G. M. HOLLEY & D. T. HASTINGS.

PRIMER.

APPLICATION FILED MAR. 7, 1918.

1,300,396. Patented Apr. 15, 1919.

Fig. 2.

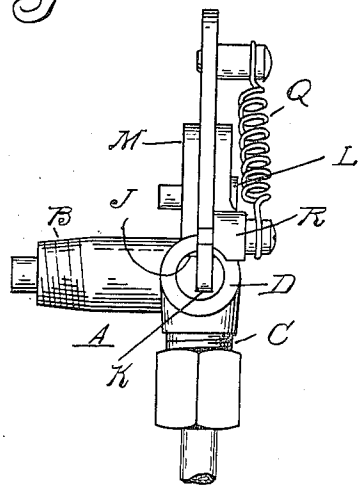
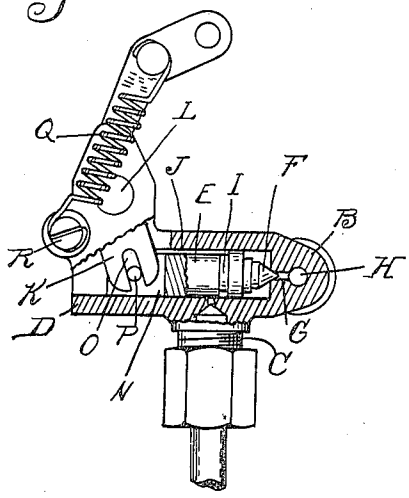


Fig. 1.



Inventors

George M. Holley

Donald T. Hastings

By Whittemore Hulbert & Whittemore

Attorneys

UNITED STATES PATENT OFFICE.

GEORGE M. HOLLEY AND DONALD T. HASTINGS, OF DETROIT, MICHIGAN; SAID HASTINGS ASSIGNOR TO SAID HOLLEY.

PRIMER.

1,300,396. Specification of Letters Patent. Patented Apr. 15, 1919.

Application filed March 7, 1918. Serial No. 220,912.

To all whom it may concern:

Be it known that we, GEORGE M. HOLLEY and DONALD T. HASTINGS, both citizens of the United States of America, and both residing at Detroit, in the county of Wayne and State of Michigan, have invented certain new and useful Improvements in Primers, of which the following is a specification, reference being had therein to the accompanying drawings.

The invention relates to primers for use in connection with internal combustion engines and consists of the novel construction as hereinafter set forth.

In the drawings:

Figure 1 is a sectional front elevation of a primer fitting;

Fig. 2 is a side elevation thereof.

The primer is of that type in which the liquid fuel is directly introduced into the inlet manifold of the engine. A is the casing having a threaded nipple B for attachment to the manifold and a nipple C for connection with the supply of liquid fuel. D is a barrel intermediate the nipples B and C, and preferably in a plane at right angles thereto, in which is arranged a slidable plunger E. The inner end of this plunger forms a needle valve F for variably restricting or closing the passage G at the inner end of the barrel. The passage G may be formed by a small bore intersecting a bore H through the nipple B. The plunger E closely fits the barrel D but has formed therein an annular groove I which in the closed position of the valve is intermediate the ports connecting the barrel to the nipples B and C respectively. The groove I connects with a longitudinal groove J extending to the open end of the barrel so as to be in communication with the external atmosphere. K is a lever arm for operating the plunger, being fulcrumed on a pin L between ears M on the casing. The lower end of the lever engages a slot N in the end of the plunger and is itself slotted at O to engage a cross-pin P. Q is a spring, one end of which is connected with the lever K, the opposite end being anchored to a lug R projecting from the casing, and the arrangement is such that in the closed position of the valve the spring is upon one side of the fulcrum of the lever and in the open position of the valve would be on the opposite side of said fulcrum.

In operation the nipple B being connected to the inlet manifold of the engine and the nipple C to the source of liquid fuel, the parts will normally be in the position as indicated in Fig. 1, the needle valve F closing the passage G. In case of any leakage of the valve which by reason of the suction in the inlet manifold would tend to draw in the liquid fuel, such an effect is prevented by the annular channel I and connecting channel J. Thus by freely admitting air under atmospheric pressure intermediate the port G and the connection to the nipple C will neutralize any suction. To open the valve the lever K is actuated by a suitable operating connection and will withdraw the plunger E, thereby opening the port G and also moving the end of the plunger to the opposite side of the port connecting with the nipple C. As soon as the lever carries the spring over the dead center the completion of the movement will be automatic, which will insure the full opening of the valve. The free passage is thereby established between the nipples B and C so that the suction of the engine may draw in the priming fluid. A reverse movement of the lever K will close the valve and the spring Q will operate in a similar manner to insure complete closing after movement beyond the dead center.

What we claim as our invention is:

1. A primer, comprising a casing having inlet and discharge nipples, an open-ended barrel intermediate said nipples, a plunger slidable in said barrel forming a valve for closing the connection between said nipples, a vented passage in said plunger intermediate said nipples in the closed position of the valve, and a lever for actuating said plunger to open the valve.

2. A primer, comprising a casing having an open-ended barrel portion and inlet and discharge nipples at right angles thereto, a plunger in said barrel having a needle valve at the inner end thereof for closing the passage to one of said nipples, a lever fulcrumed on said casing and engaging the outer end of said plunger to actuate the same, and an annular passage in said plunger arranged in the closed position of the valve intermediate said nipples, said annular passage being in communication with the external atmosphere, for the purpose described.

3. A primer, comprising an open-ended barrel having inlet and outlet orifices, a

plunger slidable in said barrel forming a valve for closing the connection between said orifices, a ventilated passage in said plunger intermediate said orifices in the closed position of the valve, and actuating means for said plunger.

4. A primer, comprising an open-ended barrel having an inlet and an outlet orifice, a plunger in said barrel having a needle valve at the inner end thereof for closing one of said orifices, means for actuating said plunger, and an annular passage in said plunger arranged in the closed position of the valve intermediate said orifices, said passage being in communication with the external atmosphere for the purpose described.

In testimony whereof we affix our signatures.

GEORGE M. HOLLEY.
DONALD T. HASTINGS.