April 16, 1929. F. W. HVOSLEF 1,709,576

LIQUID FEEDING DEVICE

Filed Nov. 28, 1927

Fig. 1.

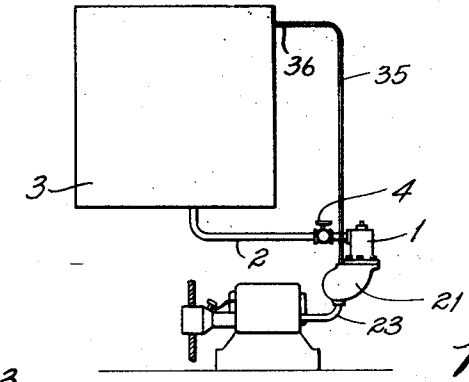


Fig. 2.

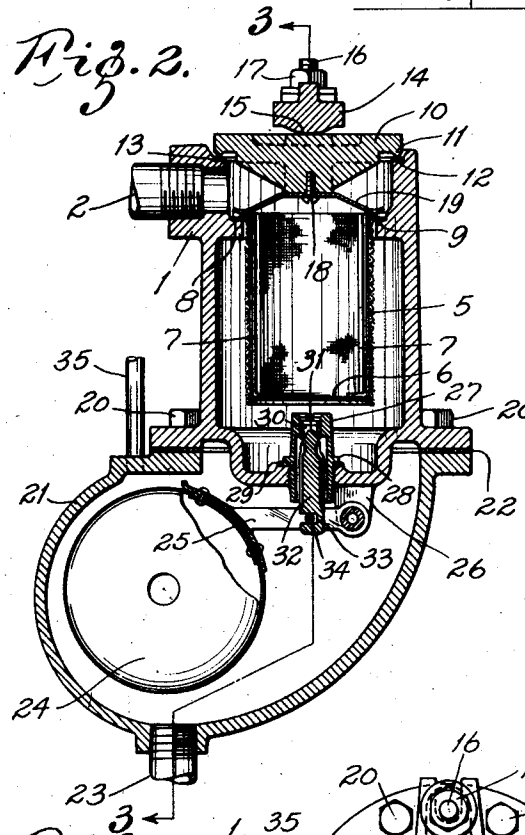


Fig. 3.

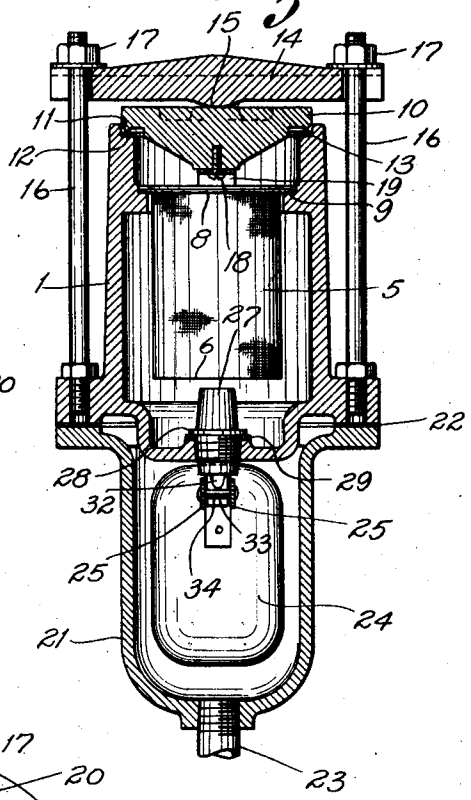
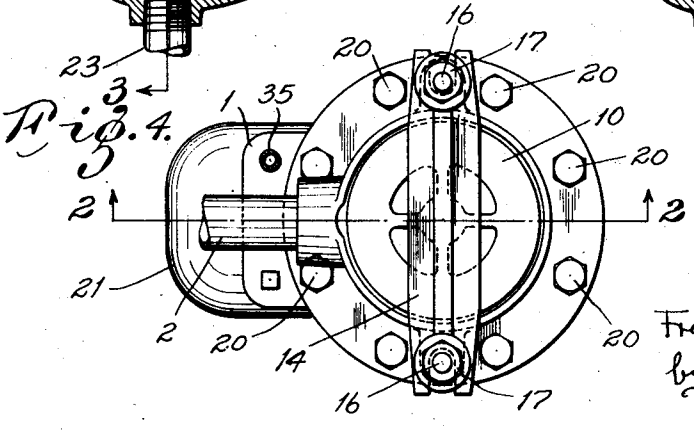


Fig. 4.



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UNITED STATES PATENT OFFICE.

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LIQUID-FEEDING DEVICE.

Application filed November 28, 1927. Serial No. 236,141.

My invention relates to devices for feeding liquid to oil burners or other devices requiring a liquid to be fed thereto under constant pressure. It has for its principal object a device which maintains a supply of liquid at a constant level. Further principal objects are to combine a strainer with a device for maintaining the head; to make it possible to remove the strainer for cleaning without losing any of the liquid, to make a device which will not corrode and to provide a valve that will not stick or clog.

The invention consists principally in the liquid feeding device and in the parts and combinations and arrangements of parts hereinafter described and claimed.

In the accompanying drawing wherein like reference numerals refer to like parts wherever they occur,

Fig. 1 is a diagrammatic elevation of a liquid feeding device embodying my invention;

Fig. 2 is a vertical sectional view on the line 2—2 of Fig. 4;

Fig. 3 is a vertical sectional view on the line 3—3 in Fig. 2; and

Fig. 4 is a top plan view.

An upper housing member 1 is provided with an inlet pipe 2 that is connected to a tank 3 or the like affording a supply of liquid such as fuel for an oil burner. A shut-off valve 4 is provided in the pipe line 2. Supported in said upper housing 1 is a strainer 5. The strainer 5 shown in the drawings has a solid bottom 6 to which are secured longitudinal stiffening members 7 and at the top is a ring 8 that rests on an annular ledge 9 in the housing 1.

A cap 10 is provided for the top of said housing 1, said cap having an annular rib 11 resting on a gasket 12 seated on an annular ledge 13 in said housing 1. Said cap 10 is held in position by means of a clamp bar 14 having a convexly curved surface 15 that engages the top of the cap 10. Said clamp bar 14 is held in place by bolts 16 and nuts 17. Secured to the under side of the cap 10, as by a screw 18, is a spring 19, preferably made of bronze, that engages the top of the strainer 5, to hold it in position.

Secured to the bottom of the upper housing 1, as by screws 20, is a lower housing 21, a gasket or packing ring 22 being inserted between the abutting portions of the two housings. At the bottom of said lower housing 21 is an outlet opening in which is mounted a pipe 23 that leads to a burner or other device. Mounted in said lower housing 21 is a float 24 to which are secured arms 25 that are pivotally secured to depending members 26 on the bottom of said upper housing 1. Threaded into a hole in the bottom of said upper housing 1 is a tubular member 27 that has an annular rib 28 that rests on a gasket 29 or packing ring in the bottom of said upper housing 1. Said tubular member 27 is provided with an internal sleeve 30 constituting a seat for a conical valve 31. Said valve is mounted on a valve stem 32 that has a notch 33 near its lower end in which seats a pin 34 secured to the arms 25 of said float member 24.

Fuel oil or other liquid entering the top of the upper housing 1 passes through the strainer 5 and through the tubular member 27 passes the valve 31 into the lower housing 21, whence it flows to the burner or other device. As the lower housing 21 fills up, the float 24 rises carrying with it the valve 31 and when the liquid reaches a certain level, the valve abuts against its seat 30, opening again when the liquid level drops and causes the float 24 to drop. Thus the liquid is kept at a constant level in the lower housing.

Extending into an opening in the lower housing is a pipe 35 that is connected with the vent pipe 36 of the main supply tank, thereby preventing any overflow in case the valve 31 should stick.

The position of the valve 31 minimizes the risk of the valve or its seat becoming clogged with foreign matter and failing to seat properly. By closing the shut-off valve 4, the cap 10 may be removed and the interior of the housing 1 inspected or the strainer 5 removed without any liquid being spilled. The various parts are made of materials that are not affected by the liquid being fed. In the case of oil for use in oil burners the valve 31, valve seat 30 and strainer 5 may be made of Monel metal and other parts in contact with the liquid may be made of brass or bronze so that danger of corrosion is minimized. Obviously numerous changes might be made without departing from the invention and I do not wish to be limited to the precise construction shown.

What I claim is:

1. A liquid feeding device comprising an upper housing having an inlet opening connected to a supply of liquid, said upper hous-

ing having an opening in the top, a cap for said opening, a clamp bar having a curved portion engaging said cap to hold it in place, a strainer in said housing through which the liquid passes, a lower housing secured to said upper housing and having an outlet opening between said housings, a valve seat in said opening, a float in said lower housing and a valve for said valve seat mounted to rise and fall with said float.

2. A liquid feeding device comprising an upper housing having an inlet opening connected to a supply of liquid, said upper housing having an annular ledge in its top, a gasket on said ledge, a cap having an annular rib on its under side resting on said gasket, a clamp bar secured to said housing and having a convexly curved portion engaging the top of said cap, a strainer in said housing through which the liquid passes, a lower housing secured to said upper housing and having an outlet opening, an opening between said housings, a valve seat in said opening, a float in said lower housing and a valve for said valve seat mounted to rise and fall with said float.

3. A liquid feeding device comprising an upper housing having an inlet opening connected to a supply of liquid, said upper housing having an annular ledge in its top, a gasket on said ledge, a cap having an annular rib on its under side resting on said gasket, a clamp bar secured to said housing and having a convexly curved portion engaging the top of said cap, a strainer in said housing through which the liquid passes, a bowed spring secured to said cap and engaging the top of said strainer, a lower housing secured to said upper housing and having an outlet opening, an opening between said housings, a valve seat in said opening a float in said lower housing and a valve for said valve seat mounted to rise and fall with said float.

4. A liquid feeding device comprising a tank containing a liquid supply, an upper housing having an inlet opening, a pipe leading from said tank to said inlet opening, a shut-off valve in said pipe, said housing having an annular ledge therein, a strainer having a ring at the top resting on said ledge, a spring in said upper housing engaging opposite side edge portions of said strainer to hold it on said ledge, a lower housing secured to said upper housing, and having an outlet opening, an opening between said housings, a valve seat in said openings, a float in said lower housing and a valve for said valve seat mounted to rise and fall with said float.

5. A liquid feeding device comprising an upper housing having an inlet opening connected to a supply of liquid, a strainer in said housing through which the liquid passes, a lower housing secured to said upper housing and having an outlet opening, an opening between said housings, a valve seat in said opening, a float in said lower housing, a member depending from the bottom of said upper housing, arms secured to said float and pivotally secured to said depending member, and a valve for said valve seat mounted between said arms.

6. A liquid feeding device comprising an upper housing having an inlet opening connected to a supply of liquid, a strainer in said housing through which the liquid passes, a lower housing secured to said upper housing and having an outlet opening, an opening between said housings, a valve seat in said opening, a float in said lower housing, a member depending from the bottom of said upper housing, arms secured to said float and pivotally secured to said depending member, a pin secured between said arms, a valve stem having a recess whereby it is mounted on said pin and a conical valve for said valve seat at the top of said valve stem.

7. A liquid feeding device comprising an upper housing having an inlet opening connected to a supply of liquid, a strainer in said housing through which the liquid passes, a lower housing secured to said upper housing and having an outlet opening, a vertically disposed tubular member in the bottom of said upper housing affording communication between said upper and lower housings, a valve seat in said tubular member, a float in said lower housing, a member depending from the bottom of said upper housing, arms secured to said float and pivotally secured to said depending member, and a valve for said valve seat carried by said arms.

8. A liquid feeding device comprising a tank containing a supply of liquid and having a vent pipe, an upper housing having an inlet opening connected to said tank, a lower housing secured to said upper housing and having an outlet opening, an opening between said housings, a valve seat in said opening, a float in said lower housing, a valve for said valve seat mounted to rise and fall with said float, and a vent pipe connecting said lower housing with said tank vent pipe.

Signed at Detroit, Michigan, this 23rd day of November, 1927.

FREDRIK W. HVOSLEF.

CERTIFICATE OF CORRECTION.

Patent No. 1,709,576. Granted April 16, 1929, to

FREDRIK W. HVOSLEF.

It is hereby certified that error appears in the printed specification of the above numbered patent requiring correction as follows: Page 2, line 7, claim 1, before the word "between" insert the words and comma ", an opening"; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 28th day of May, A. D. 1929.

M. J. Moore,
Acting Commissioner of Patents.

(Seal)