A positive contact 26 projects from the inner end of the casing 21 and is connected to a wire 27 leading through the insulating ring or member 17 in the bottom of the casing.

A clip 30 of well known construction is connected to the other end of the wire 27. The clip clamps upon the contact 12 which is in circuit with the solenoid of the starter motor 10. A wire 31 has one end secured to a clip 32 which grips or is connected to the negative side of a battery 33, which in turn is grounded to a part of the metal frame construction of the vehicle. The other end of the wire is attached to one of the spring arms

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24 as shown at 34 in Figure 2. When the push button is pressed inwardly it closes the circuit to the motor 10 by a bridging member (not shown) on the button.

A lamp 35 has a metallic sleeve 36 threaded into an opening in a circular reflector 37 which is pressed into the tapered portion 15 of the housing 13. A sleeve 38 is secured to the inner face of the bulb supporting reflector 37 and its longitudinal axis aligns with the longitudinal axis of the lamp. A contact pin 40 is slidable in a passage in the inner closed end of the sleeve with the outer end of the pin engaging the usual contact 41 at the inner end of the lamp. A piston 42 is slidable in the sleeve and the pin 40 passes through the piston and is attached thereto. A compression spring 43, between the piston and the inner closed end of the sleeve, retains the outer end of the sleeve 38. The pin is also insulated from piston where said pin is attached thereto to prevent short-circuiting of the lamp 35.

A wire 46 has one end attached to the inner end of the pin 40 where said pin projects beyond the closed end of the sleeve 38. This wire is carried through the insulating ring 17 in the bottom of the housing 13 and is fixed to a clip 47 which is clamped removably on a contact 48 of the usual distributor 49. A wire 50 connects the contact 48 with the negative side of a source of current.

The housing 13 acts as a ground since the spring arms 24 engage the inner wall of the metal housing and the wire 31 is connected between one of said arms and the grounded battery 33. The metal sleeve 36 of the lamp 35 is threaded through the metallic reflecting plate 37 which has its periphery in contact with the housing 13 so that the plate and the housing act as the ground for the lamp.

The operation of the device is as follows:

With the various elements of the apparatus attached to the ground, the contact 12 and the contact 48, the button 20 may be pushed inwardly. When this happens, the motor 10 will revolve the crankshaft of the automobile engine and the rotor of the distributor will be revolved. As the distributor closes the circuit to the lamp to energize the same, the button will be released and the engine will be stopped.

The illumination of the lamp will disclose the firing position of a piston in a cylinder and will indicate to the mechanic when to release the push button. The tappets of the valves of said cylinder may be properly set with the aid of a feeler guage for full tolerance on the particular cylinder. This process is repeated until the tappets for all of the cylinders have been set.

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The device may be employed during various operations on an automobile. It may be used to turn the engine over when the mechanic is under the car and at the same time said device may act as a flashlight for inspecting various elements of the engine. Said device will also indicate the timing.

What I claim:

1. A device for causing the pistons of an automobile engine to be moved to the firing positions and for indicating said positions, the engine including a distributor, an electric starter motor and a ground, said device comprising a metal housing, a push button switch at one end of the housing, a lamp in the other end thereof, a wire connected between the positive side of the starter motor and a contact of the switch, a second wire connected between the other contact of the switch and a ground on the engine, and a wire connected between the positive side of the distributor and a lamp contact, means connecting the ground wire with the housing and means connecting the other lamp contact with the housing, bridging of the switch contacts by the push button causing closing of the circuit to the electric starter motor for turning over the engine until the lamp is lighted by the distributor when the push button is released to stop the engine so that a mechanic may adjust the tappets of valves of each cylinder as the respective pistons reach the firing positions.

2. A device for causing the pistons of an automobile engine to be moved to the firing positions and for indicating said positions, the engine including a distributor, an electric starter motor and a ground, said device comprising an elongated housing, a switch and an exposed lamp in the housing, a spring pressed button for closing the switch, means conductively and removably connecting a switch contact with the positive side of the electric motor, means connecting a second switch contact with the ground so that when the switch is closed, the engine will be turned over until the button is released, a wire removably connecting a lamp contact with the positive side of the distributor, the other lamp contact being connected to the ground, the lamp being illuminated by the distributor when the various pistons of the engine reach the firing positions for indicating to the mechanic when to release the spring pressed button.

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No references cited.