July 8, 1952 O. C. GOEHRING 2,602,465

INLET TUBE FOR STORAGE TANKS AND THE LIKE

Filed Oct. 18, 1949

FIG. 1

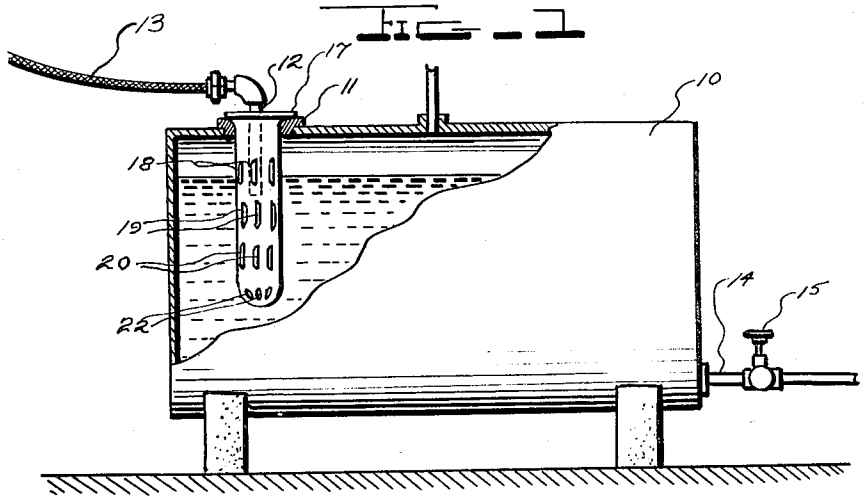
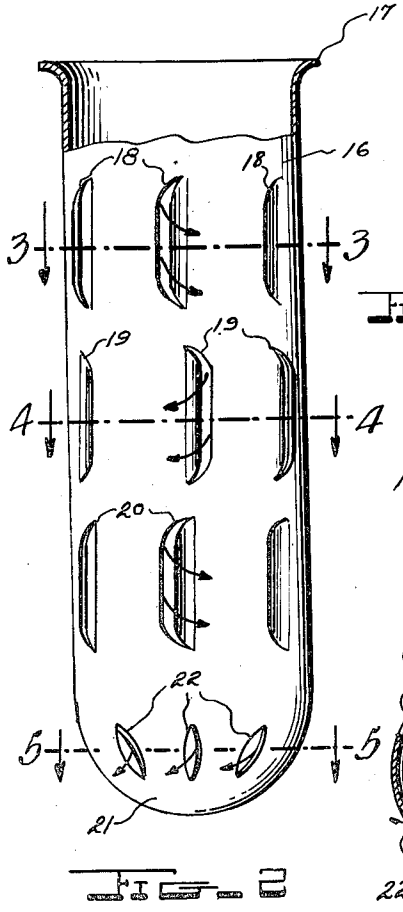


FIG. 3



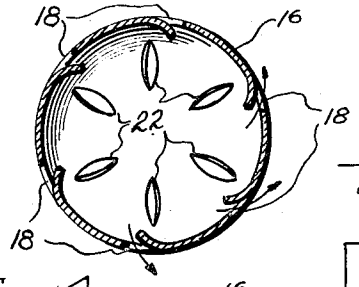


FIG. 4

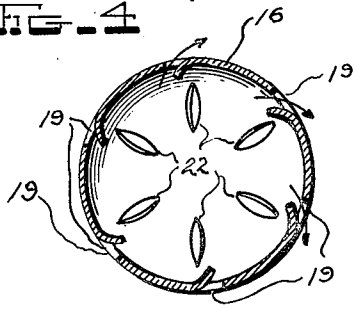


FIG. 6

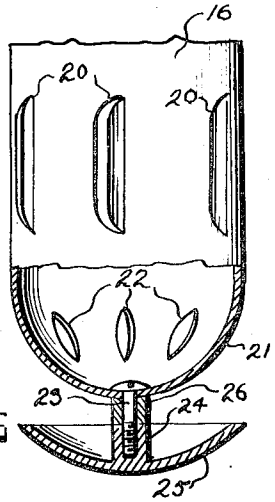


FIG. 5

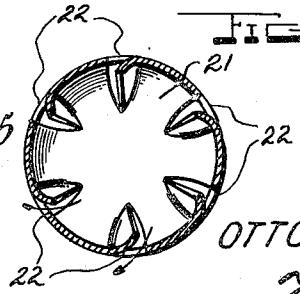


FIG. 2

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INLET TUBE FOR STORAGE TANKS AND THE LIKE

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Application October 18, 1949, Serial No. 121,915

1 Claim. (Cl. 137—582)

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The present invention relates to an inlet tube for storage tanks and the like and it consists in the combinations, constructions and arrangements of parts herein described and claimed.

Generally the invention comprises a tube designed to be vertically arranged in a storage tank or the like and which serves the purpose of distributing incoming fluid in such a manner that sludge or sediment normally found in the bottom of such tanks will not be disturbed by the inflow of such fluid. This is accomplished by providing in the tube several series of vertically arranged louvers, each series comprising a circumferentially disposed row of spaced louvers and each series being arranged in vertical spaced arrangement with the next series. Again, the louvers in each row are all directed in a certain direction while each next succeeding row is directed in an opposite direction. The tube is provided with a rounded bottom and the bottom itself is provided with a row of relatively smaller louvers. The total area of all of the louvers in the tube is so arranged that such combined area is greater than that of the cross sectional area of the pipe delivering fluid thereto so that alternate general swirling currents of fluid will pass through the various louvers in lateral direction and will in a great measure counteract one another so that little, if any, disturbance is had in the fluid lying in the bottom of the tank and hence practically no disturbance of the sludge or sediment which may be contained in the bottom of the tank.

It is accordingly an object of the invention to provide a device of the character set forth which is simple in construction, inexpensive to manufacture and yet effective and efficient in use.

Another object of the invention is the provision of a device of the character set forth having means for the prevention of direct downward flow of fluid emanating from an inlet pipe of a tank.

Another object of the invention is the provision of novel means for creating counteracting currents in fluid emanating from an inlet pipe of a tank or the like.

A further object of the invention is the provision, in a device of the character set forth, of a novel arrangement of louvers, forming a part of the invention.

A still further object of the invention is the provision of a novel shield forming a part of the invention.

Other and further objects of the invention will become apparent from a reading of the following specification taken in conjunction with the drawing, in which:

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Figure 1 is a side elevational view, partly broken away, of a storage tank having an embodiment of the invention mounted therein,

Figure 2 is an enlarged elevational view, partly broken away, of a device embodying the present invention,

Figure 3 is a sectional view taken along line 3—3 of Figure 2,

Figure 4 is a sectional view taken along line 4—4 of Figure 2,

Figure 5 is a sectional view taken along line 5—5 of Figure 2, and

Figure 6 is a fragmentary elevational view, partly broken away, illustrating a shield attachment which may be utilized as a part of the invention.

Referring more particularly to the drawing, there is shown therein a storage tank 10 having an inlet fitting 11 in which is disposed an inlet pipe 12 which is, in turn, connected with a fill line 13. The tank 10 is also provided at its lower end with an outlet or discharge pipe 14 which may be provided with a valve 15.

The embodiment of the present invention which is illustrated herein is in the form of a vertically extending tube 16 having an outwardly flared lip 17 at its upper end which lip is adapted to engage the upper surface of the fitting 11 to maintain the tube 16 in vertically dependant position within the tank 10.

Adjacent the upper end of the tube 16 there is provided a circumferentially arranged row of louvered openings 18 which, as viewed in Figure 3, will act to direct fluid passing therethrough in a counterclockwise direction.

Immediately below the row of openings 18 is a like row of openings 19 which is so arranged as to deliver fluid therethrough, when viewed as in Figure 4, for example, in a clockwise direction. Immediately below the row of openings 19 is a like row of openings 20 which openings 20 are identical in all respects with the row of openings 18, that is to say, that such openings when viewed in the same direction as those indicated at 18 will likewise deliver fluid therefrom in a counterclockwise direction.

The tube 16 is provided with a rounded bottom 21 which is provided with a series of spaced, circumferentially arranged, relatively small louvered openings 22 which are adapted to deliver, when viewed in the direction of the arrows along line 5—5 of Figure 2, in a clockwise direction. With regard to the rows of openings 18, 19 and 20, it will be understood that additional rows of such openings may be utilized where necessary or de-

sirable and that such rows will likewise alternate in the direction of more fluid therefrom.

In Figure 6 there is shown a modification of the invention wherein the bottom **21** has a screw **23** extending centrally therethrough to engage a dog **24** formed centrally upon the concave side of a disc-like baffle plate **25**. A spacer element **26** may be interposed between the dog **24** and the bottom **21** upon the screw **23**.

In the operation of the device it will be apparent that when it is necessary to refill the tank **10** with fluid that such fluid will be passed through the intake pipe **12** to the interior of the tube **16** and that it will then flow in a series of alternately directed whirling currents from the rows of openings **18**, **19** and **20** and at the same time, a relatively small amount of fluid will flow through the louvered openings **22** in a whirling current of fluid.

It will also be apparent that the currents emanating from the openings **18** will in some measure counteract the flow of fluid from the openings **19** since such flow from the openings **18** is directed counter to the flow from the openings **19** and that the same is true with respect to the openings **19** and **20** and also with respect to the openings **20** and **22** and that therefore any swirling motion of the fluid emanating from the various openings is counteracted to a great degree and with the net result that the fluid will emanate from the various openings in a gentle manner so that sediment or sludge which may have collected previously in the bottom of the tank **10** will in no way be disturbed by the refilling of the tank **10**.

In the form of the invention shown in Figure 6, any directly downward movement of fluid which may emanate from the openings **22** will be deflected by the concave side of the plate **25** in an upward and outward direction and thus will be kept from a direct impact against the bottom of the tank **10**.

While but two forms of the invention have been shown and described herein, it will be readily apparent to those skilled in the art that many minor modifications may be made without departing from the spirit of the invention or the scope of the appended claim.

What is claimed is:

A device of the character described comprising a vertically extending elongated tube having a closed bottom, a series of circumferentially arranged rows of vertically extending louvered openings in the walls thereof, said louvers of each of said rows of louvered openings extending in a direction to deliver fluid therefrom in a horizontal direction opposite to the delivery of its adjacent row, said bottom having a row of relatively smaller circumferentially arranged louvered openings therein, and said row of openings in the bottom being arranged to deliver fluid in a horizontal direction opposite to the direction of flow from the adjacent row of openings in the wall of the tube, and a concavo-convex baffle plate affixed in spaced relation to the bottom of the tube with its concave side uppermost.

OTTO C. GOEHRING.

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