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(54) Skimmer device

(57) A skimmer device (10) of the type provided with at least one window or inlet (2), behind which there is fixed at least one container (3) in turn connected to a water treatment system. Furthermore, the device (10) exhibits at least one head (4) vertically floating so as to arrange the upper edge (7) thereof flush with the surface of the water, thus allowing the passage inside the container (3) of just a thin water layer. The head (4) is vertically sliding along at least one vertical guide (22).

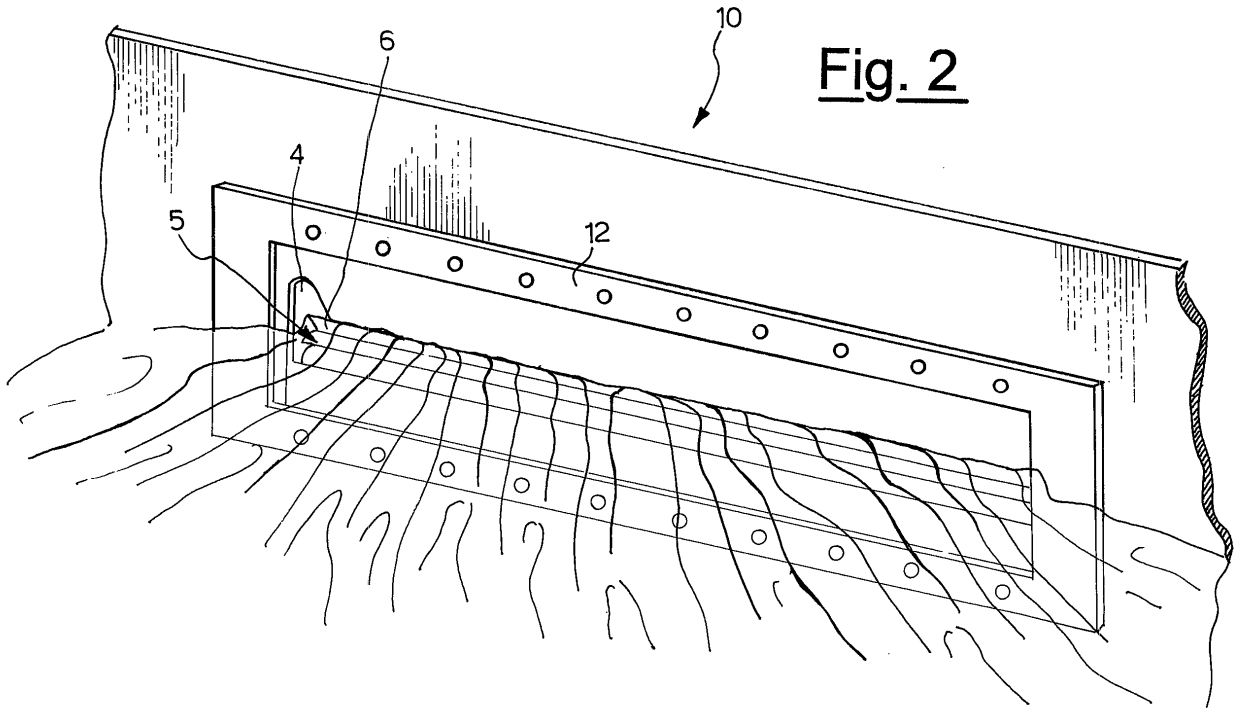

Fig. 2

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Description

[0001] The present invention relates to a skimmer device.

[0002] Skimmer is an English word which is now used in all the major languages (German, French, Spanish, Italian) to denote a component of the water treatment system in swimming pools.

[0003] In detail, the skimmer is intended for removing the upper layer of water which, as everyone knows, is the most polluted one, to have it sucked in by a pump and delivered to the treatment system.

[0004] Skimmers usually consist of a rectangular window located on the wall, vertically centred at about the level of the surface of the water and are connected to the water suction pump.

[0005] Behind the window of these devices there is generally attached a container connected in suction to a pump and frequently, provided with a rack intended for holding coarse dirt.

[0006] The skimmer window is further provided with a floating head hinged on a horizontal pin in the lower portion thereof. For this reason, the upper lip of the head automatically arranged flush with the surface of the water (adjusting to the variations of the same), and limiting the suction to the upper water layer, the most polluted one.

[0007] Thanks to the possibility of rotation and to the combined action with the water flow induced by the pump, the head arranges with the upper edge thereof at the surface of the water, thus allowing to only a thin surface layer to pass it over and fall into the container and reach the suction pump. In the presence of pollutants of a certain size, such as leaves, large insects, etc., however, it may happen that due to the interference of the immersed portion of these pollutants with the head edge, the same are not able to pass it over, thus remaining blocked outside the skimmer. The above pollutants therefore remain blocked outside the head until an external action, such as a wave, allows them to overcome the obstacle.

[0008] Large sized pollutants that are blocked against the upper lip of the head, if not removed and if not capable of penetrating into the container, over time could lay on the bottom of the swimming pool, thus increasing the proliferation of bacteria, decreasing the quality level of the water.

[0009] In these cases, the amount of disinfectants, such as chlorine, into water needs to be increased to restore the quality level.

[0010] The increase of such disinfectants into the water could cause problems to the skin of the swimming pool users, especially to the most sensitive ones.

[0011] Moreover, in conventional skimmers, when the suction pump starts operating, the head hinged at the base thereof rotates relative to the hinging point, moving back and lowering its edge or upper end, in relation to the water level.

[0012] The object of the present invention therefore is to obviate the disadvantages mentioned above and in particular, to provide a skimmer device exhibiting the skimming edge virtually flush with the swimming pool wall, and with a width corresponding to the full window width, so as to make the pollutant suction effect more effective.

[0013] Another object of the present invention therefore is to obviate the disadvantages mentioned above, and in particular to provide a skimmer device capable of avoiding the blockage of pollutants of rough dimension against the upper lip of the skimmer.

[0014] Another object of the present invention is to provide a skimmer device which should eliminate or in any case considerably decrease the problems of water quality level decrease caused by the increase of bacteria proliferation due to rough sized organic pollutants.

[0015] Another object of the present invention is to provide a skimmer device which should allow not decreasing the suction efficiency due to the moving back of the upper edge of the head, due to the rotation about the base pin.

[0016] And finally, another object of the present invention is to provide a skimmer device especially simple, functional and at relatively low cost.

[0017] These and other objects according to the present invention are achieved by producing a skimmer device as described in claim 1.

[0018] Further features of the device are defined in the dependent claims.

[0019] The features and advantages of a skimmer device according to the present invention will appear more clearly from the following exemplifying and non-limiting description, made with reference to the annexed schematic drawings, wherein:

- figure 1 shows a schematic side section view of a first embodiment of the skimmer device according to the present invention;
- figure 2 shows a schematic perspective view of the skimmer device according to the present invention, installed on the wall of a prefabricated steel swimming pool.

[0020] With reference to figures 1-2, there is shown a skimmer device for swimming pools, globally indicated with reference numeral 10.

[0021] Device 10 comprises at least one window or inlet 2, substantially rectangular, behind which there is fixed at least one container 3 connected to a water treatment system.

[0022] Device 10 comprises at least one head 4 vertically floating and sliding along at least one vertical guide 22. The head is arranged at the front, in the proximity of the surface of the swimming pool wall, of a width corresponding to that of the window.

[0023] Preferably, the vertical guides 22 are two and are arranged at the opposite sides of container 3, thus allowing the vertical sliding of head 4. Thanks to the fact of being floating, head 4 arranges the upper edge 7 thereof flush with the surface of the water (adjusting to the

variations of the same) so as to allow the passage inside container 3 of just a thin water surface layer, that is, of the most polluted layer, sucked in close to the stretch of water of the pool and on the entire window width.

[0024] According to an advantageous aspect of the present invention, head 4 comprises at least one roller 5 with horizontal axis, pivoted at the head of the same head.

[0025] Roller 5 is vertically mobile, integrally with head 4, and is free to rotate about the axis pivoting 21 thereof. Roller 5 exhibits such a mass distribution that, once placed in rotation by the water flow, it is provided with certain inertia to stop, also in the case of collision of the external surface thereof against large sized polluting elements, such as leaves and insects, which could hinder the rotation.

[0026] Roller 5 is further provided with relief elements, arranged along the external circumference of the same roller 5 and realised such as to oppose a slight resistance to the water flow entering into container 3. The particular shape of the relief elements is useful, among the other things, for aiding the rotation of roller 5.

[0027] According to an advantageous aspect, the relief elements consist of a plurality of shaped teeth 6 arranged, without interruption, along the shell of the same roller 5.

[0028] Thanks to the present skimmer device, once that the floating pollutants described above come into contact with roller 5 on top of head 4, they are aided to pass over the skimming tooth 6 and to penetrate into body 3 of the skimmer by the combined action of the rotation and the inertia of roller 5 as well as by the friction generated by the same reliefs 6 that allow a transport action inside the container.

[0029] Advantageously, according to the preferred embodiment shown in the figures, each tooth 6 exhibits a section with a profile shaped as "shark fin".

[0030] Even though in the present description, reference is made to relief elements consisting of a plurality of shaped teeth 6, in any case it would be possible to obtain the same effect with equivalent means, such as projections, ribs or making the outer surface of roller 5 corrugated.

[0031] In the skimmer device according to the present invention, head 4 is arranged in the proximity of inlet 2, that is, directly upstream thereof.

[0032] In other words, the upper edge of head 4 is always arranged in the proximity of inlet 2, irrespective of the operation of the suction pump. The fact that the upper edge of head 4 does not move back like in conventional heads, pivoted at the base thereof, allows preventing a decrease of the skimmer suction efficiency, due to the increase of the distance from the skimming tooth relative to the actual pool surface.

[0033] The skimmer device 10 further comprises a roughing out rack, not shown, adapted for containing larger pollutants for preventing them from reaching the suction pump.

[0034] The roughing out rack is in a known manner removable and easy to inspect.

[0035] In the preferred embodiment, shown in figure 1, inlet 2, substantially rectangular, is fixed to container 3, but in any case it could be made integral with the latter without departing from the scope of protection of the present invention.

[0036] Moreover, in the embodiment shown in figure 1 there is a substantially rectangular counter flange 12 adapted for being attached by screws to inlet 2, external to the swimming pool wall.

[0037] In any case, it should be noted that the skimmer device 10 according to the present invention can also be made without counter flange 12 without departing from the scope of protection of the present invention.

[0038] The features of the device as well as the relevant advantages are clear from the above description, among which we may mention:

- Increase of the suction efficacy for the arrangement of the upper edge of the head always virtually flush with the wall, irrespective of the water level, and for the head width corresponding to that of the entire window;
- reduction of the bacteria proliferation caused by organic pollutants that lay on the bottom of the swimming pool;
- reduction of the use of disinfectants such a chlorine;
- increase of the suction efficiency, as compared to hinged head skimmers;
- construction simplicity and functionality;
- relatively low production cost.

[0039] Finally, it is clear that several changes and variations can be made to the device thus conceived, all falling within the invention; moreover, all details can be replaced with technically equivalent elements. In the practice, the materials used as well as the sizes, can be whatever, according to the technical requirements.

Claims

1. A skimmer device (10) comprising at least one window or inlet (2), behind which there is fixed at least one container (3) connected to a water treatment system **characterised in that** it comprises at least one floating head (4) for making the upper edge (7) thereof arrange flush with the surface of the water, thus allowing the passage towards said container (3) of just a thin water layer and **in that** said head is vertically sliding along at least one vertical guide.

2. A skimmer device (10) according to claim 1, **characterised in that** said head (4) comprises at least one roller (5) with horizontal axis, pivoted at said edge (7) of said head (4) adapted for moving vertically integrally with said roller (5) .

3. A skimmer device (10) according to claim 2, **char-**

acterised in that, once placed in rotation by the water flow, said roller (5) exhibits a mass for generating certain inertia for placing said roller (5) in rotation .

4. A skimmer device (10) according to claim 2, **characterised in that** said roller (5) comprises at least one relief element arranged along the external surface of said roller (5).

5. A skimmer device (10) according to claim 4, **characterised in that** said at least one relief element comprises a plurality of teeth (6).

6. A skimmer device (10) according to claim 5, **characterised in that** each tooth (6) comprises a section with profile shaped as a "shark fin".

7. A skimmer device (10) according to claim 1, **characterised in that** it comprises at least one roughing out rack adapted for containing larger pollutants for preventing them from reaching the suction pump of said treatment system.

8. A skimmer device (10) according to claim 1, **characterised in that** said head is arranged in the proximity of said inlet (2).

9. A skimmer device (10) according to claim 8, **characterised in that** said upper edge of said head is always arranged in the proximity of said inlet (2) irrespective of the water level variations.

Fig. 1

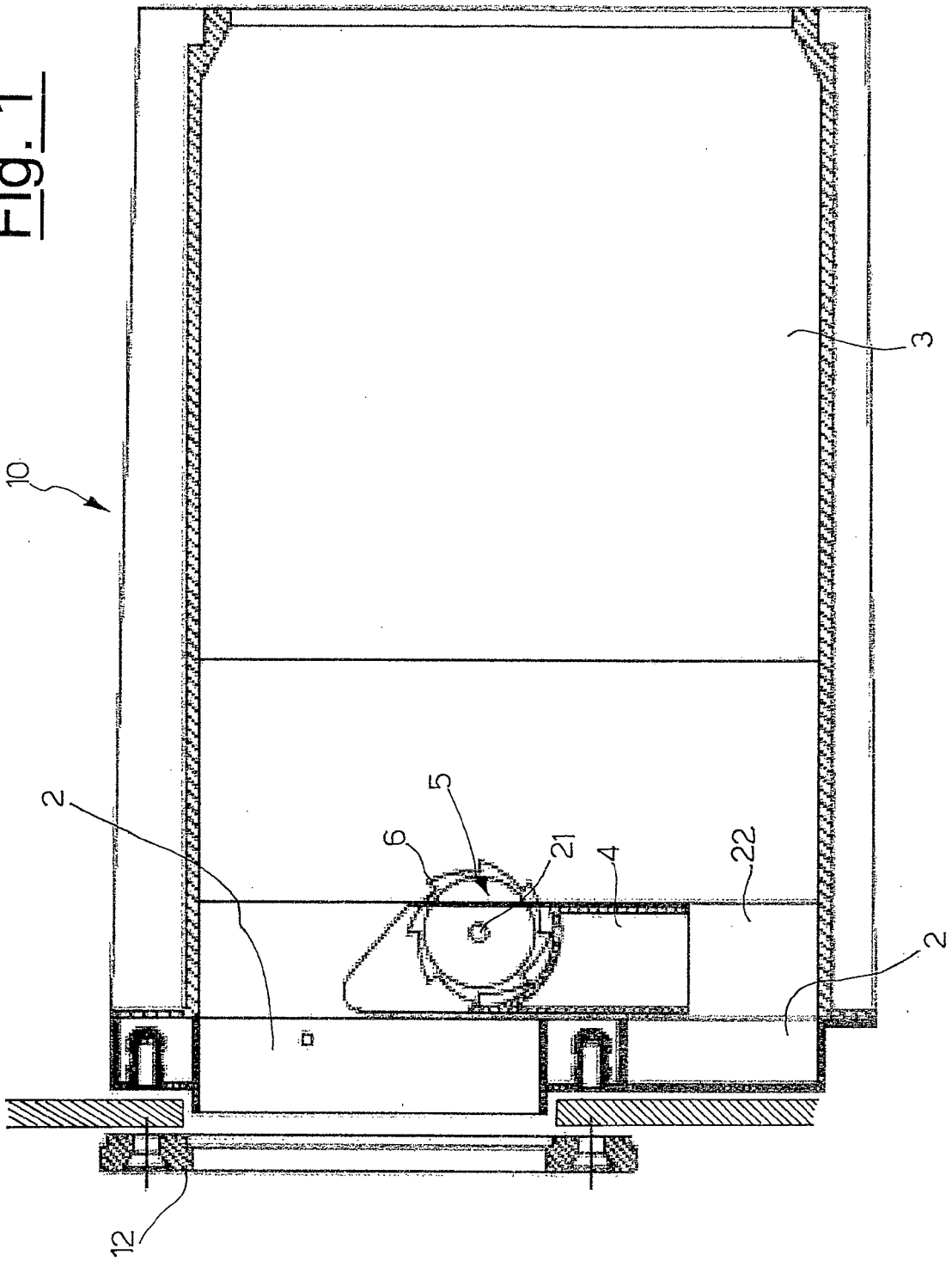
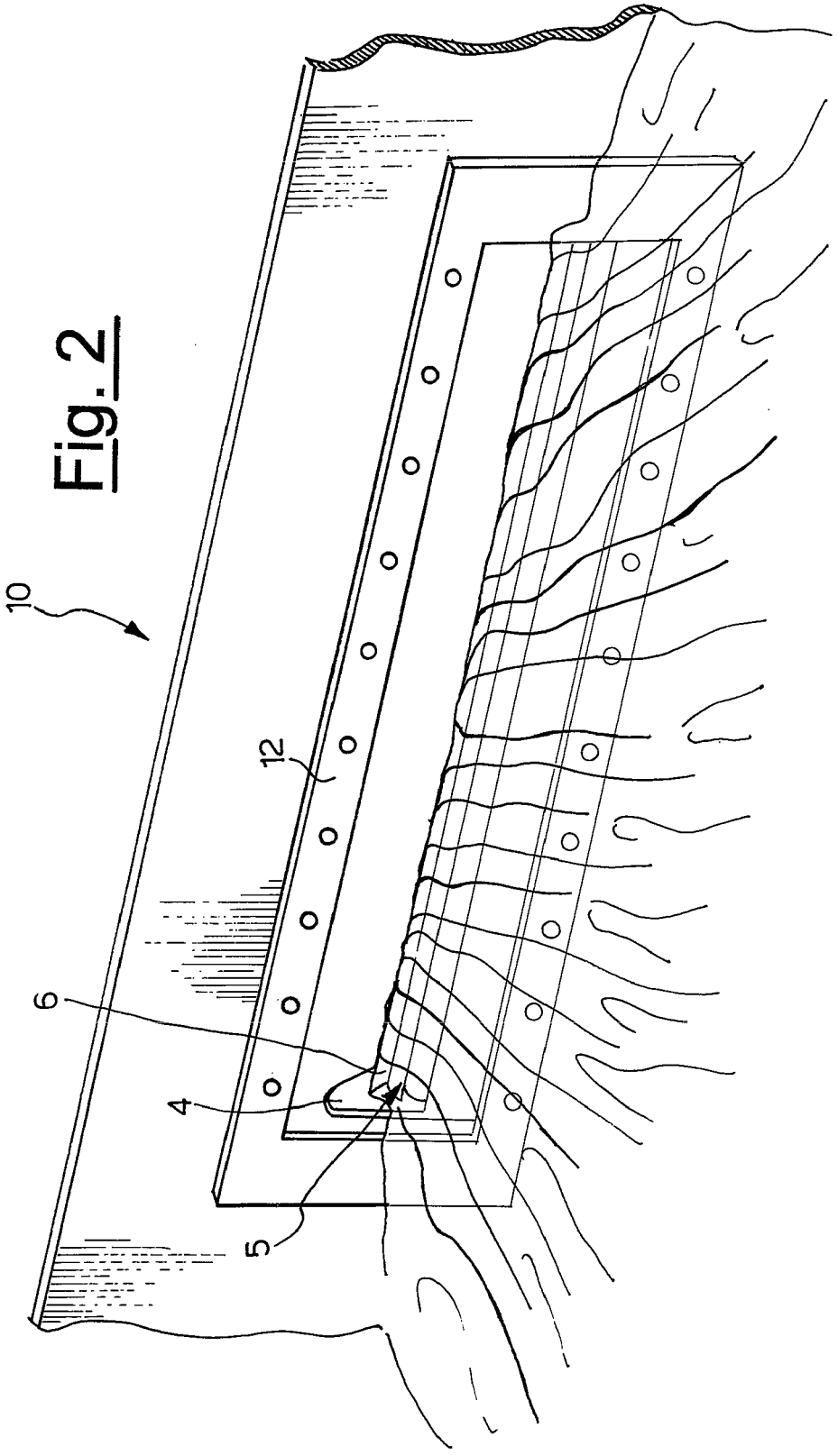


Fig. 2



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EUROPEAN SEARCH REPORT

Application Number
EP 06 11 4032

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	FR 2 736 344 A (SEVYLOR INTERNATIONAL) 10 January 1997 (1997-01-10) * page 1, line 4 - line 8 * * page 5, line 33 - page 8, line 8; figures 1,2 *	1,8,9	INV. E04H4/12
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A	WO 2004/042173 A (INTERGRATED POOL PRODUCTS LIMITED; SCHNEIDER, HELGE, JOCHEN) 21 May 2004 (2004-05-21) * abstract; figure 2 *	1	

TECHNICAL FIELDS SEARCHED (IPC)

E04H

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
Munich	30 August 2006	Stefanescu, R

CATEGORY OF CITED DOCUMENTS

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