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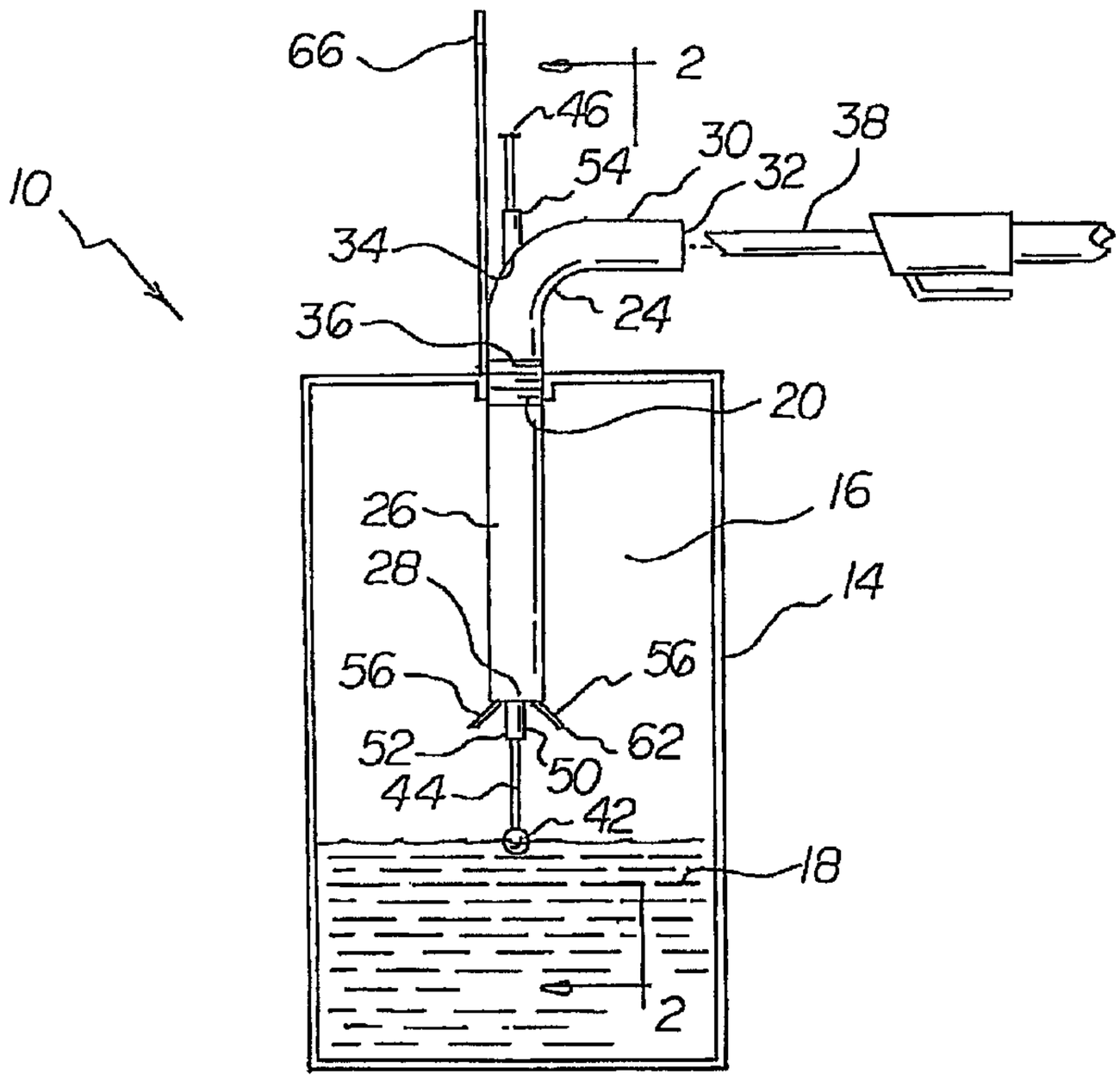
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(71) Demandeur/Applicant:
RIOCH, DUANE RANDALL, CA

(72) Inventeur/Inventor:
RIOCH, DUANE RANDALL, CA

(74) Agent: MILTON, GELLER LLP

(54) Titre : SYSTEME DE PREVENTION DES DEVERSEMENTS
(54) Title: SPILL PREVENTION SYSTEM



(57) Abrégé/Abstract:
A tank is provided. A fill pipe terminates in a lower output end. The lower output end is located in the tank. An upper input end is located above the tank. A float has a rigid rod. The float has an upper end. The upper end is formed as a liquid level indicator. A guide tube has a bottom end and a top. The guide tube has an interior diameter greater than the exterior diameter of the rigid rod. The float is located below the guide tube. The indicator is located above the guide tube. A vertically extending measuring plate extends upwardly from the tank. Indicia are located adjacent to the indicator.

ABSTRACT OF THE DISCLOSURE

A tank is provided. A fill pipe terminates in a lower output end. The lower output end is located in the tank. An upper input end is located above the tank. A float has a rigid rod. The float has an upper end. The upper end is formed as a liquid level indicator. A guide tube has a bottom end and a top. The guide tube has an interior diameter greater than the exterior diameter of the rigid rod. The float is located below the guide tube. The indicator is located above the guide tube. A vertically extending measuring plate extends upwardly from the tank. Indicia are located adjacent to the indicator.

TITLE: SPILL PREVENTION SYSTEM

BACKGROUND OF THE INVENTION

Field of the Invention

The present invention relates to a spill prevention system and more particularly pertains to providing a visual warning that the liquid being pumped into a tank is reaching its limit.

Description of the Prior Art

The use of spill prevention systems of known designs and configurations is known in the prior art. More specifically, spill prevention systems of known designs and configurations previously devised and utilized for the purpose of preventing spills through known methods and apparatuses are known to consist basically of familiar, expected, and obvious structural configurations, notwithstanding the myriad of designs encompassed by the crowded prior art which has been developed for the fulfillment of countless objectives and requirements.

By way of example, U.S. Patent Number 4,003,097 issued January 18, 1977 to Book relates to a Two Level Flush Tank Valve Mechanism. U.S. Patent Number 5,769,109 issued June 23, 1998 to Stanton relates to a Storage Vault with Overflow Containment Collar. Lastly, U.S. Patent Number 5,927,350 issued July 27, 1999 to Kissinger relates to a System for Preventing Spillage From Containers During Filling Thereof.

While these devices fulfill their respective, particular objectives and requirements, the aforementioned patents do not describe a spill prevention system that provides a visual warning that the liquid being pumped into a tank is reaching its limit.

In this respect, the spill prevention system according to the present invention substantially departs from the conventional concepts and designs of the prior art, and in doing so provides an apparatus primarily developed for the purpose of providing a visual warning that the liquid being pumped into a tank is reaching its limit.

Therefore, it can be appreciated that there exists a continuing need for a new and improved spill prevention system which can be used for providing a visual warning that the

liquid being pumped into a tank is reaching its limit. In this regard, the present invention substantially fulfills this need.

SUMMARY OF THE INVENTION

In view of the foregoing disadvantages inherent in the known types of spill prevention systems of known designs and configurations now present in the prior art, the present invention provides an improved spill prevention system. As such, the general purpose of the present invention, which will be described subsequently in greater detail, is to provide a new and improved spill prevention system and method which has all the advantages of the prior art and none of the disadvantages.

To attain this, the present invention essentially comprises a spill prevention system. First provided is a tank. The tank has an interior chamber. A quantity of liquid is provided. The interior chamber is adapted to receive the quantity of liquid. The tank has an upper surface. A threaded aperture is provided through the upper surface.

A fill pipe is provided. The fill pipe is in an inverted generally L-shaped configuration. The fill pipe has a vertical section. The vertical section terminates in a lower output end. The lower output end is located in the chamber. The fill pipe has a horizontal section. The horizontal section terminates in an upper input end. The upper input end is located above the chamber. A ninety degree bend is provided between the vertical and horizontal sections. The vertical section has a threaded region. The threaded region is received within and supported by the threaded aperture. A nozzle is provided. The input end is adapted to receive liquid from the nozzle. The input end is further adapted to pour the received liquid into the chamber.

Provided next is a ball shaped float. The float is adapted to float on the upper surface of the liquid in the chamber. The float has a rigid rod. The rigid rod has a lower end. The lower end is attached to the ball. The float has an upper end. The upper end has a liquid level indicator.

A vertically extending guide tube is provided. The guide tube has a central extent. The central extend is provided within the vertical section of the fill pipe. The guide tube has a bottom end. The bottom end is beneath the lower end of the vertical section. The guide tube has a top end. The top end extends through the bend and terminates there above. The rigid rod is axially reciprocal within the guide tube. The guide tube has an interior diameter greater than the exterior diameter of the rigid rod. The guide tube has an exterior diameter less than the interior diameter of the vertical section of the fill tube. The float is located below the guide tube. The indicator is loaded located above the guide tube.

Further provided are four angularly oriented rectangular guards. The guards have intermediate extents. The intermediate extents are attached to the lower end of the fill pipe. The guards also have upper extents. The upper extents are attached to the guide tube. In this manner the guide tube is coupled to the fill pipe. The guards also have lower extents. The lower extents extend downwardly at angles of about forty-five degrees toward the fluid in the chamber. In this manner splashing by the fluid during pouring is abated. The fill pipe, the guide tube and the rigid rod are fabricated of aluminum. In this manner the possibility of ignition when the fluid being poured is oil is abated.

Provided last is a vertically extending measuring plate. The measuring plate extends upwardly from the threaded aperture. The measuring plate has indicia. The indicia are located adjacent to the indicator. In this manner when fluid is poured into the chamber, the float will rise and the indicator will move upwardly with respect to the indicia so the operator will be aware that the tank is becoming full and the pouring may be terminated prior to splashing of fluid from the input end.

There has thus been outlined, rather broadly, the more important features of the invention in order that the detailed description thereof that follows may be better understood and in order that the present contribution to the art may be better appreciated. There are, of course, additional features of the invention that will be described hereinafter and which will form the subject matter of the claims attached.

In this respect, before explaining at least one embodiment of the invention in detail, it is to be understood that the invention is not limited in its application to the details of construction and to the arrangements of the components set forth in the following description or illustrated in the drawings. The invention is capable of other embodiments and of being practiced and carried out in various ways. Also, it is to be understood that the phraseology and terminology employed herein are for the purpose of descriptions and should not be regarded as limiting.

As such, those skilled in the art will appreciate that the conception, upon which this disclosure is based, may readily be utilized as a basis for the designing of other structures, methods and systems for carrying out the several purposes of the present invention. It is important, therefore, that the claims be regarded as including such equivalent constructions insofar as they do not depart from the spirit and scope of the present invention.

It is therefore an object of the present invention to provide a new and improved spill prevention system which has all of the advantages of the prior art spill prevention systems of known designs and configurations and none of the disadvantages.

It is another object of the present invention to provide a new and improved spill prevention system which may be easily and efficiently manufactured and marketed.

It is further object of the present invention to provide a new and improved spill prevention system which is of durable and reliable constructions.

An even further object of the present invention is to provide a new and improved spill prevention system which is susceptible of a low cost of manufacture with regard to both materials and labor, and which accordingly is then susceptible of low prices of sale, thereby making such spill prevention system economically available.

Even still another object of the present invention is to provide a spill prevention system for providing a visual warning that the liquid being pumped into a tank is reaching its limit.

Lastly, it is an object of the present invention to provide a new and improved spill prevention system. A tank is provided. A fill pipe terminates in a lower output end. The lower output end is located in the tank. An upper input end is located above the tank. A float has a

rigid rod. The float has an upper end. The upper end is formed as a liquid level indicator. A guide tube has a bottom end and a top. The guide tube has an interior diameter greater than the exterior diameter of the rigid rod. The float is located below the guide tube. The indicator is located above the guide tube. A vertically extending measuring plate extends upwardly from the tank. Indicia are located adjacent to the indicator.

These together with other objects of the invention, along with the various features of novelty which characterize the invention, are pointed out with particularity in the claims annexed to and forming a part of this disclosure. For a better understanding of the invention, its operating advantages and the specific objects attained by its uses, reference should be had to the accompanying drawings and descriptive matter in which there is illustrated preferred embodiments of the invention.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will be better understood and objects other than those set forth above will become apparent when consideration is given to the following detailed description thereof. Such description makes reference to the annexed drawings wherein:

Figure 1 is a cross sectional view of a spill prevention system constructed in accordance with the principles of the present invention.

Figure 2 is a cross sectional view of the system taken along line 2-2 of Figure 1.

Figure 3 is a cross sectional view of the system taken along line 3-3 of Figure 2.

Figure 4 is a plan view of the system taken along line 4-4 of Figure 2.

Figure 5 is a side elevational view of an alternate embodiment of the invention.

Figure 6 is a front elevational view of the system taken along line 6-6 of Figure 5.

The same reference numerals refer to the same parts throughout the various Figures.

DESCRIPTION OF THE PREFERRED EMBODIMENT

With reference now to the drawings, and in particular to Figure 1 thereof, the preferred embodiment of the new and improved spill prevention system embodying the principles and concepts of the present invention and generally designated by the reference numeral 10 will be described.

The present invention, the spill prevention system 10 is comprised of a plurality of components. Such components in their broadest context include a tank, a fill pipe, a float, a guide tube, and a measuring plate. Such components are individually configured and correlated with respect to each other so as to attain the desired objective.

First provided is a tank 14. The tank has an interior chamber 16. A quantity of liquid 18 is provided. The interior chamber is adapted to receive the quantity of liquid. The tank has an upper surface 18. A threaded aperture 20 is provided through the upper surface.

A fill pipe 24 is provided. The fill pipe is in an inverted generally L-shaped configuration. The fill pipe has a vertical section 26. The vertical section terminates in a lower output end 28. The lower output end is located in the chamber. The fill pipe has a horizontal section 30. The horizontal section terminates in an upper input end 32. The upper input end is located above the chamber. A ninety degree bend 34 is provided between the vertical and horizontal sections. The vertical section has a threaded region 36. The threaded region is received within and supported by the threaded aperture. A nozzle 38 is provided. The input end is adapted to receive liquid from the nozzle. The input end is further adapted to pour the received liquid into the chamber.

Provided next is a ball shaped float 42. The float is adapted to float on the upper surface of the liquid in the chamber. The float has a rigid rod 44. The rigid rod has a lower end. The lower end is attached to the ball. The float has an upper end. The upper end has a liquid level indicator 46.

A vertically extending guide tube 50 is provided. The guide tube has a central extent. The central extend is provided within the vertical section of the fill pipe. The guide tube has a bottom end 52. The bottom end is beneath the lower end of the vertical section. The guide tube has a top end 54. The top end extends through the bend and terminates there above. The rigid rod is axially reciprocal within the guide tube. The guide tube has an interior diameter greater than the exterior diameter of the rigid rod. The guide tube has an exterior diameter less than the interior diameter of the vertical section of the fill tube. The float is located below the guide tube. The indicator is loaded located above the guide tube.

Further provided are four angularly oriented rectangular guards 56. The guards have intermediate extents 58. The intermediate extents are attached to the lower end of the fill pipe. The guards also have upper extents 60. The upper extents are attached to the guide tube. In this manner the guide tube is coupled to the fill pipe. The guards also have lower extents 62. The lower extents extend downwardly at angles of about forty-five degrees toward the fluid in the chamber. In this manner splashing by the fluid during pouring is abated. The fill pipe, the guide tube and the rigid rod are fabricated of aluminum. In this manner the possibility of ignition when the fluid being poured is oil is abated.

Provided last is a vertically extending measuring plate 66. The measuring plate extends upwardly from the threaded aperture. The measuring plate has indicia 68. The indicia are located adjacent to the indicator. In this manner when fluid is poured into the chamber, the float will rise and the indicator will move upwardly with respect to the indicia so the operator will be aware that the tank is becoming full and the pouring may be terminated prior to splashing of fluid from the input end.

An alternate embodiment of the present invention may be seen in Figures 5 and 6. In this embodiment the guide tube 76 is located exterior of the fill pipe 68 along the vertical section of the fill pipe. Extending upwardly, the guide tube extends through the elbow of the fill pipe. The fill pipe extends downwardly beneath the guide tube. Further included is an apertured cover 80. The apertured cover is provided over the lower end of the fill pipe.

The present invention may be considered an environmentally friendly spout which provides a warning to an operator that the tank which he or she is filling is full or near to becoming full. When using the present invention, the nozzle is placed in the tank opening. Pumping is initiated. The float begins to rise in proportion to the amount of fluid poured into the tank. As the float rises, so does the indicator with respect to the indicia on the measuring plate. This continues until the indicator approaches a full mark adjacent to the top of the indicator plate. The operator will then stop the pump and reverse the direction of the pump to empty out the load hose.

The present invention is adapted to be constructed in a wide variety of sizes, as for example with a fil pipe having a diameter from 0.50 inches to 10 inches with the length of the vertical section, the down spout, extending from 8 inches to 60 inches.

As to the manner of usage and operation of the present invention, the same should be apparent from the above description. Accordingly, no further discussion relating to the manner of usage and operation will be provided.

With respect to the above description then, it is to be realized that the optimum dimensional relationships for the parts of the invention, to include variations in size, materials, shape, form, function and manner of operation, assembly and use, are deemed readily apparent and obvious to one skilled in the art, and all equivalent relationships to those illustrated in the drawings and described in the specification are intended to be encompassed by the present invention.

Therefore, the foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly, all suitable modifications and equivalents may be resorted to, falling within the scope of the invention.

THE EMBODIMENTS OF THE INVENTION IN WHICH AN EXCLUSIVE PROPERTY OR PRIVILEGE IS CLAIMED ARE DEFINED AS FOLLOWS:

1. A spill prevention system comprising:

a tank;

a fill pipe terminating in a lower output end located in the tank with an upper input end located above the tank;

a float having a rigid rod with an upper end formed as a liquid level indicator;

a guide tube with a bottom end and with a top, the guide tube having an interior diameter greater than the exterior diameter of the rigid rod, the float being located below the guide tube and the indicator located above the guide tube; and

a vertically extending measuring plate extending upwardly from the tank with indicia located adjacent to the indicator.

2. The system as set forth in claim 1 wherein the guide tube is located within the fill pipe and extends downwardly beneath the fill pipe.

3. The system as set forth in claim 1 wherein the guide tube is located exterior of the fill pipe and the fill pipe extends downwardly beneath the guide tube and further including an apertured cover over the lower end of the fill pipe.

4. A spill prevention system for providing a visual warning that the liquid being pumped into a tank is reaching its limit comprising, in combination:

a tank with an interior chamber adapted to receive a quantity of liquid, the tank having an upper surface with a threaded aperture there through;

a fill pipe in an inverted generally L-shaped configuration with a vertical section terminating in a lower output end located in the chamber and a horizontal section terminating in an upper input end located above the chamber with a ninety degree bend between the vertical and horizontal sections, the vertical section having a threaded region received within and supported by the threaded aperture, the input end adapted to receive liquid from a nozzle and

to pour the received liquid into the chamber;

a ball shaped float adapted to float on the upper surface of the liquid in the chamber, the float having a rigid rod with a lower end attached to the ball, the float having an upper end with a liquid level indicator;

a vertically extending guide tube having a central extent within the vertical section of the fill pipe with a bottom end beneath the lower end of the vertical section and with a top end extending through the bend and terminating there above, the rigid rod being axially reciprocal within the guide tube, the guide tube having an interior diameter greater than the exterior diameter of the rigid rod, the guide tube having an exterior diameter less than the interior diameter of the vertical section of the fill tube, the float being located below the guide tube and the indicator located above the guide tube;

four angularly oriented rectangular guards having intermediate extents attached to the lower end of the fill pipe, the guards also having upper extents attached to the guide tube for the coupling of the guide tube to the fill pipe, the guards also having lower extents extending downwardly at angles of about forty-five degrees toward the fluid in the chamber to abate splashing by the fluid during pouring, the fill pipe and the guide tube and rigid rod being fabricated of aluminum to abate the possibility of ignition when the fluid being poured is oil; and

a vertically extending measuring plate extending upwardly from the threaded aperture with indicia located adjacent to the indicator whereby when fluid is poured into the chamber, the float will rise and the indicator will move upwardly with respect to the indicia so the operator will be aware that the tank is becoming full and the pouring may be terminated prior to splashing of fluid from the input end.

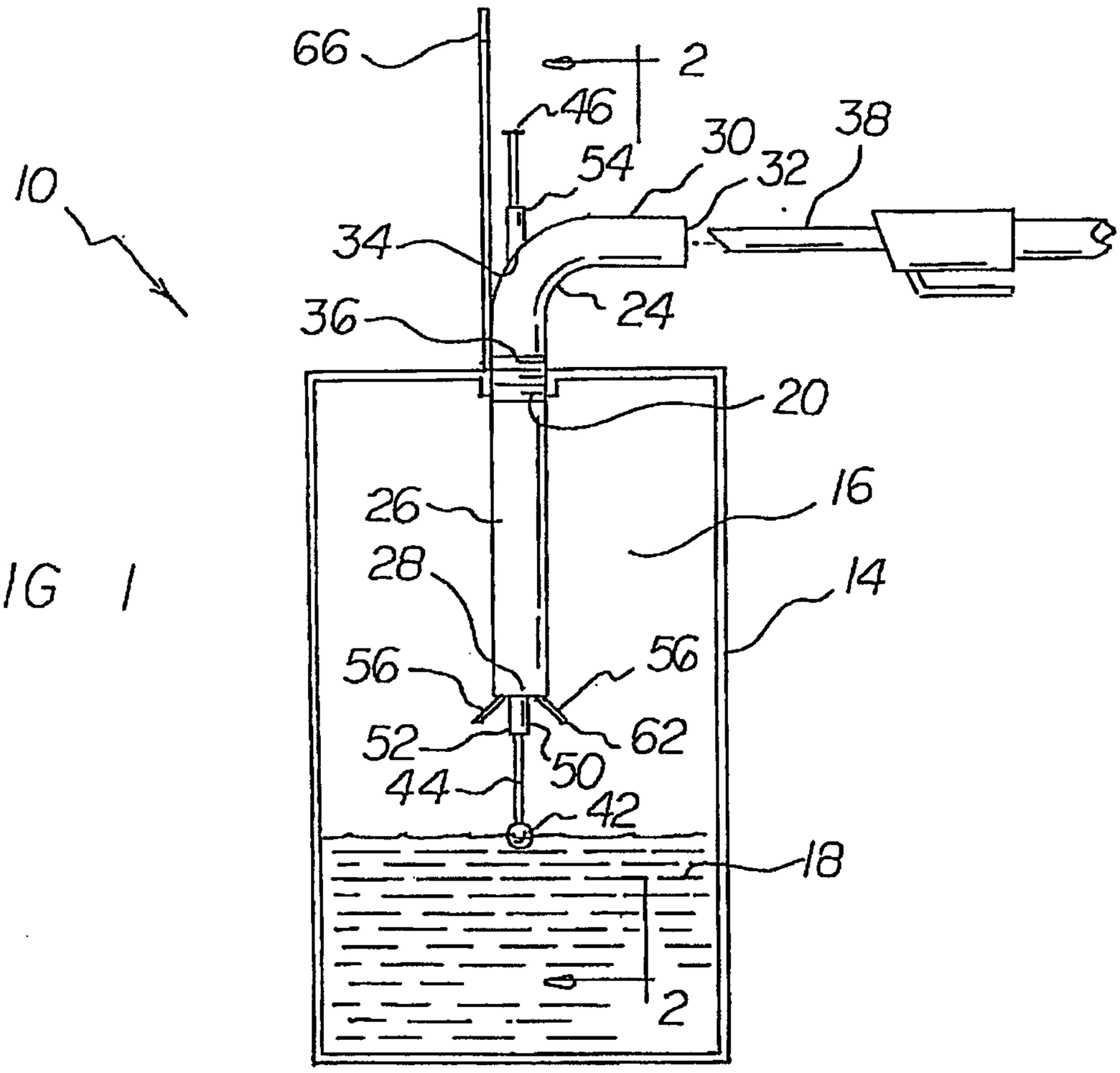

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FIG 1

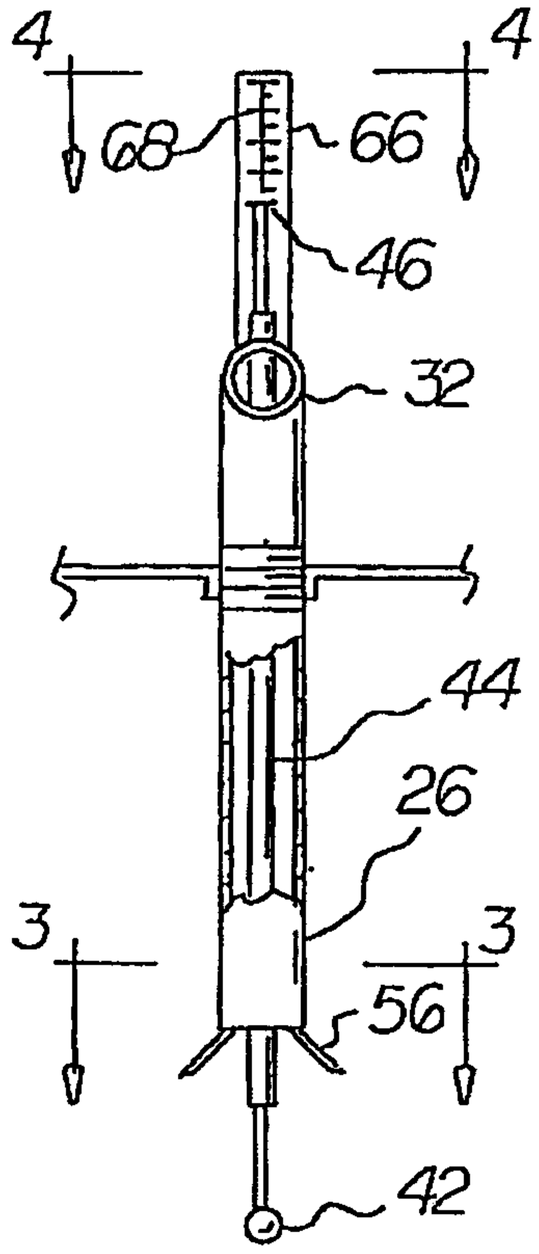

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FIG 2

FIG 3

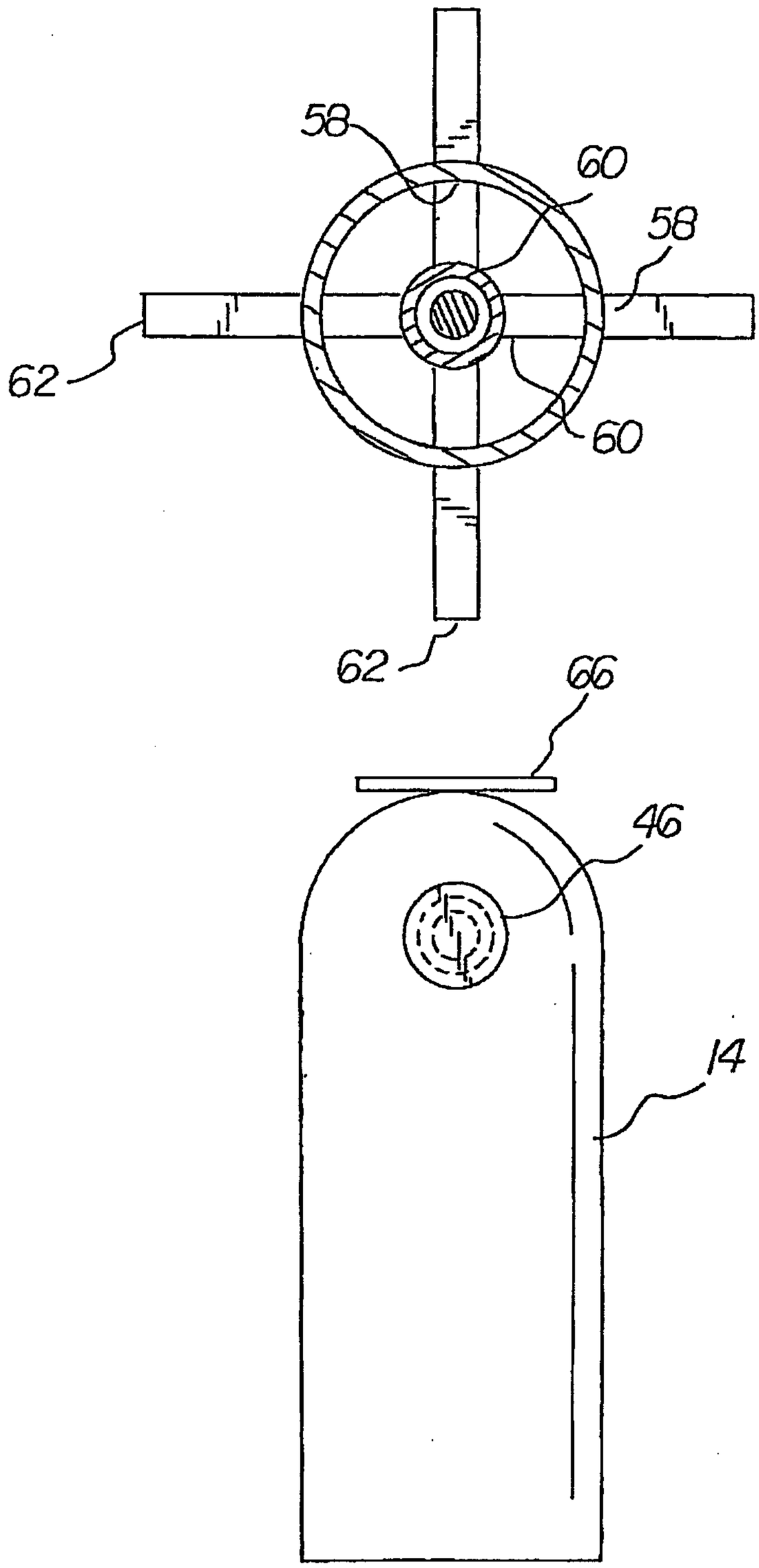


FIG 4

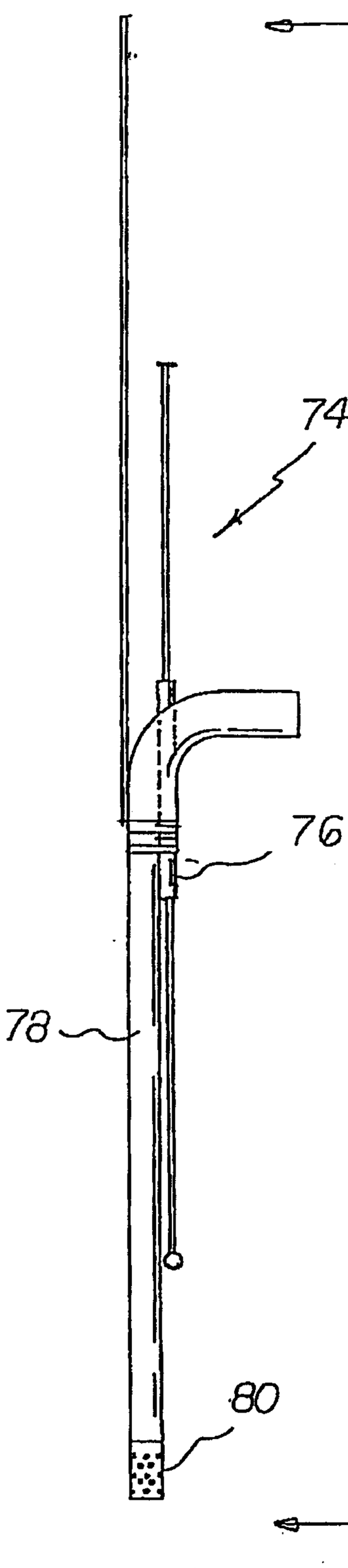


FIG 5

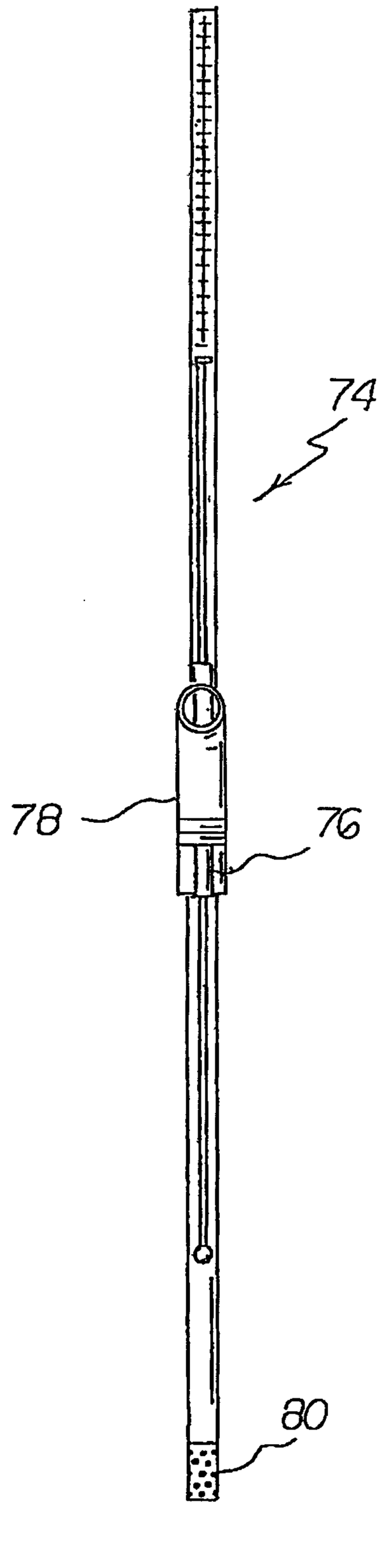
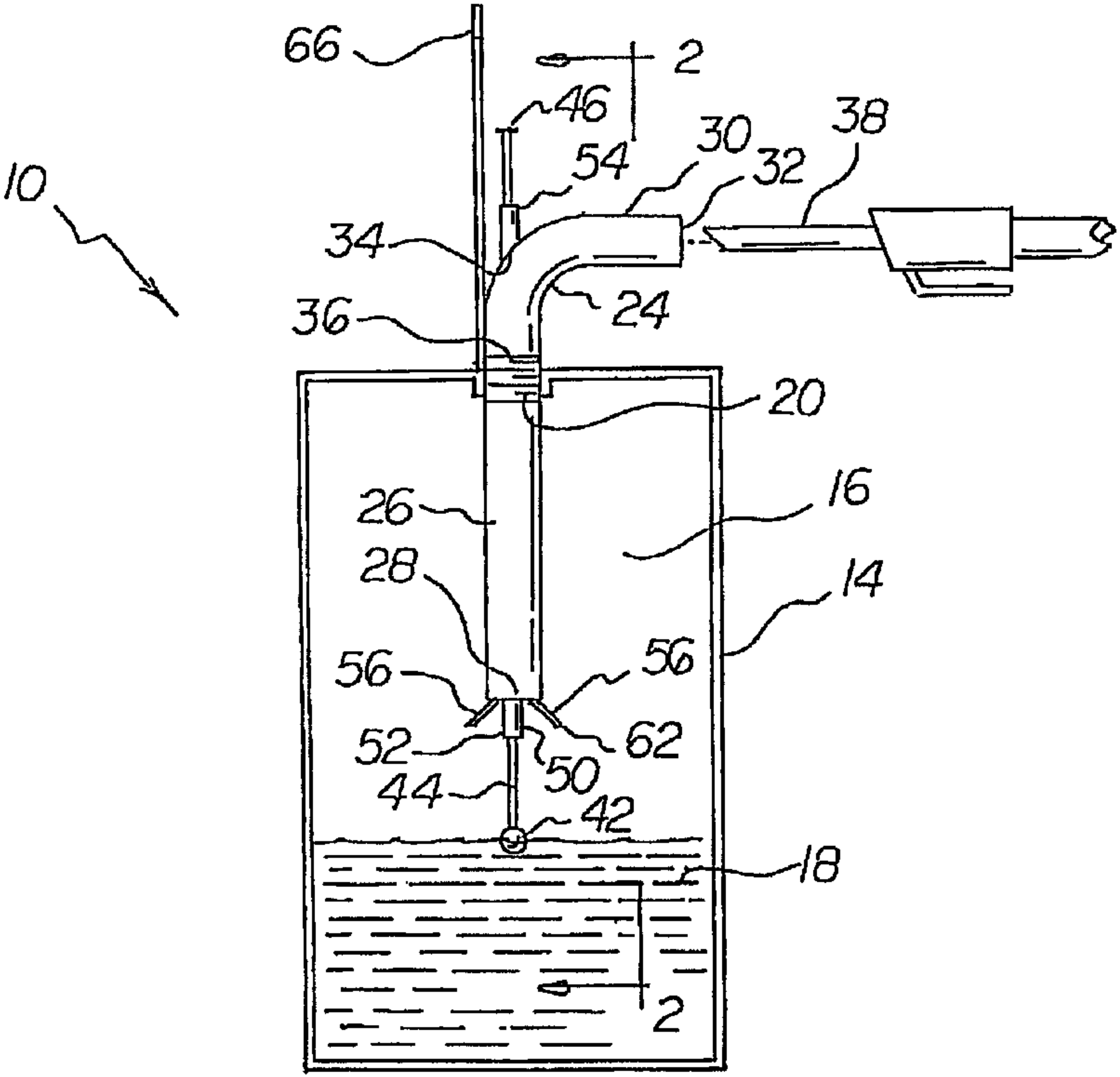


FIG 6


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