

J. J. AULL.
GAS ENGINE PRIMER.
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1,364,823.

Patented Jan. 4, 1921.

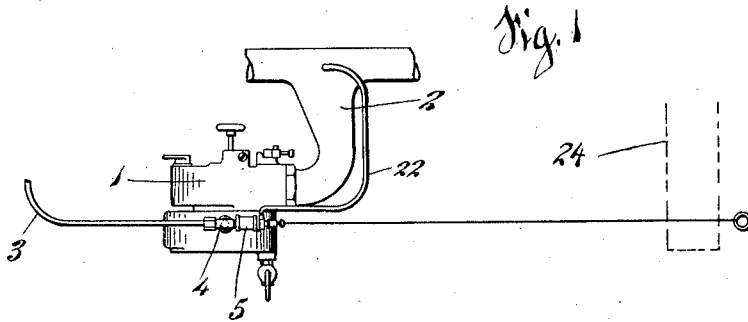
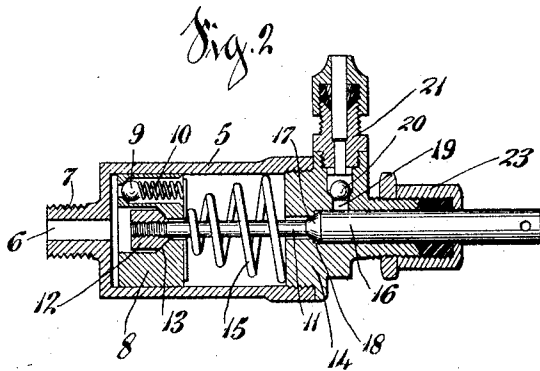
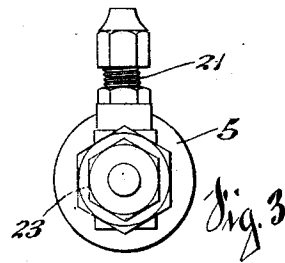
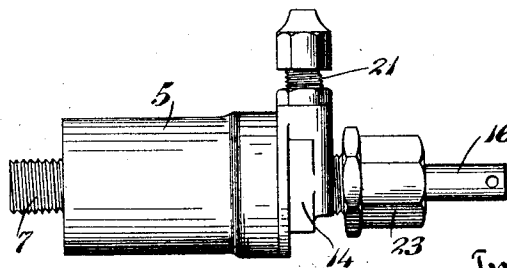


Fig. 4

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UNITED STATES PATENT OFFICE.

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GAS-ENGINE PRIMER.

1,364,823.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, JEROME J. AULL, a citizen of the United States, and a resident of the city of Cincinnati, in the county of Hamilton and State of Ohio, have invented certain new and useful Improvements in Gas-Engine Primers, of which the following is a full, clear, and exact description, reference being had to the accompanying drawing, forming part of this specification.

My invention relates to primers for gasoline engines or engines using liquid fuel, whereby a desired quantity of the liquid fuel is pumped into the gas intake of the engines for a starting charge for the same.

In primers in the past, the method of mounting the primer and the method of operation rendered the use of such devices inconvenient in many makes of cars, and it is the object of this invention to provide a primer which will be readily adaptable to different makes of cars, as well as any liquid fuel engine.

More particularly it is desired to provide a primer which will work with a flexible operating cord or wire, and which at the same time is as fully effective for the desired work as a positively driven pump primer, having a stiff pump or plunger rod. Again it is intended that the primer be attached near the carbureter, without affecting the carbureter in any way, whereby it can be conveniently located for use with all engines, and it is also particularly intended that the device which pumps the charge into the intake manifold of such engine shall be positive in operation, requiring but few manipulations to prime the engine with sufficient fuel for starting.

The above objects and other advantages to be noted, I accomplish by that certain construction and arrangement of parts to be hereinafter more specifically pointed out and claimed.

In the drawing,

Figure 1 is a side elevation of the primer in use with an automobile carbureter.

Fig. 2 is a central longitudinal section of the primer proper.

Fig. 3 is a front end elevation thereof.

Fig. 4 is a side elevation thereof.

The carbureter 1 for an engine is shown connected to the intake manifold 2 thereof, no engine being shown. The liquid fuel intake pipe 3 is connected to the carbureter

by a suitable T, 4, which communicates with the carbureter, and also serves to mount the primer cylinder 5. The cylinder 5 has an inlet at 6 through a screwthreaded shank 7 that is mounted in the T 4.

In the primer cylinder is a piston 8, at one side of which is a ball check 9, said check being held normally closed against the intake to the cylinder by means of a spring 10. The piston rod 11 is not rigidly connected to the piston, but has a beveled head 12 on its end which lies in a recess in the piston, and seats at 13 therein.

In the exhaust end of the cylinder is a plug 14, suitably threaded so as to screw into the cylinder. A spring 15 of considerable power is inserted over the piston rod, so as to bear against this plug and the piston to hold the latter in normal position at the intake end of the cylinder.

The piston rod passes through the plug and is enlarged at 16, as is the passage therefor in the plug. The shoulder formed at 17 for the enlargement is provided with a seat 18 in the plug, whereby the piston being drawn inwardly by the spring 15 will close off the outlet of the cylinder through the plug.

A passageway 19 is formed in the plug, tapping into the enlarged passage for the piston rod, beyond the valve seat therein. A gravity ball check 20 maintains this passage normally closed. A coupling 21 screws into the plug over the passage 19, and to this coupling is secured the pipe 22. This pipe 22 taps into the manifold 2 for the engine.

A suitable stuffing box 23 screwed over the plug prevents leakage around the piston rod, and to the piston rod is secured any flexible cord or wire, which in this instance is shown as extending toward the front or radiator 24 of an automobile. As this wire is flexible, it could as well be drawn around suitable guides or pulleys to other points of easy accessibility for the starter of an engine.

As above described, the operation of the device is as follows. Liquid fuel being present in the intake pipe to the carbureter, also is present at the intake end of the cylinder. The operator pulls sharply on the wire or cord and draws the piston to the outlet end of the cylinder. This forces any charge of fuel present in the cylinder out

through the plug, through the passageway 19, past the ball check and into the pipe leading to the manifold. When the cord is released, the piston will be forced by its spring to the intake end of the cylinder, the ball check 9 will rise and liquid fuel that was pumped by the piston into the cylinder on its first stroke, will run past the piston to the outlet side thereof, where it will remain until another pull on the wire. One or two pulls of the wire will force into the engine manifold a spray of liquid fuel sufficient to start the engine, but the spring for the piston will hold the piston rod seat 17 against the seat 18 to prevent the suction of the engine from drawing gasoline through the primer. There is no need of a valve in the gas line as the piston sucks its charge into the cylinder past the ball 9 on its return stroke.

The force which sends the fuel into the engine is on the pull, and there is no need for the pulling and pushing of a pump rod as in the usual primer.

The cylinder is conventionally located,

and forms practically an extension of the fuel supply pipe where it connects into the carbureter, and the device as a whole is compact and simple. The operation can take place at any point that the wire is led, since only a pulling motion is required, and the device sucks its own charge. The device is not mounted on the carbureter, thereby avoiding the necessity of providing some special mounting means.

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

In a device of the character and for the purpose described, a cylinder, a piston and rod therefor, said piston and rod comprising in part inlet and outlet valves for the cylinder, said cylinder having an intake and an outlet, and spring means for maintaining the piston and rod in position to normally close the cylinder at both ends.

JEROME J. AULL.

Witnesses:

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