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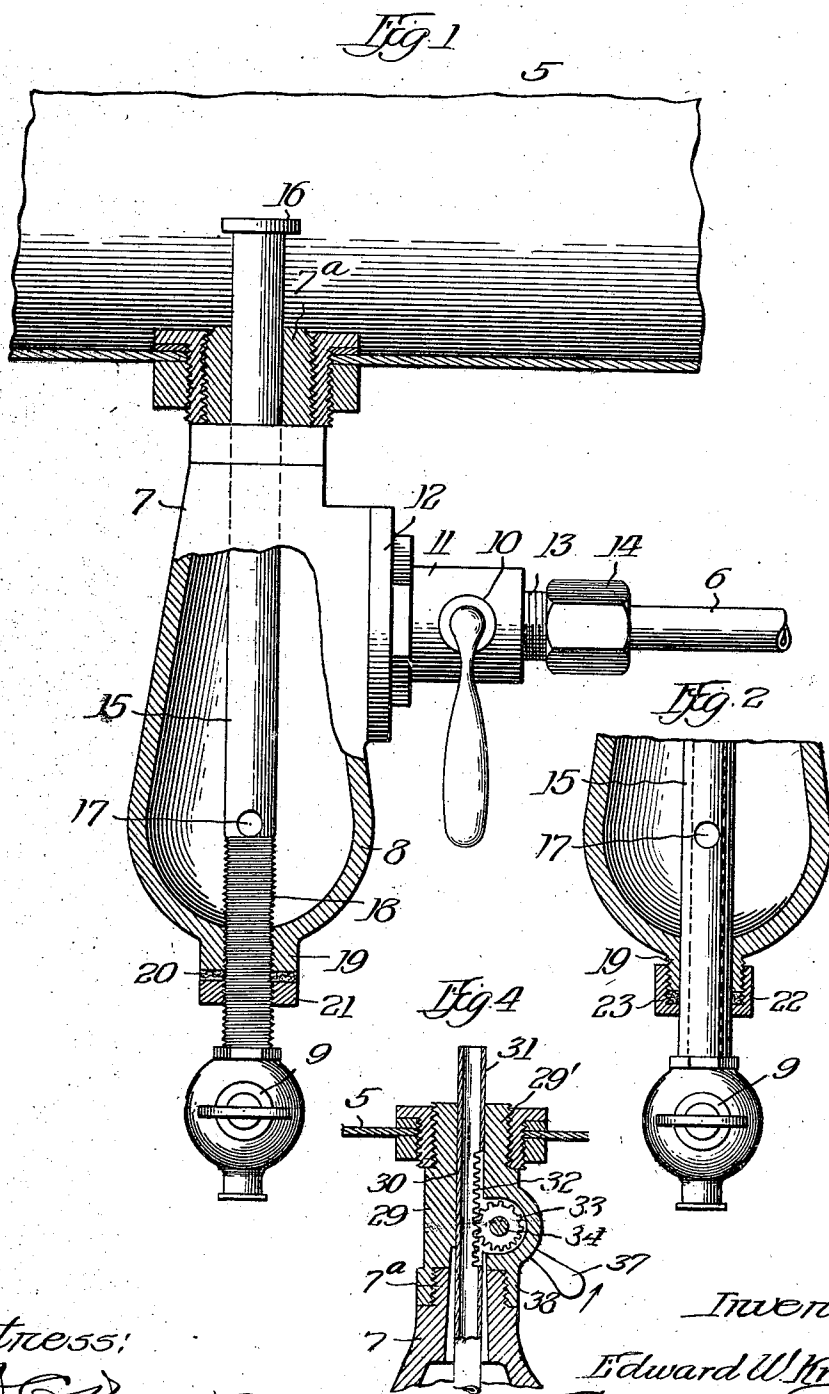
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RESERVE SUPPLY DEVICE FOR GASOLINE TANKS

Filed March 31, 1921

2 Sheets-Sheet 1



Witness:
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Inventor:
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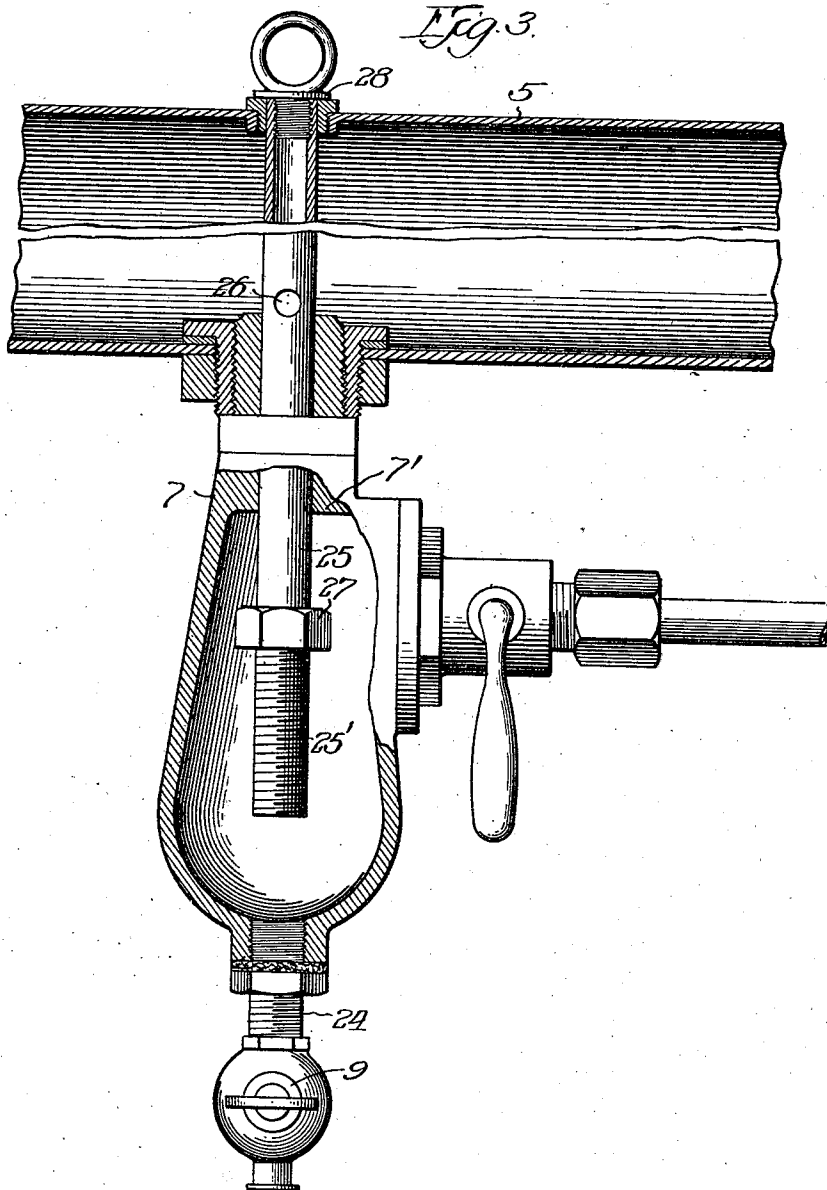
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RESERVE SUPPLY DEVICE FOR GASOLINE TANKS

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2 Sheets-Sheet 2



Witness:

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Patented May 1, 1923.

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UNITED STATES PATENT OFFICE.

EDWARD W. KRUSE, OF CHICAGO, ILLINOIS.

RESERVE-SUPPLY DEVICE FOR GASOLINE TANKS.

Application filed March 31, 1921. Serial No. 457,397.

To all whom it may concern:

Be it known that I, EDWARD W. KRUSE, a citizen of the United States, residing at Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Reserve-Supply Devices for Gasoline Tanks, of which the following is a specification.

This invention relates to automobile accessories of the type designed to maintain and bring into action a reserve supply of gasoline in the gasoline tank, at the same time notifying the driver of the car of the necessity of re-filling. More particularly, the present invention belongs to that class of such devices wherein the supply line from the gasoline tank normally draws off the gasoline at a level an inch or more above the bottom of the tank, thereby warning the driver when the level has fallen to such a point, and may then be manipulated so as to permit the flow of the gasoline reserve down to practically the bottom of the tank. My present invention aims chiefly to improve that type of such devices which dispenses with valves, in the directions of greater simplicity, economy, ease of application and manipulation and efficiency in operation.

Another object of the invention is to provide a reserve supply device of this character which will not involve any substantial alteration of existing equipment on standard cars, such as the Ford, and which may be readily applied and easily manipulated.

Still other objects and attendant advantages of the invention will be apparent to those skilled in the art as the same becomes better understood by reference to the following description, taken in connection with the accompanying drawings, wherein I have illustrated several practical embodiments of the principle of the invention as applied both to Ford constructions and also to gasoline tanks used in connection with the so-called vacuum system, and referring thereto:—

Fig. 1 is a view partly in side elevation and partly in section, broken out, of a gasoline supply line of the Ford type, with my improved reserve supply device applied thereto;

Fig. 2 is a vertical section corresponding with the lower portion of Fig. 1 and illustrating a slight modification of the construction of Fig. 1;

Fig. 3 is a view similar to Fig. 1, and illustrating a construction wherein the reserve supply device is manipulated from the top of the gasoline tank;

Fig. 4 is a fragmentary view in vertical section illustrating another form of the invention.

Referring first to Fig. 1, 5 designates a fragment of the lower portion of the gasoline tank such, for instance, as is used beneath the front seat of a Ford car. 6 designates the gasoline supply line leading to the carburetor, and 7 designates the gasoline supply line coupling consisting of a casting, the upper end of which is connected into the bottom of the tank 5; this coupling being equipped with the usual sediment pocket 8 and drain valve 9. In the standard Ford construction, the coupling 7 is equipped with a cut-off valve a slight distance beneath the tank; but to accommodate the structural features of the present invention, this cut-off valve designated by 10 is located in and across the squared shank 11 of the cover plate 12 which screws into one side of the coupling 7 and carries the strainer (not shown) and a threaded nipple 13 which is joined to the line pipe 6 by the gland nut 14.

Extending axially through the coupling casting 7 and its sediment pocket 8 is a straight pipe 15, the upper end of which normally projects an inch or slightly more above the bottom of the tank 5 and is provided with an annular stop shoulder 16. The pipe 15 is further provided with a lateral port 17 normally disposed about the same distance above the bottom of the sediment pocket 8 as the stop shoulder 16 above the bottom of the tank 5. Below the port 17 the pipe 15 is threaded as shown at 18 and screws through a depending lug 19 on the bottom of the sediment pocket 8. A tight joint at this point is maintained by a packing washer 20 and a clamp nut 21 on the threaded portion 18 of the pipe 15. The lower portion of the pipe 15 lying below the boss 19 performs the function of the usual drain pipe and carries the drain cock 9.

In the practical operation of this form of the invention, the parts are normally in the position shown in Fig. 1, wherein the gasoline flows freely to the supply line until its level reaches the top of the pipe 15. Thereupon it ceases to flow and the driver is thereby notified that his supply is running low. Thereupon he loosens the clamp nut 21, and

grasping the drain cock 9 he turns the pipe 15, screwing it downwardly until the stop 16 engages with the bottom of the tank. This brings the port 17 down substantially to the bottom of the pocket 8, but does not occlude the port so that the reserve supply of gasoline flows freely to the carburetor until the driver reaches a source of supply. The tank having been refilled, the pipe 15 is again screwed upwardly to substantially the height shown, the nut 21 is tightened to pack the joint, and the device is then in normal working position.

The construction illustrated in Fig. 2 is identical with that of Fig. 1, except that in lieu of employing a screw threaded engagement of the pipe 15 with the lower end of the sediment pocket, I provide a sliding fit of the pipe 15 with the sediment pocket and its boss 19, and thread the exterior of the latter for engagement with a nut 22, within which latter is a gland packing ring 23 which is compressed to make a tight joint and at the same time frictionally hold the pipe 15 in its uppermost position.

In Fig. 3 I have illustrated a form of the invention embodying the same principle of a valveless construction, but wherein the device can be manipulated from the upper side of the gasoline tank, instead of from the lower side of the sediment pocket of the supply line coupling. In this construction, the drain pipe 24 and drain cock 9 remain as standard in the Ford construction, and, in lieu of the pipe 15 with its port 17 located within the supply line coupling, I provide a pipe 25 which extends downwardly through the gasoline tank 5, passing through both the top wall of the latter and through the upper end of the coupling 7, the lower open end of said pipe terminating within the chamber of the coupling 7. In that portion of the pipe 25 which extends through the tank 5 is formed a lateral port 26. Normally this port is disposed at the same height above the bottom of the tank as the upper end of the pipe 15 shown in Fig. 1, the upper limit of the position of this port being determined by a stop on the pipe 25, such as the nut 27 engaged with the threaded lower portion 25' of the pipe, the stop 27 cooperating with the upper transverse wall 7' of the coupling. With this construction, the gasoline flows freely until its level falls to the level of the port 26 whereupon it ceases to flow; and the driver then pushes the pipe 25 downwardly to the limit determined by a stop shoulder 28 on the upper end of the pipe, which carries the supply port 26 to its lowermost position, shown, thereby enabling the reverse supply to flow to the engine until the new level of the port 26 is reached.

In Fig. 4 I have illustrated another specific form of the invention, consisting chiefly

of a different mechanism for shifting the supply pipe section endwise to bring the reserve supply of gasoline into service.

This form of the invention comprises a short casting 29 containing an axial bore 30 in which is slidably mounted a pipe section 31. As shown in Fig. 4, the lower end of the casting 29 is recessed and tapped to receive the threaded nipple 7^a on the upper end of the supply line coupling 7, and the upper end of the casting 29 is formed with a threaded nipple 29' of the same size as the nipple 7^a, which is entered through the bottom wall of the gasoline tank 5. The pipe section 31 in its normal position extends above the bottom of the tank 5 to the same extent as the pipe 15 of Fig. 1 and the port 26 of the pipe 25 of Fig. 3, while its lower end extends downwardly into the supply line coupling 7. On one side of the pipe section 31 is formed a rack 32 that is engaged by a pinion 33 fast on a shaft 34 which latter is journaled in a suitable oil-tight bearing. Fast on the shaft 34 is an operating handle 37 which is preferably made sufficiently heavy to serve as a weight to maintain the pipe section 31 in either its elevated or its lowered position. The lower end of the casting 29 is made square or hexagonal to constitute a wrench hold 38. In Fig. 4 the pipe section 31 is shown in its normal elevated position. When the level of the gasoline in the tank has fallen to the upper end of the pipe section 31, the driver of the car gives the shaft 34 approximately a three-quarter turn in the direction indicated by the arrow. This lowers the upper end of the pipe section 31 until it is flush with the upper end of the nipple 29' and the pipe section is held in such lowered position by the gravity of the handle 37 which has been swung to the opposite side of the shaft 34 from its position as shown in Fig. 4. When the tank has been re-filled, the handle 37 is swung back to the position shown, which again raises the pipe section 31 to its normal position.

I claim:

1. The combination with a gasoline tank, and a chambered supply pipe coupling communicating with the bottom of said tank, of a supply pipe section extending through the bottom of said tank and lying partly in said tank and partly in the chamber of said coupling, said supply pipe section having an upper opening communicating with said tank and fixing the level of the reserve supply and a lower opening communicating with said supply pipe coupling, and means for adjusting said supply pipe section downwardly to bring said upper opening substantially flush with the bottom of said tank whereby to drain therethrough the reserve supply of gasoline.

2. The combination with a gasoline tank, 130

and a chambered supply pipe coupling communicating with the bottom of said tank, of a supply pipe section slidably mounted in said coupling and at its upper end projecting
5 into said tank, said supply pipe section having a port communicating with the chamber of said coupling, a rack on said supply pipe section, a pinion shaft journaled in said coupling, a pinion on said said shaft engaged
10 with said rack, and a weighted handle on said shaft adapted to hold said supply pipe section in either raised or lowered position.

3. The combination of a liquid receptacle provided with an outlet opening, a valve housing secured to said receptacle, said hous- 15
ing having an aperture registering with said outlet opening, a tubular valve member in said aperture adapted to slide therein, one end of said valve member extending into said receptacle and having an outlet aper- 20
ture above the bottom of said receptacle, the other end of said tubular valve member being open, and means for varying the distance said valve member extends into said receptacle, said means comprising a rack on said 25
valve member, a pinion meshing with said rack and means for rotating said pinion.

EDWARD W. KRUSE.