H. W. CHYNOWETH.

GASOLENE TANK AND FILTER.

APPLICATION FILED OCT. 24, 1916.

1,235,438.

Patented July 31, 1917.

2 SHEETS—SHEET 1.

Fig. 1.

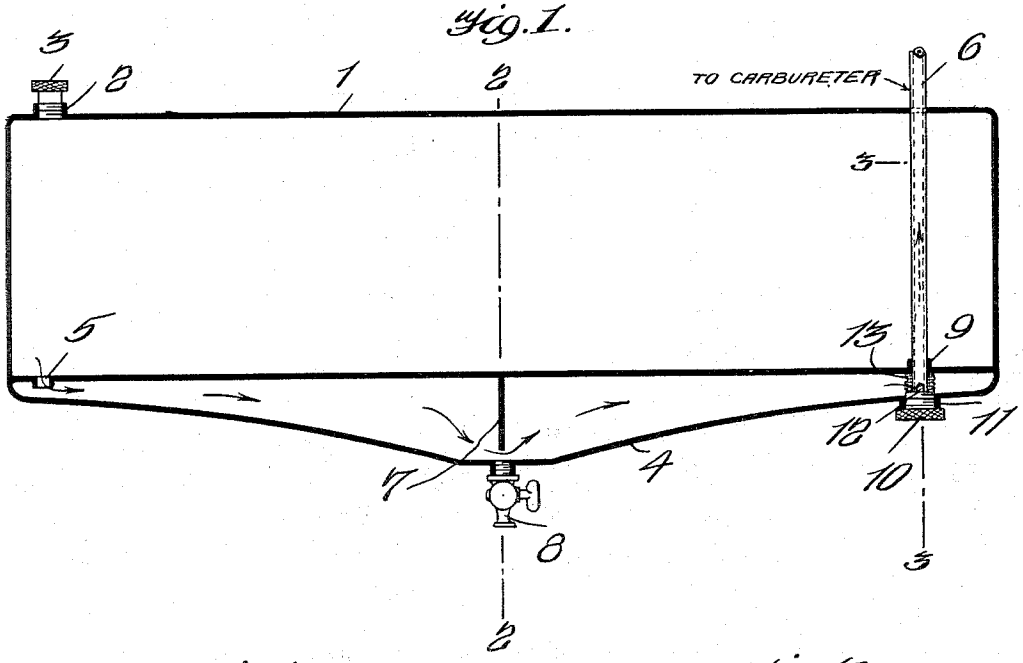


Fig. 2.

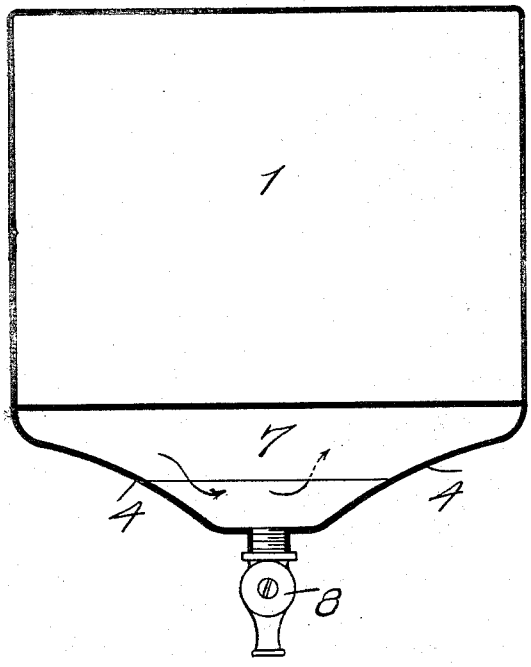
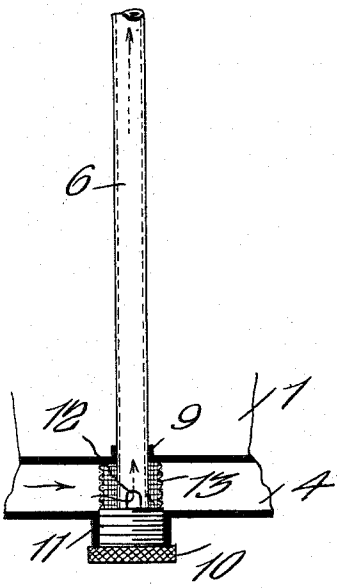


Fig. 3.



WITNESSES

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2 SHEETS—SHEET 2.

Fig. 4.

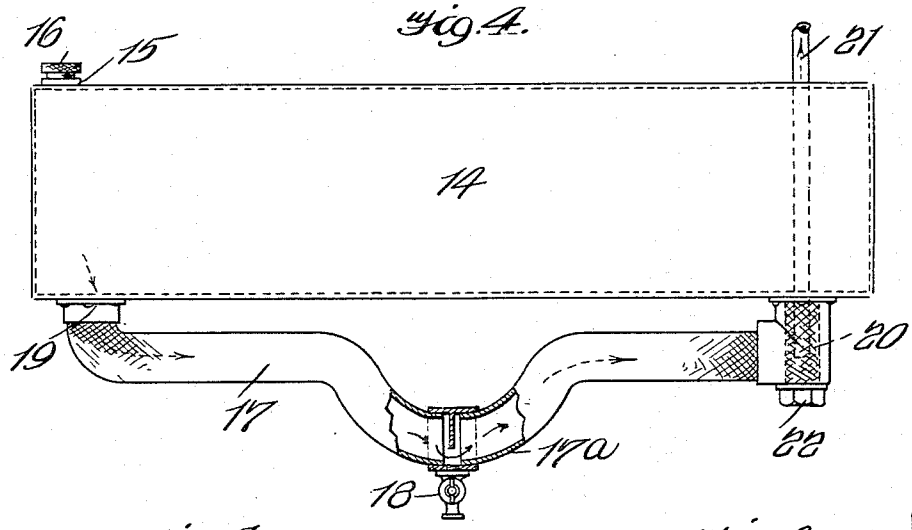


Fig. 5.

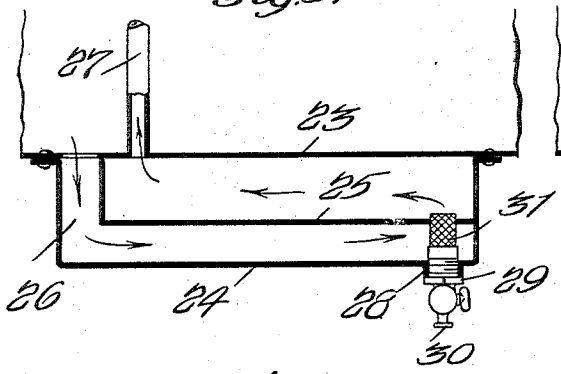


Fig. 6.

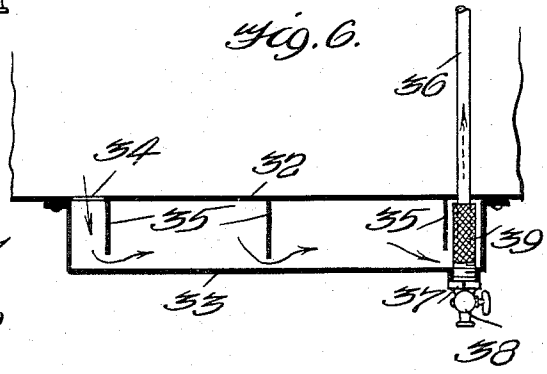


Fig. 7.

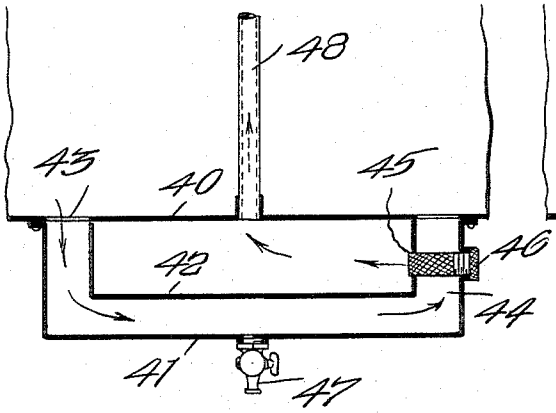
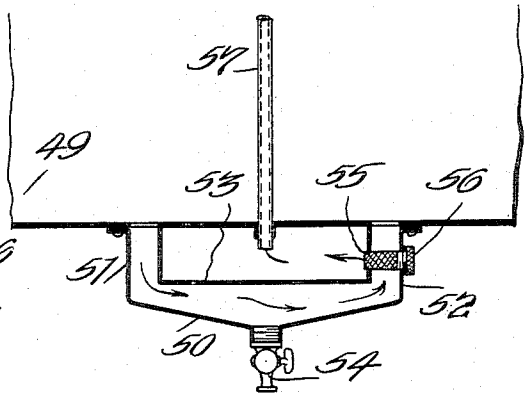


Fig. 8.



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GASOLENE TANK AND FILTER.

1,235,438. Specification of Letters Patent. Patented July 31, 1917.

Application filed October 24, 1916. Serial No. 127,444.

To all whom it may concern:

Be it known that I, HENRY WILLIAM CHYNOWETH, a citizen of the United States, and a resident of Pasadena, in the county of Los Angeles and State of California, have invented an Improvement in Gasolene Tanks and Filters, of which the following is a specification.

My invention is an improvement in gasolene tanks and filters, and has for its object to provide a device of the character specified for use with internal combustion engines, wherein a main tank or reservoir is provided with an auxiliary tank, the latter having means for causing the sediment in the fuel to be deposited where it may be withdrawn, and wherein the fuel is taken from the said auxiliary tank to the carbureter through a screen.

In the drawings:

Figure 1 is a longitudinal section of one embodiment of the invention.

Figs. 2 and 3 are sections on the lines 2—2 and 3—3, respectively, of Fig. 1.

Fig. 4 is an end view of another embodiment of the invention.

Figs. 5 to 8 inclusive, are sectional views of other embodiments of the invention.

In the embodiment of the invention shown in Figs. 1 to 3 inclusive a main tank 1 is provided having a filling nipple 2, normally closed by a threaded plug 3, and the main tank is provided with an auxiliary portion or extension 4, which is the filter, the said extension or auxiliary tank being integral with the main tank, as shown.

A nipple 5 in the bottom of the main tank forms a communication between the main tank and the filter extension, and a pipe 6 leads from the opposite side of the filter extension to the carbureter. This auxiliary tank or filter extension is of greatest depth at its center, as shown, gradually decreasing in depth toward the ends of the main tank and toward the sides thereof, and at the deepest portion a transverse partition 7 is provided, the said partition extending from the bottom of the main tank to near the bottom of the deepest portion of the auxiliary tank. A drain valve 8 is arranged at the deepest portion of the auxiliary tank and directly below the partition, for permitting the contents of the tanks to be drained for cleaning and the like.

The pipe 6 extends through a nipple 9 in the bottom of the main tank, and a plug 10 is threaded through a nipple 11 in the bottom of the auxiliary tank in alinement with the nipple 9 and coaxial therewith. This plug closes the lower end of the pipe 6, and the said pipe is provided with a lateral inlet opening 12 at the plug. A cylindrical screen 13 of gauze is connected with the plug, the said screen being approximately concentric with the pipe, and extending from the plug to the bottom of the main tank, so that all of the fuel which enters the pipe 6 must pass through the screen.

In operation, the fuel passes from the main tank, as indicated by the arrows in Figs. 1 to 3, through the nipple 5, beneath the partition 7, through the screen 13 and opening 12 to the carbureter. Any sediment or impurities that may be in the fuel must pass beneath the partition 7, and the said impurities will be precipitated and will remain at the deepest portion of the auxiliary tank, where they may be withdrawn through the drain valve. Any impurities that may pass this point will be held back by the screen, and will not enter the carbureter.

In the construction of Fig. 4, the main tank 14 is provided with a filling nipple 15 having the closing plug 16, and the auxiliary tank is formed of a flexible pipe 17, communicating at each end with the main tank, and the said pipe is provided at its center with a downwardly offset portion 17^a, in which is arranged a drain valve 18. The inlet end 19 of the pipe communicates with the main tank at the end adjacent to the filling nipple, and at the opposite end the pipe 17 is provided with a T 20. This T is connected with the bottom of the main tank, and the pipe 21 leading to the carbureter extends upward through the main tank, as shown.

This pipe 21 has a lateral opening arranged in the same manner as the lateral opening of the pipe 6, and a plug 22 is threaded into the lower end of the T, the said plug carrying a screen corresponding to the screen 13, and extending from the plug to the bottom of the main tank, so that all the fuel which enters the pipe 21 must pass through the screen.

In the embodiment of the invention shown in Fig. 5, the main tank 23 has secured to the bottom thereof an auxiliary tank 24, and this tank 24 is divided into upper and lower compartments by a partition 25. The lower

compartment communicates with the main tank by a pipe 26, and the pipe 27 to the carbureter leads from the upper compartment, as shown. The bottom of the auxiliary tank has a nipple 28, in which is arranged a threaded plug 29 having a drain valve 30, and carrying a cylindrical screen 31 which passes upwardly through an opening forming a communication between the upper and lower compartments.

In the embodiment of the invention shown in Fig. 4, any impurities that may be in the fuel will be precipitated at the point 17ª of the pipe, and may be drawn off through the valve 18. A transverse partition is arranged within the portion 17ª of the pipe 17, at the drain valve, acting in the same manner as the partition 7. These partitions are baffle plates. In Fig. 5, the fuel passes downwardly through the pipe 26 into the lower compartment, where the impurities are deposited, and the fuel passes upwardly through the screen 31 into the upper compartment, from whence it is withdrawn to the carbureter.

In the embodiment of the invention shown in Fig. 6, the main tank 32 has secured to the under side thereof an auxiliary tank 33. This tank communicates with the main tank by an opening 34, and a series of baffle plates or partitions 35 is arranged within the auxiliary tank, depending from the bottom of the main tank. One of the plates 35 is at the center of the auxiliary tank, and one near each end. At the end remote from the opening 34 the pipe 36 leads to the carbureter, being between the end of the auxiliary tank and the endmost partition.

A plug 37 is threaded through an opening in the bottom of the auxiliary tank at this point, and the said plug carries a drain valve 38 and a cylindrical screen 39, the said screen encircling the pipe 36. The operation of the embodiment shown in Fig. 6 is similar to that of the other embodiments, the fuel passing downward through the opening 34 into the auxiliary pipe, where sediment and the like is deposited, and may be drawn off through the drain valve 38.

In the embodiment of the invention shown in Fig. 7, the main tank 40 is provided with an auxiliary tank 41 having a horizontal partition 42 dividing the said tank into upper and lower compartments. The lower compartment communicates with the main tank by a pipe 43, and with the upper compartment by an opening or pipe 44 at the opposite end from the pipe 43. This pipe 44 has a transverse opening at the upper compartment, through which is passed a screen 45, the said screen being connected with a plug 46 which is threaded through an opening in the outer side of the pipe 44.

A drain valve 47 is connected with the lower compartment at the center thereof, and it will be evident that any sediment in the fuel will be deposited in the lower compartment, while the purified fuel will pass upward through the pipe 44 and through the screen 45 into the upper compartment, from whence it may be withdrawn by the pipe 48 leading to the carbureter.

In the embodiment of the invention shown in Fig. 8, the main tank 49 is provided with an auxiliary tank in the form of a casing 50 having at each end an upward extension 51 and 52, respectively, the said extensions communicating with the main tank. This tank 50 is also provided with a horizontal partition 53, which divides it into upper and lower compartments. The lower compartment has its bottom hopper-shaped, as shown, and a drain valve 54 is arranged at the lowest portion of the hopper-shaped bottom. Through the extension 52 is passed a screen 55, extending transversely of the extension, and connected with a plug 56 which is threaded into the extension. The pipe 57 which leads to the carbureter leads from the upper compartment. The fuel passing downwardly from the main tank into the auxiliary tank will deposit its sediment in the hopper-shaped bottom, and the pure fuel will pass upwardly through the extension 52 and the screen 55 into the upper compartment, and from thence through the pipe 57 to the carbureter.

The object of all of the embodiments of the invention is to compel the fuel to pass along near the bottom of the auxiliary tank, and to move slowly over a considerable distance, thus giving time for the impurities to settle. The fuel remains in the filter or auxiliary tank without agitation, since the auxiliary tank is full at all times. In the usual form of tank, the fuel is in a continuous state of agitation from the vibration of the vehicle and especially so when not completely filled. This agitation holds the impurities mixed with the fuel, keeping the fuel and sediment stirred up so that they will enter the fuel line to the carbureter. With the present construction this is impossible. The horizontal partitions of the embodiments having such partitions act also as baffle plates in the same manner as the vertical portions, constraining the fuel to pass near the bottom of the auxiliary tank.

I claim:

1. A liquid fuel tank, comprising a main tank, and an auxiliary tank below the main tank and communicating with the main tank at one end of the auxiliary tank, said auxiliary tank being of greatest depth at approximately the center and decreasing in depth toward its ends and having a drain valve at its lowest portion, a pipe leading from the opposite end of the auxiliary tank to the carbureter, and a screen between the auxiliary tank and the said pipe, and means

in the auxiliary tank for constraining the fuel to flow near the bottom of the said tank.

2. A liquid fuel tank, comprising a main tank, and an auxiliary tank below the main tank and communicating with the main tank at one end of the auxiliary tank, a pipe leading from the opposite end of the auxiliary tank to the carbureter, and a screen between the auxiliary tank and the said pipe, and means in the auxiliary tank for constraining the fuel to flow near the bottom of the said tank.

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Witnesses:
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FRANK W. PARSONS.