March 11, 1924. 1,486,715

A. C. WOOD

VACUUM FUEL FEED RESERVE SYSTEM

Filed May 11, 1922

Fig. 1

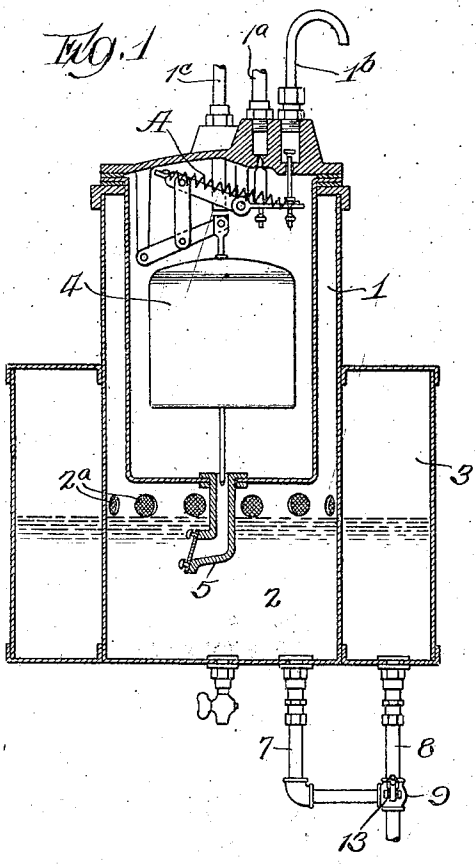


Fig. 2

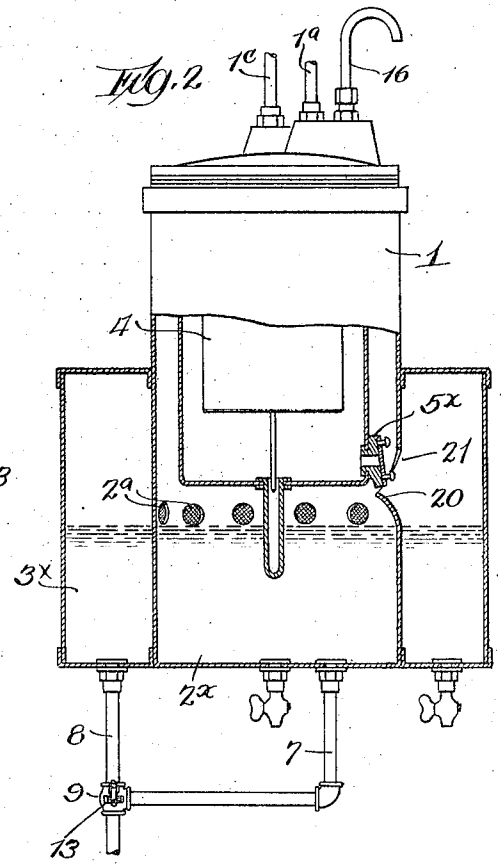


Fig. 5

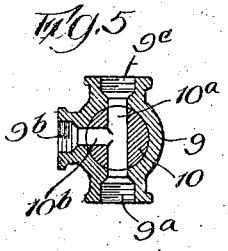


Fig. 6

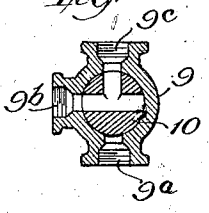


Fig. 4

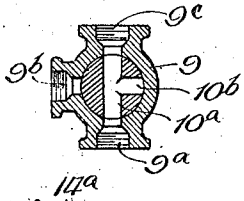


Fig. 3

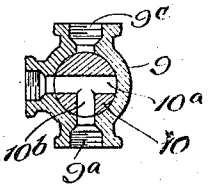
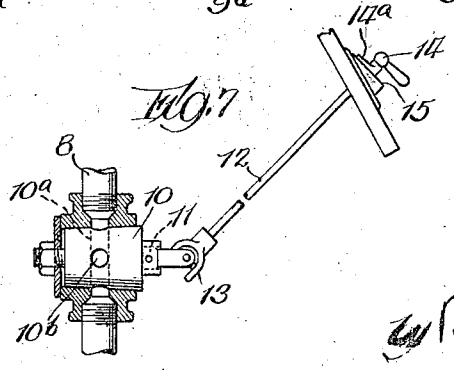


Fig. 7



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UNITED STATES PATENT OFFICE.

ANDREW C. WOOD, OF CHICAGO, ILLINOIS, ASSIGNOR TO STEWART-WARNER SPEEDOMETER CORPORATION, OF CHICAGO, ILLINOIS, A CORPORATION OF VIRGINIA.

VACUUM FUEL-FEED RESERVE SYSTEM.

Application filed May 11, 1922. Serial No. 560,090.

To all whom it may concern:

Be it known that I, ANDREW C. WOOD, a citizen of the United States, residing in the city of Chicago, in the county of Cook and the State of Illinois, have invented certain new and useful Improvements in Vacuum Fuel-Feed Reserve Systems, of which the following is a specification, reference being had to the accompanying drawings, forming a part thereof.

The purpose of this invention is to provide an improved construction of a vacuum fuel feeding device having means for providing a reserve supply of fuel to be drawn upon in case of emergency, as when the main supply tank is exhausted or when the requirements of the carbureter exceeds the capacity of the emptying devices for lifting from the low tank to the supply receptacle, or when said supply devices are for any reason temporarily inoperative, and incidentally providing for straining the fuel. It consists in the elements and features of construction shown and described, as indicated in the claims.

In the drawings:—

Figure 1 is a vertical axial section of a vacuum fuel feed device equipped with the features constituting this invention.

Figure 2 is a similar view of a modified form.

Figures 3, 4, 5 and 6 are axial sections of a valve for controlling the delivery to the carbureter from the ordinary supply or from the reserve supply or from both.

Figure 7 is a diagrammatic view showing the device mounted in a position of service on the car in its relation as to the engine and as to the car, and operating devices extending to the dash.

The structure shown in the drawings comprises a usual form of vacuum fuel feeding device having a vacuum chamber, 1, with suction connections, 1^a, atmosphere inlet, 1^b, fuel supply connections, 1^c, and float-controlled valve mechanism, A, operated by a float, 4, in a manner well understood for alternating the dominance of suction and atmospheric pressure for alternately lifting the fuel from a low source not shown, to the vacuum chamber, 1, and delivering it by gravity from the vacuum chamber to the ordinary carbureter supply chamber, 2, past the non-return check valve, 5. In addition to these familiar features of vacuum fuel feed devices the present invention comprises a third chamber, 3, which is shown in Figure 1 encompassing the chamber, 2, and communicating therewith at a level considerably above the bottom of both chambers, as at the filter-screened apertures, 2^a, in the wall of the chamber, 2, which at this part is a partition wall between the chambers, 2 and 3. Each of the chambers, 2 and 3, has a discharge connection for supplying the carbureter, being the pipe, 7, leading from the chamber, 2, and the pipe, 8, leading from the chamber, 3. Preferably these two pipes are connected, as at the T-fitting, 9, forming a junction between them. This T-fitting is the body of a three-way valve, as seen in Figure 6, and is hereinafter referred to as the valve body, 9. This valve body has three passages, 9^a, 9^b, 9^c, for connecting respectively, with the carbureter, with the chamber, 2, and with the chamber, 3; and the rotatable or turn-cock member or valve proper, 10, has a diametric passage, 10^a, and a radial passage, 10^b, whereby it is adapted to be set as seen in Figure 3 for communication of the chamber, 2, with the carbureter, cutting off the chamber, 3, therefrom, or for communication with the chamber, 3, cutting off the chamber, 2, as shown in Fig. 4, or for communication of both the chambers with the carbureter, as shown in Figure 5.

The operating stem, 11, of the valve member, 10, is connected for operation by the driver at the dash or instrument board, as indicated in Figure 7, by the extension, 12, of the stem connected with the stem proper by a toggle joint, as seen at 13. At the dash board or instrument board, the stem extension, 12, has an operating handle in the form of a knob, 14, and an index finger, 14^a, which co-operates with an index plate, 15, having markings to indicate the three adjustments of the valves, respectively, so that the driver may at will adjust so as to take the carbureter supply from the chamber, 2, or from the chamber, 3, or from both said chambers, simultaneously according to the conditions.

The form shown in Figure 2, differs from the form shown in Figure 1, in that the direct and immediate discharge from the vacuum chamber, 1, is into the outer instead of into the inner of the other two chambers. This is accomplished by locating the valve,

5^x, as shown in said Figure 2, in one side instead of in the bottom of the chamber, 1, and causing its delivery end to overhang an in-turned lip, 20, of an aperture, 21, in the partition wall between the chambers, 2^x and 3^x, so that the discharge is conducted across the annular space between the wall of the chamber, 1, and the said partition wall, and delivered directly to the outer chamber. This form, as in the other of the two chambers, communicates through screened apertures, 2^a, in the partition wall between the two chambers.

The provision of the third chamber with filter screens at the communications between the second and third chambers makes it possible at all times, if desired, to cause the fuel to be screened before reaching the carbureter. In the form shown in Figure 1 this will be accomplished by setting the valve, 10, in the position shown in Figure 4, for delivery only from chamber, 3, and in the form shown in Figure 2 by setting the valve in the position shown in Figure 3 for delivery only from the chamber, 2^x.

I claim:—

1. In a vacuum fuel feeding device having connections for supplying a carbureter and for deriving fuel for such supply, a three-chambered receptacle having its three chambers connected for fuel delivery from the first into the second and from the second into the third; conduits from the second and third chambers for delivery to the carbureter, said conduits making junction with each other for ultimately supplying the carbureter through the same passage, and a valve at their junction adapted to be adjusted for delivery to the carbureter alternatively either from the second chamber or from the third chamber.

2. In the construction defined in claim 1, foregoing, the second and third chambers being constructed one within the other with the bottom of both exposed exteriorly for discharge connection.

3. In a vacuum fuel feeding device having connections for supplying a carbureter and for deriving fuel for such supply, a receptacle comprising a vacuum chamber and two service chambers receiving their supply successively from the vacuum chamber, one of said service chambers being supplied directly from the vacuum chamber and the second being supplied from the first, the communication for delivery from the first service chamber into the second service chamber at a substantial distance above the bottom of both chambers, said service chambers having independent discharge connections for delivery to the carbureter, and valve means for controlling discharges thereto adapted for supplying the carbureter alternatively from either of said chambers to the exclusion of the other.

4. In a vacuum fuel feeding device having connections for supplying a carbureter and for deriving fuel for such supply; a three-chambered receptacle having its three chambers connected for fuel delivery from the first into the second and from the second into the third, the communication for the delivery from the second into the third chamber being at a substantial distance above the bottom of both said chambers, both said second and third chambers having discharge connections for delivery to the carbureter, and bottom connections between the said second and third chambers tending to cause equal delivery from both to the carbureter.

5. In the construction defined in claim 3, foregoing, the discharge conduits from the two service chambers being connected with each other for delivery to the carbureter by a single conduit, and a three way valve at the junction of the two conduits adapted to be adjusted alternatively for (*a*) cutting off the discharge from the third chamber and opening the path of discharge from the second chamber; (*b*) cutting off the discharge from the second chamber and opening the path of discharge from the third chamber; or (*c*) simultaneously opening the path of communication from both said chambers to the carbureter.

In testimony whereof, I have hereunto set my hand at Chicago, Illinois, this 8th day of May, 1922.

ANDREW C. WOOD.