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(54) **PORTABLE BATTERY POWERED AUTOMATIC PUMP**

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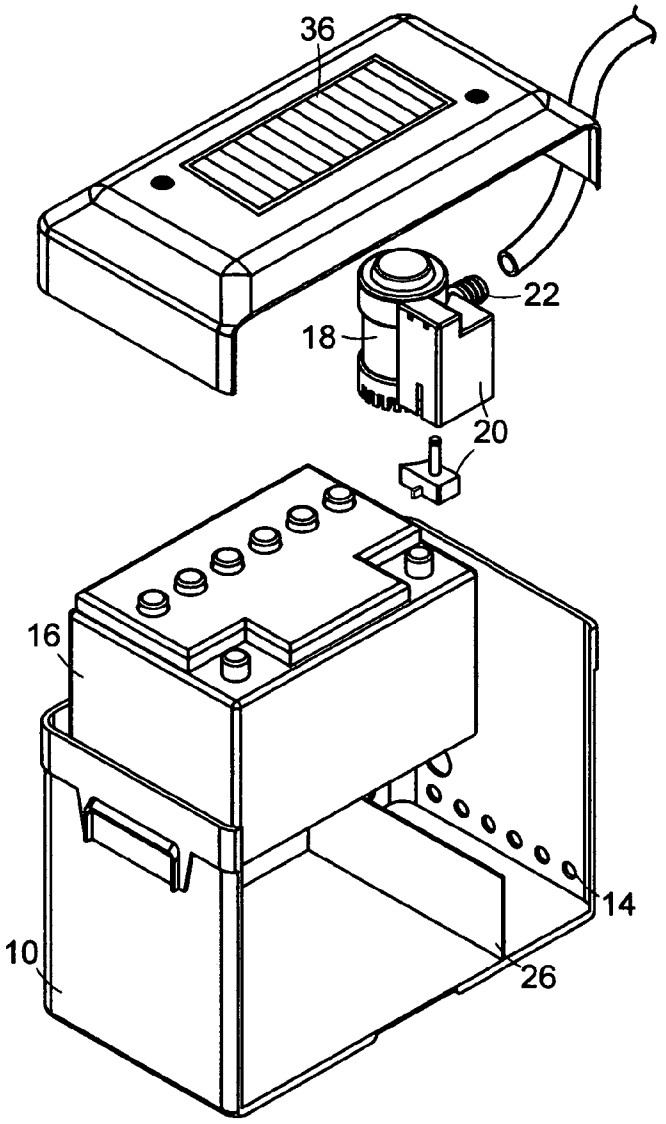
(57) **ABSTRACT**

The invention is a pump system which is comprised of a box with a plurality of openings and inside of which is an electrically powered pump, a float switch and a battery. These components comprise one pumping unit. This unit is designed to rest at the bottom interior of a boat, or the bilge area, for the purpose of pumping water out of the boat automatically when the water reaches a predetermined level in the boat. The pump unit is portable and self contained with no additional power source or wiring needed.



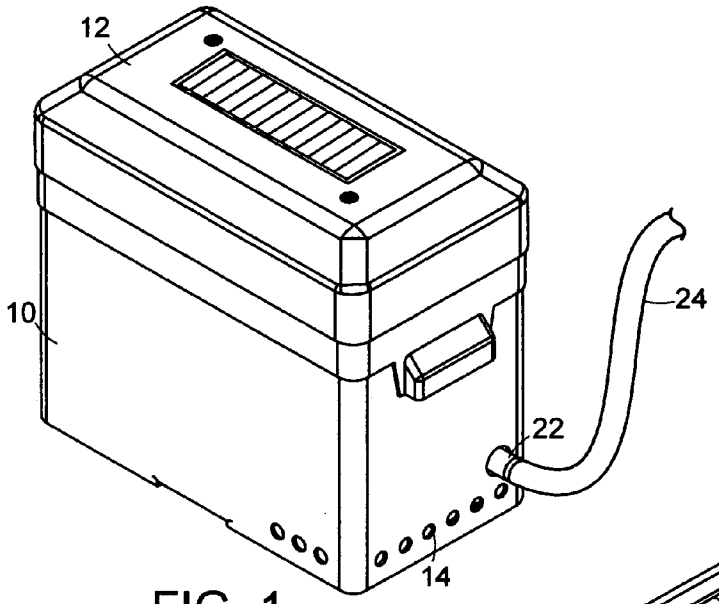


FIG. 1

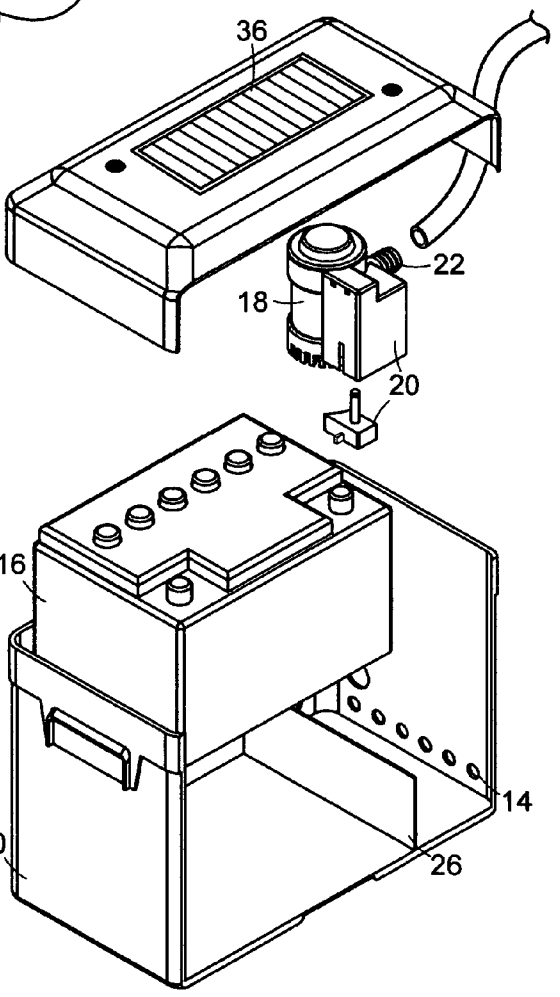


FIG. 2

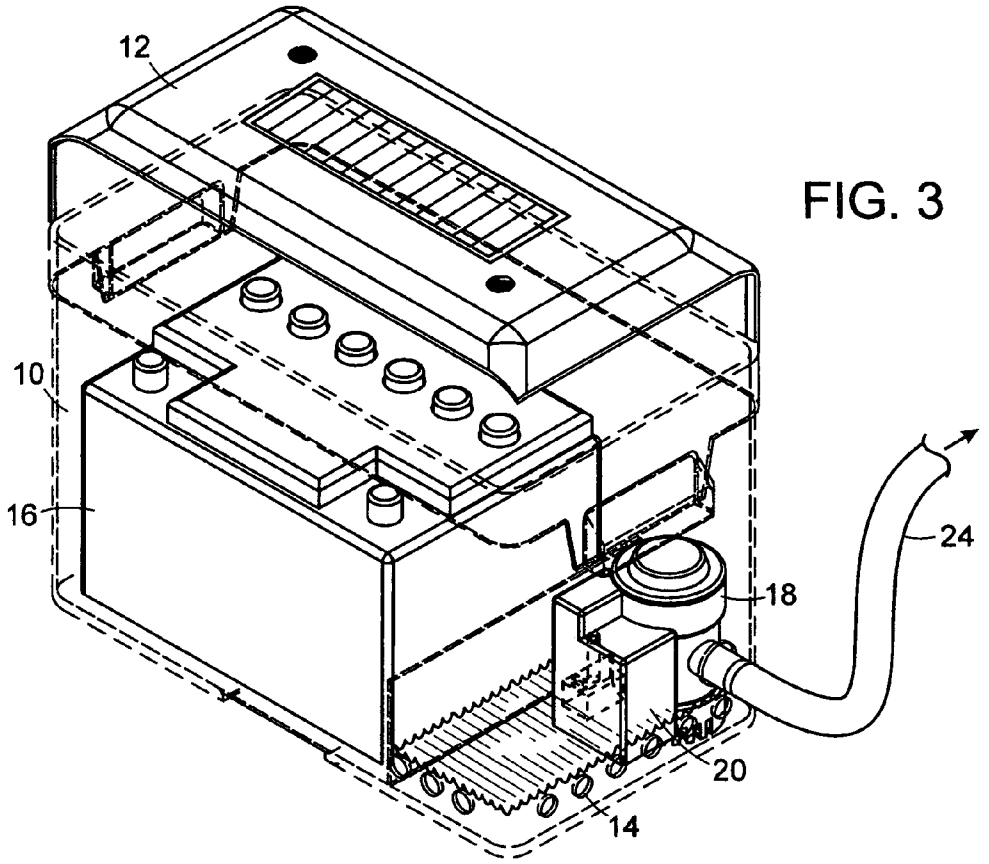


FIG. 3

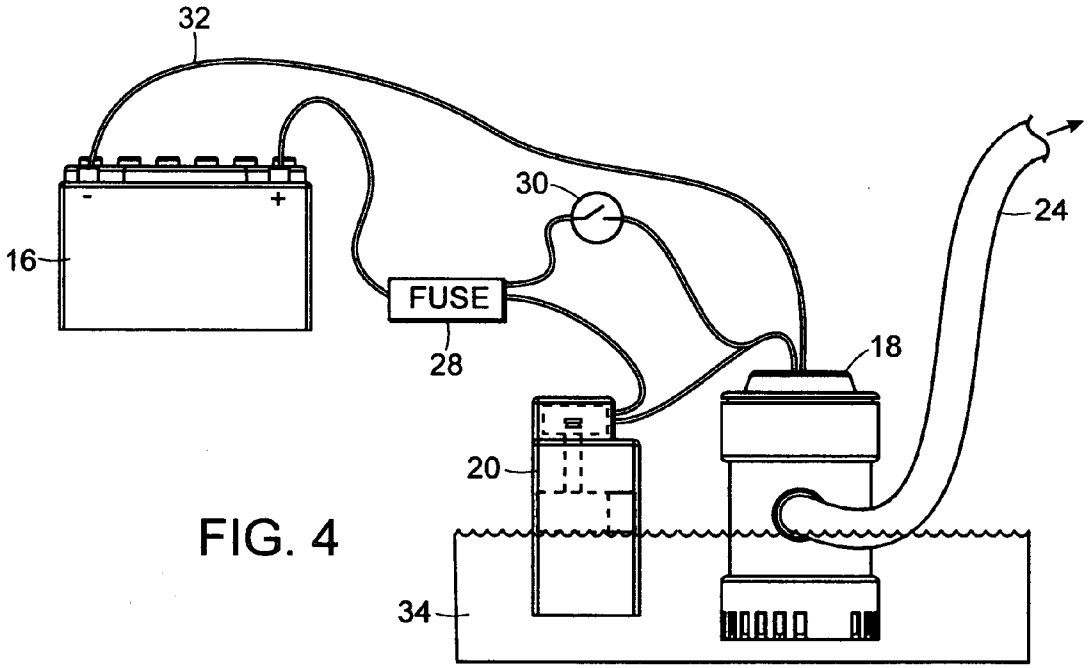


FIG. 4

PORTABLE BATTERY POWERED AUTOMATIC PUMP

FIELD OF THE INVENTION

[0001] The present invention relates to an automatic bilge pumping system for boats and more particularly is directed towards a self contained completely portable battery powered water pumping system for boats, though it is not limited to such use.

[0002] There are many electric automatic bilge pumps on the market, but they do not address the problem of having a portable automatic bilge pump in a small boat. There is typically limited space in a small boat and the problems related to the mounting of the pump and finding space on the boat for the battery used to power the pump. In addition, the wiring between the pump and the battery is exposed and subject to wear and abrasion. In small open style boats, a general purpose bilge pump is difficult to mount due to the restricted area and the lack of a suitable, protected mounting area. In aluminum constructed boats for example, mounting holes would have to be drilled through the hull to mount the pump bracket, increasing the chance of future leaks. The pump is also exposed to damage from ingress and egress of boat passengers and crew. In addition, a power source would be needed, typically a 12 VDC marine battery. The combination of a separate battery and pump in a small boat is impractical. It would also be desirable to move and/or remove the pump and battery easily to accommodate various types of cargo, passengers, etc. and to reduce the weight of the boat when transporting it.

DESCRIPTION OF THE PRIOR ART

[0003] In recent years, several boat pumping devices have been designed. A small boat pumping device with a separate power supply is shown in U.S. Pat. No. 3,941,073 and 4,050,396. The problems associated with this device are the separation of the power supply (battery) and the pump into two distinct units and the wiring between the two devices. This creates a system that is difficult to transport due to the two components and the wiring. The exposed wiring creates the potential for snagging on passengers feet, cargo, oars, etc. as well as increased exposure to wear and abrasion from being stepped on and having cargo etc. placed on it. Some portion of the wiring would likely be sitting in the standing water of the bilge area. The combination of exposure, wear and water would create the potential for electrical shorts. It also appears that the pumping device would tend to be unstable, possibly tipping due to its light weight. It would appear that, without permanently mounting the device, it could move from its desired position when the craft is underway. This device would use much of the available space in a small boat due to separation of the pump from the battery. There are also several bilge pump mounting systems (U.S. Pat. Nos. 6,763,775; 6,322,030; 5,211,363) but all require the permanent mounting of a pump and the drilling of holes into the boat. There are also some battery powered liquid pumps (U.S. Pat. Nos. D295,522; 4,502,515; 4,021,150) but these are designed for fountains, chemical pumping, etc.

SUMMARY OF THE INVENTION

[0004] It is the object of the invention to provide a one piece portable water pumping unit comprised of a box that would contain a pump, a float switch and a battery that could be placed directly in the bilge area of a small boat and would pump out water through a hose to keep the boat afloat, eliminating the need to bail the boat before use and preventing the boat from potentially sinking. The use of a conventional marine battery, bilge pump and float switch would make this unit easy to assemble. Float switch and pump manufacturers currently on the market include but are not limited to Rule Industries, Johnson Pumps, and Attwood Industries. The weight of the battery would keep the pump unit in place and eliminate the need for a mounting bracket. This would also enable ease of removal of the pump unit from the boat.

[0005] In accordance with the invention a box is provided with a number of openings in the sides near the bottom of the box to allow water to enter the box from the bilge area. In this box is mounted a bilge pump, an automatic float switch and a marine battery. The box would be large enough to accommodate a standard marine battery, a pump and a float switch. The invention is placed in the bilge or lowest area inside of a boat. As water present in the bilge enters the box through the openings, the rising water causes the float switch to close its contacts, electrical current is then passed from the battery to the pump and the water is pumped out of the boat. When the water is below a certain predetermined level, the float switch would open its contacts and the pump would cease pumping. There could also be a test button located on the side of the box to determine the functionality of the unit.

BRIEF DESCRIPTION OF THE DRAWINGS

[0006] A fuller understanding of the nature and objects of the present invention will become apparent upon consideration of the following description and accompanying drawings wherein:

[0007] **FIG. 1** is a perspective view of the exterior of the pump unit.

[0008] **FIG. 2** is a view of the pump unit showing placement of the interior components.

[0009] **FIG. 3** is a perspective view of the pump unit showing the interior components.

[0010] **FIG. 4** is a partial view showing the wiring of the pump unit.

DETAILED DESCRIPTION OF THE INVENTION

[0011] Referring now to the drawings, **FIG. 1** shows the **10** box, the **12** cover, the **14** openings, the **22** pump outlet and the **24** hose. **FIG. 2** shows the **18** pump, the **20** float switch, the **16** battery and the **26** divider and how they would fit into the **10** box. **FIG. 3** shows the approximate position of the **18** pump and **20** switch when mounted into the **10** box as well as placement of the **16** battery. **FIG. 4** is a view of the wiring schematic of the pump unit with negative voltage from the **16** battery connected directly to the battery through the **32** electrical wire and positive voltage connected to the **20** float switch through **28** fuse.

[0012] The pump unit is activated as such: When the **34** water rises to a predetermined level entering the box through **14** openings, electrical contacts inside of **20** float switch would close enabling positive voltage to flow from the **16**

battery through the **20** float switch to the **18** pump. The **18** pump would turn on and begin pumping water out of **22** pump outlet and through **24** hose. As the water level dropped as it was pumped out of the boat, **20** float switch would open the electrical circuit and **18** pump would shut off. This cycle would continue indefinitely. A **30** test button would provide an indication of the operability of the system by bypassing **20** float switch and connecting positive voltage directly from **16** battery to **18** pump.

[**0013**] Since certain changes may be made in the foregoing disclosure without departing from the scope of the invention herein involved, it is intended that all matter contained in the above description and depicted in the accompanying drawings be construed in an illustrative and not a limiting sense.

What is claimed is:

1. A portable battery powered automatic pump comprising: (a) a box with a series of openings; (b) a battery; (c) a pump; (d) a float switch; (e) electrical wire; (f) a length of hose; Wherein said pump and said float switch are attached to said box and said battery is placed inside of said box and said battery, said pump and said float switch are electrically connected through said electrical wire.

2. The portable battery powered automatic pump as claimed in claim 1 wherein said box has mounted on it an electrical test button.

3. The portable battery powered automatic pump as claimed in claim 1 wherein said system has a fuse between said battery and said float switch.

4. The portable battery powered automatic pump as claimed in claim 1 wherein said box has a divider located on the interior of said box.

5. The portable battery powered automatic pump as claimed in claim 1 wherein said pump is mounted to said box by means of self locking stainless steel screws and nuts.

6. The portable battery powered automatic pump as claimed in claim 1 wherein said float switch is mounted to said box by means of self locking stainless steel screws and nuts.

7. The portable battery powered automatic pump as claimed in claim 1 wherein said box is constructed of plastic.

8. The portable battery powered automatic pump as claimed in claim 1 wherein said box is constructed of aluminum.

9. The portable battery powered automatic pump as claimed in claim 1 wherein said box is constructed of stainless steel.

10. The portable battery powered automatic pump as claimed in claim 1 wherein said box has a cover.

11. The portable battery powered automatic pump as claimed in claim 10 wherein said box cover has a solar cell incorporated into it.

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