

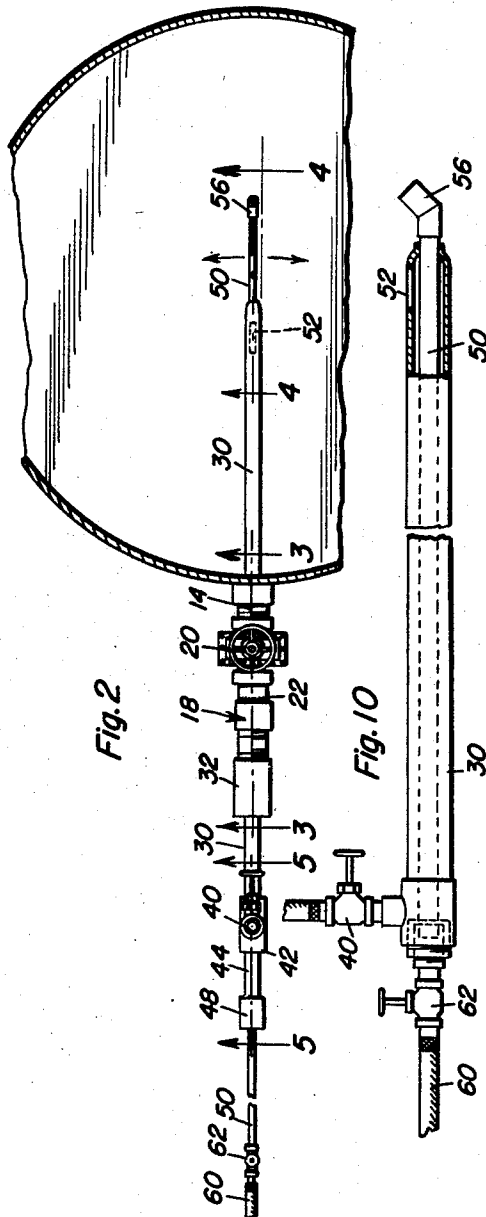
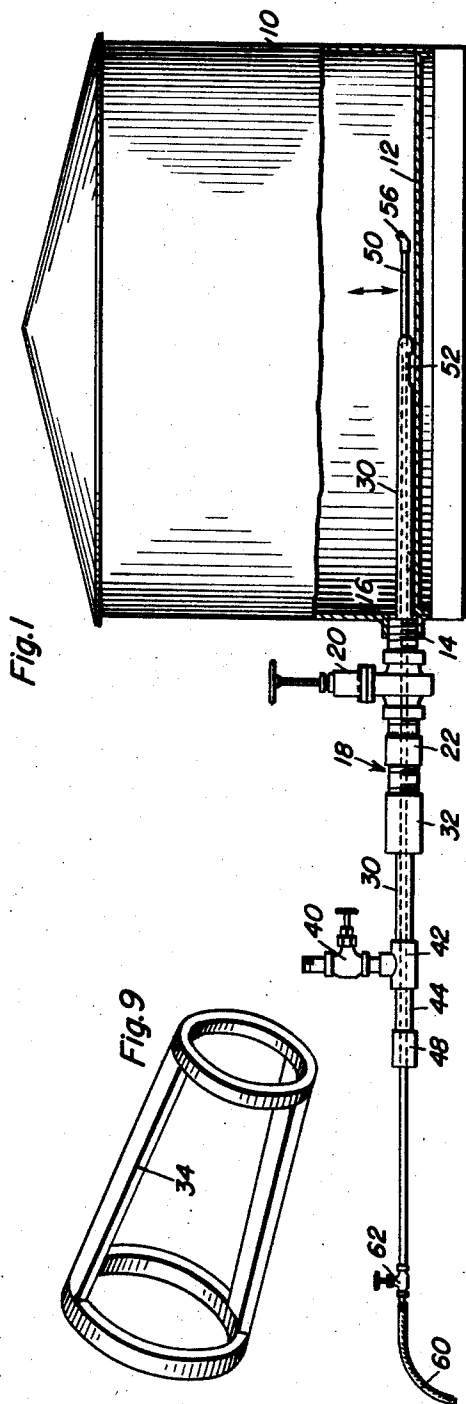
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W. E. WALKER
TANK CLEANER

2,915,085

Filed Oct. 15, 1957

2 Sheets-Sheet 1



William E. Walker
INVENTOR.

BY *Chance A. Prior*
and *Harvey B. Jacobson*
Attorneys

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William E. Walker
INVENTOR.

BY *Almonce A. O'Brien*
and Harvey E. Jacobson
Attorneys

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TANK CLEANER

William E. Walker, Freer, Tex.

Application October 15, 1957, Serial No. 690,349

6 Claims. (Cl. 137-577.5)

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This invention relates to an appliance for cleaning tanks by withdrawing foreign matter from the bottom thereof.

An object of the invention is to provide an improved tank cleaning device that is capable of withdrawing sediment, sludge, etc. from the bottom of a tank with greater effectiveness than prior tank cleaning devices, including my prior patented tank cleaning device described in U.S. Patent No. 2,353,530.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings formed a part hereof, wherein like numerals refer to like parts throughout, and in which:

Figure 1 is an elevational view of a tank fitted with one embodiment of the invention;

Figure 2 is a horizontal sectional view of the tank in Figure 1;

Figure 3 is an enlarged sectional view taken on the line 3-3 of Figure 2;

Figure 4 is an enlarged sectional view taken on the line 4-4 of Figure 2;

Figure 5 is an enlarged sectional view taken on the line 5-5 of Figure 2;

Figure 6 is a fragmentary sectional view showing in enlarged scale a part of the innermost pipe of Figure 4;

Figure 7 is an enlarged sectional view of the tip of the innermost pipe of Figure 4;

Figure 8 is an elevational view showing a principal modification wherein the assembly is curved to bring the end very close to the bottom surface of the tank.

Figure 9 is a perspective view of a frame;

Figure 10 is a fragmentary view of a modification with parts shown in elevation and parts in section.

In the accompanying drawings there is a tank 10 which exemplifies any kind of tank, for example an oil tank wherein sediment, sludge, scale, etc. accumulates on the bottom wall 12 thereof.

Nipple 14 is threaded in an opening 16 at the bottom of the tank, and an outer sleeve assembly 18 is connected with the nipple. The outer sleeve assembly includes a gate valve 20 threaded onto nipple 14 together with an adapter 22 threaded into the gate valve body. Partition 24 is in the sleeve 26, the latter threaded in the adapter 22. Packing 28 abuts the sleeve, and the packing is brought tightly against the surface of pipe 30 by tightening the end assembly 32. The end assembly is made of a collar within which there is a frame 34 pressing against washers 36 located in sleeve 26 and bearing against the packing 28.

The above description is for a tank cleaning device which is very much similar to my prior patented device. In addition, my prior patented device has a valve 40 in pipe 30. The present cleaning device has valve 40 in a T-fitting 42 in pipe 30, and there is a packing 42 in a short length of pipe 44 on the opposite side of the

T-fitting 42 from pipe 30. Pipe 44 forms a continuation of a part of a pipe 30. The packing is held in place by an apertured partition 46, and the packing is adjusted by assembly 48 which is identical to the corresponding assembly in my patent. An inner pipe 50 is passed through packing 42 and pipe 30 in order to scavenge the interior of tank 10. As shown in Figure 8 it is preferred, although not necessary, that the pipes 30 and 50 have a slight arch so that the extremities will be able to get very close to the bottom 12 of tank 10.

A foreign matter inlet 52 is formed in the bottom of the otherwise closed end of pipe 30. The inner pipe 50 has a nozzle 54 (Figures 4, 6 and 8) facing rearwardly and through which liquid under pressure is adapted to be issued. An angulated nozzle 56 is at the end of inner pipe 50 for the same purpose.

In use, the appliance is attached to the tank 10 with the opening 52 facing down. The innermost pipe 50 can be worked back and forth and twisted so that liquid under pressure from a supply pipe 60 at the end of pipe 50 can be used. Valve 62 is for the control of the pressure supply. With a valve 20 in the open position, the system may flow very much the same as in my prior patent. By manipulating valve 40 the pipe 30 can be used as a pressure source and the pipe 50 used as a return. In other words the inner and outer substantially concentric pipes 50 and 30 are interchangeable in their use. Thorough and effective cleaning is achieved in this way.

Figure 10 shows a modification wherein the inner pipe 50 is secured to an end of pipe 30 thereby forming a bypass between pipes 30 and 50. In this way pressure can be applied, through valve 62, on small pipe 30 and still have an outlet through valve 40. The entire assembly of Figure 10 can work through the sleeve assembly 18.

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 as claimed.

What is claimed as new is as follows:

1. A clean-out appliance for a liquid containing tank having a bottom and a lower opening near the bottom, said appliance comprising an innermost pipe, a second pipe surrounding said innermost pipe, the inner end of said innermost pipe extending out of said second pipe and having an outlet, said second pipe having a foreign matter inlet, a valve to control flow through said second pipe, a jet nozzle on said innermost pipe and located within said second pipe and directed rearwardly in said second pipe and in a direction to induce flow into said foreign matter inlet of said second pipe, a packing in said second pipe through which said innermost pipe is passed, and a valve controlling flow through said innermost pipe.

2. The appliance of claim 1 wherein there is a sleeve assembly connected to the tank in registry with said outlet of said tank, a valve controlling said sleeve assembly, and packing in said sleeve assembly through which said second pipe is passed.

3. The appliance of claim 1 wherein said second pipe has an aperture at the inner end thereof through which said innermost pipe passes, said innermost pipe being movable inwardly and outwardly and rotationally with respect to said second pipe, and said innermost pipe outlet comprises a nozzle which is angularly directed with respect to said innermost pipe.

4. An appliance for attachment to a tank in order to remove foreign matter from the lower part thereof, said

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appliance comprising an outer sleeve assembly adapted to connect with an outlet at the lower part of the tank and having a valve therein, a packing in said outer sleeve assembly, the improvement comprising a first innermost pipe and a second pipe surrounding said first innermost pipe, the inner end of said innermost pipe extending out of said second pipe and having an outlet, said second pipe slidable through said packing in said sleeve assembly and movable to selected positions within the tank, said second pipe having an opening through which foreign matter is adapted to pass and having a valve therein, said innermost pipe movable with respect to said second pipe to cover various parts of the inside lower part of the tank, and a packing in said second pipe through which said first pipe is movable.

5. An appliance for attachment to a tank in order to remove foreign matter from the lower part thereof, said appliance comprising an outer sleeve assembly adapted to connect with an outlet at the lower part of the tank and having a valve therein, a packing in said outer sleeve assembly, the improvement comprising a first innermost pipe and a second pipe surrounding said first innermost pipe, the inner end of said innermost pipe extending out of said second pipe and having an outlet, said second pipe slidable through said packing in said sleeve assembly and movable to selected positions within the tank, said second pipe having an opening through which foreign matter is adapted to pass and having a valve therein, said innermost pipe movable with respect to said second pipe

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to cover various parts of the inside lower part of the tank, and a packing in said second pipe through which said first pipe is movable, said second pipe and said first pipe being curved so that the ends thereof sweep close to the bottom of the tank.

6. An appliance for attachment to a tank in order to remove foreign matter from the lower part thereof, said appliance comprising an outer sleeve assembly adapted to connect with an outlet at the lower part of the tank and having a valve therein, a packing in said outer sleeve assembly, the improvement comprising a first innermost pipe and a second pipe surrounding said first innermost pipe, the inner end of said innermost pipe extending out of said second pipe and having an outlet, said second pipe slidable through said packing in said sleeve assembly and movable to selected positions within the tank, said second pipe having an opening through which foreign matter is adapted to pass and having a valve therein, said innermost pipe movable with respect to said second pipe to cover various parts of the inside lower part of the tank, a packing in said second pipe through which said first pipe is movable, said second pipe and said first pipe being curved so that the ends thereof sweep close to the bottom of the tank, said innermost pipe outlet comprising a jet nozzle on said innermost pipe and directed toward the outlet in the tank to facilitate movement of liquid through said second pipe.

No references cited.