Nov. 9, 1937. W. M. IRVIN 2,098,391

GASOLINE SAVER

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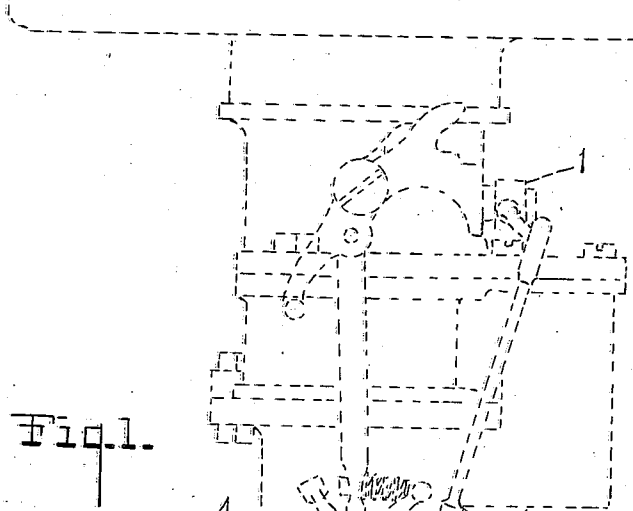
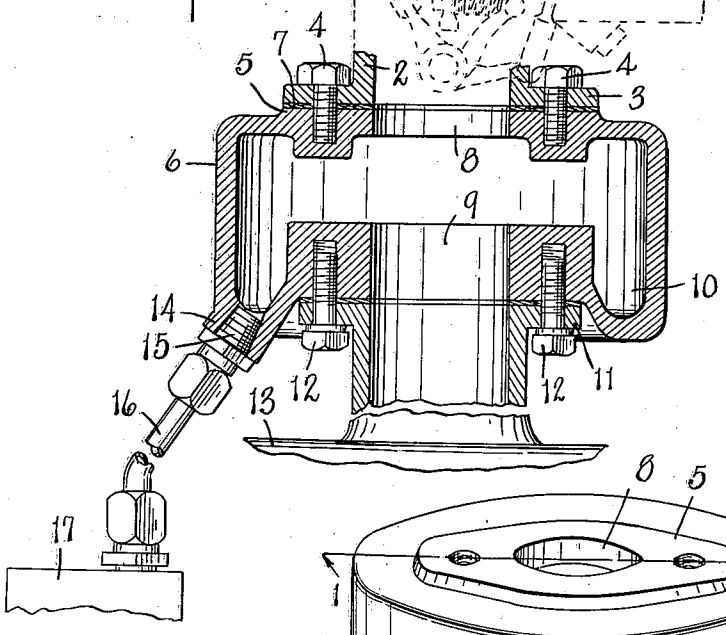


Fig. 1.



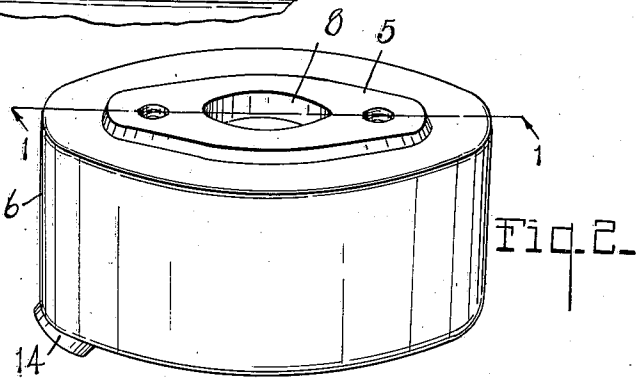


Fig. 2.

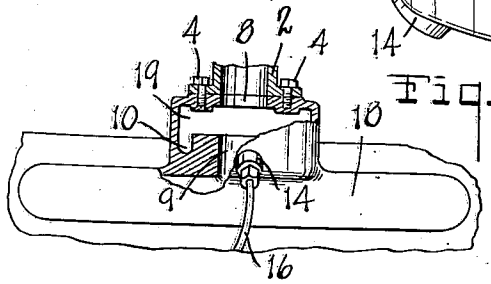


Fig. 3.

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GASOLINE SAVER

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5 Claims. (Cl. 183—107)

The main objects of my invention are:

First, to provide a device adapted for use in conjunction with a carburetor and the intake manifold of an internal combustion engine whereby unvaporized fuel passing from the carburetor to the manifold may be collected and fuel consumption decreased.

Second, to provide a device of the type described, which is simple in form and construction and cheaply manufactured and marketed.

Third, to provide a construction comprising a gasoline saver in combination with a carburetor of the down-draft type and the intake manifold of an internal combustion engine.

Other objects relating to details and economies of my invention will definitely appear from the description to follow. The invention is defined in the claims.

Preferred embodiments of my invention are illustrated in the accompanying drawing, in which:

Fig. 1 is a sectional view taken on the line 1—1 of Fig. 2, being partially broken away and illustrating the manner of mounting my device in operative position, the carburetor being partially shown in dotted lines.

Fig. 2 is a view in perspective of the fuel collecting casing embodied in my invention.

Fig. 3 is a side elevation partially broken away and in section, illustrating a modified form of my invention.

In internal combustion engines of modern design utilizing a down-draft carburetor, it is found that frequently the gasoline vapor supplied to the engine is unnecessarily rich in gasoline particles, resulting in an excessive fuel consumption. I have found that by expanding the gasoline vapor intermediate the down-draft carburetor and the intake manifold of the engine, at the same time permitting particles or globules of the expanded vapor to impinge against the cool walls of an expansion chamber, the vapor is caused to precipitate some of the gasoline content thereof without being rendered too thin for satisfactory engine performance. The precipitated particles may be collected and drained off into a suitable container to be again passed through the carburetor, thus resulting in considerable saving in operating expense.

In the drawing reference numeral 1 broadly indicates a down-draft carburetor of suitable construction, being shown in dotted lines as its details form no part of my invention. The outlet 2 of the carburetor is provided with a circular flange 3 which is connected by bolts 4 to a raised boss 5 formed on the casing of my gasoline saving device 6, a suitable gasket 7 being placed between the carburetor outlet and the boss.

The casing is generally cylindrical in shape and has an inlet opening 8 registering with the outlet of the carburetor and an outlet opening 9 in registry with the inlet opening 8. I preferably form the casing of a single iron casting, and in the preferred construction the casting includes an annular relatively deep well or chamber 10 surrounding and concentric with the inlet and outlet openings. The internal diameter of the chamber is substantially greater than that of openings 8, 9 and the casting provides an annular passage of substantial height communicating between the chamber and openings 8, 9. Preferably, the area of the communicating passage is greater than that of either opening in order to permit a free and direct flow of vapor into the chamber and out therefrom into opening 9. The casing is secured to the flanged end 11 of the intake manifold 13 by means of bolts 12, a gasket being interposed at this point surrounding the outlet opening of the casing.

The well 10 is formed with a suitable boss 14 at a lowermost point of the casing, the boss being drilled and tapped to receive a pipe fitting 15 connected to a pipe 16 leading to a drain tank 17 which is suitably mounted on the engine block, frame or other part of the automobile.

In the modification shown in Fig. 3, the manifold 18 has an expansion chamber 19 formed integrally therewith, the carburetor connection 2 being associated with this expansion chamber the same as in the embodiment shown in Fig. 1.

In use, the partially vaporized gasoline passes downwardly from the carburetor and enters the inlet opening of the gasoline saver. The enlarged volume presented thereby permits the expansion of the carbureted air and the impingement of unvaporized particles against the walls thereof. It has been found that substantial quantities of the gasoline, particularly the globules or unvaporized particles, are caused to precipitate upon striking the surfaces of the casing and such precipitate flows down the walls thereof and is collected in the well 10. The collected precipitate is drained through the tube 16 and into tank 17 which may be emptied at desired intervals into the main gasoline tank of the automobile. In the above manner, the unvaporized gasoline is largely collected and fuel consumption accordingly lessened. It has been found that this improves the combustion qualities of the vapor delivered to the manifold. Also, minimizing the

amount of the unvaporized fuel passing to the engine reduces the fouling of the engine.

My device is very simple in construction and the manner and theory of operation are equally simple. The device may be produced in quantity at low cost and is readily adaptable for use with any and all kinds of automobiles and/or carburetors therefor.

I have illustrated and described my improvements in embodiments which I consider very practical. I have not attempted to illustrate or describe other embodiments or adaptations as it is believed this disclosure will enable those skilled in the art to embody or adapt my improvements as may be desired.

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

1. In a device of the type described, a cylindrical hollow casing adapted to be interposed between a down-draft carburetor and an intake manifold and having inlet and outlet openings registering respectively with the outlet of said carburetor and the intake entrance of said manifold, said inlet and outlet openings being in register and the passageway between said inlet and outlet openings being unobstructed, said casing being of a relatively large diameter permitting expansion of gasoline vapor therein and precipitation of gasoline particles from said vapor, an annular relatively deep well concentric with said openings to collect the precipitate, said casing communicating freely and directly with the said openings through an annular unobstructed passage of substantial area, and means to drain the precipitate from said well.

2. In a device of the type described, a hollow casing adapted to be interposed between a carburetor and an intake manifold and having inlet and outlet openings, said inlet and outlet openings being in register and the passageway between said inlet and outlet openings being unobstructed, said casing being of a relatively large diameter permitting expansion of gasoline vapor therein and precipitation of gasoline particles from said vapor, an annular relatively deep well concentric with said openings to collect the precipitate, said casing communicating freely and directly with the said openings through an annular unobstructed passage of substantial area, and means to drain the precipitate from said well.

3. In a device of the type described, a hollow casing adapted to be interposed between a carburetor and an intake manifold and having inlet and outlet openings, said inlet and outlet openings being in register and the passageway between said inlet and outlet openings being unobstructed, said casing being of a relatively large diameter permitting expansion of gasoline vapor therein and precipitation of gasoline particles from said vapor, an annular well to collect the precipitate, said casing communicating freely and directly with the said openings through an annular unobstructed passage of substantial area, and means to drain the precipitate from said well.

4. In a device of the type described, a hollow casing adapted to be interposed between a down-draft carburetor and an intake manifold and having inlet and outlet openings registering respectively with the outlet of said carburetor and the intake entrance of said manifold, said inlet and outlet openings being in register and the passageway between said inlet and outlet openings being unobstructed, said casing being of substantially greater diameter than said inlet and outlet openings permitting expansion of gasoline vapor therein and precipitation of gasoline particles from said vapor, said casing communicating freely with the space between said openings through an annular passage of substantial area, a relatively deep well to collect the precipitate, and means in said casing to drain the precipitate from said well.

5. In a device of the type described, a hollow casing having inlet and outlet openings, said inlet and outlet openings being in register and the passageway between said inlet and outlet openings being unobstructed, said casing being of substantially greater diameter than said inlet and outlet openings permitting expansion of gasoline vapor therein and precipitation of gasoline particles from said vapor, said casing communicating freely with the space between said openings through an annular passage of substantial area, a well in said casing to collect the precipitate, and means to drain the precipitate from said well.

WARD M. IRVIN.