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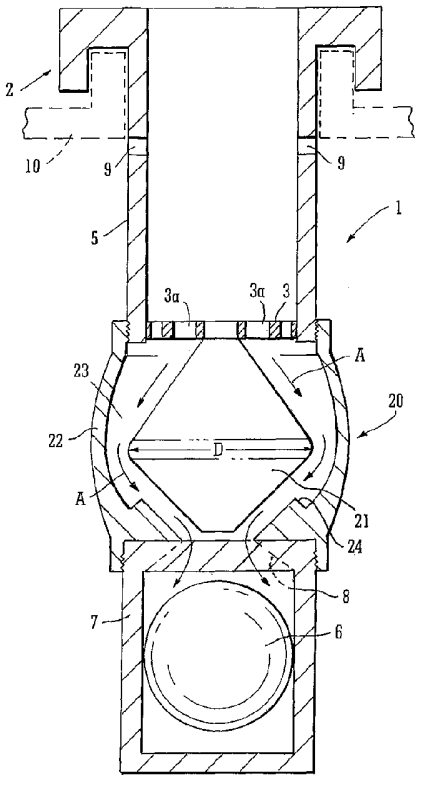

(57) Abstract: A fluid tank inlet assembly comprises an inlet pipe (5) extending from a mounting structure (2) located at its proximal end. A float valve assembly (7) is disposed beyond the distal end of the inlet pipe (5) and includes a float member (6). An obstruction is located within a housing (22) between the inlet pipe (5) and the float member (6) . The obstruction (21) blocks line of sight from the inlet pipe (5) to the float member (6), but a flow path (23) is defined between the obstruction (21) and the housing wall to allow fluid flow to the float valve assembly (7) around the obstruction (21).

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ANTI SIPHON TANK INLET

The present disclosure relates to inlets for fluid tanks such as a vehicle fuel tanks. In particular the present disclosure also relates to an anti-siphon inlet for a fluid tank such as a vehicle fuel tank.

The theft of fuel by siphoning from the fuel tanks of vehicles, and in particular commercial road vehicles, is a recognised problem. It is conventional to fit vehicles with a lockable fuel tank filler cap to prevent unauthorised access to the tank inlet. However, since the fuel filler cap is accessible it is vulnerable to tampering and can often be forced open by the determined thief. In addition, it is not always practical to fit a vehicle with a lockable fuel filler cap.

This problem has been addressed in the prior art by provision of a fluid tank inlet pipe incorporating structure to prevent insertion of a siphon tube into the tank.

For example, US patent number 3,951,297 discloses an anti-siphon fluid tank inlet assembly comprising a tubular inlet body which in use is secured to the normal tank inlet so that its distal end extends a short distance in to the tank. The tubular inlet is designed to receive a conventional fuel dispensing nozzle. A conically shaped guard member is provided at the open distal end of the tubular inlet so that an annular gap is defined between the conical member and the interior of the tubular body to allow fuel to flow from the dispenser nozzle into the tank. Breather holes are provided in the tubular inlet adjacent the tank inlet to allow the escape of air/gas from the tank as it is filled. The conical guard member is provided to prevent insertion of a siphon tube through the tubular inlet and into the tank below. A problem with this simple device is that it is still possible to siphon fuel from the tank when the fuel level is above the height of the distal end of the tubular inlet. Although the tubular body may only extend a relatively short distance in to the tank, for instance of the order of 20cm, this can nevertheless leave exposed a significant volume of fuel.

The above problem is addressed by anti-siphon inlet assemblies provided with a float valve as for instance disclosed in the applicant's co-pending GB application number GB 0 322 594. This has a float valve provided at the inner (distal) end of an inlet pipe. The float valve comprises a ball float retained in an apertured float chamber (or cage) and which seats against a valve seat defined at the end of the inlet pipe when the fuel level in the tank is above the end of the inlet pipe to thereby prevent fuel flow back through the pipe. A grill is fitted in the inlet pipe above the valve seat to prevent a siphon tube being used to force the ball valve away from its

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seat. If the fuel level in the tank lies below the end of the inlet pipe, the ball valve will simply drop away from its seat allowing fuel flow through the apertures in the float chamber. Nevertheless, the grill will prevent insertion of a siphon tube into the fuel. When the fuel level is above the end of the inlet pipe, fuel can still flow through the float valve under pressure from the dispensing nozzle. With this assembly only fuel which may be present within the inlet pipe itself can be siphoned. Breather holes are provided in the inlet pipe towards the upper end of the pipe at the inlet to the tank, but at a height which will typically be above the maximum filling level of the tank.

Further examples of anti-siphon inlet assemblies provided with a float valve are disclosed in US Patent US 1 995 007 and French patent FR2534888.

The above references to the background art do not constitute an admission that the art forms a part of the common general knowledge of a person of ordinary skill in the art. The above references are also not intended to limit the application of the method and system as disclosed herein.

In some cases it may be possible to insert an elongate rigid member, such as a stiff length of wire, into the inlet assembly and through the grill protecting the float valve assembly in order to push the float member away from its seat. If this is done, it could then be possible to siphon off any fuel at a level above the level of the grill within the inlet pipe.

According to a first aspect of the present disclosure there is provided a fluid tank inlet assembly comprising:

an inlet pipe extending from a mounting structure located at its proximal end;

a float valve assembly disposed beyond the distal end of the inlet pipe and including a float member;

a fixed obstruction located within a housing and disposed between the proximal end of the inlet pipe and the float member;

wherein the obstruction blocks any line of sight from an opening at the proximal end of the inlet pipe to the float member; and

wherein a flow path is defined between the obstruction and the housing wall to allow fluid flow to the float valve assembly around the obstruction.

In one form, a fluid inlet assembly is provided wherein said flow path that is an annular flow path surrounding the obstruction.

In one form, a fluid inlet assembly is provided wherein the radial width of the annular flow path varies along the axial length of the housing, decreasing from the

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proximal end of the housing towards a minimum and then increasing from said minimum towards the distal end of the housing.

In one form, a fluid tank inlet assembly is provided wherein the opening at the proximal and/or distal end of the inlet pipe is defined by an annular member located within or adjacent the respective end of the inlet pipe.

In one form, a fluid tank inlet assembly is provided wherein an annular rim, ledge, or the like is defined around the internal wall of the housing at a location between a maximum diameter portion of the obstruction and the float valve. This may substantially inhibit insertion of a flexible member around the obstruction.

In one form, a fluid tank inlet assembly is provided wherein a rim is provided by an annular ring having a central aperture allowing fluid flow to the float valve assembly and a radial width, and provided with a circumferential array of axial bores of diameter less than the radial width to allow fluid flow therethrough.

In one form, a fluid tank inlet assembly is provided wherein the ring has an annular channel defined within its radial width, the upstream openings of said bores being defined within said annular channel.

In one form, a fluid tank inlet assembly is provided wherein the ring is either defined by the inner wall of the housing, defined by the float valve assembly around an opening to the float valve assembly, or provided by a separable component secured to the housing or to the float valve assembly.

In one form, a fluid tank inlet assembly is provided wherein the float valve assembly comprises said float member held within a float chamber, an annular valve seat defined at an entrance to the float chamber, the annular valve seat defining the opening to the float valve assembly through which fluid flows from the housing.

In one form, a fluid tank inlet assembly is provided comprising an inwardly tapering annular surface defined at or adjacent the distal opening of the inlet pipe and defining an opening through which fluid flows from the housing.

In one form, a fluid tank inlet assembly is provided wherein the tapering surface is defined by a ring secured in or adjacent the open distal end of the inlet pipe.

In one form, a fluid tank inlet assembly is provided wherein said housing is either an extension of said inlet pipe, an extension of said float valve, or a separate component connected between the inlet pipe and the float valve.

In one form, a fluid tank inlet assembly is provided wherein the inner diameter of the housing increases from its proximal end to a maximum diameter portion and then decreases again to its distal end.

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In one form, a fluid tank inlet assembly is provided wherein the maximum internal diameter of the housing is greater than the diameter of the opening at the distal end of the inlet pipe and/or the opening at the proximal end of the float valve assembly.

In one form, a fluid tank inlet assembly is provided wherein the inner wall of the housing is substantially cylindrical and has a substantially constant diameter along its length.

In one form, a fluid tank inlet assembly is provided wherein the obstruction has a streamlined outer surface to promote fluid flow between the obstruction and an inner wall of the housing.

In one form, a fluid tank inlet assembly is provided wherein the obstruction has a diameter which increases from a proximal end of the obstruction to a maximum diameter portion of the obstruction, and then decreases from said maximum diameter portion to a distal end of the obstruction.

In one form, a fluid tank inlet assembly is provided wherein the obstruction has a generally oval or egg shaped geometry.

In one form, a fluid tank inlet assembly is provided wherein said obstruction has a geometry of a double cone.

In one form, a fluid tank inlet assembly is provided wherein the obstruction has a substantially circular cross-section taken on a plane perpendicular to the axis of the housing.

In one form, a fluid tank assembly is provided comprising a second obstruction provided within the inlet pipe.

In one form, a fluid tank inlet assembly is provided further comprising a second obstruction provided within the housing below the first obstruction.

In one form, a fluid tank inlet assembly is provided where said second obstruction is a grill or aperture baffle provided to prevent passage of a siphon tube but allow free flow of fluid.

In one form, a fluid tank inlet assembly is provided wherein an internal annular flange is provided at or adjacent the open proximal end of the inlet pipe, the annular flange defining an opening to receive a fluid dispensing nozzle with an air gap therebetween.In one form, the obstruction prevents any straight rigid member that may be inserted through the inlet from easily reaching the float valve. In one form, the obstruction is shaped so that the flow path is annular. In one form, the annular flow path may have a uniform radial width around the obstruction (on any given plane

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perpendicular to the axis of the housing), or may have a radial width which varies around the circumference of the obstruction. Similarly, the annular flow path may have a radial width which is unchanging along the length of the housing, or which varies for instance from a minimum to a maximum, depending upon the geometry of the internal surface of the housing and the geometry of the obstruction.

For instance, in one embodiment of the disclosure the rim is provided by an annular ring having a central aperture and a radial width, and provided with a circumferential array of axial bores of diameter less than the radial width to allow flow of fuel therethrough. In one form, the ring has an annular channel defined within its radial width, the upstream openings of said bores being defined within said annular channel. In one form, the ring is a separable component secured by a screw thread or the like into a bottom portion of the housing above the entry to the flow valve chamber.

In one form, a second obstruction, such as a grill or apertured baffle, is provided within the inlet pipe above the first obstruction, or below the first obstruction within the housing or at the entrance to the float valve, to permit flow of fluid but prevent passage of a siphon tube.

In an embodiment of the disclosure an annular portion of the inlet pipe has a inwardly tapering surface which will divert the end of any elongate member inserted into the inlet pipe away from the internal wall of the pipe and towards said obstruction. In one form, the tapering surface may for instance be provided by a separable ring
fitted into the inlet pipe (perhaps above a second obstruction, as discussed in the preceding paragraph).

In one form, the float valve may comprise a float trapped in an apertured float chamber which cooperates with a valve seat adjacent the housing. Ine one form, the float valve chamber is generally cylindrical and comprises a plurality of fluid flow slots arranged axially relative to the inlet pipe. In one form, the float may be a ball float.

Other features of the disclosure will become apparent from the description below.

Specific embodiments of the present disclosure will now be described, by way of example only, with reference to the accompanying drawings, in which:

Figure 1 is a schematic axial cross-section of an embodiment of a first aspect of the present disclosure with a float valve;

Figure 2 is a photograph of an embodiment of the first aspect of the present disclosure;

Figure 3 is a photograph of the embodiment of Figure 2 with the float valve removed;

Figure 4 is a schematic axial cross-section of a modification of the device of fig 1 in accordance with a further embodiment of the present disclosure;

Figures 5a and 5b show a component of the device of figure 6; and

Figures 6a and 6b show another component of the device of figure 6.

With reference to figure 1, a fluid inlet assembly 1 for fitting to a fluid tank 10 comprises a substantially straight body, or inlet pipe 5, an attachment means or mounting structure 2 at its proximal end and a grill or baffle plate 3 to permit the flow

of liquid through the pipe 5 but block the passage of a siphon tube at its distal end. The grill 3 comprises a metal plate, provided with a plurality of fuel outlet holes 3a, which is securely attached across the internal width of the pipe 5.

The pipe 5 and grill 3 of the assembly are similar to that disclosed in the applicants co-pending applications GB 0 322 594 and PCT/GB2005/004259. The mounting structure 2, which is provided for attaching the assembly to the inlet aperture 11 of the fuel tank 10, is similar to that of PCT/GB2005/004259 but could take any appropriate form.

In the embodiment of figure 1, the inlet assembly also includes a float valve comprising a float ball 6 held within a float cage 7. The float ball is a spherical hollow plastics ball. Thus, the float valve is arranged to allow the float ball 6 to be movable along the longitudinal axis of the assembly from an open position (as for instance shown in figure 1) to a closed position in which the ball is held against valve seat 8 when fuel rises above the distal end of the assembly. The float valve may for instance be substantially the same as that shown in GB0322594 and PCT/GB2005/004259 or may take another form.

It will be appreciated that when the float valve is closed it is still possible to fill the tank with further fuel as the fuel pressure entering the tank opens the valve against its buoyancy.

The inlet pipe 5 is provided with a plurality of vent outlets 9 spaced around its circumference adjacent to the mounting structure 2. These vents assist the filling of the tank by allowing gas to escape the tank as it is displaced by fuel.

In accordance with the present disclosure, in addition to the inlet pipe 5, and the float valve assembly 7, the inlet assembly 1 according to the present disclosure also includes an anti-tamper means 20 disposed between the end of the inlet pipe 5 and the float valve cage 7. The anti-tamper means comprises an obstruction 21 located within a housing 22 configured to prevent insertion of an elongate rigid member through the inlet pipe 5, through an aperture 3a in the grill 3, and into the float valve to displace the float member 6. The obstruction 21 has a double conical shape so that it is generally diamond shaped in cross-section as shown in Fig. 1. The housing 22 has a generally "bowled" internal radius to accommodate the obstruction 22 whilst maintaining an annular flow path 23 through which fuel can flow between the obstruction 1 and the inner wall of the housing 22 in order to reach the float valve, as shown by arrows A. The maximum diameter D of the obstruction 21 is greater than the diameter of the open end of the inlet pipe 5 and the inlet end of the float valve

cage 7 (at valve seat 8) so that there is no direct line of sight from the inlet pipe 5 to the float valve member 6 past the obstruction 21. This prevents insertion of a straight rigid member through the inlet pipe 5, through an aperture 3a, and into the float cage 7 to displace the float member 6 away from the valve seat 8.

In addition, the housing 22 is provided with an internal annular lip 24 defined by its internal wall circumscribing a lower part of the obstruction 21 (below the maximum diameter portion of obstruction 21), and having a diameter less than the maximum diameter d of the obstruction 21. This substantially prevents insertion of a flexible elongate member, such as a relatively thick but deformable wire, through the inlet pipe 5 and around the obstruction 21 into the float valve. This is because the inserted end of such a wire member will be deflected by the obstruction 21 in an outward direction towards the internal wall of the housing 22. Further insertion of the wire will then cause the inserted end of the wire to follow the contour of the internal wall of the housing 22 until the end of the wire is caught by the lip 24 preventing it from further insertion into the float valve chamber.

The relative dimensions of the internal wall of the housing 22 and the obstruction 21 are selected to ensure that the radial width of the annular gap 23 is sufficient to accommodate desired fuel dispensing speeds.

The external profile of the obstruction 21, and internal profile of the housing 22, may vary from that illustrated. The particular profiles illustrated are advantageous in providing the necessary obstruction to any attempt to tamper with the float valve assembly, whilst being sufficiently "streamlined" to allow fuel flow at acceptable filling speeds. Other profiles are however possible as will be appreciated by the skilled person. For instance, the obstruction 21 does not need to have the double cone shape illustrated. For instance a simple inverted cone (with apex pointing towards the float valve assembly) will function as an effective obstruction to tampering, although may introduce turbulence into fluid flow which undesirably limits the maximum filling rate which can be achieved. Similarly, the obstruction could have an upright cone shape, with apex pointing towards the grill 3, which again will provide obstruction to tampering although may generated some turbulence within the housing 22 which hampers fluid flow. The obstruction could alternatively be spherical, oval egg shaped, or a combination of portions of any of the aforementioned shapes. The obstruction 21 could even be a circular disc or the like with its diameter extending across the width of the housing 22. This will again provide the necessary obstruction to tampering, but is not the preferred shape in terms of allowing high filling speeds.

The maximum diameter of the obstruction 21 may vary from that illustrated provided it prevents any direct line of sight through the inlet pipe 5 into the float valve chamber 7. For instance, in some embodiments of the disclosure the entrance to the float valve chamber 7 may have a smaller diameter than the open end of the tubular pipe 5, in which case provided the maximum diameter or the obstruction 21 is greater than the diameter of the entrance to the float chamber the necessary effect will be achieved. Likewise, if the open end of the inlet pipe 5 has a smaller diameter than the inlet end of the float chamber 7, the maximum diameter of the obstruction 21 need only be greater than the diameter of the open end of the inlet pipe 5. Preferably, however, the maximum diameter of the obstruction 21 is greater than both the diameter of the open end distal end of the inlet pipe 5 and the open inlet end of the float chamber 7 (as illustrated).

In the illustrated example, the inlet pipe 5, anti-tamper means 20, and float valve assembly 7, are separable components which may be screw threaded to one another. This allows ease of manufacture and assembly. In addition, the obstruction 21 is mounted directly to the grill 3, for instance by a screw thread. In alternative arrangements the obstruction 21 may be supported directly by the housing 22, for instance by narrow diameter supporting members which extend from the obstruction 21 to the internal wall of the housing 22. Other possible mounting arrangements will be apparent to the skilled person.

In the illustrated example, the grill 3a is positioned in the inlet pipe 5 above the obstruction 21. In alternative embodiments the grill 3a could be positioned below the obstruction 21. For instance the obstruction 21 may be disposed within a modified inlet pipe.

In other possible embodiments of the disclosure the grill 3 may be omitted entirely. However, a grill 3 or similar guard is preferred to limit the possibility of the insertion of a flexible siphon tube past the obstruction 21. The grill 3 could however take a variety of different forms.

The lip 24 is a preferred feature of the disclosure but not essential in that some protection against anti-tampering is provided simply by the obstruction 21. Similarly, the lip 24 could take a form different to that illustrated and be located in a different position. For instance, the lip 24 could be replaced by a lip or a ledge situated at the entrance to the float valve chamber rather than being defined by the internal wall of the housing 22.

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A modification of the embodiment of Fig 1 is illustrated in Fig 4. This is similar to the embodiment of Fig 1 and thus the same reference numerals are used to identify corresponding components as are used in Fig 1. The embodiment of Fig 4 differs from the embodiment of Fig 1 in the following respects.

Firstly, an annular ring 50 (shown in figures 5a and 5b) with an inwardly tapering inner radius 51 is located within the bottom of the tubular body 5 just above the grill 3. The ring 50 may conveniently be provided as a separable component which is screw threaded into the body 5. The ring 50 functions to divert the end of any wire or the like pushed through the tubular body towards the obstruction 21. For instance, if the end of a relatively stiff wire is slid down the inner surface of the tubular body 5, with the aim of sliding this around the outer edge of the obstruction 21, the tapered inner radius of the ring 50 will divert the end of the wire radially inwards and away from the annular gap 23 around the obstruction 21. This therefore provides further protection against tampering.

Secondly, the obstruction 21a has a different geometry to the obstruction 21 of the embodiment of Fig. 1. Specifically, the obstruction 21a is generally egg shaped with a truncated lower end. The obstruction 21a is suspended from the grill 3 by a screw threaded stem 21b which threads into a threaded hole provided in the grill 3. The obstruction 21a is disposed within a modified housing 22a which has a straight cylindrical shape rather than the bowled shape of the housing 22 of Fig. 1. The maximum diameter d of the obstruction 21a is greater than the internal diameter of the ring 50 thus blocking line of sight from the inlet pipe 5 to the float valve 7.

Thirdly, the internal annular lip 24 is replaced by a ring 52 (shown in figs 6a and 6b), which is conveniently provided as a separable component screw threaded into the housing 22. With reference to fig 6 and 7, the ring 52 defines an annular channel 53 between radially outer and inner upstanding circumferential wall portions 54 and 55. The wall portions 54 and 55 function in substantially the same way as the lip 24 of the embodiment of fig 1, to inhibit insertion of the end of a wire or the like into the float valve chamber 7. To minimise disruption to the fluid flow, the ring is provided with a circumferential array of through bores 56 which open into the channel 53 to allow fuel to flow whilst obstructing the end of any wire or the like that might be inserted into the annular passage 23. The internal diameter of the ring 52 is smaller than the maximum diameter d of the obstruction 21a, further blocking line of sight from the inlet pipe 5 to the valve chamber 7.

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For the embodiment of the disclosure illustrated in Fig. 4 the diameter of the open end of the inlet pipe 5 is defined by the internal diameter of the ring 51, and the diameter of the opening to the valve assembly 7 is effectively defined by the internal diameter of the ring 52.

It will be appreciated that the ring 50, and the ring 52, can be incorporated in embodiments of the present disclosure independently from one another. However, one embodiment of the disclosure, as illustrated in fig 6, combines the ring 50, the grill 3, the obstruction 21, and the ring 52, to provide an anti-siphon device which in testing has provided very effective at preventing tampering.

Another feature of the inlet assembly shown in Fig. 4 is the provision of an internal annular flange 30 towards the inlet end of the tubular body 5. The annular flange 30 defines a circular opening of sufficient size to receive a conventional fuel filler dispenser whilst leaving a small air gap between the dispenser and the radially inner edge of the flange 30. The flange 30 functions as a guard against splash back as fuel is dispensed into the inlet. The gap between the flange 30 and the dispenser nozzle ensures that sufficient air can escape to allow the fuel tank to fill effectively.

In the claims which follow and in the preceding description, except where the context requires otherwise due to express language or necessary implications, the word "comprise" or variations such as "comprises" or "comprising" is used in an inclusive sense, i.e. to specify the presence of the stated features but not to preclude the presence or addition of further features in various embodiments of the method and apparatus.

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CLAIMS

1. A fluid tank inlet assembly comprising:

an inlet pipe extending from a mounting structure located at its proximal end;

a float valve assembly disposed beyond the distal end of the inlet pipe and including a float member;

a fixed obstruction located within a housing and disposed between the proximal end of the inlet pipe and the float member;

wherein the obstruction blocks any line of sight from an opening at the proximal end of the inlet pipe to the float member;

and wherein a flow path is defined between the obstruction and the housing wall to allow fluid flow to the float valve assembly around the obstruction.

2. A fluid tank inlet assembly according to claim 1, wherein said flow path is an annular flow path surrounding said obstruction.

3. A fluid tank inlet assembly according to claim 2, wherein the radial width of the annular flow path varies along the axial length of the housing, decreasing from the proximal end of the housing towards a minimum and then increasing from said minimum towards the distal end of the housing.

4. A fluid tank inlet assembly according to any preceding claim, wherein the opening at the proximal and/or distal end of the inlet pipe is defined by an annular member located within or adjacent the respective end of the inlet pipe.

5. A fluid tank inlet assembly according to any preceding claim, wherein an annular rim, ledge, lip or the like is defined around the internal wall of the housing at a location between a maximum diameter portion of the obstruction and the float valve.

6. A fluid tank inlet assembly according to claim 5, wherein a rim is

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provided by an annular ring having a central aperture allowing fluid flow to the float valve assembly and a radial width, and provided with a circumferential array of axial bores of diameter less than the radial width to allow fluid flow therethrough.

7. A fluid tank inlet assembly according to claim 6, wherein the ring has an annular channel defined within its radial width, the upstream openings of said bores being defined within said annular channel.

8. A fluid tank inlet assembly according to claim 6 or claim 7, wherein the ring is either defined by the inner wall of the housing, defined by the float valve assembly around an opening to the float valve assembly, or provided by a separable component secured to the housing or to the float valve assembly.

9. A fluid tank inlet assembly according to any preceding claim, wherein the float valve assembly comprises said float member held within a float chamber, an annular valve seat defined at an entrance to the float chamber, the annular valve seat defining the opening to the float valve assembly through which fluid flows from the housing.

10. A fluid tank inlet assembly according to any preceding claim, comprising an inwardly tapering annular surface defined at or adjacent the distal opening of the inlet pipe and defining an opening through which fluid flows from the inlet pipe to the housing.

11. A fluid tank inlet assembly according to claim 10, wherein the tapering surface is defined by a ring secured in or adjacent the open distal end of the inlet pipe.

12. A fluid tank inlet assembly according to any preceding claim, wherein said housing is either an extension of said inlet pipe, an extension of said float valve, or a separate component connected between the inlet pipe and the float valve.

13. A fluid tank inlet assembly according to any preceding claim, wherein

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the inner diameter of the housing increases from its proximal end to a maximum diameter portion and then decreases again to its distal end.

14. A fluid tank inlet assembly according to claim 13, wherein the maximum internal diameter of the housing is greater than the diameter of the opening at the distal end of the inlet pipe and/or the opening at the proximal end of the float valve assembly.

15. A fluid tank inlet assembly according to any one of claims 1 to 12, wherein the inner wall of the housing is substantially cylindrical and has a substantially constant diameter along its length.

16. A fluid tank inlet assembly according to any preceding claim, wherein the obstruction has a streamlined outer surface to promote fluid flow between the obstruction and an inner wall of the housing.

17. A fluid tank inlet assembly according to any preceding claim, wherein the obstruction has a diameter which increases from a proximal end of the obstruction to a maximum diameter portion of the obstruction, and then decreases from said maximum diameter portion to a distal end of the obstruction.

18. A fluid tank inlet assembly according to claim 17, wherein the obstruction has a generally oval or egg shaped geometry.

19. A fluid tank inlet assembly according to claim 17, wherein said obstruction has a geometry of a double cone.

20. A fluid tank inlet assembly according to any preceding claim, wherein the obstruction has a substantially circular cross-section taken on a plane perpendicular to the axis of the housing.

21. A fluid tank inlet assembly according to any preceding claim, further comprising a second obstruction provided within the inlet pipe.

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22. A fluid tank inlet assembly according to any one of claims 1 to 20, further comprising a second obstruction provided within the housing below the first obstruction.

23. A fluid tank inlet assembly according to claim 21 or 22, wherein said second obstruction is a grill or apertured baffle provided to prevent passage of a siphon tube but allow free flow of fluid.

24. A fluid tank inlet assembly according to any preceding claim, wherein an internal annular flange is provided at or adjacent the open proximal end of the inlet pipe, the annular flange defining an opening to receive a fluid dispensing nozzle with an air gap therebetween.

25. A fluid tank inlet assembly substantially as herein described with reference to the accompanying drawings.

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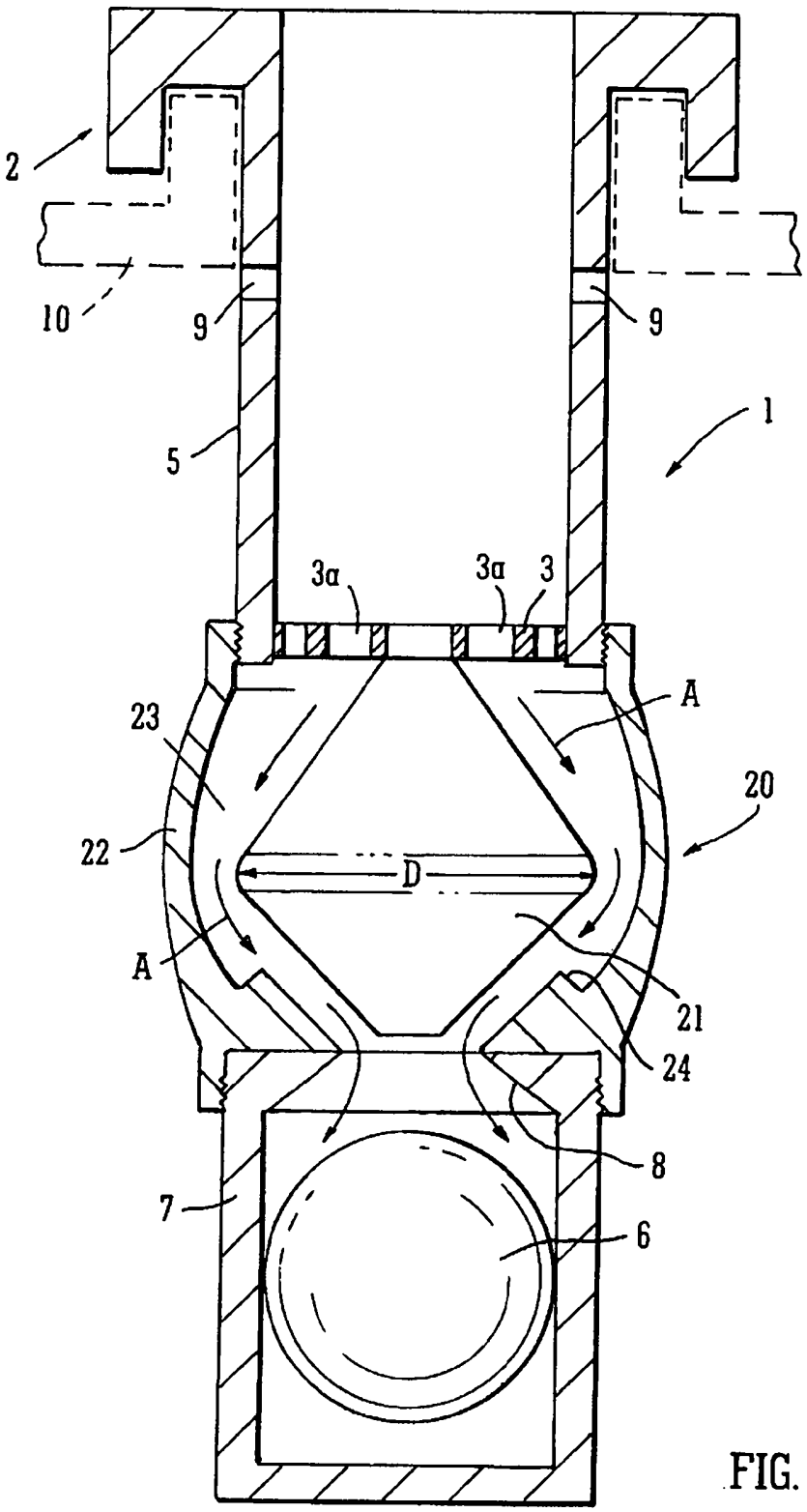

FIG. 1

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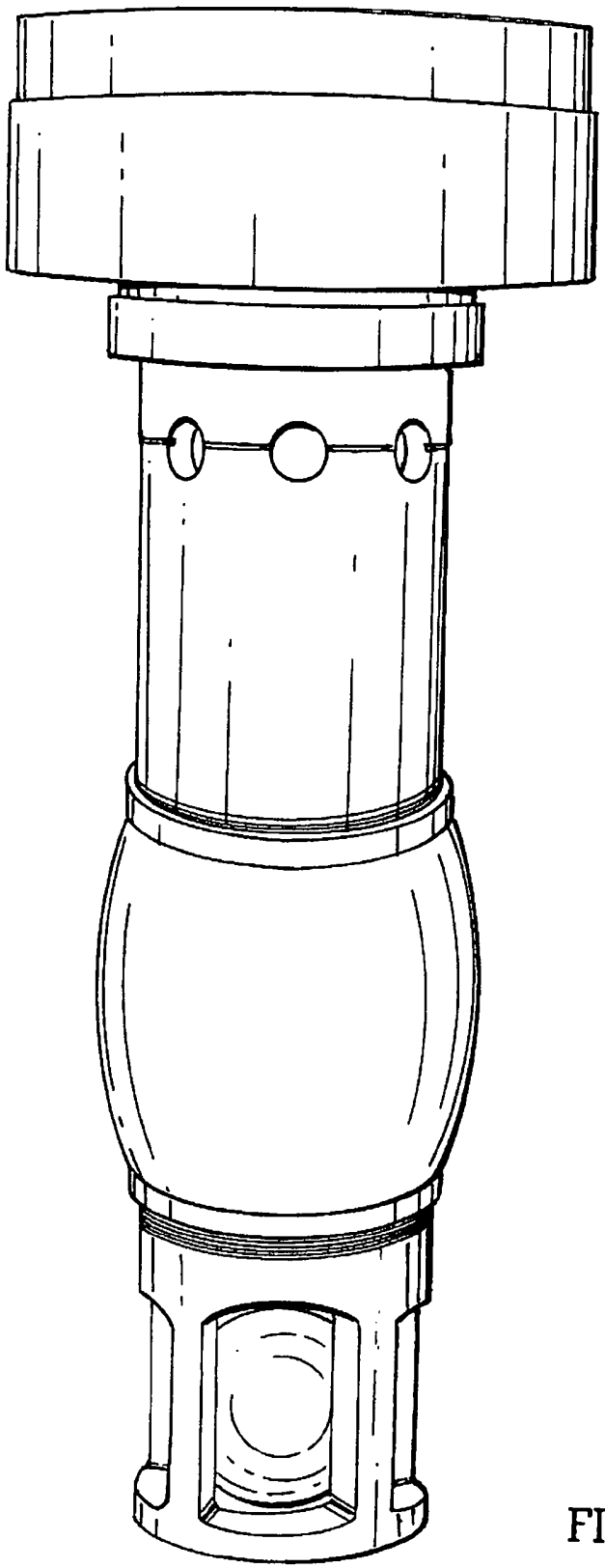

FIG. 2

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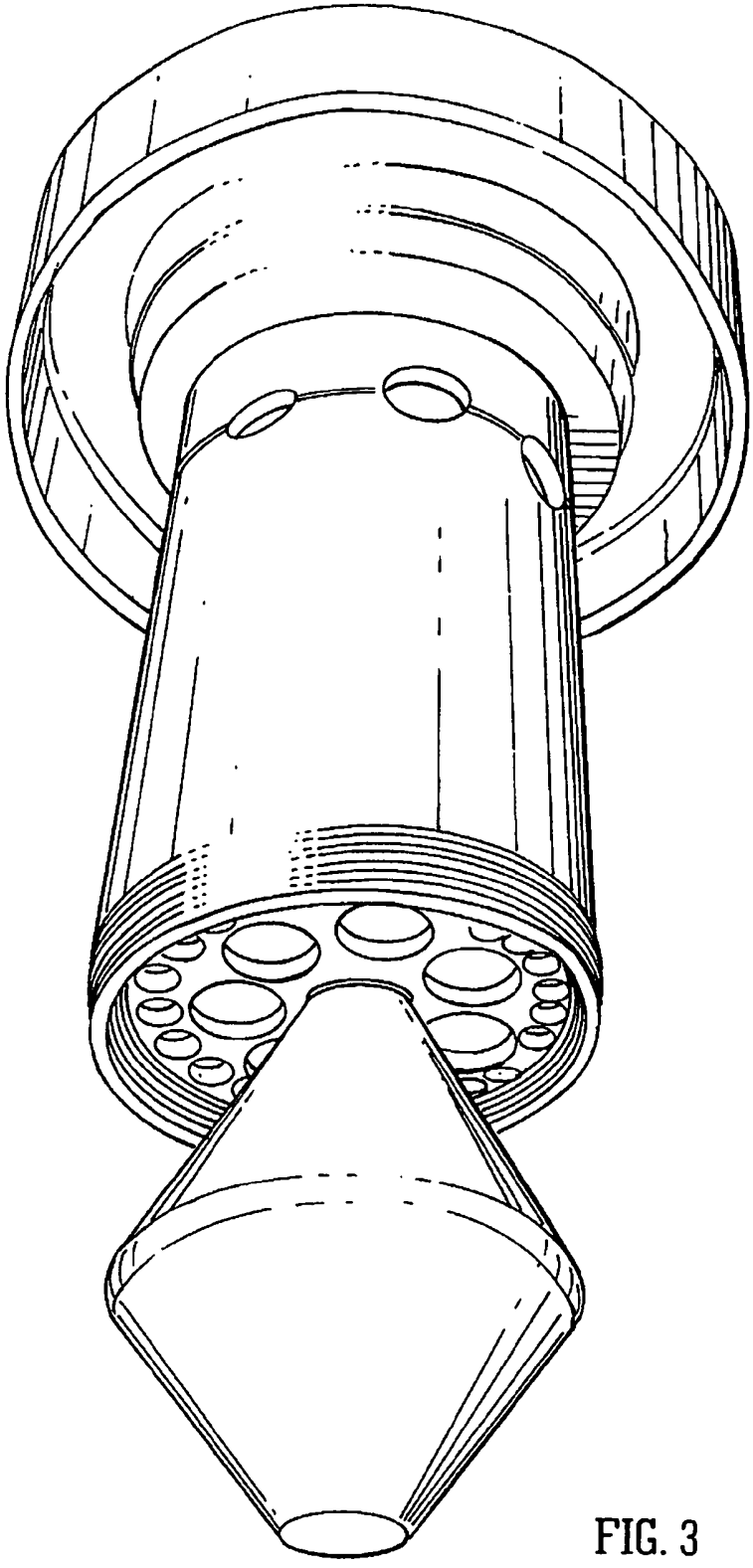

FIG. 3

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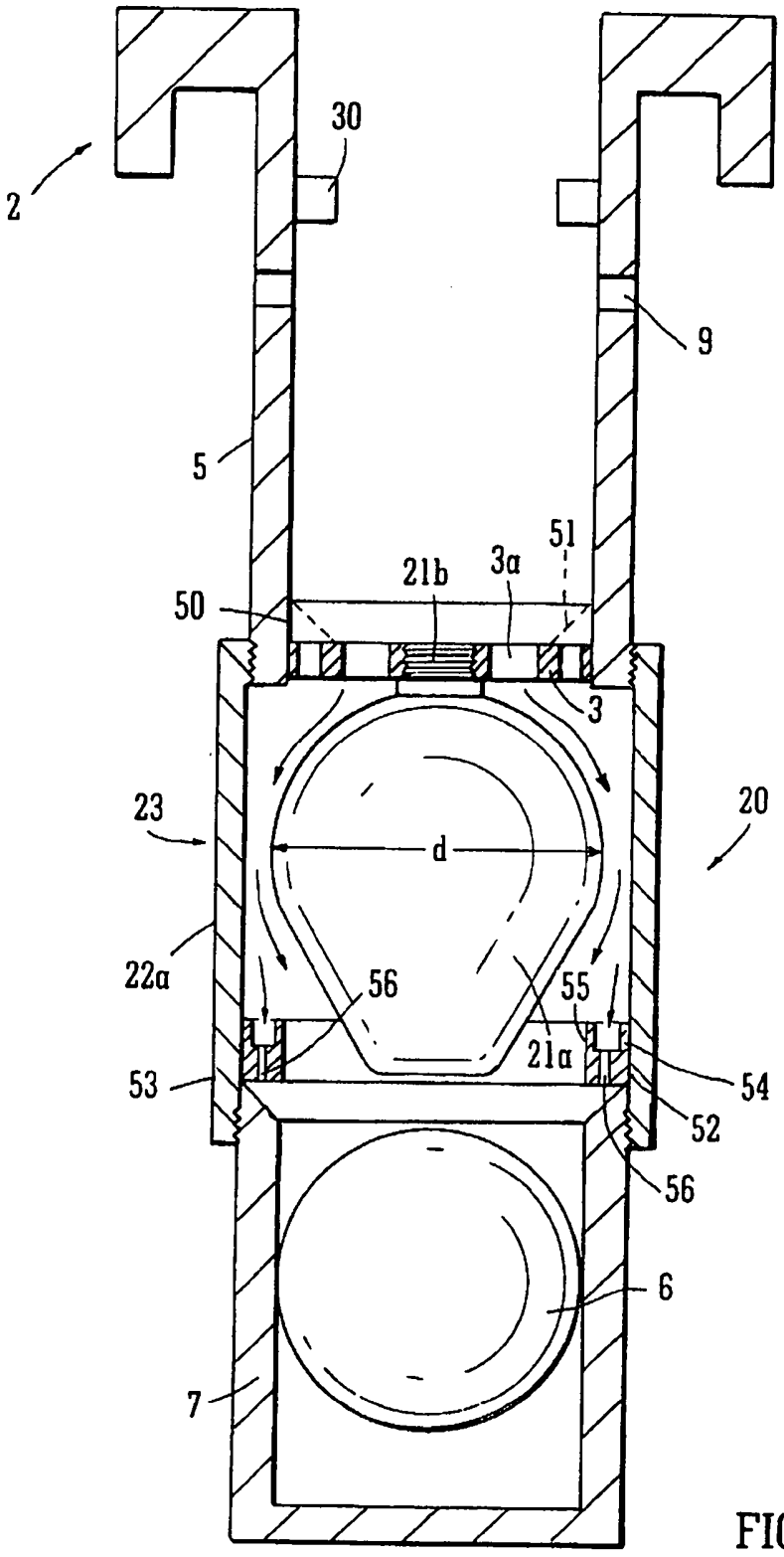

FIG. 4

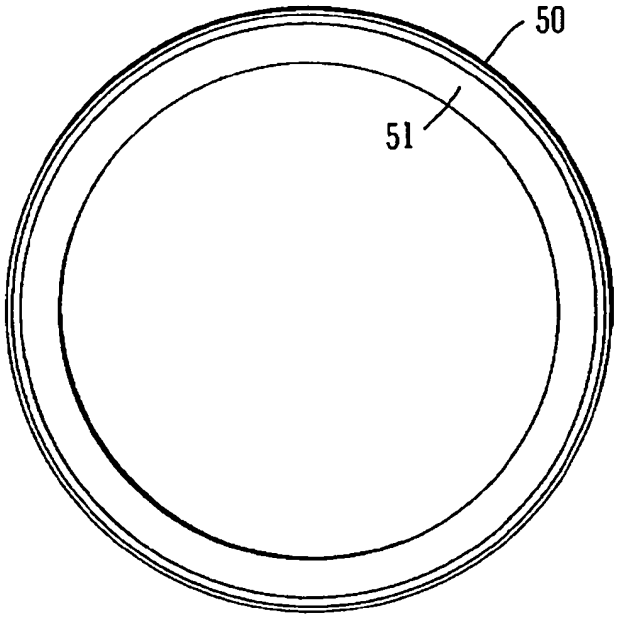

FIG. 5A

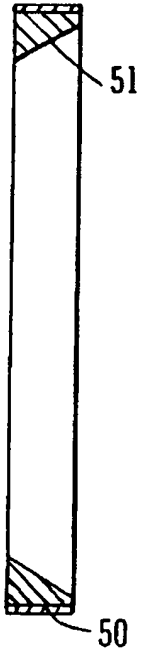

FIG. 5B

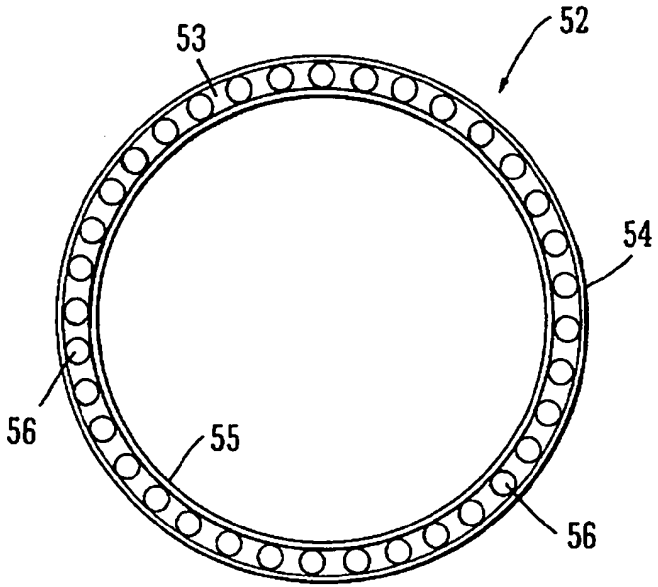

FIG. 6A

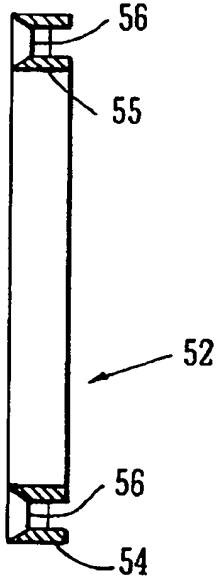

FIG. 6B