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FUEL SAVING APPLIANCE FOR INTERNAL COMBUSTION ENGINES.

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1,323,048. Patented Nov. 25, 1919.

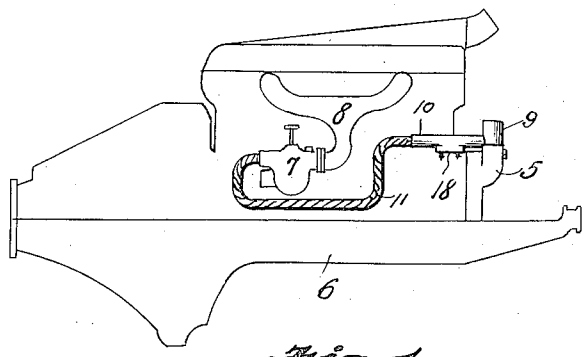


Fig. 1.

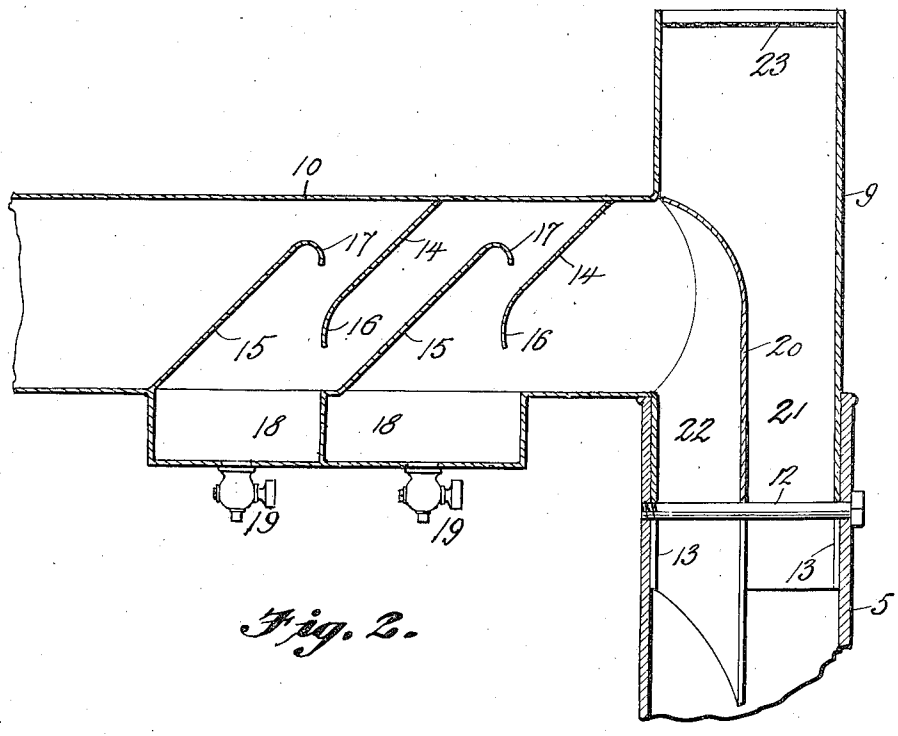


Fig. 2.

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FUEL-SAVING APPLIANCE FOR INTERNAL-COMBUSTION ENGINES.

1,323,048. Specification of Letters Patent. Patented Nov. 25, 1919.

Application filed November 16, 1918. Serial No. 262,916.

To all whom it may concern:

Be it known that I, HALL GOODWIN, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented new and useful Improvements in Fuel-Saving Appliances for Internal-Combustion Engines, of which the following is a specification.

This invention relates to devices applicable to internal-combustion engines and designed for the purpose of effecting a saving of fuel, the present device being one which utilizes the hot oily vapors present in the crank case of the engine by leading the same to the air-intake of the carbureter to be taken up with the regular fuel charges and delivered to the engine cylinders.

The invention has for its object to provide a very simple and efficient device of the kind stated, and to this end it consists in a novel combination and arrangement of parts to be hereinafter described and claimed.

In order that the invention may be better understood, reference is had to the accompanying drawing, forming a part of this specification.

In the drawing,

Figure 1 is an elevation showing the application of the invention, and

Fig. 2 is a sectional detail of the device.

Referring specifically to the drawing 5 denotes the breather pipe which opens into the crank case 6 of the engine shown in outline in Fig. 1. The invention is applicable to all internal-combustion engines designed for motor vehicles and having a closed crank case. The drawing shows the invention applied to the well known Ford motor. The carbureter is shown at 7 and the intake manifold at 8. These parts are arranged and operate in the usual manner, except that the air supply of the carbureter is taken from the crank case through a connection between the breather pipe and the air-intake of the carbureter. This connection comprises the following parts:

A vertical tube 9 fits snugly in the inlet end of the breather pipe 5 and rises a short distance therefrom, and on the outside of the breather pipe, the tube has a laterally extending branch 10 the outer end of which is connected by a flexible pipe or tubing 11 to the air-intake of the carbureter 8, as shown in Fig. 1. Before applying the tube 9, the usual cap which seats over the inlet end of the breather pipe is removed. This cap is held in place by a cross bolt 12 which is not removed so that it may serve to hold the tube in place, the latter being slotted at its lower end, as shown at 13 to straddle the bolt.

It will be evident from the foregoing that the suction at the air-intake of the carbureter 8 draws the gases and oil-impregnated air from the interior of the crank case through the breather pipe 5, the tube 9, the branch 10 and the connection 11. These vapors are therefore utilized and mixed with the fuel charges delivered by the carbureter, resulting in a saving of fuel. If there is leakage of compression past the piston rings into the crank case, the same is not lost as the vapors are withdrawn by the carbureter and again delivered to the engine cylinders with the hot oily vapors generated in the crank case.

As the vapors drawn into the carbureter 8 may contain oil in an unvaporized state, the branch 10 is provided with an oil separator composed of a series of inclined baffle plates or partitions extending alternately from the top and the bottom of the branch, the top partition being denoted by the reference character 14, and the bottom ones by the reference character 15. The lower ends of the top partitions have forward bends 16, and the upper ends of the bottom partitions have forward and downward bends 17 more pronounced than the bends 16. Beneath the partitions are oil collecting pockets 18 fitted with drain cocks 19.

The oil entrained in the vapors passing through the branch 10, upon striking the partitions 14 and 15 is deflected by the latter into the pockets 18 which latter can be emptied at suitable intervals upon opening the cocks 19. By the staggered arrangement of the partitions the vapors are made to take a tortuous path through the branch, resulting in a more efficient separation. The curls or bends at the extremities of the partitions also serve to increase the efficiency of the separator by deflecting and retarding the passage of the vapors.

In the tube 9 is a longitudinal partition 20, located in the middle thereof and dividing the same into two chambers denoted by the reference characters 21 and 22, respectively. The partition 20 starts from the top of the branch 10 and extends down

through the tube, its lower end extending a short distance from the lower end of the latter. Both ends of the tube 9 are open, and its upper end is fitted with a screen 23 to exclude dust and dirt. The chamber 21 is in direct communication with the upper end of the tube 9 and opens at its lower end into the breather pipe 5. The chamber 22 is not in direct communication with the chamber 21, but opens at one end into the breather pipe 5 and at its other end into the branch 10, this being for the purpose of preventing the outside air from passing directly into the branch. The suction at the air intake of the carbureter 8 draws the vapors in the crank case through the chamber 22, and these vapors are mixed with air entering the chamber 21 through the upper end of the tube 9.

The appliance is very simple, and inexpensive, and it can be readily mounted in place for use without any changes in the carbureter or other parts.

I claim:

The combination with the carbureter and the crank case of an internal-combustion engine, said crank case having a breather pipe; of a tube fitted to the inlet end of the breather pipe and having a lateral branch, and a connection between said branch and the air intake of the carbureter, said tube having a partition dividing the same into separate chambers one of which establishes communication between the breather pipe and the branch and the other establishing communication between the outside air and the breather pipe.

In testimony whereof I affix my signature.

HALL GOODWIN.