July 7, 1931. W. M. BURNS 1,812,860

INTERNAL COMBUSTION ENGINE

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Fig. 1.

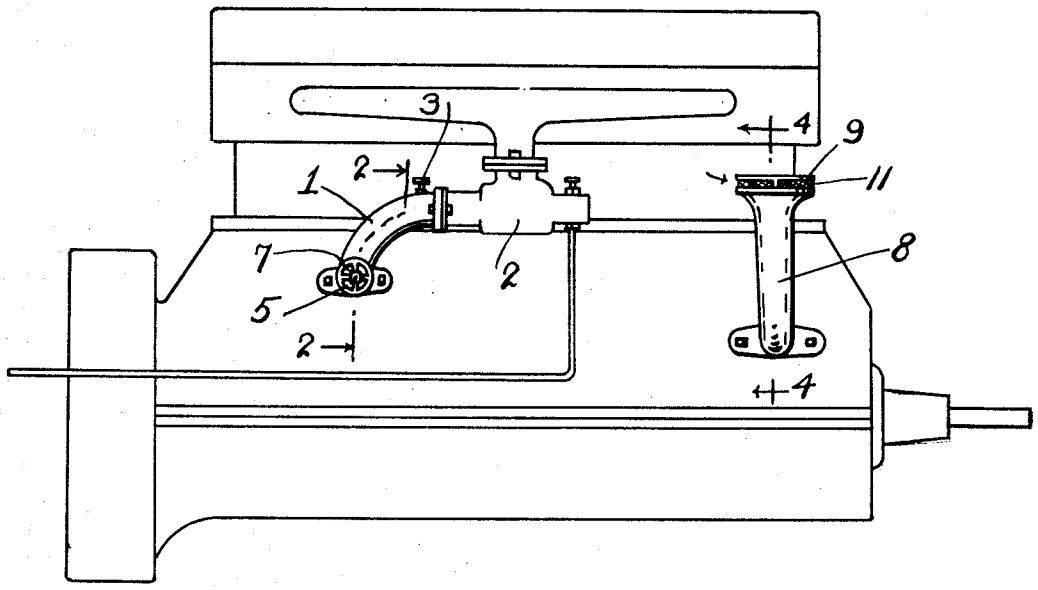


Fig. 2.

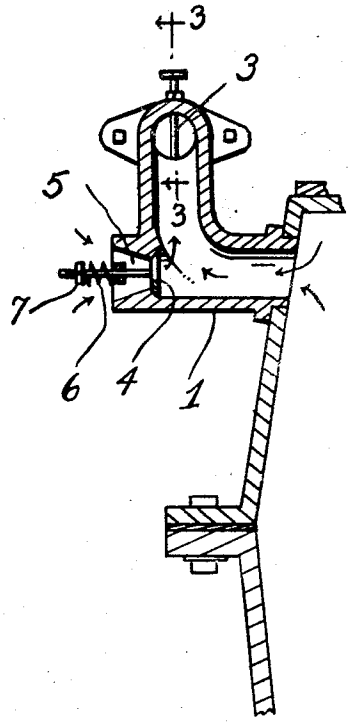
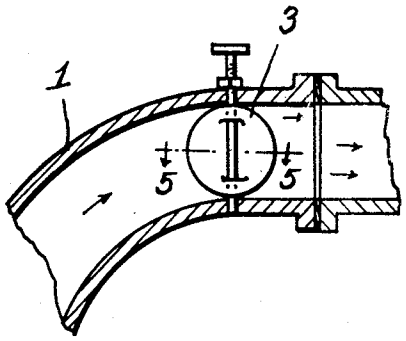


Fig. 3.



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INTERNAL COMBUSTION ENGINE

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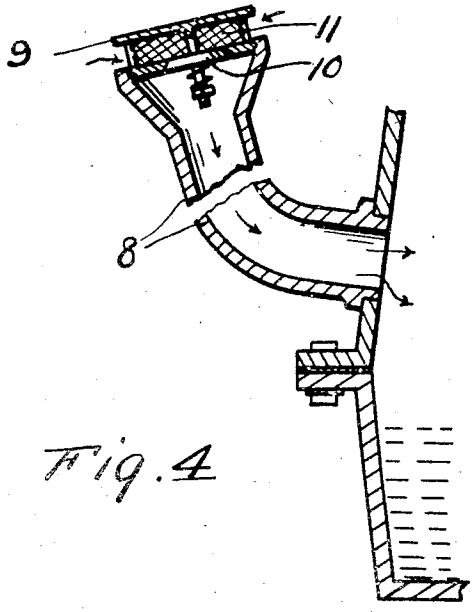


Fig. 4

Fig. 5

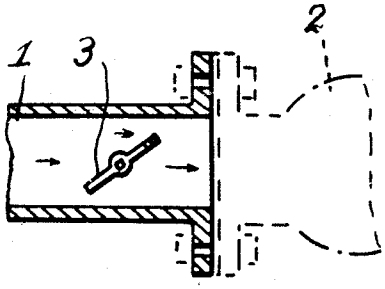
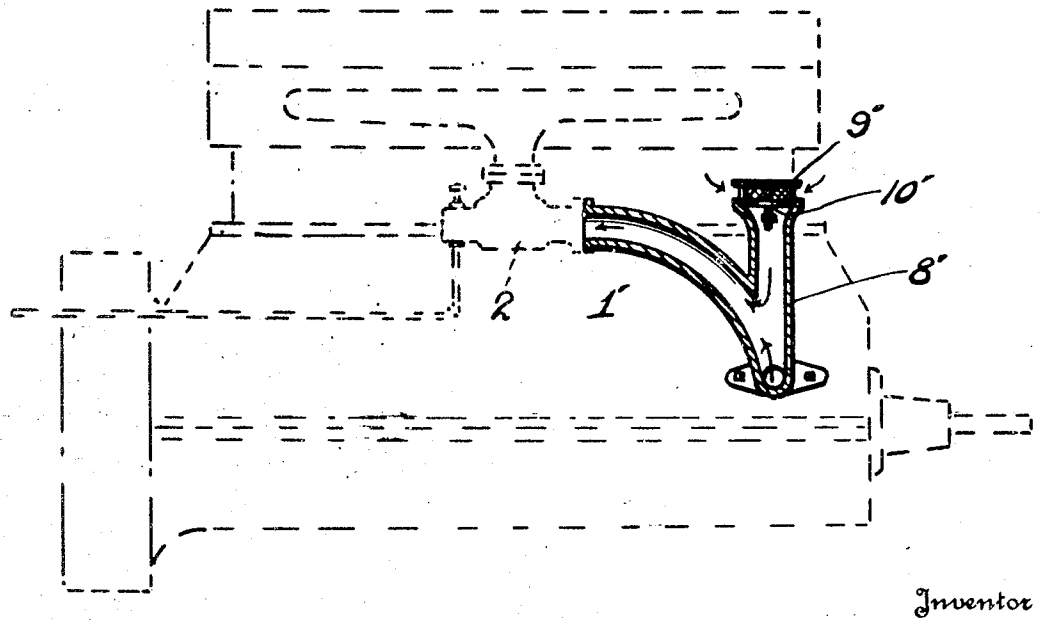


Fig. 6.



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UNITED STATES PATENT OFFICE

WALTER M. BURNS, OF ABSECON, NEW JERSEY

INTERNAL COMBUSTION ENGINE

Application filed June 17, 1929. Serial No. 371,611.

This invention relates to improvements in internal combustion engines, the general object of the invention being to provide means for connecting the upper part of the crank case with the air intake of the carbureter so that crank case vapors and air will enter the carbureter during the operation of the engine and thus pass with the mixture to the cylinders, whereby the consumption of fuel is reduced, the crank case ventilated, the piston and cylinder walls lubricated, leakage of oil from the crank case prevented, and the engine is easy to start in cold weather.

This invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawings and specifically pointed out in the appended claim.

In describing the invention in detail, reference will be had to the accompanying drawings wherein like characters denote like or corresponding parts throughout the several views, and in which:—

Figure 1 is an elevation of the motor constructed in accordance with this invention.

Figure 2 is a section on line 2—2 of Figure 1.

Figure 3 is a section on line 3—3 of Figure 2.

Figure 4 is a section on line 4—4 of Figure 1.

Figure 5 is a section on line 5—5 of Figure 3.

Figure 6 is a view showing a modification.

In these views, the numeral 1 indicates a pipe connecting the air intake of the carbureter 2 with the upper portion of the crank case so that the suction created by the pistons will draw crank case vapors into the carbureter and then into the cylinders when the motor is in operation. The flow of vapors through the pipe is controlled by a valve 3 and a valve 4 in said pipe controls the flow of air through an air inlet 5 formed in said pipe 1, this air mixing with the vapors during the operation of the motor. The amount of air entering the pipe through the inlet 5 is regulated by adjusting the tension of the spring 6 on the valve stem by means of a nut 7 on said stem.

The breather pipe 8 of the crank case is provided with a removable cap 9 which contains a valve 10 opening inwardly and thus admitting air to the crank case to prevent a vacuum occurring therein. A screen 11 covers the openings in the cap to prevent dirt and the like from entering the crank case.

In the modification shown in Figure 6, the pipe 1′ connects the air inlet of the carbureter with the lower part of the breather pipe 8′, this breather pipe being closed by the cap 9′ carrying a valve 10′, as before described.

Thus it will be seen that the suction created by the moving pistons will draw crank case vapors and air from the crank case into the carbureter and thus into the cylinders. Air will enter the crank case through the breather pipe and thus prevent a vacuum occurring in the crank case, due to the removal of the crank case vapors therefrom and atmospheric air is mixed with the crank case vapors passing through the pipe 1 or 1′ through the adjustable air controlling valve 4 in the first form of the invention or through means of the adjustable valve 10′ in the second form of the invention.

This invention reduces the consumption of fuel by the use of the crank case vapors, ventilates the crank case, lubricates the motor parts by the oil contained in the vapors, prevents ice forming in the crank case in cold weather by removing moisture from the crank case, prevents stalling of the motor on quick acceleration, makes easy starting, as atmospheric air is not delivered directly to the carbureter and it also prevents crank case leakage, due to the partial vacuum in the crank case.

In both forms of the invention, a valve may be placed in the lower part of the breather tube to prevent escape of air from the crank case through said tube during the operation of the motor.

It is thought from the foregoing description that the advantages and novel features of the invention will be readily apparent.

It is to be understood that changes may be made in the construction and in the combination and arrangement of the several parts, provided that such changes fall within the scope of the appended claim.

What I claim is:—

In an internal combustion engine, a pipe for connecting the air intake of the carbureter thereof with the upper part of the crank case, said pipe having an air inlet port therein, an adjustable valve for controlling said port, a valve for regulating the flow of vapors through the pipe, a valve in the cap of the breather tube for preventing the escape of crank case vapors through the breather tube.

In testimony whereof I affix my signature.

WALTER M. BURNS.