

## MULTIPLE USAGE CLEANING DEVICE

### BACKGROUND OF THE INVENTION

#### 1. Field of the invention

The present invention relates to a multiple usage cleaning device, especially to a  
5 low cost, multiple usage cleaning device having preferred oxygen containing ratio and  
preferring filtering effect.

#### 2. Description of the prior art

In the agricultural using water, a further filtering device is installed for recycling  
10 the water. Another, the agricultural and fishery using water will become muddy by the  
pollution of the excreta of fish and shrimps or other waste, thus it is needed to clean  
through filtering device and by physical method for sustaining clean water so that the  
fish and shrimp may exist happily.

Furthermore, in the general agricultural and fishery used water, the oxygen  
15 containing volume thereof will be sustained within a predetermined range, for example,  
the oxygen containing ratio of the water for cultivating shrimps is above 3.7 PPM. But  
since recently the river has been polluted dramatically, even the oxygen containing  
ratio has reduced to zero. Therefore it become a problem to derive the agricultural and  
fishery used water. Thus it is urgently necessary to design an effective filtering device.

20 However, the prior filtering device is necessary to install with a water pumping  
motor for pumping the water to the filtering device so that the waste in the water may

be filtered by the filtering material in the water and then the cleaning water will be led to the water tank, but the water pumping motor is expensive and need much power. Further, in the prior filtering device, the water is filtered by the filtering material in the water. The cleaning effect is bad thus the required water quality may not be attained.

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## SUMMARY OF THE INVENTION

Accordingly, the filtering device for agriculture water has some drawbacks in practice and it is needed to further improve.

Therefore, the inventor of the present invention has studied for a long time to design a brand new multiple usage cleaning device by which the drawback in the prior art may be improved.

The main object of the present invention is to provide a multiple usage cleaning device so that the water resource may be used repeatedly and it is matched the requirement in the environment protection. In the present invention, a bubble stone is installed within a tube, and the bubble stone is connected with an outside air pump through an air inlet tube. Another a container is installed, the inside of which is installed with proper filtering material. The air is transferred into the bubble stone, then the bubble stone will generate a plurality of small bubbles so that the air will flow into the water and the oxygen will dissolve in the water, thus the oxygen dissolving ratio of the water will increase. As the air is transferred from the bubble stone, by the upward force of the air, the water within the tube will be pushed upwards and then is led to a container through a cambered tube so that the waste water will be processed by the

filtering material within the container, thus a cleaning water will be derived, therefore the inconvenience for updating water in agriculture and fishery will be prevented. Since in the present invention the air is used to drive the water to flow, therefore the water pump may be neglect, and a cheap and power saving air pump is used. Further, if the  
5 fishery water is used to be filtered, then the air inlet pump may be connected with and directly used the air pump employed in fishery, thus the cost will be further reduced. Another, since small bubble may be generate from the bubble stone installed in the present invention and existed within the tube having predetermined volume so that the contact area of the water and bubbles of the tube is increased, thus the oxygen  
10 containing volume is also increased, and by the breeding of the germs within the filtering material to decompose ammonia and other harmful materials, a preferred biological filtering effect. It is appreciated that the present invention has widen the application fields including water used in home, aquatic animal tank, agriculture, fishery and industry. Furthermore, the present invention may be further applied to the  
15 industrial waste water, so it is a multiple usage water cleaning device.

Moreover, in practice, the present invention may be located within a water tank (pool) to clean water, thus the application of the present invention is further enlarged. However, in the prior art, the cleaning device has only one function. By using the present invention, the troublesome of updating water will be prevented and the cost is  
20 also saved.

The present invention will be better understood and its numerous objects and advantages will become apparent to those skilled in the art by referencing to the following drawings in which:

## BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is the plan view of the present invention.

Fig. 2 is a status schematic view about the usage of the present invention.

Fig. 3 is another plan view of another embodiment in the present invention.

5 Fig. 4 is a status schematic view about the usage in another embodiment of the present invention.

Fig. 5 is a status schematic view about the usage in further embodiment of the present invention.

Fig. 6 is a status schematic view about the usage of the present invention applied  
10 in the aquatic animal tank.

### Numeral Symbols

|    |                    |    |                     |
|----|--------------------|----|---------------------|
| 10 | tube body          | 11 | water tank          |
| 12 | cambered tube      | 13 | bubble stone        |
| 14 | air inlet tube     | 15 | container           |
| 16 | filtering material | 17 | plate body          |
| 18 | through hole       | 19 | drain tube          |
| 20 | drain tube         | 21 | cambered tube       |
| 22 | container          | 23 | drain tube          |
| 24 | air pump           | 25 | aquatic animal tank |
| 26 | water inlet area   | 27 | water outlet        |

## DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

Now referring to Fig. 1, the plan view of the present invention is shown, the present invention is provided with a multi-functional cleaning device which is located  
5 outside, wherein a hollow tube 10 is included therein. Said tube is properly and uprightly installed within the water tank 11 (water pool). The upper opening of the tube 10 may connected with a proper cambered tube 12 so that the water may be guided to the outside of the water tank 11. A bubble stone 13 is located within the tube 10, which is connected with a outside air pump (not shown) with air inlet tube so that  
10 the air may be transferred to the bubble stone 13. Besides, a tightly sealed container 15 is located on the outside of the water tank 11, and the water outlet opening of the upper cambered tube 12 of the tube 10 is penetrated through the top portion of the container 15. A proper filtering material 16 is installed within the tube 15, which may be a plastic fiber, rocks, silicon sands, etc. A plate body 17 is installed on the bottom  
15 portion of the filter material 16 for supporting said filtering material 16. A proper through hole 18 is installed on the plate body 17 for passing through by water. A drain opening 19 is installed on the bottom of the container 15 for draining water. The components described thereabove constructs a multi-functional cleaning device of the present invention.

20 Referring now to Fig. 2, the schematic view of the present invention is shown. In using the cleaning device of the present invention, the air is transferred to the bubble stone 13 by the air inlet tube 14. Now a plurality of small bubbles will be outputted

form the bubble stone 13, thus the air will flow into the water and the oxygen will dissolve in the water so that the oxygen dissolving ratio increases. As the air flows out from the bubble stone 13, by the upward ejecting force of the air, the water within the tube 10 will be pushed upwards to container 15 through the cambered tube 12. Thus  
5 the water will be processed by physical or other methods through the filtering material 16. The water having been processed by the filtering material 16 will be drain out through the through hole 18 of the plate body 17 and the drain opening 19 so to generate clean water and then the water is led back to the water tank 11. By the device of the present invention, the water will be as clean as possibly so to prevent the  
10 inconvenience in the fishery and agriculture. Since in the present invention the water is pushed upwards by air, thus the motor for pumping water is needless, it is only necessary to buy a cheap and power saving air pump. Further, if the fishery water is used to be filtered, then the air inlet pump may be connected with and directly used the air pump employed in fishery, thus the cost will be further reduced. Another, since  
15 small bubble may be generate from the bubble stone 13 installed in the present invention and existed within the tube 10 having predetermined volume so that the contact area of the water and bubbles of the tube 10 is increased, thus the oxygen containing volume is also increased, and by the breeding of the germs within the filtering material 16 to decompose ammonia and other harmful materials, a preferred  
20 biological filtering effect. Moreover, other than used in the eater processing of fishery, similarly, the present invention may be used in the water processing about the agriculture and others.

Another, in the general water tower, since the water cleaning device or pipes are old, it is often that the water within the tower has some odd smell or become muddy. If the present invention is employed in the water tower, such a drawback may be improved effectively, and in the general home waste water may be filtered and restored  
5 by the present invention.

Referring to Figs. 3 and 4, the plane view and schematic view of the present invention are shown, respectively. This embodiment is a build in water cleaning device including a hollow tube 10 which is uprightly located within a tightly sealing container 15. Two proper cambered tubes 12 and 21 are connected on the upper and lower  
10 openings of the tube 10, and a bubble stone 13 may be positioned within the tube 10, which is connected with an outside air pump (not shown) through a air inlet pump 14. The water outlet opening on the upper cambered tube 12 of the tube 10 is located within upper portion of the container 15, and proper filtering material 16 is installed within the container 15. A plate body 17 is installed on the lower portion of the  
15 filtering material 16 for supporting said material, and a proper through hole 18 is installed on the plate body 17. A drain pipe 20 is installed within the container 15 for draining water. The present invention may be located on the water tank 11 so that in using, the air is transferred into the bubble stone 13 through an air inlet pipe 14, thus the air will be transferred into the water. As the air is generated from the bubble stone  
20 13, by the upward force of the air, the water within the tube 10 will be pushed upwards and then is guided to the container 15 through a cambered tube 12, therefore, the water may be processed by the filtering material 16 of the container 15. The water processed by the filtering material 16 will be drain out through the through hole 18 of

the plate body 17 and the drain pipe 20 so to generate clean water which will then be transferred back to the water tank 11. By the design of embodiment in the present invention, the effect is the above embodiment may be similarly attained.

Now referring to Fig. 5, a schematic view about the usage of a further  
5 embodiment in the present invention is shown. In the present embodiment, an outdoor water cleaning device used in pool includes a tube 10 which may be uprightly located within a pool, and a proper cambered tube 12 may be connected on the upper opening of the tube 10. A proper cambered tubes 12 is connected on the upper and lower openings of the tube 10, and a bubble stone 13 may be positioned within the tube 10,  
10 which is connected with an outside air pump (not shown) through a air inlet pump 14. The water outlet opening on the upper cambered tube 12 of the tube 10 is located within upper portion of the container 22, and proper filtering material is installed within the container 22. A plurality of drain openings 23 are penetrated on the container 22. The tube 10 of the present invention may be installed in a pool so that in  
15 using, the air is transferred into the bubble stone 13 through a air inlet pipe 14, thus the air will be transferred into the water. As the air is generated from the bubble stone 13, by the upward force of the air, the water within the tube 10 will be pushed upwards and then is guided to the container 22 through a cambered tube 12, therefore, the water may be processed by the filtering material of the container 22. The water  
20 processed by the filtering material 16 will be drain out through drain openings 23 so to generate clean water which will then be transferred back to the pool.

Referring now to Fig. 6, an aquatic animal tank which is usually used at home as a decorate. However, whatever the size of said tank is , the cleaning of the tank is a

troublesome problem. By the structure of the present invention, the excretion and fodder for feeding fish are filtered so that the water may be cleaned, thus it is needless to update the water and a beautiful water will be viewed by viewer. It is formed by a aquatic animal tank 25, a bubble stone 13, an air inlet pipe 14, a water inlet area 25, a water outlet area 27 and air pump 24. Similarly, air is output from air pump 24. By the transferring of the air inlet pipe 14 so that air may generate from the bubble stone 13. Then the generated bubble will drive the water into the filtering material 16 through the water inlet area 26, finally the clean water will be transferred back from the water inlet area 27.

10 From the aforementioned four applications, it is appreciated that the present invention has widely the application fields including water used in home, aquatic animal tank, agriculture, fishery and industry. Further since in the water cleaning device of the present invention is needless to consider the size of water tank (pool) and may located outside or inside thereof, therefore the present invention has relative high practical application. Moreover, in the present invention, a cheap air pump is used to replace the water pump and by using the present invention, the waste and trouble from replacing water is prevented (especially in agriculture and fishery), thus the present invention has the economic and practical effects. Furthermore, the present invention may be further applied to the industrial waste water, so it is a multiple usage water cleaning device.

20 Although certain preferred embodiment of the present invention has been shown and described in detail, it should be understood that various changes and modification may be made therein without departing from the scope of the appended claims, such as

the knife or mesh may be substitute by multiple knives or meshes, or knives or meshes with other moving paths.

**What is claimed is:**

1. A multiple usage water cleaning device comprising a hollow tube body which is uprightly located within a water tank, and the upper opening of which is connected with a proper cambered tube; a bubble stone being installed within said tube, which is  
5 connected with an outside air pump through an air inlet tube; besides, a container being installed outside the water tank, and a water outlet of the cambered tube of the tube body being penetrating through the top of the container the inside of which is installed with proper filtering material and the bottom of which is installed with a drain outlet.
2. The multiple usage water cleaning device as claimed in claim 1, wherein a plate  
10 body is installed on the bottom of said filtering material for supporting the filtering material and a proper through hole is installed on the plate body.
3. The multiple usage water cleaning device as claimed in claim 1, wherein the tube may has a cylindrical shape or other proper shapes.
4. The multiple usage water cleaning device as claimed in claim 1, wherein the  
15 container for containing the filtering material for cleaning may has any proper shapes.
5. A multiple usage water cleaning device comprising a hollow tube body which is uprightly located within a container, and the upper and lower openings of which are connected with a proper cambered tube; a bubble stone being installed within said tube, which is connected with an outside air pump through an air inlet tube; the water outlet  
20 of the upper cambered tube of the tube body being located on the lower portion within the container and the water inlet on the lower cambered tube of the tube body being



penetrating to the outside of the container which is installed with proper filtering material and is installed with a drain outlet.

6. The multiple usage water cleaning device as claimed in claim 5, wherein a plate body is installed on the bottom of said filtering material for supporting the filtering material and a proper through hole is installed on the plate body.

7. The multiple usage water cleaning device as claimed in claim 5, wherein the tube may has a cylindrical shape or other proper shapes.

8. The multiple usage water cleaning device as claimed in claim 5, wherein the container for containing the filtering material for cleaning may has any proper shapes.

10 9. The multiple usage water cleaning device as claimed in claim 1, wherein a hollow tube body which is uprightly located within a pool, and the upper opening of which is connected with a proper cambered tube; a bubble stone being installed within said tube, which is connected with an outside air pump through an air inlet tube; the water outlet of the cambered tube of the tube body is connected with a container the  
15 inside of which is installed with proper filtering material and on which a plurality of drain outlets are penetrated.

10. The multiple usage water cleaning device as claimed in claim 9, wherein the tube may has a cylindrical shape or other proper shapes.

11. The multiple usage water cleaning device as claimed in claim 9, wherein the  
20 container for containing the filtering material for cleaning may has any proper shapes.

12. The multiple usage water cleaning device as claimed in claim 1, wherein cleaning device may be located outside.



13. The multiple usage water cleaning device as claimed in claim 5, wherein the cleaning device may be located inside.

14. The multiple usage water cleaning device as claimed in claim 9, wherein the cleaning device may be located inside.

5 15. The multiple usage water cleaning device as claimed in claim 9, wherein the cleaning device may be located outside.

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