May 21, 1929. S. A. YELMGREN 1,714,338

CATCH BOWL FOR OIL TRUCKS, OIL PUMPS, AND PIPE LINES

Filed Dec. 12, 1927

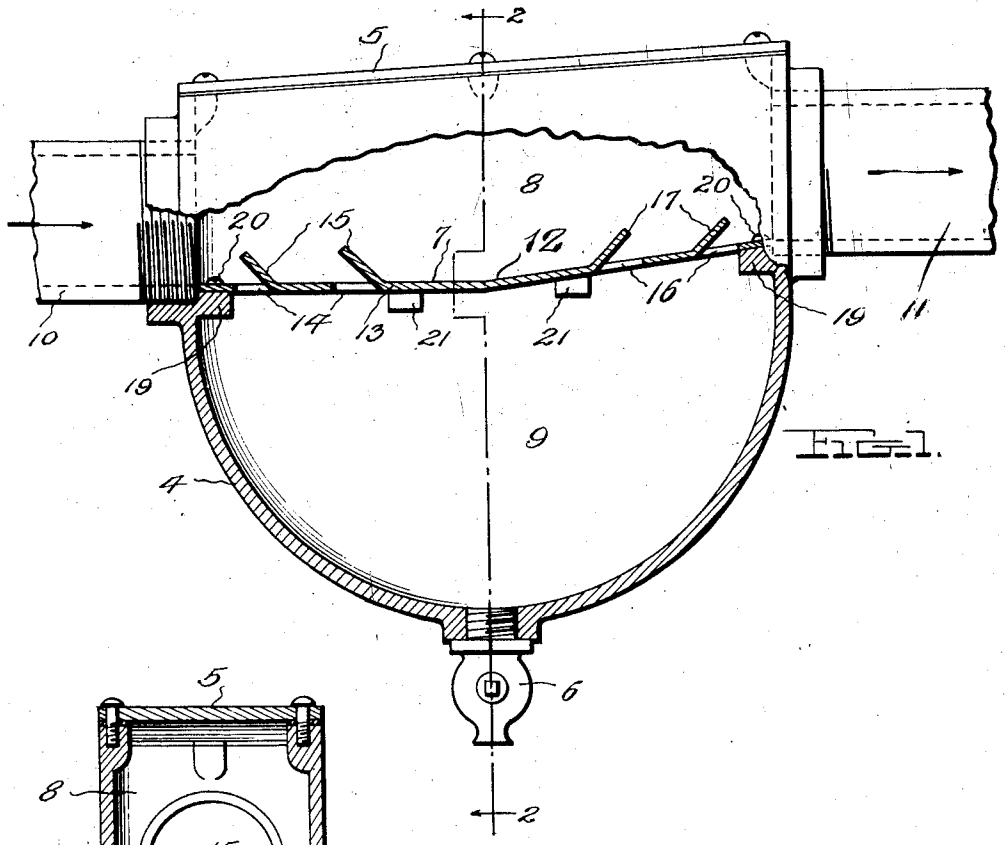


FIG. 1.

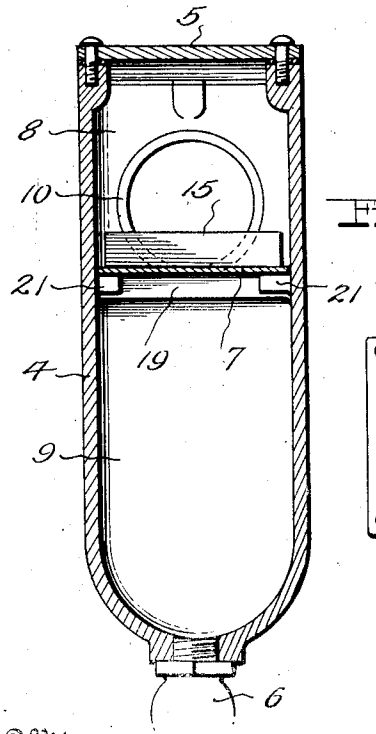


FIG. 2.

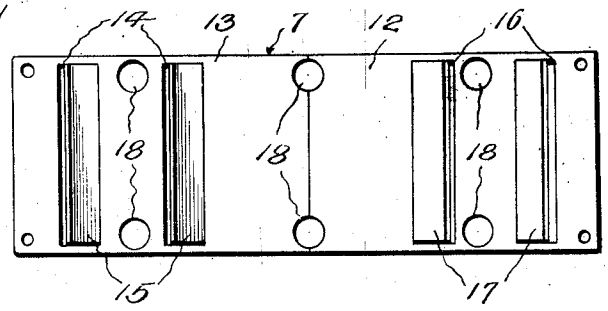


FIG. 3.

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UNITED STATES PATENT OFFICE.

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CATCH BOWL FOR OIL TRUCKS, OIL PUMPS, AND PIPE LINES.

Application filed December 12, 1927. Serial No. 239,532.

The invention relates to devices for separating liquids of different specific gravity and for cleaning the lighter liquid of comparatively heavy foreign matter held in suspension therein. The device is particularly advantageous for separating water and any solid dirt from oil or gasoline.

It is the object of the invention to provide an exceptionally simple and inexpensive, yet an efficient and reliable device of the class set forth, and with this object in view, the invention resides in the novel subject matter hereinafter described and claimed, the description being accomplished by reference to the accompanying drawing.

Fig. 1 is a longitudinal sectional view partly in elevation of a catch bowl constructed in accordance with my invention.

Fig. 2 is a vertical transverse sectional view on line 2—2 of Fig. 1.

Fig. 3 is a top plan view of the partition which extends horizontally across the bowl below the liquid inlet and outlet and is provided with means for separating the lighter liquid from the heavier liquid, etc.

The drawing above briefly described illustrates the preferred form of construction, and while this construction will be herein specifically described, it is to be understood that within the scope of the invention as claimed, variations may be made.

The numeral 4 denotes a bowl or casing entirely open at its upper end and provided with a removable cover 5 and equipped at its lower end with a suitable drain valve or the like 6. The casing or bowl 4 is horizontally partitioned by a plate 7 into upper and lower chambers 8—9, the liquid inlet 10 and the liquid outlet 11 being in communication with said upper chamber, with their lower sides substantially flush with the upper side of the plate 7. Preferably, the outlet 11 is somewhat higher than the inlet 10 and the portion 12 of the plate 7, toward said outlet, is inclined to the latter, whereas the other end portion 13 of said plate is horizontal. End portion 13 is formed with a plurality of transverse slots 14 and is provided with transverse flanges 15 which incline toward the inlet 10 from the edges of said slots remote from said inlet. The end portion 12 of the plate 7 is formed with a plurality of transverse slots 16 and with transverse flanges 17. These flanges incline toward the outlet 11, from the edges of the slots 16, remote from said outlet, the slots 14 and 16 and the flanges 15 and 17 extending continuously or uninterruptedly across the plate to near the opposite longitudinal edges thereof as shown in Figs. 2 and 3 of the drawing.

When liquid is introduced into the device as indicated by the left-hand arrow of Fig. 1, the heavier liquid is naturally below the lighter and will be caught by the flanges 15 and directed into the collecting chamber 9. Owing to the inclination of the end portion 12 of the partition plate 7, the pressure will be greater toward the outlet 11 and hence the heavier liquid remains in the chamber 9 until the latter is so full that said liquid rises above the partition plate 7. The flanges 17 will catch any sluggish or foreign matter that may be in the liquid flowing over the plate 7 and will upwardly direct the lighter liquid while the heavier foreign matter will drop over these flanges and through the slots 16, into the chamber 9. Any desired number of the flanges 15 and 17 may be provided. Usually, there is one flange 15 for each inch of diameter of the inlet 10 and one flange 17 for each inch of diameter of the outlet 11.

In addition to the details above described, the longitudinal edge portions of the plate 7 may be formed with openings 18, through which any heavy liquid which may be sliding along the edge portions of said plate, may descend into the chamber 9.

The plate 7 may be mounted in any desired manner within the bowl or casing 4. For illustrative purposes, I have shown its ends secured upon ledges 19 by means of screws 20, while the longitudinal edge portions of said plate may rest on lugs 21.

On account of the excellent results obtainable from the details disclosed, they are preferably followed. However, within the scope of the invention as claimed, variations may be made.

I claim:

1. A liquid separator comprising a casing having in one end of its upper portion an inlet opening and in the opposite end of said upper portion an outlet opening, said outlet opening being in a plane above the plane of said inlet opening, a partition plate arranged transversely within said casing and dividing the latter into upper and lower chambers, substantially one half of said plate being on a level with the lower edge of said

inlet opening, the other half of the plate inclining upwardly to the lower edge of said outlet opening, transverse slots in the inlet and outlet portions of said plate, said slots extending from one longitudinal edge to the other longitudinal edge of the plate, and means on said partitions for effecting passage of heavy liquid and particles through said slots.

2. A liquid separator comprising a casing having in one end of its upper portion an inlet opening and in the opposite end of its upper portion an outlet opening, said outlet opening being in a plane above the plane of the inlet opening, a partition plate arranged transversely within said casing and dividing the latter into upper and lower chambers, substantially one half of said plate being on a level with the lower edge of said inlet opening, the other half of the plate inclining upwardly to the lower edge of said outlet opening, a transverse slot in the inlet portion of said plate, said slot extending from one longitudinal edge to the other longitudinal edge of the plate, a similar transverse slot in the outlet portion of said plate, and extending from one longitudinal edge to the other longitudinal edge of the plate, additional openings along the longitudinal edges of the plate between said slots, liquid deflecting flanges on said plate, one of said flanges projecting from the edge of the transverse slot in the inlet portion of the plate remote from the inlet end of the casing and inclining in the direction from which the liquid flows, the other liquid deflecting flange projecting from the edge of the transverse slot in the outlet portion of the plate remote from the outlet end of the casing and inclining in the direction of the flow of the liquid, and a valve in the lower portion of the casing.

3. A liquid separator comprising a casing entirely open at its top, a removable cover for said open top, said casing having in the opposite ends of its upper portion inlet and outlet openings, said outlet opening being in a plane above the plane of the inlet opening, a transverse partition plate detachably secured in said casing and dividing the latter into upper and lower chambers, said plate being of considerably greater width than the diameter of said inlet and outlet openings but removable through said open top of the casing, substantially one half of said plate being on a level with the lower edge of said inlet opening and the other half inclining upwardly to the lower edge of said outlet opening, said plate being formed with transverse heavy liquid discharging passages and means on said plate for effecting passage of heavy liquid and particles through said passage.

In testimony whereof I have hereunto affixed my signature.

SVEN AUGUST YELMGREN.