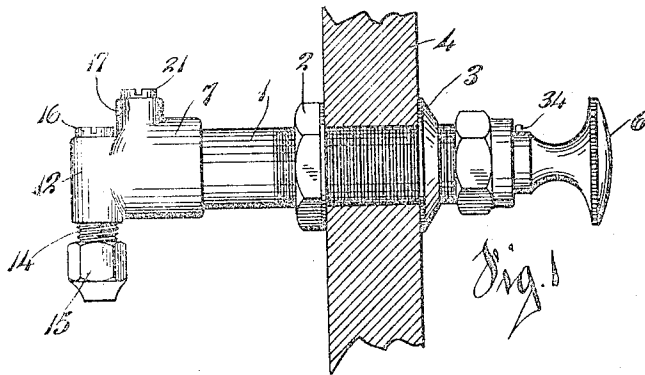
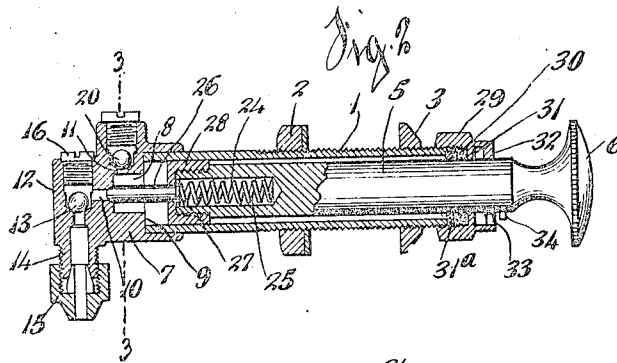
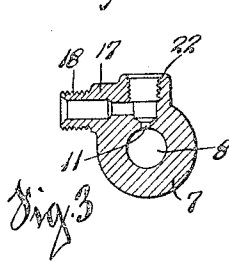
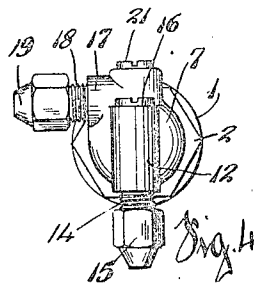
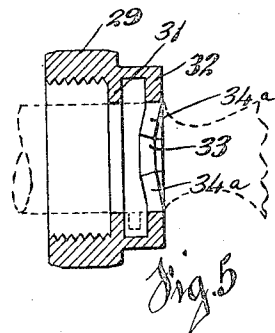
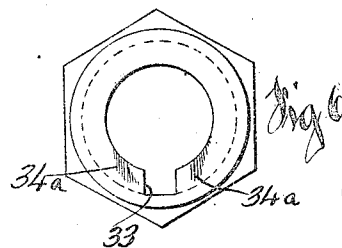


J. J. AULL.
GAS ENGINE PRIMER.
APPLICATION FILED MAR. 27, 1915.

1,240,404.

Patented Sept. 18, 1917.



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UNITED STATES PATENT OFFICE.

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GAS-ENGINE PRIMER.

1,240,404.

Specification of Letters Patent. Patented Sept. 18, 1917.

Application filed March 27, 1915. Serial No. 17,369.

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 drawings, forming part of this specification.

My invention relates to gas engine primers of the type wherein a small pump is mounted on the dash board of an automobile and is connected up so as to force a spray of gaseous fuel into the engine cylinders preliminary to starting the engine thereof. The pump alone and its mounting are the essential parts of the invention, and they alone are shown and described.

It is troublesome in primers of this type to provide a simple and secure means of locking the primer closed to prevent any leakage during the normal operation of the engine, and thus the admission of an over supply of gas to the engine. Furthermore such locking means as is provided should be quick and sensible to the touch so that the operator can tell when the primer is closed by the feel, and so that he can accomplish the closure with a partial turn of the plunger head.

These objects and other advantages, as will be mentioned as the description proceeds, I accomplish by that certain construction and arrangement of parts to be hereinafter more specifically pointed out and claimed, wherein a spring pin is provided to close the primer, and the primer plunger can therefore be depressed after the pin is seated and held by the spring thereof against working free from a simple ratchet device which is provided within the stuffing box of the plunger.

In the drawings,

Figure 1 is a side elevation of the primer.

Fig. 2 is a central longitudinal section thereof.

Fig. 3 is a cross section on the lines 3, 3, of Fig. 2.

Fig. 4 is an elevation of the inner end of the primer.

Fig. 5 is an enlarged longitudinal section of the stuffing box, or nut.

Fig. 6 is a front elevation of said stuffing box.

The cylinder 1 of the device is provided with screw-threads on which are screwed the dash board nuts 2 and 3. These nuts are adapted to engage one on one side and the other on the other side of the automobile dash 4, to hold the cylinder in place on the said dash within easy reach of the operator of the machine. A plunger 5 having a knurled operating head 6, is mounted in the cylinder so that it can be reciprocated to force a spray of gasoline into the manifold or any desired part of the engine of the car (not shown).

A fitting 7 is provided which is preferably soldered onto the end of the cylinder. This fitting has a central chamber 8 surrounded by shoulder 9 to abut the cylinder, and has an inlet port 10 and an outlet port 11. A tubular extension 12 of the fitting has communication with the inlet port and has a small ball check 13 and a screwthreaded end 14 to receive a small union coupling 15. As is customary, the check plug 16 is provided and adapted to screw into the open end of the extension 12.

Another extension 17 is formed in the fitting which communicates with the outlet port above mentioned, and this extension has a like screwthreaded portion 18 for the union coupling 19, and has likewise a check 20. The check plug 21 of this one, however, enters at right angles to the tubular extension. It is desired for purposes of clearance to have the apertures for the check plugs undercut at 22 (Fig. 3).

The inner end of the plunger is bored out at 24, and a spring 25 is mounted in the bored out portion. The pin 26 has a disk 27 to slide in the bored out portion, and a cap 28 having an aperture through which the pin passes and is guided, is secured over the end of the plunger, preferably by threading said cap and plunger. The cap also holds the disk at the end of the pin from coming out of the plunger, and the pin is of a length that it will seat in the inlet port 10 and close it off before the plunger is pushed into locking position as will be described.

A stuffing box 29 is screwthreaded onto the outer end of the plunger and packing 30 is employed within it, held by the flange

31 as is customary. The box has a flange 32 at its outer extremity, of a size to fit the plunger and has a notch 33 cut in it to receive the pin 34 on the plunger. The flange around this notch is bent inwardly at 34^a, 34^b, so as to form a ratchet which will engage the pin once it is pushed through the notch and given a slight turn so as to ride over the inward extension. A washer 31^a, seated in the end of the cylinder, confines the packing, and also serves as a stop for the plunger by presenting an abutment to the edge of the cap 28.

The depression on the outside also serves to guide the pin into the notch by touch, the ratchet within also telling by touch when the plunger is locked in, and preventing the pin from riding by the notch when it is desired to release the plunger.

It can thus be readily appreciated that when it is desired to operate the primer, the plunger is released and pushed in and out, drawing liquid fuel in through the inlet port and forcing it out through the outlet. When it is desired to lock the primer, the plunger is pressed in so that the flange and pin engage each other and turned until the pin rides down through the notch in the flange. By this time the pin 26 will have been brought to its seat and the disk 27 will have been forced up in the bored out portion of the plunger. The plunger is turned slightly at this juncture so that the pin will ride over the ratchet formed within the flange and the spring will prevent the plunger from jarring loose because it will work against the ratchet in its tendency to force the plunger outwardly.

In the absence of the ratchet, the spring will serve as a means for preventing the plunger from jarring out, and if the ratchet were omitted, a partially practical device would be furnished by reason of the spring. However, the ratchet is an additional security as well as a considerable convenience.

Reference to specific details of construction without mentioning alternative structures is not done with intent to limit the claims that follow, said claims being intended to cover all mechanical equivalents where their wording does not specifically negative such intent.

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

1. In a gas engine primer, in combination with a cylinder, a plunger therefor, the cylinder provided with a port, means for closing the port and means for mounting the port closing means in the plunger so as to be movable therein and means for locking the plunger, said port closing means adapted to seat before the lock takes effect in the operation of the plunger.

2. In a gas engine primer, in combination

with a cylinder, a plunger therefor, the cylinder provided with a port, means for closing the port, means for mounting the port closing means in the plunger so as to be movable therein, and a spring for holding the port closing means in extended position and means for locking the plunger, said port closing means adapted to seat before the lock takes effect in the operation of the plunger.

3. In a device of the character described, in combination with a cylinder and a plunger therefor, the cylinder provided with a port, means on the plunger for closing said port, said means being extensible and spring-pressed so as to allow movement of the plunger after the said means is in closing position and means for locking the plunger, said port closing means adapted to seat before the lock takes effect in the operation of the plunger.

4. In a device of the character described, in combination with a cylinder and a plunger therefor, the cylinder provided with a port, a bored out portion in said plunger, a means for closing said port slidably mounted in the bored out portion, and a spring in said bored out portion to hold said means in extended position and means for locking the plunger, said port closing means adapted to seat before the lock takes effect in the operation of the plunger.

5. In a device of the character described, in combination with a cylinder and a plunger therefor, the cylinder provided with a port, means on the plunger for closing said port, said means being extensible and spring-pressed so as to allow movement of the plunger after the said means is in closing position, a pin on the plunger, and a flange having a notch to engage said pin, for the purpose described.

6. In a device of the character described, in combination with a cylinder and a plunger therefor, the cylinder provided with a port, means on the plunger for closing said port, said means being extensible and spring-pressed so as to allow movement of the plunger after the said means is in closing position, a pin on the plunger, a flange to engage said pin, provided with a notch whereby said pin may be inserted thereunder, and a depression around said notch, for the purpose described.

7. In a device of the character described, in combination with a cylinder and a plunger therefor, the cylinder provided with a port, a bored out portion in said plunger, a means for closing said port slidably mounted in the bored out portion, and a spring in said bored out portion to hold said means in extended position, a pin on the plunger, and a flange having a notch to engage said pin, for the purpose described.

8. In a device of the character described, in combination with a cylinder and a plun-

ger therefor, the cylinder provided with a
port, a bored out portion in said plunger,
a means for closing said port slidably
mounted in the bored out portion, a spring
5 in said bored out portion to hold the said
means in extended position; a pin on the
plunger, a flange to engage said pin, pro-
vided with a notch in the flange whereby the
pin may be inserted thereunder, and a de-
10 pression around said notch, for the purpose
described.

9. In a device of the character described,
in combination with a cylinder and a plun-
ger therefor, the cylinder provided with a

port, a bored out portion in said plunger, a 15
pin for closing said port slidably mounted
in the bored out portion, a spring in said
bored out portion to hold said pin in extend-
ed position, a pin on the plunger, a flange
to engage said pin provided with a notch 20
in the flange whereby the pin may be in-
serted thereunder, and a depression around
said notch, for the purpose described.

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