

R. O. LE BARON.
 STARTING DEVICE FOR INTERNAL COMBUSTION ENGINES.
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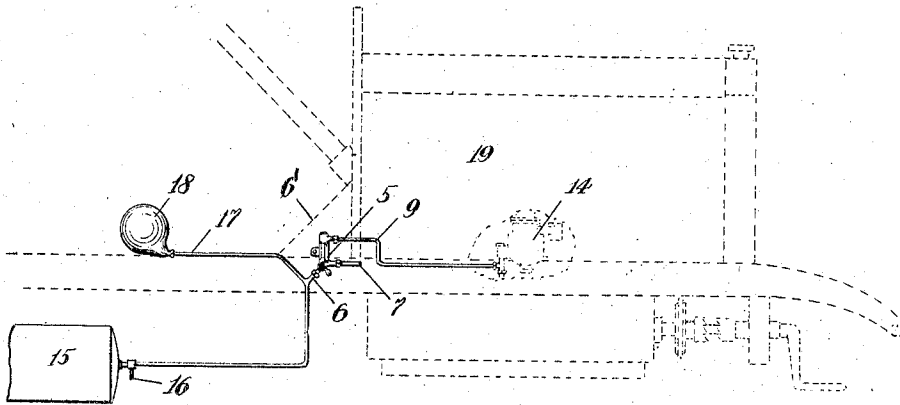


Fig. 1.

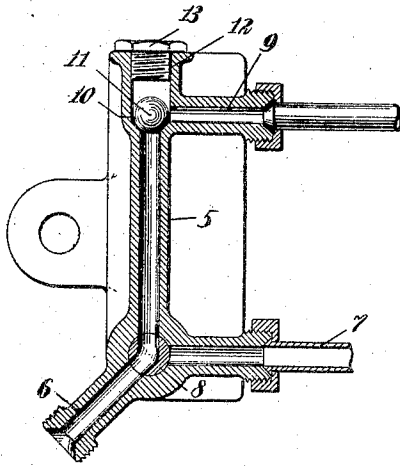


Fig. 3.

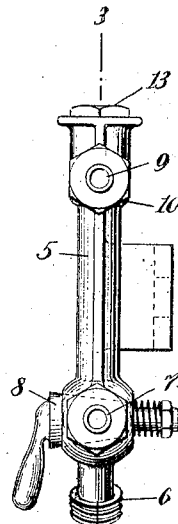


Fig. 2.

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ROBERT OWEN LE BARON, OF PORTSMOUTH, OHIO.

STARTING DEVICE FOR INTERNAL-COMBUSTION ENGINES.

1,005,045.

Specification of Letters Patent.

Patented Oct. 3, 1911.

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To all whom it may concern:

Be it known that I, ROBERT O. LE BARON, a citizen of the United States, and a resident of Portsmouth, in the county of Scioto and State of Ohio, have invented a new and Improved Starting Device for Internal-Combustion Engines, of which the following is a full, clear, and exact description.

My invention relates to means for assisting the cranking of internal combustion engines, and it has for its object to provide means which may be used at will to connect an acetylene gas tank with the intake of the engine, so that the acetylene gas will mix with the explosive mixture and flow into the engine cylinder, which with a proper spark mechanism, will insure an explosion in the engine cylinder on the first, or in any case on the second, rotation of the engine shaft.

The invention is especially valuable when starting internal combustion engines in cold weather.

Additional objects of the invention will appear in the following complete specification, in which the preferred form of my invention is disclosed.

In the drawings similar characters of reference indicate corresponding parts in all the views, in which—

Figure 1 is a view showing my device as applied to an automobile; Fig. 2 is an end view of the conduit member, carrying the valves and the branches; and Fig. 3 is a sectional view on the line 3—3 of Fig. 2.

By referring to the drawings it will be seen that a conduit member 5 is provided, which is bolted or otherwise secured to a frame 6' of an automobile. Connected with the conduit member 5 there are two branches 6 and 7, a valve 8 being provided for connecting the branch 6, either with the conduit 5 or with the branch 7 at the will of the operator. Another branch 9 is disposed laterally from the top of the conduit member 5 at a distance from the branches 6 and 7. The conduit 5 is enlarged just below the opening which communicates with the branch 9 forming a valve seat 10, in which a valve ball 11 is disposed. The upper terminal 12 of the conduit member 5 is threaded, and is closed by a threaded block 13. The branch 9 leads to the intake of an internal combustion engine at the carbureter 14. The branch 7 communicates with the automobile lamps, and the branch 6 communicates with an acetylene gas tank 15. A valve 16 is provided which commands the branch 6 at the acetylene gas tank 15. Connected with the branch 6 there is a pipe 17. A rubber bulb ejector 18 is secured to the terminal of the pipe 17.

In using the invention when it is desired to start the engine 19, the valve 8 is turned so that the branch 6 communicates with the conduit member 5. The rubber bulb ejector is then pressed, the acetylene gas with which it has been supplied from the tank 15, flowing from the branch 6 through the conduit member 5, and through the branch 9 to the gas intake. The acetylene gas is mixed with the explosive mixture from the carbureter 14, and when the engine cylinder contains this mixture including the acetylene gas, and the engine shaft is rotated, an explosion will take place in the engine cylinder on the first or second rotation, provided that the ignition mechanism is in good order. The branch 7 is connected with the usual acetylene lamps on the automobile.

The invention is of particular value when the engine of an automobile is to be started in cold weather.

Having thus described my invention, I claim as new and desire to secure by Letters Patent:

1. In a starting device for internal combustion engines a conduit member having two branches, a valve for connecting one of the branches with the other, and with the conduit, one at a time, a second conduit connected with the first conduit, and a check valve in the first conduit between the first-mentioned valve and the second conduit.

2. In a starting device for internal combustion engines a conduit member having two branches, a valve for connecting one of the branches with the other branch and with the conduit, one at a time, a second conduit connected with the first conduit, a check valve in the first conduit between the first-mentioned valve and the second conduit, and an ejector for forcing a fluid from the first-mentioned conduit to the second-mentioned conduit.

3. In a starting device for internal combustion engines a conduit member having two branches, a valve connecting one of the

branches with the conduit member, and with the other branch, one at a time, and an ejector for forcing a fluid from one of the branches into the body of the conduit member.

4. In a starting device for internal combustion engines a conduit member having two branches, a valve for connecting one of the branches with the other branch and with the body of the conduit member, one at a time, one of the branches being adapted to be connected with a gas supply, and an ejector connected with the last-mentioned branch.

5. In a starting device for internal combustion engines a conduit member having two branches, a valve for connecting one of the branches with the other branch and with the body of the conduit member, one at a time, one of the branches being adapted to be connected with a gas supply, an ejector

connected with the last-mentioned branch, and a check valve in the conduit member.

6. In a starting device for internal combustion engines a conduit member having two branches at one end, a valve for connecting one of the branches with the other branch and with the body of the conduit member, one at a time, a lateral branch connected with the conduit member at its other end, a check valve in the conduit and the lateral branch, one of the branches being adapted to be connected with a gas supply, and an ejector connected with the last-mentioned branch.

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

ROBERT OWEN LE BARON.

Witnesses:

HOWARD S. CADOT,
JOHN C. MILNER.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."