C. L. FRENCH.

LIQUID-STRAINER,

APPLICATION FILED JULY 14, 1913.

1,175,948. Patented Mar. 21, 1916.

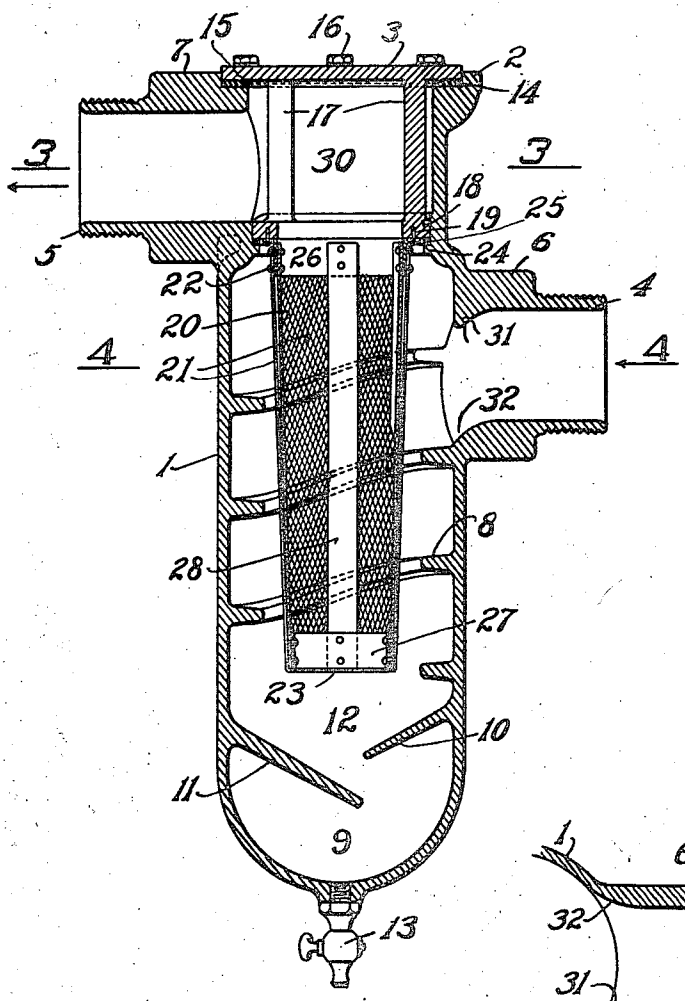


FIG. 1

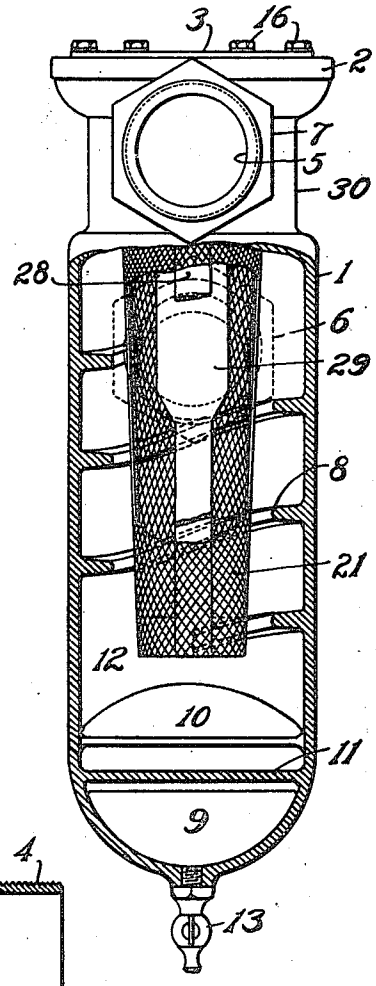


FIG. 2

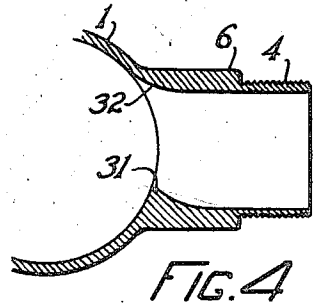


FIG. 4

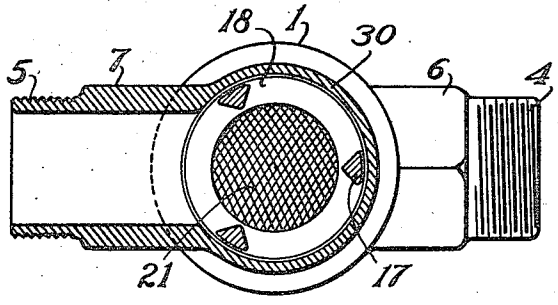


FIG. 3

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LIQUID-STRAINER.

1,175,948. Specification of Letters Patent. Patented Mar. 21, 1916.

Application filed July 14, 1913. Serial No. 779,041.

To all whom it may concern:

Be it known that I, CHARLES L. FRENCH, of Cambridge, in the county of Middlesex and State of Massachusetts, have invented certain new and useful Improvements in Liquid-Strainers, of which the following is a specification.

This invention relates to straining devices for liquids, and more especially to the straining of gasolene or other light oils, for the purpose of removing the dirt and water.

The description which follows, with the accompanying drawings which form part of this specification, embody one form of the invention suitable for the straining and cleaning of gasolene for automobile use, etc.

In the drawings, Figure 1 is a longitudinal, sectional elevation through the center. Fig. 2 is an end elevation, with parts broken away. Fig. 3 is a sectional plan view on line 3—3, Fig. 1. Fig. 4 is a partial sectional plan view on line 4—4 of Fig. 1.

The shell 1, preferably of metal construction, is in the form of a round-bottomed cylinder with an open top 2, the latter being suitably recessed to receive a gland 3 of somewhat peculiar construction, which will be later described. The inlet nozzle 4 and the discharge nozzle 5 are preferably formed integral with shell 1, and are threaded for connection to a suction tube and to suitable pump connections. As it is desirable that these nozzles should be and remain in alinement, this integral form of construction constitutes a valuable, though not indispensable feature of this invention. Both of the nozzles 4 and 5 are equipped with suitable wrench-holds to facilitate the "making-up" of the adjoining parts, these wrench-holds being numbered, in the drawings, 6 and 7, respectively.

A helical tooth or thread 8, formed integral with the inner wall of shell 1 serves to impart a whirling motion to the incoming liquid and to guide the dirt and heavier liquids, which are to be retained, downwardly to a pocket or well 9, at the bottom of shell 1. To guard against the possible stirring up of this refuse, I provide a pair of inwardly and downwardly projecting shelves 10 and 11, which, while assisting the entrance of dirt and water to pocket 9, prevent their being drawn back into the main chamber 12. A pet-cock 13, projecting vertically from the bottom of pocket 9, serves the purpose of removing these residuals, when desired.

Gland 3 is formed to effectually close the opening in the top 2, being assisted by a packing washer 14, of lead or other suitable material. A V-shaped ring 15, formed integral with the gland 3, is adapted to be pressed into the washer 14 when bolts 16 are tightened, and thus increase its efficiency. As this joint is made up in the shop, there need be no apprehension of leakage; more especially as this joint is not subject to whatever pressure there may be between the screening means and the pump.

The means for straining the liquid will now be described.

The gland 3 supports, through the agency of several depending legs 17, an annular ring 18, formed to fit snugly within the upper part of shell 1, so as to be between the inlet and outlet passages. Depending from ring 18, and secured thereto by screws 19, is an open metal frame 20 adapted to receive and support a screen 21, whose mesh is of suitable fineness to pass the oils and to retain the water and dirt. This screen 21 is shown as being secured to the frame 20 by means of the rivets 22, and the lower end is closed to cover the bottom opening in frame 20, as seen at 23, Fig. 1. Below ring 18, and integral with the shell 1, is a shelf 24 which forms a support for an asbestos packing ring 25 to assist in closing the joint between ring 18 and the shell.

As seen in the drawings, frame 20 comprises an upper, flanged ring 26 and a lower metal ring 27, united by strips 28, one of which, (facing the inlet opening) is widened at the upper end, as shown at 29, Fig. 2. By means of this widening, the incoming liquid is prevented from entering the screen without passing partly or wholly around it. As the liquid passes around, it is guided by the helical tooth 8 into a downwardly whirling path, giving to the liquid a scouring action tending to keep clean the surface of the screen. The dirt and water will be deposited within the pocket 9, and the shelves 10 and 11 prevent the whirling liquid within chamber 12 from catching them up and keeping them stirred up. It is thus seen that all liquid that reaches the discharge opening 5 must first pass through screen 21, and as it must be raised also, gravity assists in the separation of the heavier oils or water, if

such there be. The large screen area presented to the liquid will permit of a finer mesh being used, and the frame 20 tends to keep the screen from buckling or crushing under the pressure from the pump.

By forming the inlet and outlet wrench-holds 6 and 7 integral with shell 1, I not only secure a very compact and close device, but insure the continued alinement of the inlet and discharge ports, and guard against the possible leakage incident to made-up joints.

In addition to the increased efficiency and economy of space, my strainer is simple and cheap in construction, due to the small amount of machine work necessary, and more durable and cheaper to maintain than those having more parts and joints.

It will be noticed that the open top 2 provides a very simple and effectual means of assembling the strainer.

In Figs. 1 and 4, there is illustrated a guiding lip or projection 31 on the inlet nozzle 4. This lip serves to give direction to the incoming liquid so that its main current is deflected from direct impact against the screen 21. Opposite this lip 31, the inlet passage is cut away, as at 32, partly to assist in the deflection of the liquid and partly to compensate for the choking effect of the lip 31.

What I claim is:—

1. A liquid strainer comprising a vertically disposed casing; an inlet and an outlet port positioned on opposite sides of said casing and centrally disposed with relation to a vertical plane passing through the vertical axis of said casing, said ports being adapted to form suspending means for said casing; and a cup-shaped screen uprightly secured within said casing and interposed between said ports, said screen being adapted to separate gasolene from heavier liquids; in combination with means to deflect the incoming liquid, said means including a supporting frame for said screen adapted to prevent the incoming liquid from passing directly therethrough.

2. A liquid strainer comprising a vertically disposed casing; an inlet and an outlet port positioned on opposite sides of said casing; and a cup-shaped screen uprightly secured within said casing and interposed between said ports; in combination with means to deflect the incoming liquid, said means including a supporting frame for said screen adapted to prevent the incoming liquid from passing directly therethrough.

3. A liquid strainer comprising a vertically disposed casing; an outlet port for said casing; an inlet port for said casing, said inlet port being centrally arranged with respect to a vertical plane passing through the vertical axis of said casing; and a metal screen secured within said casing and interposed between said ports; in combination with means to momentarily deflect the incoming liquid, said means including a lip fast at said inlet port and partially surrounding the delivery end of same.

In testimony whereof, I have affixed my signature, in presence of two witnesses.

CHARLES L. FRENCH.

Witnesses:
A. T. PALMER,
ARTHUR E. THAYER.