

Dec. 11, 1945.

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2,390,979

AUXILIARY FUEL SUPPLY FOR INTERNAL-COMBUSTION ENGINES

Filed Nov. 17, 1944

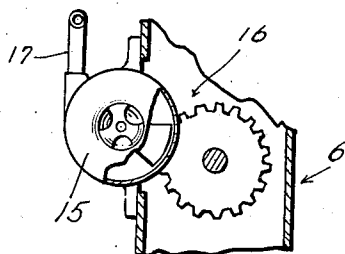


Fig. 2.

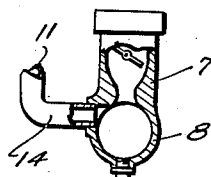


Fig. 3.

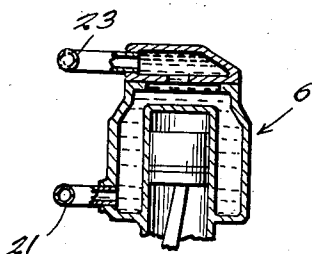


Fig. 4.

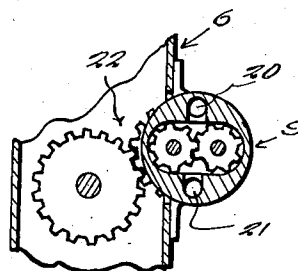


Fig. 5.

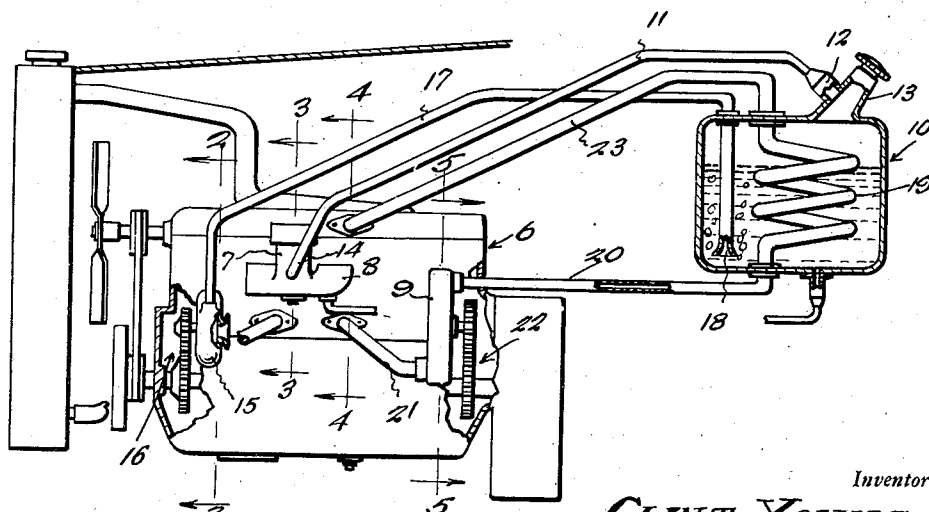


Fig. 1.

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UNITED STATES PATENT OFFICE

2,390,979

AUXILIARY FUEL SUPPLY FOR INTERNAL-COMBUSTION ENGINES

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Application November 17, 1944, Serial No. 563,862

3 Claims. (Cl. 123—122)

The present invention relates to improved ways and means of satisfactorily utilizing gaseous vapors from a conventional gasoline storage tank, whereby to provide an added or auxiliary and highly combustible fuel supply for delivery to the intake manifold or carbureter, as the case may be.

My primary aim is to provide a simple pipe connection between the carbureter and the vapor trapping and accumulating chamber in the standard gasoline storage tank, the intermittent suction occurring in the carbureter serving to deliver such added and otherwise wasted fuel vapors and to thus provide a booster for the carbureter.

Another phase of the invention has to do with the provision of a simple blower, driven from the engine shaft and connected with the gasoline tank by way of a pipe, said pipe having its discharge end located adjacent the bottom of the tank, whereby to introduce air, under pressure, into the gasoline and to employ the issuing air bubbles to slightly agitate the gasoline and permeate same, whereby to complement the auxiliary delivery pipe in promoting results more effective than would otherwise be had.

A further phase of the invention is in reference to the ways and means of slightly heating the gasoline in the storage tank, this by a heating coil, whereby to condition and increase the combustible properties and character of the trapped fuel-vapors.

Other features and advantages will become more readily apparent from the following description and the accompanying illustrative drawing.

In the drawing, wherein like numerals are employed to designate like parts throughout the plurality of views:

Figure 1 is a side elevational view, with parts shown in section, of a conventional internal combustion engine, showing the gasoline supply or storage tank and the various contrivances which contribute in producing the collective functions desired.

Figure 2 is a fragmentary vertical sectional view taken approximately on the plane of the line 2—2 of Figure 1, looking in the direction of the arrows.

Figures 3, 4, and 5 are similar fragmentary sectional and elevational views taken on the line 3—3, 4—4, and 5—5, all appearing in the direction of the respective indicating arrows.

Referring now to the drawing, by distinguishing reference numerals, the internal combustion engine is denoted as a unit, by the numeral 6

this having associated therewith a carbureter 7, intake manifold 8, water circulating pump 9 and fuel supply or storage tank 10.

As stated, the primary phase of the invention has to do with the pick-up and delivery of fuel-vapors from the collecting chamber above the gasoline in the tank 10. This is accomplished by way of a suitable suction-controlled pipe 11 connected as at 12 to the usual filler neck 13. At its opposite end it is connected as at 14 either to the intake manifold 8 or the carbureter 7. The point of connection as regards these elements is optional, depending upon results desired.

The gasoline agitating and aerating feature has to do primarily with a simple blower system. The blower proper is indicated at 15 and is appropriately mounted and driven by gearing 16 from the engine shaft. The air is taken in at the hub of the blower housing as usual and then forced out of the periphery through a pipe 17 which is appropriately arranged and has one end depending into the gasoline in the tank 10 said end terminating in a discharge funnel 18 located near the bottom of the tank. The air jets or bubbles issue from this funnel and pass upwardly through the gasoline picking up fuel and providing a more abundant supply in the trapping chamber, this trapped additional fuel then being sucked into the carbureter by way of the suction pipe or line 11.

The next and third phase has to do with increasing the temperature of the gasoline and this is done by a simple coil 19 of any appropriate construction. This coil is located and confined in the gasoline tank and is proportioned depending on the degree of heat desired. By preference the coil is connected at one end by a branch pipe 20 to the fuel pump, the latter being connected to the water jacket by the usual pipe 21 and being driven by customary gearing 22. This pump is of the gear type as shown in Figure 5. The return or circulating line 23 is connected with the water space in the top of the motor or engine jacket and with the uppermost convolution of the coil 19. By circulating hot water through this coil the gasoline in the tank is heated and rendered more effectively usable particularly insofar as it pertains to heating the entrapped gas vapors in the top chamber of the tank 10.

The individual phases described can be used conjointly or separately, each adding its proportionate share to the economy of operation of the motor. When all three are combined and prop-

erly hooked up, it is possible to increase the miles per gallon on an automobile, it is submitted, from 10 to 20 percent.

It is thought that persons skilled in the art to which the invention relates will be able to obtain a clear understanding of the invention after considering the description in connection with the drawing. Therefore, a more lengthy description is regarded as unnecessary.

Minor changes in the shape, size and arrangement of details coming within the field of invention claimed may be resorted to in actual practice, if desired.

I claim:

1. In a structure of the class described, in combination, an internal combustion engine including a carbureter, an intake manifold, a gasoline storage tank, a suction pipe connection between the top of the gasoline tank and the intake manifold, a heating coil mounted in said tank to increase the temperature of the gasoline, and means for supplying air under pressure into the

gasoline, in the manner and for the purposes described.

2. In a structure of the class described, in combination, an internal combustion engine, a carbureter, a fuel tank, a suction pipe connection between the fuel tank and carbureter, a blower, an operating connection between the blower and engine, said blower being provided with a force-feed air pipe and said air pipe extending into the gasoline tank to supply air to a point within the vicinity of the bottom of the tank.

3. In a structure of the class described, in combination, an internal combustion engine, a carbureter, a fuel tank, a suction pipe connection between the fuel tank and carbureter, a blower, an operating connection between the blower and engine, said blower being provided with a force-feed air pipe and said air pipe extending into the gasoline tank to supply air to a point within the vicinity of the bottom of the tank, together with a heating coil in said tank, said coil being connected with the engine jacket and pump.

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