P. L. HOWE.

INTERNAL COMBUSTION ENGINE.

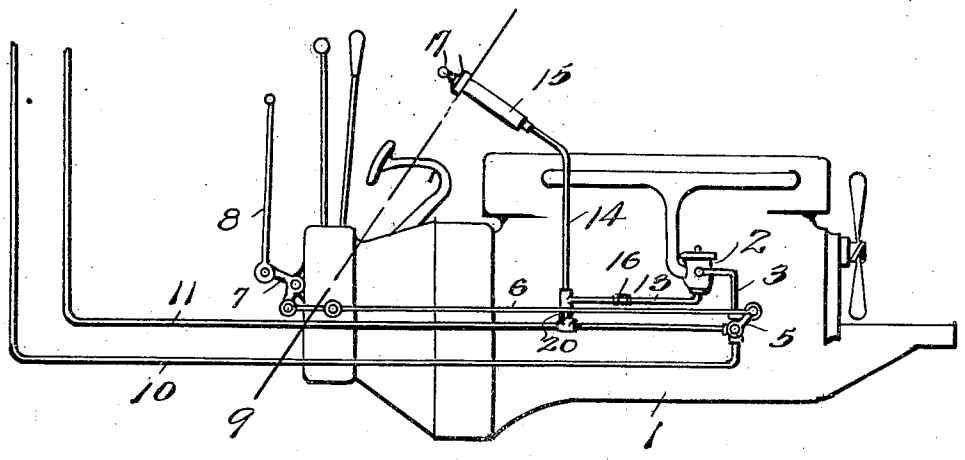
APPLICATION FILED MAR. 15, 1917.

1,250,461.

Patented Dec. 18, 1917

2 SHEETS—SHEET 1.

FIG. 1.



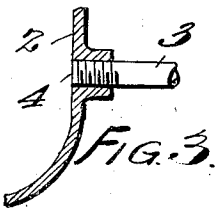


FIG. 3.

FIG. 2.

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2 SHEETS—SHEET 2.

FIG. 4.

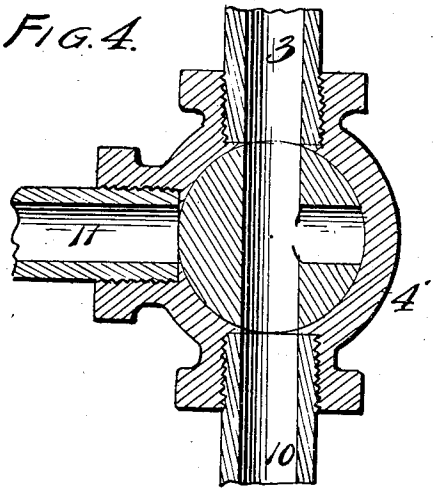
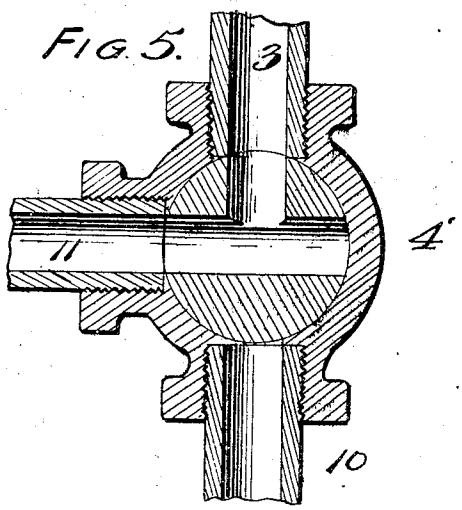


FIG. 5.



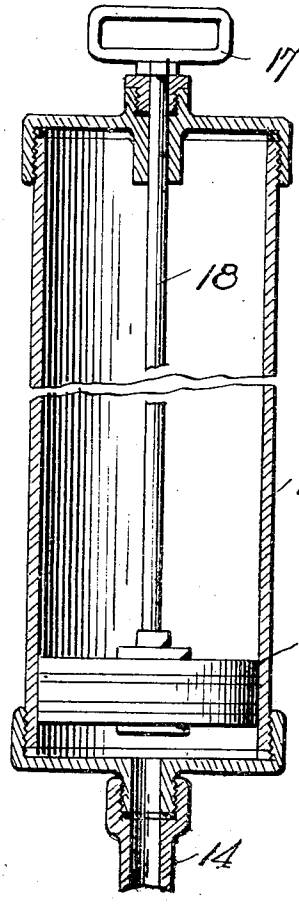


FIG. 6.

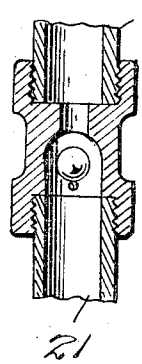


FIG. 7.

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UNITED STATES PATENT OFFICE.

PHILIP L. HOWE, OF BREEZY HILL, KANSAS.

INTERNAL-COMBUSTION ENGINE.

1,250,461. Specification of Letters Patent. Patented Dec. 18, 1917.

Application filed March 15, 1917. Serial No. 154,940.

To all whom it may concern:

Be it known that I, PHILIP L. HOWE, a citizen of the United States of America, residing at Breezy Hill, in the county of Crawford and State of Kansas, have invented new and useful Improvements in Internal-Combustion Engines, of which the following is a specification.

My invention relates to improvements in internal combustion engines, and particularly to a multiple oil supply for charge forming devices of such engines.

In actual practice I have found my invention specially adapted for use in automobile motors where gasolene or other light oil is used to prime the carbureter for the starting of the engine or motor, and then a heavier oil, such as kerosene, is utilized for continuously running the engine.

After the engine has been stopped a quantity of kerosene usually remains in the bowl of the carbureter, and before a charge of light oil is fed to the carbureter it is necessary to eliminate this residue of kerosene to make room for the priming charge of gasolene.

It is the primary object of my invention to provide a system of supply whereby this residue of heavier oil may be withdrawn from the carbureter with facility and effectiveness, and the invention also provides a multiple oil supply system for the carbureter.

In the accompanying drawings I have illustrated one complete example of the physical embodiment of my invention constructed according to the best mode I have so for devised for the practical application of the principles of my invention.

Figure 1 is a view in side elevation showing as much of an automobile motor as is necessary to illustrate the applicaton thereto of my multiple oil supply system and control.

Fig. 2 is an enlarged view showing a conventionalized carbureter with its connections.

Fig. 3 is a detail showing connection with the carbureter of the oil supply pipe.

Fig. 4 is a sectional view of the three way valve in position for using gasolene in the carbureter.

Fig. 5 shows the valve turned to position to feed kerosene to the carbureter, or in position so that kerosene may be withdrawn from the carbureter, the gasolene supply being cut off.

Fig. 6 is a sectional view, of a vacuum or suction pump for withdrawing kerosene from the carbureter when desired.

Fig. 7 is a sectional view of one of the two check valves required in the kerosene oil piping.

For convenience of illustration and clearness of understanding I have indicated in the drawings by the numeral 1 a conventionalized form of motor or engine and the carbureter 2 is similarly designated. It will readily be understood that my invention may be applied to any standard motor or carbureter, and those herein illustrated are merely for exemplification of the invention.

The main oil supply pipe 3 is connected to the carbureter at 4 and is designed to supply either gasolene or the less volative kerosene to the carbureter, the multiple oil supply being controlled by the three way valve 4′ in the pipe 3 by the system of levers and rods 5, 6, the bell crank 7 and pull rod 8, the latter being conveniently located back of the dash board, indicated by the line 9 in Fig. 1, where it is accessible for the driver of the automobile. Two pipes lead from the three way valve, the pipe 10 running to the gasolene tank, not shown and the pipe 11 running to the kerosene tank, not shown, from which tanks a suitable supply of both oils may be obtained, and controlled by valves as usual.

To the lower end of the carbureter, at 12 is attached a draw-off pipe 13 through which the residue of kerosene may be withdrawn and returned to the kerosene supply pipe or tank and this pipe has a branch 14 connected to the lower end of a suction pump cylinder 15, there being a check valve 16 in the pipe 13 opening away from the carbureter, but closing with pressure toward the carbureter. Thus by pulling on the handle 17 of the stem 18 of the piston 19 in the cylinder, the piston is drawn toward the top of its cylinder creating a vacuum in the cylinder, and by suction, causing the kerosene to pass from the bowl of the carbureter into the pipes and pump cylinder. A check valve 20 is located in a short pipe 21 which connects the pump pipe 14 with the kerosene supply pipe 11, and this check valve opens toward the tank but closes toward the pump. Thus when the piston is pulled to create a vacuum in the cylinder the kerosene may be withdrawn from the carbureter through the open check valve 16, but the check valve 20 is closed. Now, if

desired the cylinder may be emptied by a compression stroke and the kerosene forced through pipe 14 valve 20 into pipe 11 to the kerosene tank, the check valve 16 being closed. In this manner the multiple oil fuel may be controlled by the three way valve and the desired oil fed to the carbureter and the undesired kerosene may be withdrawn from the carbureter when desired.

What I claim is—

1. The combination in a multiple oil supply system including a carbureter, a suitable supply pipe attached thereto and a three way valve for controlling the flow of oils, of a single draw-off pipe connected to the carbureter, and means for withdrawing oil from the carbureter through said pipe, and distributing said oil to its proper source of supply.

2. The combination in a multiple oil supply system including a carbureter, a single main inlet pipe two supply pipes and a three-way valve for controlling the flow from said supply pipes to the carbureter, of a draw-off pipe connected with the carbureter and to one of the oil supply pipes, and means for withdrawing oil from the carbureter through said draw-off pipe and forcing said oil to its supply pipe.

In testimony whereof I affix my signature.

PHILIP L. HOWE.