May 22, 1951 C. M. BARNES 2,553,888

CHECK VALVE FOR GASOLINE DISPENSING NOZZLES

Filed March 26, 1949

Fig. 1

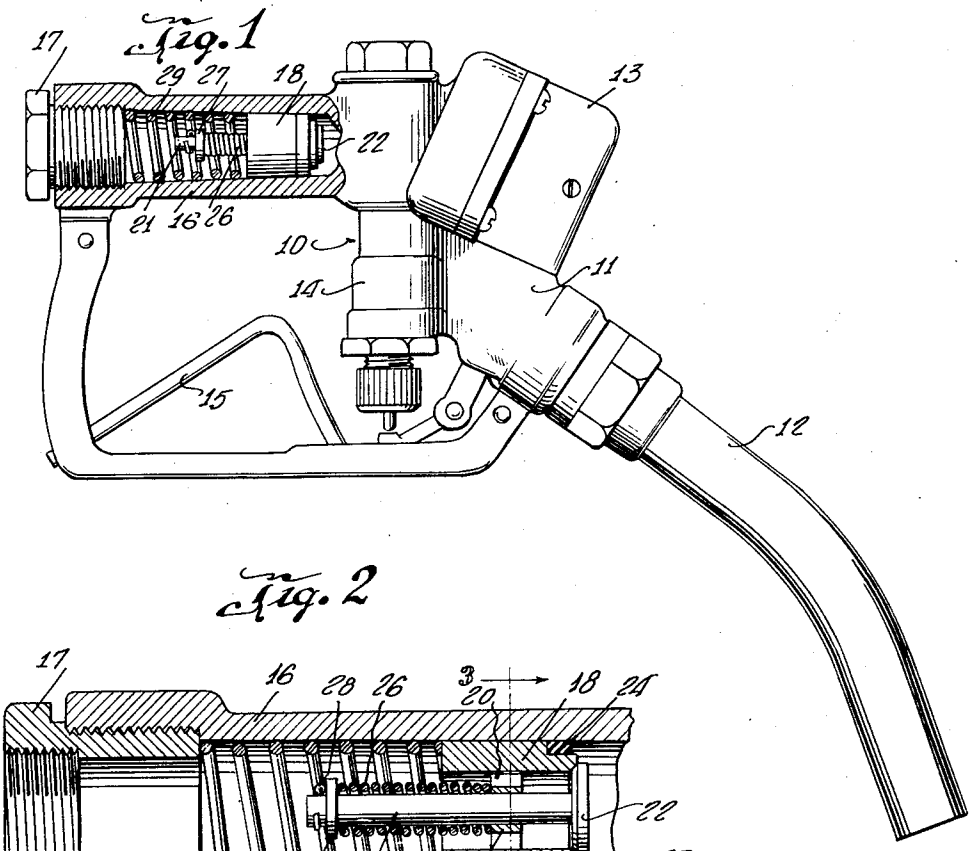
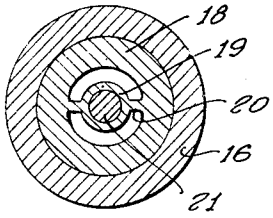



Fig. 2




Fig. 3




Charles M. Barnes
Inventor

By

Attorney

Patented May 22, 1951 2,553,888

# UNITED STATES PATENT OFFICE

2,553,888

## CHECK VALVE FOR GASOLINE DISPENSING NOZZLES

Charles M. Barnes, Childress, Tex.

Application March 26, 1949, Serial No. 83,578

1 Claim. (Cl. 226—129)

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This invention relates to nozzle valves for gasoline dispensing pumps and it has particular reference to a check valve auxiliary to the self closing nozzle valve of a gasoline pump dispensing hose.

The principal object of the invention is to provide a simple medium through which is obviated the failure of the conventional nozzle valve to evacuate all gasoline from the tube following each operation. Retention of some two or three ounces of gasoline in the valve body presents a hazard since this residue gasoline may be emptied by gravity simply by inverting the nozzle and such retention is in violation of the laws of most States governing such cases. To prohibit entrapment of gasoline in the valve body, the present invention incorporates a check valve in the small tube of the valve body through which gasoline flows from the hose in its passage to discharge when the main valve is opened. The check valve opens under pressure of the gasoline and closes under spring pressure when the gasoline flow is interrupted by the closing of the main valve and thus reduces to a minimum the capacity of the small tube in which the residue gasoline is ordinarily trapped.

With the foregoing and other objects in view, the invention has further reference to certain features of accomplishment which will become apparent as the description proceeds, taken in connection with the accompanying drawings wherein:

Figure 1 is a side elevational view, partly in section, showing the invention installed in the small tube of a conventional nozzle valve.

Figure 2 is a fragmentary sectional view on a slightly larger scale, and

Figure 3 is a transverse sectional view taken on line 3—3 of Figure 2.

Continuing with a more detailed description of the drawing, reference numeral 10 denotes generally the body of the conventional nozzle valve on which is formed an angular branch 11 adapted to receive a curved tube 12 through which gasoline is passed into the fuel tank of an automobile. A diaphragm housing 13 is attached to the valve body and contains mechanism for automatically shutting off the flow of gasoline after the tank becomes full. That portion 14 of the valve body 10 constitutes a casing for the main valve and attendant mechanism which is actuated by the valve operating lever 15 to open the body to the passage of gasoline from the hose, not shown, through the small tube 16 and to discharge through the tube 12.

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The flexible hose through which the gasoline flows from the pump to the nozzle is attached to the small tube 16 by means of the flanged nipple 17. In conventional practice, a form of check valve is installed in the end of the small tube 16 to which is attached the hose but this valve does not prevent entrapment of gasoline in the small tube, which has the capacity of approximately three ounces of gasoline.

The present invention consists of a sleeve 18 which is exteriorly tapered to correspond to the slightly tapered bore of the small tube 16 of the valve body. This sleeve has a concentric guide 19 therein retained by lateral webs 20 and through which extends the stem 21 of a valve 22. The valve 22 is disposed on a seat 23, defined by an annular recess 24 in which is retained a packing ring 25 of rubber or like material capable of resisting the deteriorating effects of gasoline. A compression spring 26 surrounds the stem 21 and bears at one end against the guide 19 within the sleeve 18 while the other end is retained by a ring 27, mounted on the stem and held by a cotter key 28.

The above described assembly is inserted into the open end of the bore of the small tube 16 and is thrust towards the opposite end by a coil spring 29 which is interposed between the sleeve and the threaded nipple 17. The sleeve 18 is of such diameter that it may be advanced in the tube bore to a point in near contiguity with the valve mechanism operating in the portion 14 of the body 10 but with sufficient intervening space to enable the valve 22 to fully open under pressure of gasoline flowing through the tube 16 but against the resistance of spring 26 whose function is to close the valve 22 when the main valve closes.

It has been stated that in conventional practice the small tube 16 actually constitutes a chamber in which a quantity of gasoline is entrapped and which creates an objectionable condition if not actually a hazard. It is clearly apparent from the foregoing that the invention reduces to a negligible degree the space in the small tube 16 which can be occupied by gasoline finding release from the nozzle after the same has been withdrawn from the full tank of an automobile or following operation of the main valve.

Manifestly, the construction as shown and described is capable of some modification and such modification as may be construed to fall within the scope and meaning of the appended claim is also considered to be within the spirit and intent of the invention.

What is claimed is:

In a gasoline dispensing nozzle, the combination comprising a body having a gasoline inlet tube provided with a tapered bore, an integral and right angular valve casing on the forward end of said inlet tube, a valve in said casing, a gasoline delivery tube connected to and in communication with said casing, an exteriorly tapered sleeve disposed in the bore of said inlet tube in juxtaposition to said casing and held against displacement in the direction of said casing by the taper of said bore, a flanged nipple threaded into the end of said inlet tube opposite said casing, a coil spring disposed in said tapered bore between said nipple and said sleeve, a valve seat in said sleeve, a valve on said seat and displaceable by pressure of gasoline in said tapered bore, a stem on said valve and spring means resisting displacement of said valve from said seat.



CHARLES M. BARNES.


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