

[54] PORTABLE POOL CLEANER

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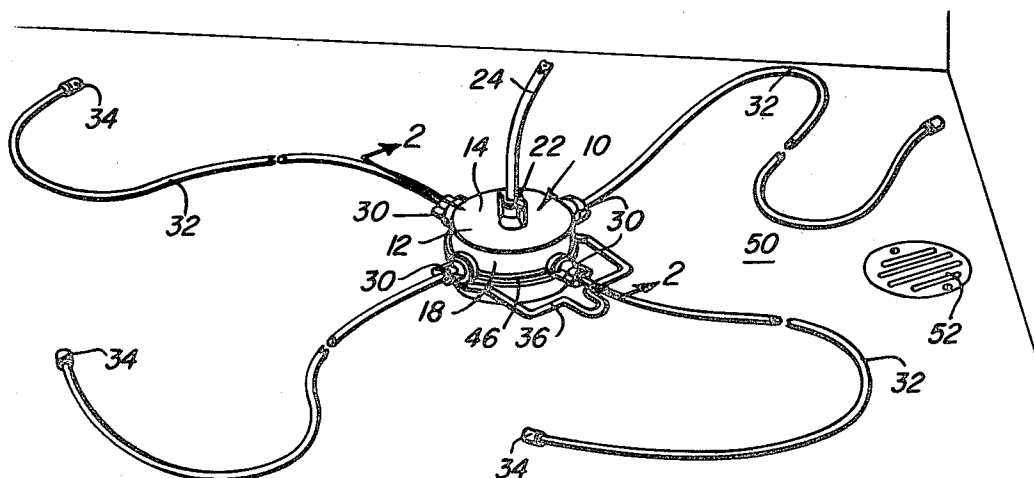
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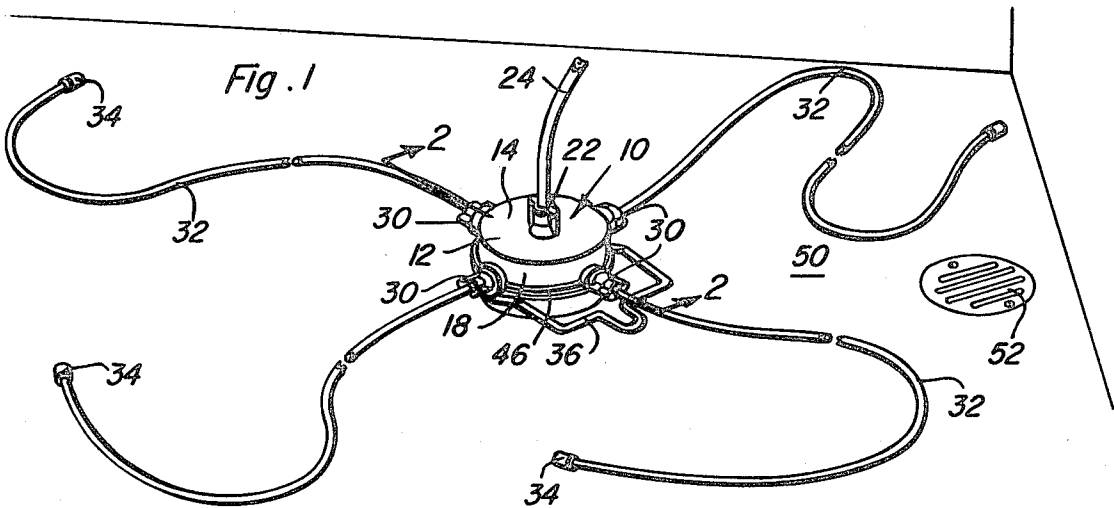
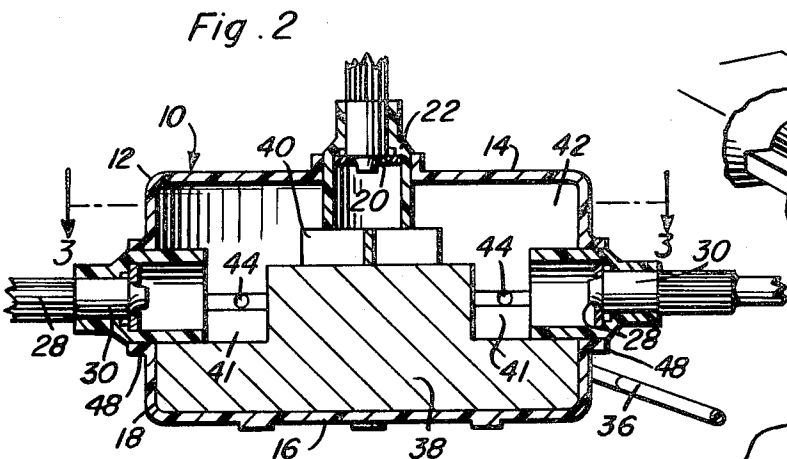
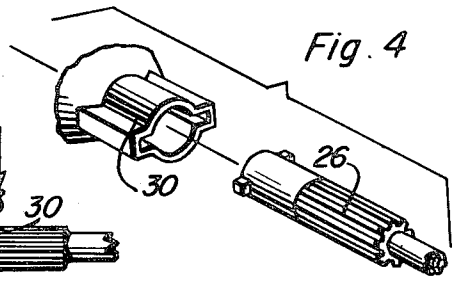
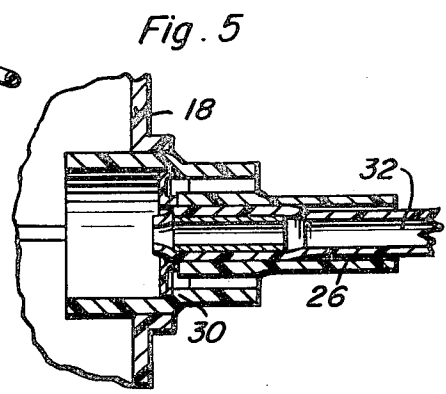
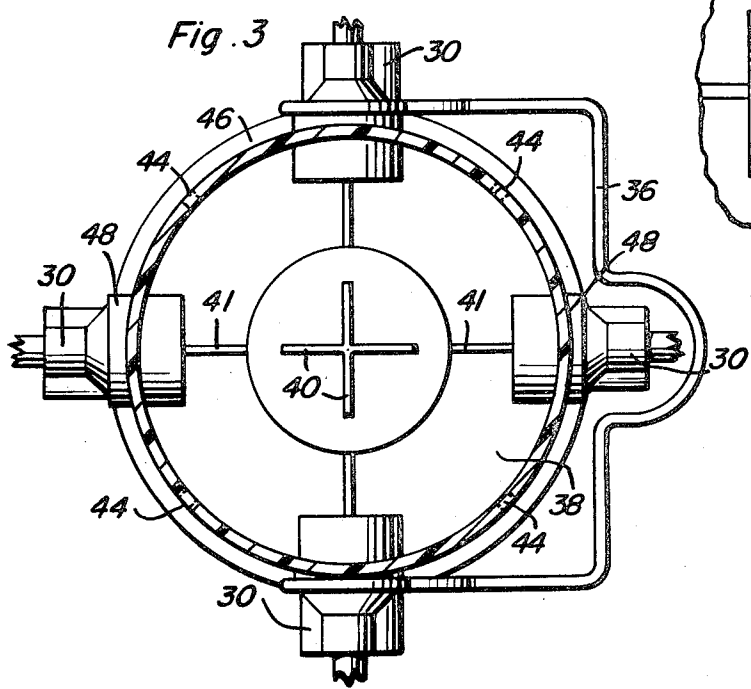
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[57] ABSTRACT

A portable cleaner for swimming pools has a housing with walls defining a chamber, and ballast arranged in the housing for permitting the housing to be freely supported on a bottom surface of a pool. The housing walls define an inlet opening for passing a fluid into the chamber, and a plurality of orifices and outlet openings for passing the fluid from the chamber. A diverter, which advantageously forms the ballast, is arranged in the housing chamber for diverting the fluid from the inlet opening toward the outlet orifices and openings. The housing is provided with quick-disconnecting-type fittings for connecting supply and sweep hoses thereto, with the latter discharging fluid therefrom and causing agitation of the pool water.

8 Claims, 5 Drawing Figures





PORTABLE POOL CLEANER

BACKGROUND OF THE INVENTION

This invention relates to a portable cleaner for pools and has a housing defining a chamber, an inlet opening for passing a fluid into the chamber, and outlet means for passing the fluid from the chamber. The outlet means includes a plurality of orifices. A diverter is arranged in the chamber for diverting the fluid from the inlet opening toward the outlet means.

The present inventor's U.S. Pat. No. 3,585,654, issued June 22, 1971, discloses a pool cleaning apparatus using flexible hoses which connect with quick-disconnect-type couplings arranged in the walls of the pool.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a portable pool cleaner for such fluid pools as swimming pools, water tanks, and chemical baths.

This and other objects are achieved according to the present invention by providing a housing having walls defining a chamber, an inlet opening for passing the fluid into the chamber, and outlet means for passing the fluid from the chamber and having a plurality of orifices. These are arranged in the chamber for diverting the fluid from the inlet opening toward the outlet means. The outlet means further has a plurality of outlet openings. Means are arranged in the chamber for diverting the fluid from the inlet opening toward the outlet means. Preferably, the diverting means is a waffle-type diverter having a plurality of ribs.

The inlet opening and each of the outlet openings have means associated therewith for connecting a hose thereto. In a preferred embodiment of the present invention, the means for connecting a hose is a quick-disconnect-type fitting rigidly attached to and extending outwardly from the housing.

A feature of a preferred embodiment of the present invention has the housing in the form of a closed cylinder having spaced, flat, parallel, circular end walls with a cylindrical wall between them. The inlet opening is defined in one end wall, and the orifices and outlet openings are defined in the cylindrical wall. The outlet openings and orifices are advantageously alternately arranged and uniformly spaced around the cylindrical wall. In a preferred embodiment of a portable pool cleaner according to the present invention, there are four orifices and four outlet openings, and the housing has a reinforcing rib provided on the cylindrical wall and arranged parallel to and equidistance from the end walls.

The waffle-type diverter is preferably constructed from a heavy material such as lead so as to act as ballast for the cleaner.

A, for example, stainless steel handle may be provided on the housing. This handle is preferably adapted to be attachable to a suitable known pool brush for permitting the cleaner to be positioned in a pool.

A supply hose and a plurality of sweep hoses may be connected to the fittings and in communication with the chamber. Preferably, each sweep hose is provided with a suitable, known restrictor nozzle. Each hose may be provided with a hose fitting dimensioned to selectively engage with one of the fittings on the housing to connect the hoses to the housing.

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 forming a part hereof, wherein like numerals refer to like parts throughout.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view showing a portable pool cleaner according to the present invention with hoses attached.

FIG. 2 is a side elevational cross-sectional view taken generally along line 2—2 of FIG. 1.

FIG. 3 is a top plan cross-sectional view taken generally along the line 3—3 of FIG. 2.

FIG. 4 is a perspective view of a detail of the present invention showing a housing fitting and a mating hose fitting.

FIG. 5 is a side elevational cross-sectional view of a detail of the present invention showing the connection of a hose to a housing fitting.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG. 1 of the drawings shows a portable pool cleaner 10 having a housing 12 in the form of a closed cylinder having spaced, flat, parallel, circular end walls 14 and 16 (FIG. 2) and a cylindrical wall 18. Housing 12 may be constructed from, for example, a suitable, known synthetic material. An inlet opening 20 (FIG. 2) is defined in the top end wall 14. A quickdisconnect type fitting 22 is rigidly attached in a suitable, known manner, such as by a suitable adhesive, to end wall 14 so as to extend outwardly from housing 12. A supply hose 24 is selectively connectible to fitting 22 as by a hose fitting 26 (FIG. 4).

Hose 24 may be constructed from, for example, a suitable, known synthetic material. In an actual embodiment, hose 24 is 25 feet long, and may be provided with, for example, a hose bib (not shown) or a, for example, neoprene supply line connector (not shown). Hose 24 is, for example, adapted to be connected to the pressure side of a known filter pump (not shown) to furnish a fluid, such as water, to the housing 12.

A plurality of outlet openings 28 (FIG. 2), four in the illustrated embodiment, are defined in cylindrical wall 18. Quick-disconnect fittings 30, which are the same as fitting 22, are rigidly attached to and extend outward from housing 12 in a manner similar to fitting 22. Sweep hoses 32 are selectively connected to fittings 30, as by, for example, hose fittings 26. Suitable, known restrictor nozzles 34 are advantageously provided at the remote ends of hoses 32 to assure proper whip action thereof. A length of 12½ feet of virgin vinyl hose has been found satisfactory for hoses 32.

The hose units and fittings 22, 26 and 30 shown specifically in FIGS. 4 and 5 of the drawings, and described above, are the same as shown in greater detail in U.S. Pat. No. 3,585,654, issued June 22, 1971, to Alexander J. Jacobs, the disclosure of which is incorporated herein by reference thereto.

A, for example, stainless steel handle 36 may be mounted on a pair of opposed fittings 30. Handle 36 is adapted to be attachable by hooking to a suitable, known pool brush (not shown) for permitting cleaner 10 to be positioned in a pool.

3

As can be seen in FIGS. 2 and 3, a waffle-type diverter 38 having a plurality of ribs 40, 41 is positioned in a chamber 42 defined by walls 14, 16 and 18 of housing 12. Diverter 38 is preferably constructed from a heavy material, such as lead, so as to act as ballast for cleaner 10.

Fittings 22 and 30 extend into chamber 42 and rest against ribs 40, 41 to position the fittings 22, 30 and diverter 38 in housing 12.

In addition to outlet openings 28, a plurality of orifices 44 are defined in cylindrical wall 18. Four orifices 44 are used in the illustrated embodiment, and are alternately arranged and uniformly spaced around wall 18 with respect to openings 28. Orifices 44 clean the areas immediately around housing 12, which otherwise would be a dead area with resulting dirt accumulation. An angle of 35° between orifices 44 and wall 18 has been found satisfactory.

A reinforcing rib 46 is provided on wall 18 and is arranged substantially parallel to and equidistance from walls 14 and 16. Besides strengthening housing 12, rib 46 permits housing 12 to be fabricated in two parts and joined along rib 46. Flange portions 48 may be provided on wall 18 to facilitate mounting of fittings 30.

When using cleaner 10, it is placed on the bottom surface 50 of a swimming pool or the like and as the hose nozzles 34 discharge water in a jet form, sediment, dirt and the like will become suspended in the pool water and be drawn through a main drain 52 into the filter system (not shown) and subsequently the cleaned water will be discharged back into the pool through the hose 24, cleaner 10 and hoses 32. The portable cleaner may be installed in all types of pools or other liquid containers desired to be cleaned in this manner.

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.

What is claimed as new is as follows:

1. A device for agitating water in a swimming pool to retain dirt and the like suspended in the water thereby enabling the water with the dirt suspended therein to be moved through a water filtering system and returned to the pool, said device comprising, in combination: a housing arranged for being freely supported on a bottom surface of a pool, pressured fluid supply means communicated with said housing, and at least one flexible discharge hose means communicated with said housing, said hose means being freely movable with the discharge of fluid under pressure therefrom causing movement of the hose means and agitation of the pool water, said housing being provided with an inlet opening connected to the fluid supply means, and with outlet means having a plurality of outlet openings, the fluid supply means including a supply hose, a plurality of dis-

4

charge hoses, and said inlet opening and each of said outlet openings having means associated therewith for connecting a hose thereto, said housing being in the form of a closed cylinder having spaced, flat, parallel, circular end walls with a cylindrical wall between them, said inlet opening being defined in one end wall, and said outlet openings being defined in the cylindrical wall, and said cylindrical wall having a plurality of orifices therein, said orifices and said outlet openings being alternately arranged and uniformly spaced around said cylindrical wall.

2. A cleaner as defined in claim 1, further including means for diverting a fluid, said means for diverting including a waffle-type diverter having a plurality of ribs and arranged in said housing.

3. A cleaner as defined in claim 2, wherein said diverter is constructed from a heavy material arranged so as to act as ballast, said housing including handle means adapted to be engaged by a pool brush for enabling the cleaner to be adjustably positioned in a pool.

4. A cleaner as defined in claim 1, wherein the means for connecting a hose is a quick-disconnect type fitting rigid with and extending outwardly from said housing.

5. A cleaner as defined in claim 6, further including a supply hose and a plurality of sweep hoses connected to said fittings and in communication with said chamber, each sweep hose being provided with a restrictor nozzle.

6. A cleaner as defined in claim 5, further including a plurality of hose fittings, each hose fitting dimensioned to selectively engage with one of said fittings on the housing to connect the hoses to said housing.

7. A cleaner as defined in claim 1, wherein there are four orifices and four outlet openings, and said housing has a reinforcing rib provided on the cylindrical wall and arranged parallel to and equidistance from said end walls.

8. A device for agitating water in a swimming pool, comprising, in combination:

a. a housing arranged for being freely supported on a bottom surface of a pool and having walls defining a chamber, an inlet opening for passing a fluid into the chamber, and outlet means for passing the fluid from the chamber;

b. the outlet means including a plurality of outlet openings, each opening arranged for receiving a discharge hose;

c. a plurality of flexible discharge hoses connected to and communicated with said outlet openings, said hoses being freely movable with the discharge of fluid under pressure therefrom causing movement of the hoses and agitation of the water in a pool; and

d. a plurality of orifices, separate from the outlet openings, provided in the housing walls and arranged for discharging fluid and agitating water adjacent an entire periphery of the housing.

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