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(54) **Title:** CLEANING DEVICE FOR A COVER SYSTEM OF A SWIMMING POOL

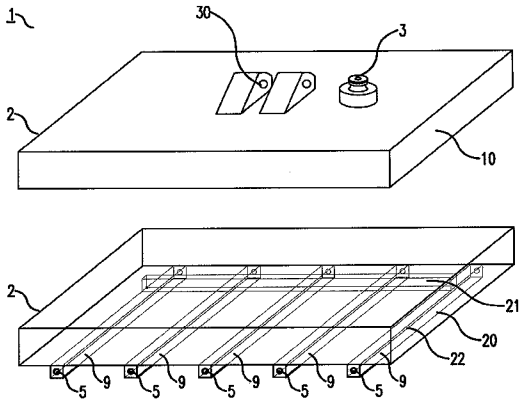

Fig.3

(57) **Abstract:** A cleaning device (1) for a cover system of a swimming pool comprises a cleaning (head 2) with an inlet (3) for a cleaning agent and an outlet (5) to allow the cleaning agent to flow out and act on the cover system. The cleaning head (2) herein comprises guide means (9) which are able and adapted to co-act with an edge of a recess of the cover system for cleaning in order to allow tracking of the cleaning head (2) therein with a spray side at least close to a surface for cleaning. The outlet (5) of the cleaning head (2) herein opens on the spray side. A cleaning device (1) is thus provided which is able and adapted to allow a cleaning agent to act relatively directly on fouling on a surface for cleaning, such as for instance in a recess of a cover system of a swimming pool, whereby even obstinate fouling, such as for instance algal growth, can be removed therefrom.

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Cleaning device for a cover system of a swimming pool

The present invention relates to a cleaning device for a cover system of a swimming pool, which cover system comprises a number of successive slats which are mutually coupled and herein have a recess therebetween, comprising a cleaning head with an inlet for a cleaning agent such as water, and at least one outlet to allow the cleaning agent to flow out and act at least on the cover system.

A known cleaning device of the type stated in the preamble relates to a cleaning head of a spray installation which sprays water as cleaning agent onto the cover system. The cleaning head here comprises an inlet for supplying water from a water hose and an outlet for the purpose of allowing the water to flow out and spray onto the cover system with a certain force.

Although relatively coarse fouling, such as for instance leaves, can be sprayed off the cover system using the existing cleaning device, cleaning is still far from optimal. The force with which the cleaning agent flows out of the outlet and is sprayed onto the cover system is not sufficient in the existing cleaning device to remove relatively fine fouling, and particularly relatively obstinate fouling, such as for instance algal growth, to be found mainly in a recess between successive slats. Because this fouling is left on the cover system, it eventually becomes less aesthetically attractive. When the cover system is removed, fouling which is left thereon can moreover enter the pool water lying thereunder, which will result in a reduced general hygiene. Another similar cleaning device, such as a high-pressure sprayer, which comprises means for accelerating the cleaning agent so that it leaves the outlet with relatively great force, has the drawback that the cover system is damaged by the relatively great force.

The present invention has for its object to provide a cleaning device which obviates the above stated drawbacks.

In order to achieve the stated objective, a cleaning device of the type stated in the preamble has the feature according to the invention that the cleaning head comprises

guide means which are able and adapted to co-act with at least one edge of a recess for cleaning in order to allow tracking of the cleaning head therein with a spray side directed at a surface for cleaning, and that the at least one outlet of the cleaning head opens on the spray side. Because the cleaning head is able and adapted to track in a recess of a swimming pool cover system and to open therein with the at least one outlet, the cleaning agent is released directly between successive slats and carried through the recess. The cleaning agent can hereby act relatively directly on fouling in the recess, whereby even obstinate fouling, such as for instance algal growth, can be removed therefrom. The force with which the cleaning agent leaves the outlet can here remain relatively limited, so that the pool cover system is not damaged. The cleaning device according to the invention is thus able and adapted to thoroughly clean a swimming pool cover system, in particular a recess between successive slats thereof.

A preferred embodiment of the cleaning device according to the invention is characterized in that the guide means comprise a set of profiled edges able and adapted to support on either side on the opposite edges of the recess. Because the cleaning head supports on edges of the recess on both sides, loss of tracking thereof is prevented.

A further preferred embodiment of the cleaning device according to the invention has the feature that the cleaning head comprises a set of outlets corresponding to a like set of successive recesses between successive slats of the cover system, which set of outlets opens on the spray side, and that guide means are provided per outlet. The cleaning head is thus able and adapted to clean successive recesses of the cover system simultaneously.

A further preferred embodiment of the cleaning device according to the invention has the feature that the cleaning head opens with at least one further outlet on a further spray side remote from the spray side. The cleaning head is hereby able and adapted to clean a recess of the cover system simultaneously in two directions. The cleaning device thus provides for a rapid cleaning of a recess.

A further preferred embodiment of the cleaning device according to the invention has the feature that the outlets are in open communication with a shared inlet.

A particular embodiment of the cleaning device according to the invention has the feature that the cleaning head comprises a carriage which is able and adapted to support movably on the cover system. Such a cleaning head tracks in relatively stable manner in successive recesses of the cover system and herein moves relatively easily along successive slats of the cover system.

A further preferred embodiment of the cleaning device according to the invention has the feature that the cleaning device comprises a secondary inlet for an additive. By applying an additive, such as for instance a soap or chlorine solution, the cleaning device provides for an extremely good cleaning of a swimming pool cover system. In a particular embodiment hereof the cleaning device according to the invention is characterized in that the secondary inlet comprises manually adjustable dosing means. An effective quantity of additive can hereby be applied with the cleaning agent in order to bring about optimum cleaning without too much of the additive being used.

In a further particular embodiment hereof the cleaning device according to the invention is characterized in that the cleaning device comprises a reservoir which is in open communication with the secondary inlet for the purpose of holding an additive therein. The additive does not therefore have to be applied separately, since the reservoir can be drawn upon to apply additive each time the cleaning device is used.

A further preferred embodiment of the cleaning device according to the invention has the feature that the inlet and the secondary inlet are in open communication with the at least one outlet in order to allow mixed outflow of the cleaning agent and the additive. Owing to the mixing of the cleaning agent and the additive, the additive is used extra-efficiently during cleaning of the swimming pool cover system.

A further preferred embodiment of the cleaning device according to the invention has the feature that the cleaning head comprises an assembly of mutually coupled parts,

wherein the assembly comprises at least a bottom part with at least the guide means and a top part with at least the inlet, and wherein the bottom part and the top part enclose a channel which is in open communication with the inlet and the at least one outlet. The bottom part and the top part of the assembly can thus be manufactured separately of each other, whereby they can be modified as required individually of each other. A distance between successive guide means in the bottom part can thus be varied so as to fit better on the width of the slats of a swimming pool cover system.

The invention will now be further elucidated on the basis of a number of exemplary embodiments and an associated drawing. In the drawing:

Figure 1 shows a front view of a first exemplary embodiment of a cleaning device according to the invention.

Figure 2 shows a front view of a second exemplary embodiment of a cleaning device according to the invention.

Figure 3 shows a perspective view of a third exemplary embodiment of a cleaning device according to the invention.

The figures are otherwise purely schematic and possibly not drawn to scale. Some dimensions in particular may be exaggerated to greater or lesser extent for the sake of clarity. Corresponding parts are designated as far as possible in the figures with the same reference numeral.

Figure 1 shows a front view of a first exemplary embodiment of a cleaning device according to the invention. Cleaning device 1 comprises a cleaning head 2 with an inlet 3 for the purpose of providing thereto a cleaning agent, such as for instance water. Cleaning head 2 also comprises guide means 9 with a profiled edge 4 which is able and adapted to co-act with an edge of a recess for cleaning which is situated between successive slats of a swimming pool cover system. Cleaning head 2 is hereby able and adapted to track in the recess with a spray side at least close to a surface for cleaning. Cleaning head 2 further comprises an outlet 5 which is in open communication with inlet 3 so that the cleaning agent can flow therefrom. Outlet 5 here opens on the spray side. A cleaning device 1 is thus provided which is able and

adapted to cause a cleaning agent to act relatively directly on fouling in a recess of a cover system of a swimming pool, whereby even obstinate fouling, such as for instance algal growth, can be removed therefrom. A force with which the cleaning agent flows out of the outlet can here remain relatively limited so that the pool cover system is not damaged.

Figure 2 shows a front view of a second exemplary embodiment of a cleaning device according to the invention. In this exemplary embodiment cleaning device 1 comprises a cleaning head 2 with a set of profiled edges 4 able and adapted to support on either side on opposite edges of a recess of a cover system of a swimming pool. Loss of tracking of guide means 9 of the cleaning device is thus prevented. Cleaning device 1 further comprises a secondary inlet 6 for an additive, such as for instance soap or a chlorine solution. The additive is preferably drawn by means of dosing means 7 from a reservoir 8 intended for this purpose, so that a quantity of the additive is used efficiently in order to bring about optimum cleaning. Owing to the addition of reservoir 8 the additive is always immediately available, and an additive does not have to be added separately each time the cleaning device is used. Because secondary inlet 6 has a shared outlet 5 together with inlet 3, cleaning head 2 provides for mixing of the additive and the cleaning agent before the mixture leaves outlet 5. The additive is hereby used extra-efficiently in the cleaning of the swimming pool cover system.

Figure 3 shows a perspective view of a third exemplary embodiment of a cleaning device according to the invention. In this exemplary embodiment cleaning device 1 comprises a cleaning head 2 as carriage assembled from two mutually coupled parts, a top part 10 and a bottom part 20. Because cleaning head 2 consists in this exemplary embodiment of an assembly of two mutually coupled parts, top part 10 and bottom part 20 of the assembly can be manufactured separately of each other, whereby they can be modified as required individually of each other. A distance between successive guide means in the bottom part can for instance thus be varied in order to fit better onto a pool cover system. Particularly the width of the slats in a cover system of a swimming pool can vary, so that the distance between successive profiled edges 4 has

to be modified thereto. After manufacture thereof, the separate parts can be coupled to each other by means of standard coupling means, such as for instance bolts.

In this exemplary embodiment bottom part 20 comprises on an underside five spaced-apart guide means 9 which are able and adapted to track in successive recesses of a cover system of a swimming pool. Guide means 9 each comprise a set of profiled edges able and adapted to support on either side on opposite edges of the recess. A part of bottom part 20 lying above the guide means 9 is here able and adapted to move over the slats of the cover system. Guide means 9 each further comprise at an outer end an outlet 5 on a spray side to allow the cleaning agent, optionally mixed with an additive, to flow out on the spray side into the recess in the direction of a surface for cleaning. Top part 10 comprises a garden hose connection 3 as inlet to enable connection of an ordinary garden hose thereto so that a cleaning agent such as water can be provided in simple manner to the cleaning device. Top part 10 further comprises connecting means 30 for connection of a control element such as a handle or stick. Cleaning device 1 can hereby be controlled at a distance so that the cover system of a swimming pool can easily be cleaned in its entirety from the side.

In a coupled position of top part 10 and bottom part 20 the garden hose connection 3 is in open communication with outlets 5 via a main channel 21 which extends transversely of the outflow direction through bottom part 20 and which branches at each guide means 9 into a side channel 22 which extends in the outflow direction through guide means 9 as far as outlet 5. A cleaning agent can hereby be provided via shared inlet 3 to the cleaning head and then flow out of each outlet 5 and act on a surface for cleaning. In order to clean simultaneously in two directions the main channel 21 can extend centrally through bottom part 20 and branch into side channels 22 (not shown) in the outflow direction as well as in the opposite direction through guide means 9. Side channels 22 here extend as far as an outlet 5 or a further outlet 5 on a further spray side located opposite the spray side. Because side channels 22 have a narrower diameter compared to main channel 21, the cleaning agent will hereby accelerate so that the cleaning agent will leave the outlets and act on a surface for cleaning with sufficient force. Inlet means for an additive can optionally open into

main channel 21 and thus be properly mixed with the cleaning agent before being distributed over side channels 21. The additive is hereby distributed efficiently over the outlets so that a certain quantity of additive acts on each recess.

The embodiment of cleaning head 2 as carriage provides an embodiment which can track in relatively stable manner in successive recesses of the cover system and can herein move relatively easily over the slats.

Although the invention has been further elucidated on the basis of only several exemplary embodiments, it will be apparent that the invention is by no means limited thereto. On the contrary, many variations and embodiments are still possible within the scope of the invention for a person with ordinary skill in the art.

Claims

1. Cleaning device for a cover system of a swimming pool, which cover system comprises a number of successive slats which are mutually coupled and herein have a recess therebetween, comprising a cleaning head with an inlet for a cleaning agent such as water, and at least one outlet to allow the cleaning agent to flow out and act at least on the cover system, characterized in that the cleaning head comprises guide means which are able and adapted to co-act with at least one edge of a recess for cleaning in order to allow tracking of the cleaning head therein with a spray side directed at a surface for cleaning, and that the at least one outlet of the cleaning head opens on the spray side.

2. Cleaning device as claimed in claim 1, characterized in that the guide means comprise a set of profiled edges able and adapted to support on either side on the opposite edges of the recess.

3. Cleaning device as claimed in claim 1 or 2, characterized in that the cleaning head comprises a set of outlets corresponding to a like set of successive recesses between successive slats of the cover system, which set of outlets opens on the spray side, and that guide means are provided per outlet.

4. Cleaning device as claimed in one or more of the foregoing claims, characterized in that the cleaning head opens with at least one further outlet on a further spray side remote from the spray side.

5. Cleaning device as claimed in claim 3 or 4, characterized in that the outlets are in open communication with a shared inlet.

6. Cleaning device as claimed in one or more of the foregoing claims, characterized in that the cleaning head comprises a carriage which is able and adapted to support movably on the cover system.

7. Cleaning device as claimed in one or more of the foregoing claims, characterized in that the cleaning device comprises a secondary inlet for an additive.

8. Cleaning device as claimed in claim 7, characterized in that the secondary inlet comprises manually adjustable dosing means.

9. Cleaning device as claimed in claim 7 or 8, characterized in that the cleaning device comprises a reservoir which is in open communication with the secondary inlet for the purpose of holding an additive therein.

10. Cleaning device as claimed in one or more of the claims 7-9, characterized in that the inlet and the secondary inlet are in open communication with the at least one outlet in order to allow mixed outflow of the cleaning agent and the additive.

11. Cleaning device as claimed in one or more of the foregoing claims, characterized in that the cleaning head comprises an assembly of mutually coupled parts, wherein the assembly comprises at least a bottom part with at least the guide means and a top part with at least the inlet, and wherein the bottom part and the top part enclose a channel which is in open communication with the inlet and the at least one outlet.

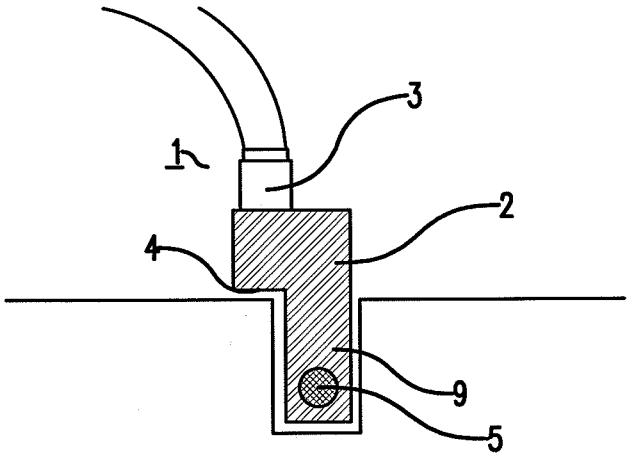

Fig.1

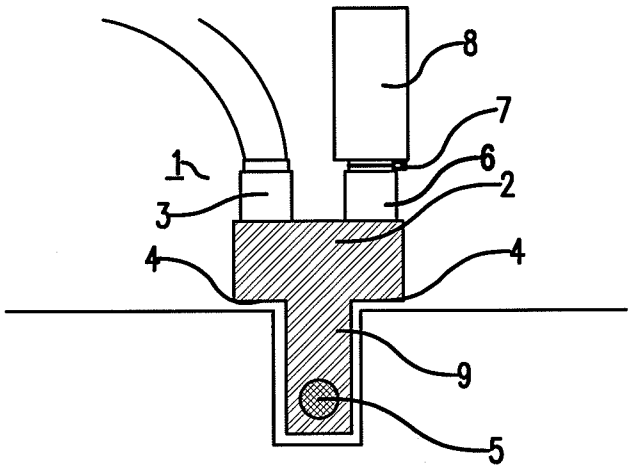

Fig.2

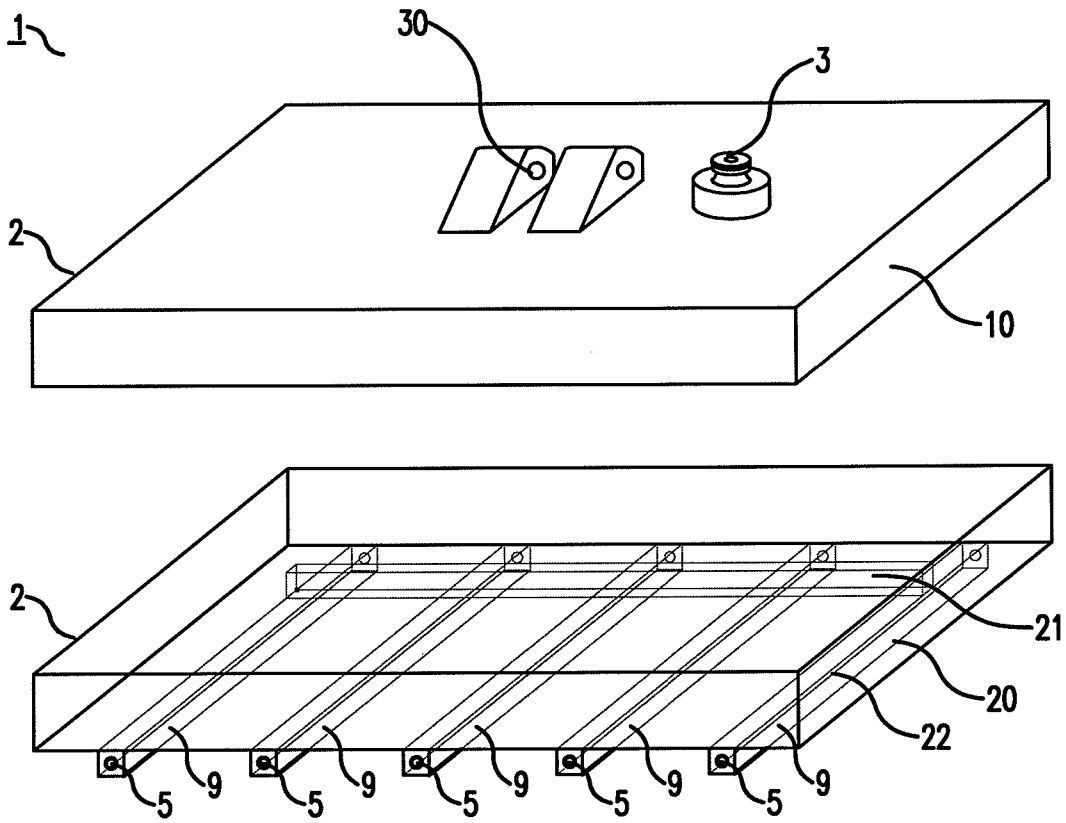

Fig.3