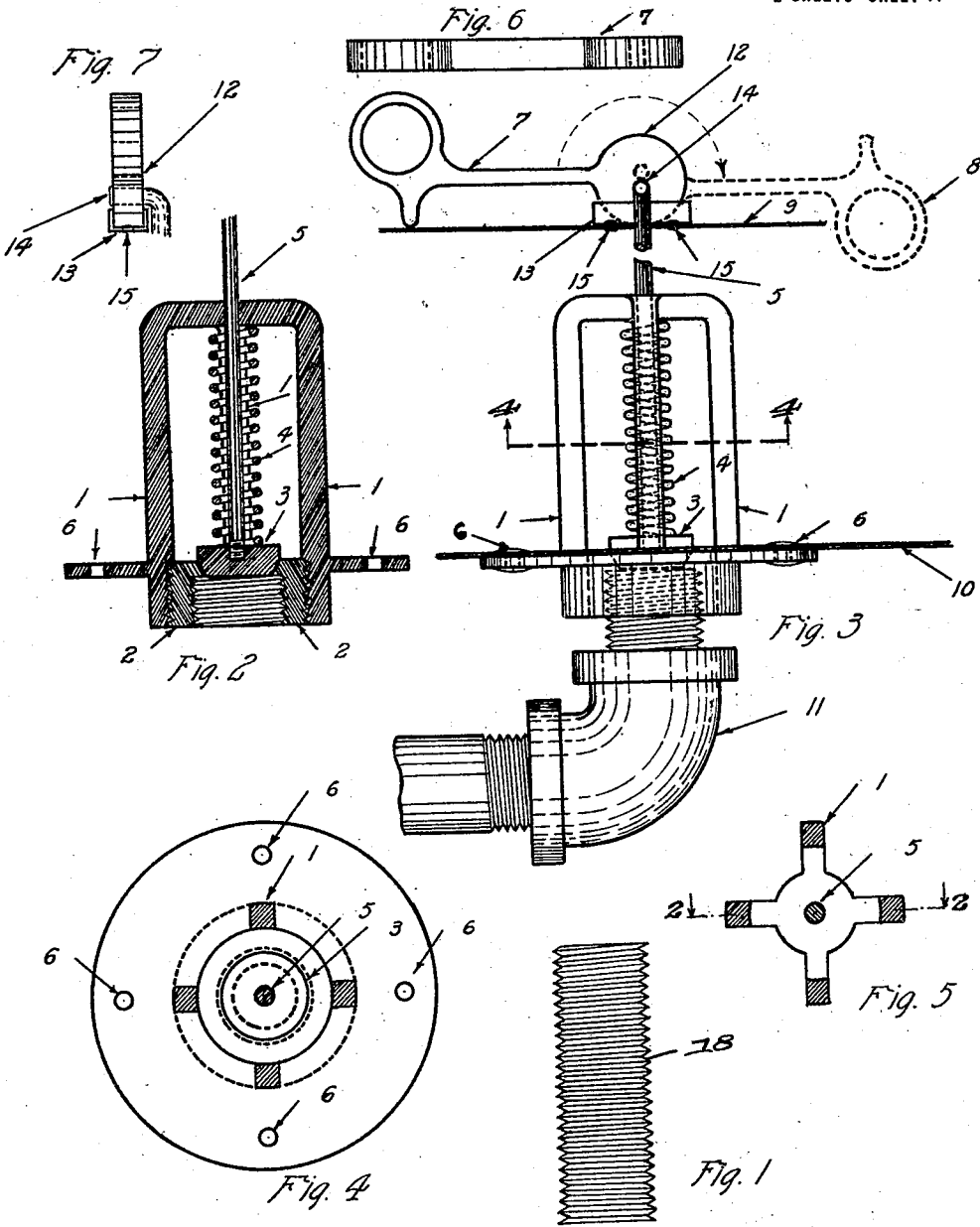


J. G. O'BRIEN AND F. A. PICARD.
FUEL RESERVE SUPPLY SYSTEM.
APPLICATION FILED MAY 27, 1920.

1,409,310.

Patented Mar. 14, 1922.

2 SHEETS—SHEET 1.



WITNESSES:
Lester J. Purcell
Emil A. Tassin.

J. G. O'Brien
F. A. Picard
INVENTORS

J. G. O'BRIEN AND F. A. PICARD.
FUEL RESERVE SUPPLY SYSTEM.
APPLICATION FILED MAY 27, 1920.

1,409,310.

Patented Mar. 14, 1922.

2 SHEETS—SHEET 2.

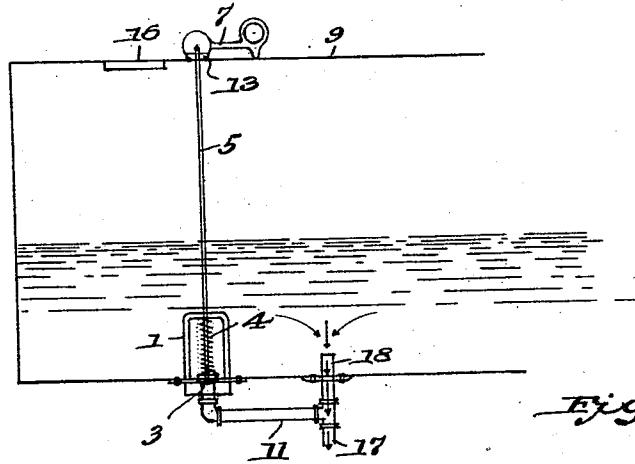


Fig. 8.

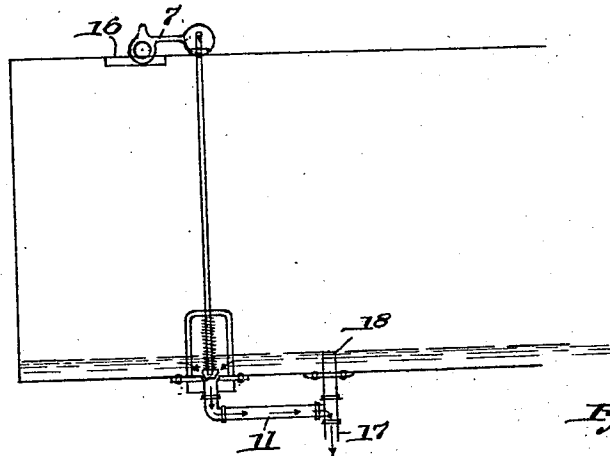


Fig. 9.

WITNESSES:

Wm. J. Purcell
Emil A. Tassin

J. George O'Brien
F. A. Picard INVENTORS

UNITED STATES PATENT OFFICE.

JOHN GEORGE O'BRIEN AND FRANK A. PICARD, OF SAGINAW, MICHIGAN.

FUEL-RESERVE-SUPPLY SYSTEM.

1,409,310.

Specification of Letters Patent.

Patented Mar. 14, 1922.

Application filed May 27, 1920. Serial No. 384,759.

To all whom it may concern:

Be it known that we, JOHN GEORGE O'BRIEN and FRANK A. PICARD, both being citizens of the United States, residing, respectively, at 1021 S. Park Street and 619 Atwater St., Saginaw, Saginaw County, State of Michigan, have invented certain new and useful Improvements in Fuel-Reserve-Supply Systems; and we do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same.

This invention relates to fuel reserve supply systems and pertains more particularly to reserve supply systems adapted for use with the tanks of internal combustion engines.

Our invention is especially well adapted to that class of fuel reserve supply systems in which means is provided for stopping the flow from the tank when the contents of the tank has been reduced to a quantity corresponding to the desired reserve. The user is thereby notified that the tank must soon be filled.

One object of our improvement is to provide a one-piece handle member which will comprise means not only for opening and closing the outlet of the tank, but will also engage the filling plug of the tank when the outlet valve is opened, so that the filling plug can not be removed and the tank refilled until the valve-operating member has been disengaged from the filling plug. Such disengagement will automatically close the outlet valve and thereby insure another reserve supply when the tank is re-filled.

Another object of our invention is to provide an improved valve of simple construction adapted to open and close by vertical movement and furthermore to provide means whereby the valve and its operating lever or handle can be easily and quickly attached to an existing fuel tank. The one-piece handle of the valve not only opens and closes the valve, but it also engages the filling plug when the valve is open and disengages the plug whenever the valve is closed, as above noted.

With the foregoing and certain other objects in view which will be hereinafter set forth, the invention comprises the devices described and claimed and the equivalents thereof.

In the drawings, Fig. 1 is a pipe nipple

used to connect the feed line with the fuel tank and adapted to project up into the tank a distance corresponding to the required reserve supply.

Fig. 2 is a vertical section on the line 2—2 of Fig. 5.

Fig. 3 is a side elevation of the valve and of a preferred form of handle by which the valve may be operated, the valve and handle being attached respectively to the bottom and top of a fuel supply tank.

Fig. 4 is a horizontal section taken on the line 4—4 of Fig. 3, showing the valve in position.

Fig. 5 is a horizontal section on the line 4—4 as viewed from below.

Fig. 6 is a top plan view of the operating handle shown in Fig. 3.

Fig. 7 is an end view of the parts shown in Fig. 6.

Figs. 8 and 9 are respectively diagrammatic side elevations of part of a tank with our improvement attached, Fig. 8 showing the valve closed and Fig. 9 showing it open.

As is clearly shown in the drawings, the device consists in a supporting bracket or cage 1 carrying a removable valve seat 2, the cage being adapted to be secured by means of rivets 6 to the bottom 10 of the fuel tank. The upper end of the cage is perforated to slidably receive a vertically movable stem of valve 3, which when closed rests upon the valve-seat 2.

Between the upper end of bracket 1 and the valve 3 is a compression spring 4 which surrounds the stem 5 and normally holds the valve in closed position.

The stem 5 projects through the top 9 of the tank and through the bottom of a bearing-trough 13, which is secured by rivets 15 to top 9. This bearing supports a suitable cam 12, to which the upper end of the stem 5 is eccentrically pivoted, as at 14.

The cam 12 is provided with a handle 7 which may be swung, in a vertical plane, say, from the position shown in full lines in Fig. 3, to the position indicated at 8 by dotted lines, the latter being the position of the handle when the valve 3 is open, and the former being the position when the valve is closed.

When the handle is in the position shown in Fig. 9, it rests upon and engages the filling cap 16, the valve being open. But when the valve is closed, as shown in Fig. 8, the handle 7 is clear of filling cap 16.

The tank being full, or partly filled and lever 7 being in the position shown in Fig. 8, and the valve 3 being closed, fuel feeds into the main feed line 17 through the pipe nipple 18 until the level indicated in Fig. 9 is reached. The supply then ceases, leaving a reserve supply in the bottom of the tank. The operator then lifts the valve 3, by turning the handle 7 until it engages filling cap 16, as in Fig. 9, thereby allowing the reserve to feed through pipe lines 11 and 17.

Before more fuel can be put into the tank, the handle 7 must be thrown back out of engagement with cap 16, as for example, to the position indicated in Fig. 8, permitting compression spring 4 to force valve 3 down upon its seat 2.

This arrangement makes it practically impossible for the user to forget to replenish his fuel. Having once drawn from the reserve supply it is not possible to refill the gasoline tank without first shifting the handle 7 to clear the cap 16, thereby also closing the valve 3. The closing of valve 3 automatically assures a new reserve supply.

The operator is thus safeguarded against using fuel from his reserve supply without first having received timely warning, so that he may replenish his supply before the latter is entirely gone.

We have accomplished the objects of our invention by employing the combination of a direct lift valve, a vertically movable stem and a single one-piece handle that performs two functions, namely, lifting the valve and automatically engaging the filling cap when the valve is lifted.

It is obvious that the one-piece handle, adapted to perform the double function just mentioned, may if desired, be so constructed as to move in a horizontal plane instead of in a vertical plane. We do not desire to confine the broader aspect of our invention to the specific form of handle, movable in a vertical plane, as shown in the drawings, but wish it understood that any equivalent of this one-piece handle, performing the said double function may be employed without departing from the spirit of our invention as set forth in the claims.

Having thus described our invention, what we claim and desire to secure by Letters Patent is:

1. In combination with a tank having an outlet and a filling cap, a vertically movable valve and stem, said stem projecting through the top of said tank, a handle, a free end of said handle adapted to removably engage said filling cap, means operatively connecting said handle to said stem, said means adapted to lift said stem and valve when the free end of said handle is in engagement with said cap, and to permit said valve to close when the free end of said handle is out of engagement with said cap.

2. In combination with a tank having an outlet and a filling cap, a vertically movable valve and stem, said stem projecting through the top of said tank, a handle on top of said tank, a free end of said handle adapted to removably engage said filling cap, a cam seat on said tank, a cam secured to said handle and pivotally connected to said stem, said cam adapted to lift said stem and valve when the free end of said handle is in engagement with said cap and to permit said valve to close when the free end of said handle is out of engagement with said cap, substantially as described.

3. In combination with a fuel tank having a reserve supply system, a filling cap, a vertically movable valve controlling the outlet of said supply system, a valve stem, a cam pivotally connected to the upper end of said valve stem, and a handle on said cam adapted to be moved in a vertical plane, the free end of said handle adapted to removably engage the filling cap of said tank.

4. In a fuel tank having a reserve supply system, a filling cap, a vertically movable valve and stem, a bearing trough on said tank, a cam movable in said trough, said stem pivoted to said cam, a handle on said cam, said handle adapted to be moved in a vertical plane to removably engage said filling cap, for the purposes set forth.

J. GEORGE O'BRIEN.
FRANK A. PICARD.