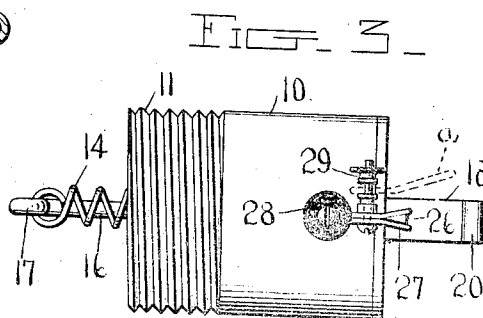
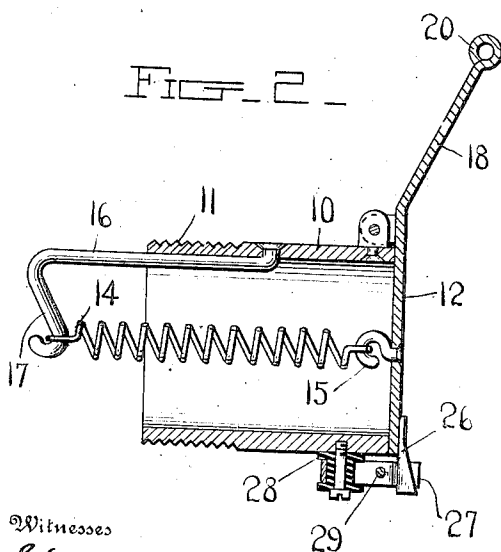
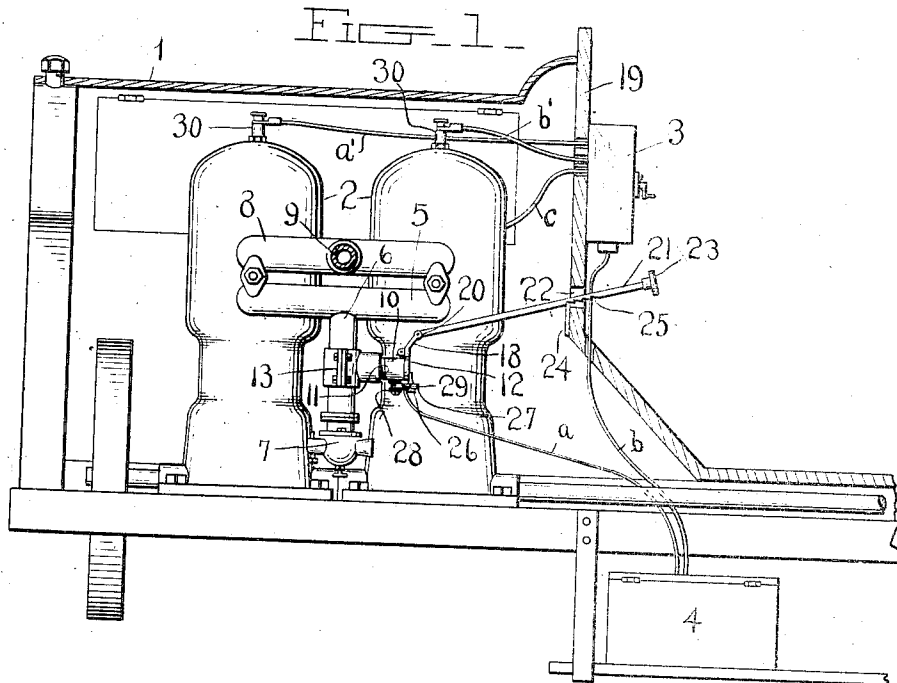


W. O. NELSON.
 COMBINED CARBURETER PROTECTOR AND ELECTRIC CUT-OUT FOR AUTOMOBILES.
 APPLICATION FILED MAY 25, 1908.
 976,487. Patented Nov. 22, 1910.



Witnesses
 L. B. James
 A. C. McCartney

Inventor
 W. O. Nelson
 By *Charles Chandler*
 Attorneys

UNITED STATES PATENT OFFICE.

WILLIAM O. NELSON, OF BALTIMORE, MARYLAND.

COMBINED CARBURETER-PROTECTOR AND ELECTRIC CUT-OUT FOR AUTOMOBILES.

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Specification of Letters Patent. Patented Nov. 22, 1910.

Application filed May 25, 1908. Serial No. 434,851.

To all whom it may concern:

Be it known that I, WILLIAM O. NELSON, a citizen of the United States, residing at Baltimore, State of Maryland, have invented certain new and useful Improvements in Combined Carbureter-Protectors and Electric Cut-Outs for Automobiles; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

The present invention relates to improvements in carbureter protectors, and it has for its principal object the provision of an extremely simple and inexpensive device arranged for location in the gas line between the carbureter and the motor and constructed and designed to operate automatically under the influence of excessive pressure within the gas line, as in the case of a "back-fire," so as to afford an egress opening for the ignited gases and thus prevent the same from traveling back into the carbureter.

It is also an important object of the invention to provide a device of the nature specified which, when operated, will serve as an electric cut-out, by breaking the circuit in which the battery and sparking apparatus are included.

The invention has for a further object the provision of a device which in addition to its automatic operation above referred to, may be manually operated for the purpose of admitting air into the motor, the object being to enable the operator to use the engine as a brake without consuming either electric current or fuel; to cool the engine; to allow the cylinders to become thoroughly lubricated with pure oil while running idle with no combustion to foul or burn the lubricant; and to blow away any carbon deposited by previous explosions or to impregnate the same with oxygen so that it may be consumed by subsequent explosions, thus keeping the cylinders clean and free from objectionable and injurious deposits and in the best condition to perform their functions.

To this end, the invention comprises a metal sleeve having its threaded inner end fitted in an opening formed in the main feed pipe which leads from the carbureter to the intake pipes, and its outer end normally closed by a spring-pressed cover provided with a contact, the other contact be-

ing carried by the sleeve, the primary circuit which includes the motor, the battery, and the sparking apparatus being completed when the cover is in its closed position, and broken when the cover is opened, in which latter instance when the operation of the device is automatic, or in other words, due to the excessive pressure within the pipe, the sleeve will serve as a by-pass through which the gas escapes, thus preventing the flame from traveling back through the feed pipe to the carbureter. When, however, the cover is operated manually, the current of air admitted through the sleeve and the feed pipes will flush the engine and blow out the carbon deposits which have formed upon the pistons.

The preferred embodiment of the invention is illustrated in the accompanying drawings, in which corresponding parts are designated by the same reference numerals throughout the several views.

Of the said drawings, Figure 1 is a side elevation of the motor of an automobile and its attendant parts, showing the cut-out in place. Figs. 2 and 3 are, respectively, a longitudinal section and a bottom plan view of the cut-off, both figures being taken on an enlarged scale.

Referring more particularly to the drawings, 1 designates, generally, the bonnet or hood of the car; 2 the motor; 3 the sparking apparatus; and 4 the battery. The two cylinders of the motor communicate through the intake pipes 5 with the main supply-pipe 6 which leads to the carbureter 7, and through the outlet pipes 8 with the exhaust pipe 9. The several parts above referred to may be of any ordinary construction preferred, and therefore require no extended description.

The combined protector and cut-out, in which the invention resides, comprises a metal sleeve 10 having its threaded inner end 11 open, and its outer end provided with a cover 12, the first-mentioned end of the sleeve being fitted in the threaded end of the stem of a T-joint 13 bolted to the supply-pipe 6, which latter has an opening formed therein directly opposite the stem of said joint and the sleeve. The cover is normally held in closed position by means of a retractile coil-spring 14 one end of which is attached to a hook 15 secured to the cover, while its other end is connected to a rod 16 whose laterally-bent rear end terminates in

a hook 17 to which the spring end is attached, said rod having its forward portion disposed within the interior of the sleeve, and its rear end projecting therebeyond.

5 The enlarged front end or head of the rod fits in an opening formed in the side wall of the sleeve.

The cover 12 is hinged at its upper end to the sleeve, as shown in Fig. 2, and is provided adjacent the hinge with an integral arm 18, which extends upwardly and slightly toward the dash-board 19 of the car, said arm terminating at its free end in an eye 20, to which is pivotally connected the inner end of a foot-rod 21 which projects through an opening 22 formed in the dash-board and is provided at its outer end with a head 23. Inward movement of the rod will, therefore, open the cover against the tension of the spring, as will be apparent, whereupon a current of air will flow through the sleeve and the intake pipes, and finally into the engine cylinders. The rod is retained in its adjusted position, after having been moved inwardly to the proper extent, by means of a plate 24 which is secured to the inner face of the dash-board directly below the opening 22, the beveled upper edge of the plate being arranged for interchangeable engagement in a series of notches 25 formed in the under surface of the rod.

At its lower end the cover has secured thereto a contact piece 26 in the form of a blade, which normally fits between the legs of a bent contact plate 27 carried by an insulated plug 28 secured to the adjacent portion of a plug 28 secured to the adjacent portion of the side wall of the sleeve, said plate carrying a binding screw 29 to which is attached one terminal of the wire *a* which forms one of the wires of the primary circuit, the other terminal of said wire being connected to the battery 4, to which latter one terminal of the other wire *b* of said circuit is connected, the other terminal being connected to the sparking apparatus 3. The two cylinders of the motor are provided with the usual sparking plugs 30 to which one set of terminals of the conductors *a'* and *b'* of the secondary circuit are attached, the other set of terminals being connected to the sparking apparatus. The sparking apparatus is also connected with the right hand, or rear cylinder, by the wire *c* which completes the primary circuit between the motor and said apparatus.

It will be apparent from a consideration of the foregoing that when a "back-fire" takes place, the resultant excessive pressure in the upper portion of the supply pipe will be sufficient to cause the cover to open automatically, thus providing an egress opening through which the ignited gases will escape, thus avoiding the danger of their passage through said pipe to the carbureter. It will

also be understood that during the time that the cover is in its normal position, the two contacts will engage each other, thus closing the primary circuit, which latter is broken when the cover is opened, whereupon the consumption of gasoline will practically at once cease, this being true whether the cover be opened automatically, as above described, or manually by the operation of the foot rod. When it is desired to flush and cool the engine, the cover is opened by means of the foot rod, so as to admit the cooled air into the supply pipe, whence it flows into the engine cylinder.

It will of course be understood that when the push rod 21 is moved so that the most forwardly disposed notch therein engages with the plate 24 the gear 12 will be moved a sufficient distance to break the electrical contact. The purpose of providing means for a further opening of the cover is to permit the air to reach the heated portions of the engine at a lower temperature than can be effected when the cover 12 is open only a small distance and thus very quickly reduce the temperature of the engine.

What is claimed is:

1. The combination of, an explosive motor; a carbureter operatively connected therewith; a hollow member located in the gas line, between the carbureter and the motor; a cover hinged to said member and provided with an arm; means for yieldingly holding the cover in closed position, said cover being adapted to open automatically against the action of said holding means under the influence of excessive pressure within the gas line to provide a vent; and a manually operated member connected to said arm for opening said cover to admit air between the carbureter and the motor.

2. The combination with an explosive motor, a carbureter connected therewith, a hollow member located in the gas line between the carbureter and motor, a cover hinged to said member, means for yieldingly holding the cover in closed position, said cover being adapted to open automatically against the action of said holding means under the influence of excessive pressure within the gas line to provide a vent and a manually operated member connected to said cover for operating the latter to admit air between the carbureter and the motor.

3. The combination, of an explosive motor; a carbureter operatively connected therewith; a hollow member located in the gas line between the carbureter and the motor; an outwardly opening cover pivoted to said member; an interiorly-disposed rod secured at one end to said member and provided at the other end with a hook; a spring located within the interior of said member, and connected at opposite ends with said hook and cover, for normally retaining the

latter in closed position; and means for opening the cover against the action of the spring, to admit air between the carbureter and the motor.

5 4. The combination, of an explosive motor, an electric sparking mechanism, a carbureter operatively connected with the motor; a hollow member located in the gas line between the carbureter and the motor and provided with an electrical contact in the circuit of said sparking mechanism, a yielding cover pivoted to said member and provided with a contact also in the circuit of said sparking mechanism and arranged for engagement with the first mentioned contact when the cover is closed to close the circuit of said sparking mechanism, means for opening the cover to admit air between the carbureter and the motor and to release said contacts from engagement with each other whereby the circuit of the sparking mechanism is broken.

5. The combination of an explosive motor, a sparking mechanism, a carbureter operatively connected with the motor, a hollow member located in the gas line between the carbureter and the motor and provided with an electrical contact in the circuit of the sparking mechanism, a yielding cover pivoted to said member and provided with a contact also in the circuit of the sparking mechanism and arranged for engagement with the first mentioned contact when the cover is closed to close the circuit of the sparking mechanism, means for normally holding the means for opening the cover, to admit air between the carbureter and the motor and to release said contacts from engagement with each other whereby the circuit of the sparking mechanism is broken.

6. The combination, of an explosive motor, a sparking mechanism for firing said motor, a carbureter operatively connected with the motor, a hollow member located in the gas line between the carbureter and the motor provided with an electrical contact in the circuit of said sparking mechanism, a cover pivoted to said member and provided with a contact also in the circuit of said sparking mechanism and arranged for engagement with the first mentioned contact when the cover is closed to close the circuit

of the sparking mechanism, a spring located within the interior of said member and connected with the cover for normally holding the same in closed position, and means connected with the cover for opening the same, to admit air between the carbureter and the motor, and to release said contacts from engagement with each other whereby the circuit of the sparking mechanism is broken.

7. The combination of an explosive motor, a sparking mechanism for firing said motor, a carbureter operatively connected with the motor, a hollow member located in the gas line between the carbureter and the motor provided with an electrical contact in the circuit of the sparking mechanism, a cover pivoted to said member and provided with a contact also in the circuit of the sparking mechanism and arranged for engagement with the first mentioned contact when the cover is closed to close the circuit of the sparking mechanism, an interiorly disposed rod secured at one end to said member and provided at the other end with a hook, a spring disposed within the interior of said member and connected at the opposite end with a hook, and a cover for normally holding the same in closed position; and means for holding the cover against the action of the spring, to admit air between the carbureter and the motor and to release said contacts from engagement with each other whereby the circuit of the sparking mechanism will be broken.

8. The combination of an explosive motor, a sparking mechanism for firing said motor, a carbureter, a gas line provided with an opening leading to the atmosphere and located between the carbureter and motor, a pivoted cover normally closing said opening and means for swinging said cover to open position with respect to said opening and means actuated by the movement of said cover in opening to break the circuit of the sparking mechanism.

In testimony whereof, I affix my signature, in presence of two witnesses.

WILLIAM O. NELSON.

Witnesses:

JAS. HILLEARY, Jr.,
BENJ. W. SMITH.