Dec. 1, 1925. 1,564,061

G. S. HALE

ATTACHMENT FOR MOTOR VEHICLES

Filed May 2, 1925

Fig. 1.

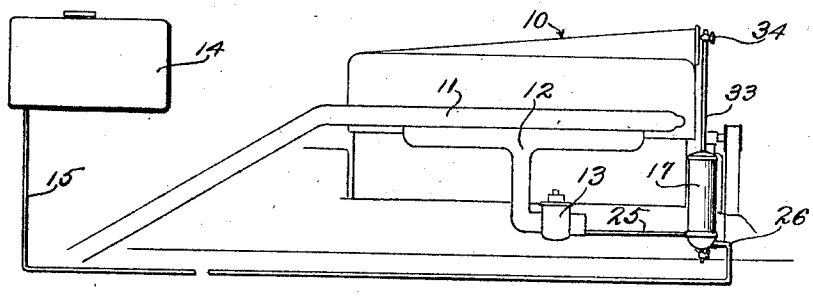


Fig. 2.

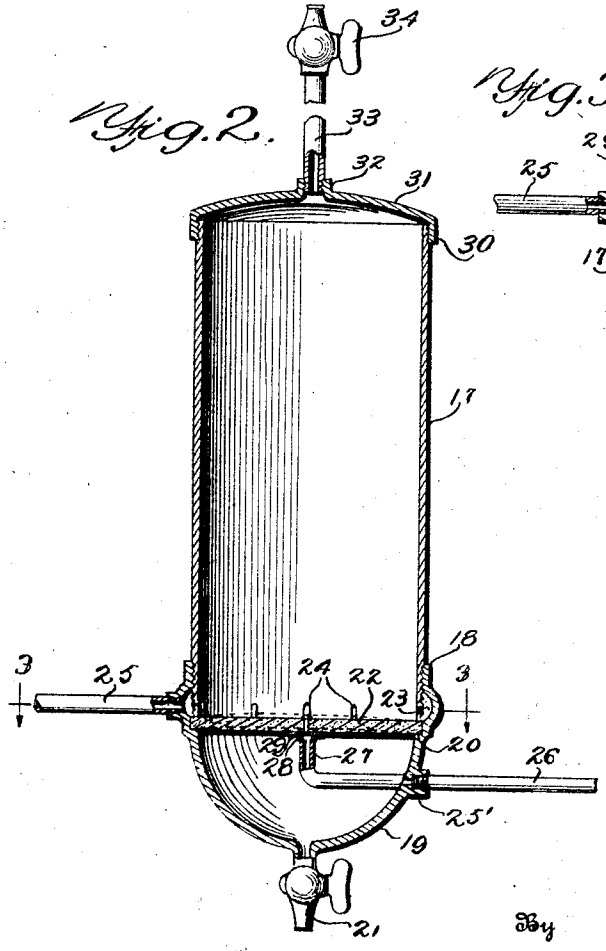
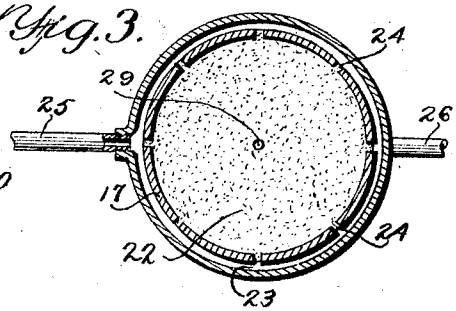


Fig. 3.



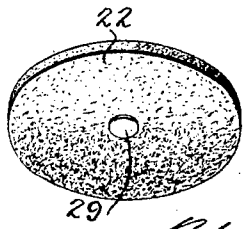


Fig. 4.

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UNITED STATES PATENT OFFICE.

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ATTACHMENT FOR MOTOR VEHICLES.

Application filed May 2, 1925. Serial No. 27,558.

To all whom it may concern:

Be it known that I, GEORGE S. HALE, a citizen of the United States, residing at Tekoa, in the county of Whitman and State of Washington, have invented certain new and useful Improvements in Attachments for Motor Vehicles, of which the following is a specification.

This invention relates to motor vehicle attachments and more particularly to a combined auxiliary and filtering tank for supplying fuel to an engine of a motor vehicle.

An important object of the invention is to provide an auxiliary tank arranged adjacent the engine of a motor vehicle and particularly adapted for use on vehicles which depend upon the flow of fuel by gravity from the tank to the engine, the auxiliary tank being adapted to contain a reserve supply which will be arranged above the level of the carburetor to supply fuel thereto when the vehicle is ascending a hill.

A further object is to provide a device of the above mentioned character wherein the auxiliary tank is provided with means for filtering the fuel supplied to the carburetor.

A still further object is to provide a tank of the above mentioned character provided with a pipe connected to the supply tank of the vehicle and having its inner end extending within the tank and terminating in a valve seat, a flexible filtering member being arranged within the tank and provided with a valve adapted to engage the seat of the inlet pipe to prevent the return of fuel from the auxiliary tank to the main tank when the vehicle is ascending a hill.

Other objects and advantages of the invention will become apparent during the course of the following description.

In the drawings,

Figure 1 is a side elevation of an automobile engine showing the invention applied,

Figure 2 is a central verticle sectional view through the tank,

Figure 3 is a section on line 3—3 of Figure 2, and,

Figure 4 is a detail perspective of the filtering member.

Referring to the drawings, the numeral 10 designates an automobile engine having an exhaust pipe 11 and an intake manifold 12 adapted to be supplied with fuel from a carburetor 13. The vehicle is provided with a fuel supply tank 14 adapted to supply fuel to the carburetor in a manner to be described, through a pipe 15. In the present instance, I have shown the tank 14 arranged above the level of the carburetor 13 whereby the fuel from the tank will be supplied to the carburetor by gravity under ordinary conditions as will be explained.

An auxiliary tank 17 is arranged near the engine of the vehicle and preferably slightly forward of the carburetor as shown in Figure 1. In the present instance I have shown the tank 17 as being substantially cylindrical and vertically arranged but it will be obvious that I may employ any form of tank which may be desired, such as a horizontal tank. The lower end of the tank 17 is externally screw threaded for reception within the screw threaded upper end 18 of a substantially semi-spherical lower casing 19. As shown in Figure 2 the casing section 19 is provided with an internal annular shoulder 20 for a purpose to be described. The lower end of the casing section 19 is provided with a drain cock 21 whereby sediment within the casing section 19 may be drained out when desired.

As shown in Figure 2, a slightly flexible filtering disk 22 is adapted to be arranged within the upper end of the casing 19 in engagement with the shoulder 20 thereof. As shown in Figure 2, the lower end of the tank 17 when threaded into the upper end of the casing 19, is adapted to engage the upper face of the filtering disk to retain the latter tightly against the shoulder 20. The casing 19 is provided with an internal annular groove 23 arranged just above the filtering disk as shown. The lower end of the tank 17 is provided with openings 24 which afford communication between the groove 23 and the interior of the tank 17. A pipe 25 communicates between the groove 23 and the carburetor 13, as shown in Figure 1.

The casing 19 is provided with a boss 25′ having an opening extending therethrough to receive a supply pipe 26. As shown in Figure 1, the pipe 26 forms a continuation of the pipe 15 to supply fuel from the tank 14 to the casing 19. In the present instance,

I have shown the pipe 26 as extending horizontally through the casing 19 and provided at its inner end with a vertical portion 27 terminating at its upper end in a flared mouth 28 adapted to serve as a valve seat in a manner to be described. The disk 22 is provided against its lower face with a button 29 having a shank extending through the filtering disk whereby the button may be secured thereto. The button 29 is provided with a flat lower face which is adapted to engage the inner end of the pipe 26 to serve as a valve for controlling the passage of fuel through the pipe.

The upper end of the tank 19 is threaded for reception within a depending flange 30 formed integral with a head 31. The head 31 is preferably provided with a central internally threaded boss 32 adapted to receive the lower screw threaded end of a vent pipe 33. The pipe 33 is adapted to extend upwardly to a point preferably slightly above the tank 14 to prevent any fuel from flowing through the vent pipe when the tank 14 is substantially full. The upper end of the vent pipe is provided with a valve 34 for a purpose to be described.

The operation of the device is as follows: Fuel is fed by gravity from the tank 14 to the inner end of the pipe 26 as previously described.

Pressure of the fuel flowing from the inner end of the vertical pipe section 27 is adapted to lift the central portion of the disk 22 slightly, this action being permitted by the slight flexibility of the disk. Fuel thus is admitted to the casing 19 from whence it flows upwardly through the filtering disk 22 and into the auxiliary tank 17. Any foreign matter in the fuel will be retained in the tank 17 and may be drawn off periodically through the valve 21. The height of the fuel in the tank 17 will of course, be determined by the height of the fuel in the tank 14. The fuel will flow through the openings 24 and into the groove 23, from whence it flows to the carburetor through the pipe 25. If the vehicle starts to ascend a hill when the level of the fuel in the tank 14 is relatively low, whereby the level of the liquid in the tank 17 will be raised above the level of that in the tank 14, the pressure of the liquid in the tank 17 will depress the disk 22 causing the button or valve 29 to seat firmly against the flared end 28 of the pipe 27 to prevent the return flow of fuel through the pipe 26. Thus a sufficient liquid head will be retained within the auxiliary tank 17 to efficiently operate the motor. The valve 34 is opened only sufficiently to prevent the creation of pressure or a partial vacuum in the tank 17 as the height of the fuel therein changes.

It is to be understood that the form of my invention herewith shown and described is to be taken as a preferred example of the same and that various changes in the shape, size and arrangement of parts may be made without departing from the spirit of the invention or the scope of the subjoined claims.

I claim:

1. A device of the character described comprising an auxiliary tank, a filtering member arranged in said tank and dividing it into inlet and outlet compartments, an inlet pipe havng one end connected with a main fuel supply tank, the opposite end of said inlet pipe extending within said inlet compartment, an outlet pipe connecting the outlet compartment with the carburetor of the vehicle, a valve carried by said filtering member and adapted to engage the end of said inlet pipe within the inlet compartment, said filtering member being slightly flexible to permit said valve to be unseated.

2. A device of the character described comprising an auxiliary tank having a portion intermediate its ends formed circular in cross section, a flexible filtering disk arranged in the circular portion of said tank and dividing it into inlet and outlet compartments, an inlet pipe having one end connected to a main fuel supply tank, the opposite end of said inlet pipe being arranged within the inlet compartment and provided with a valve seat, a valve carried by said filtering member and adapted to engage said valve seat, an outlet pipe connecting the outlet compartment with the carburetor of the vehicle, and a vent pipe communicating at its lower end with the outlet compartment, said vent pipe having its upper end projecting above the level of the fuel in said main supply tank.

3. A device of the character described comprising an auxiliary tank including inlet and outlet casings arranged in end to end relation, one of said casings being provided with an internal annular shoulder, a flexible filtering disk arranged against said shoulder, the other of said casings being adapted to be clamped against said disk, an outlet pipe communicating between the interior of the outlet casing and the carburetor of the vehicle, an inlet pipe connected at one end to a main fuel supply tank, the opposite end of said inlet pipe being arranged within the inlet casing and provided with a valve seat, and a valve carried by said disk and adapted to engage said valve seat.

4. A device of the character described comprising an auxiliary tank including inlet and outlet casings arranged in end to end relation, said inlet casing being provided with an internal annular shoulder, a flexible filtering disk arranged against said shoulder, the lower end of said outlet casing being clamped against said disk, said inlet chamber being provided above said disk and

outwardly of said outlet chamber with an annular space, said outlet chamber being provided with openings communicating with said annular space, an outlet pipe connected at one end to said annular space and at its opposite end to the carburetor of the vehicle, an inlet pipe connected at one end to a main fuel supply pipe and having its opposite end arranged in said inlet chamber and provided with a valve seat, and a valve carried by said flexible disk and adapted to engage said valve seat.

In testimony whereof I affix my signature.

GEORGE S. HALE.