

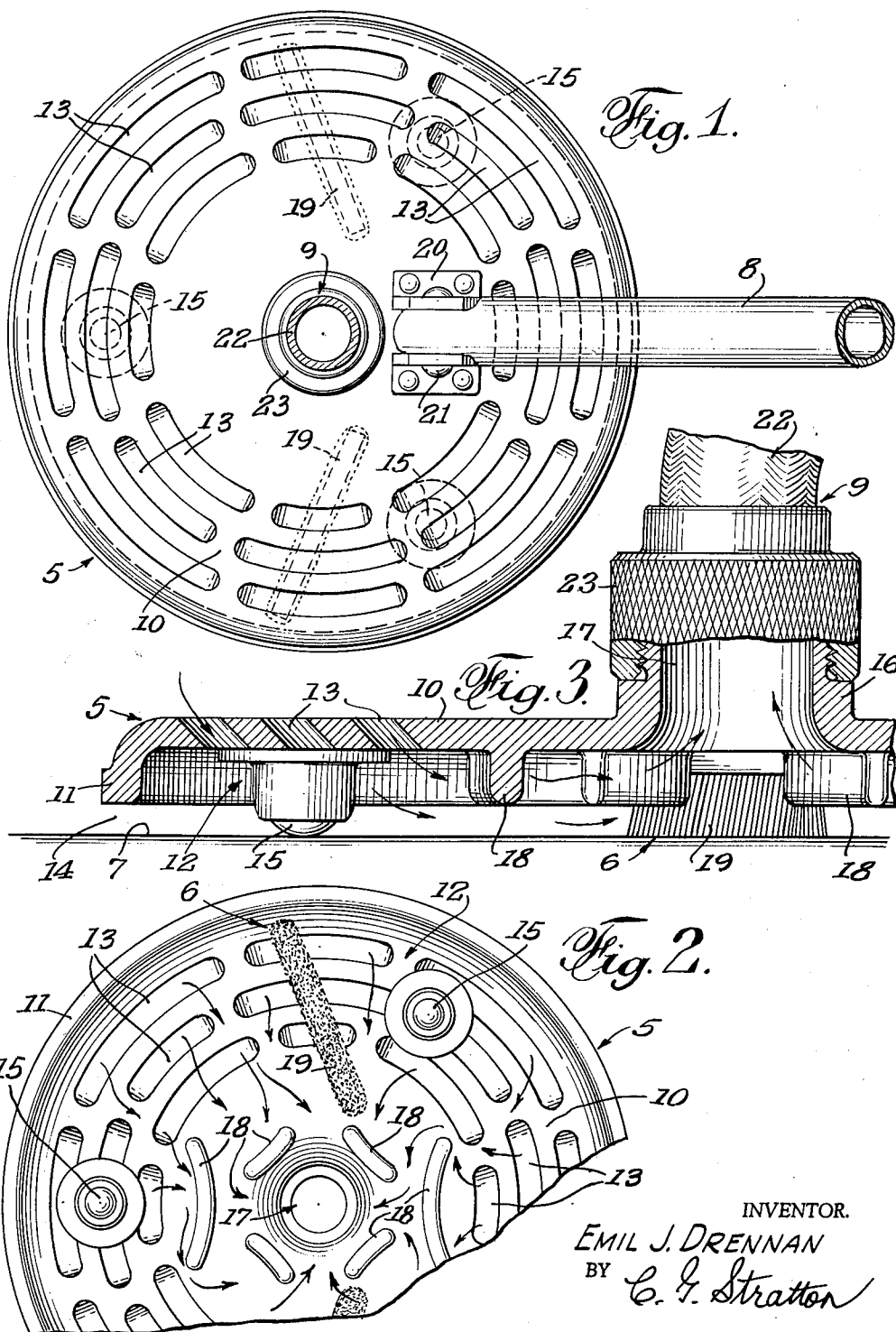
July 31, 1962

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3,046,583

SWIMMING POOL CLEANER

Filed Feb. 8, 1960



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3,046,583

SWIMMING POOL CLEANER

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Filed Feb. 8, 1960, Ser. No. 7,173

8 Claims. (Cl. 15-1.7)

This invention relates to a device for cleaning swimming pools and has for an object to provide a simple suction or vacuum head that sweeps and dislodges dust, dirt and other accumulations from the floor of a pool in a rapid and expeditious manner.

Another object of the invention is to provide a pool cleaning suction head that acts in a manner to minimize turbulence of the pool water as the same is advanced along the bottom of the pool, thereby insuring that the foreign particles in the pool water are drawn off by the suction rather than being scattered as the head is advanced.

A further object of the invention is to provide a suction head for cleaning a body of water by removing therefrom settled sediment and particles by means of agitation set up within the head rather than agitation in advance of the head, as in ordinary vacuum cleaners, thus insuring efficient cleaning rapidly and with easy facility.

My invention also has for its objects to provide such means that are positive in operation, convenient in use, easily installed in a working position and easily disconnected therefrom, economical of manufacture, relatively simple, and of general superiority and serviceability.

The invention also comprises novel details of construction and novel combinations and arrangements of parts, which will more fully appear in the course of the following description and which is based on the accompanying drawing. However, said drawing merely shows, and the following description merely describes, one embodiment of the present invention, which is given by way of illustration or example only.

In the drawing, like reference characters designate similar parts in the several views.

FIG. 1 is a top plan view of a suction head according to the present invention, the operating handle thereof being broken away.

FIG. 2 is a partial bottom plan view.

FIG. 3 is an enlarged and broken cross-sectional view of said head.

The pool cleaner that is illustrated comprises, generally, a head 5, means 6, within the head, to sweep along a pool surface 7, an operating handle 8, and a suction outlet means 9.

The head 5 comprises a metal plate 10 provided with a peripheral skirt 11 to define an interior area 12 beneath the bottom face of the plate. The present head 5 is shown as circular but it will be understood that the same may have a triangular form, a form partly circular and partly triangular, or any other comparable form that provides an interior area 12 that is quite deep, front to back, as well as wide.

The plate 10 of said head 5 is provided with a plurality of openings 13 that are preferably arranged in a plurality of concentric circles adjacent the skirt 11. Said openings, as best seen in FIG. 3, are sloped downwardly and inwardly toward the center of plate 10 and may be formed as elongated arcuate slots of various lengths. Regardless how formed, said openings have a total water-passing area that is quite large and, in practice, is preferably larger than the area of the space 14 between the perimeter of skirt 11 and the surface 7 along which the head is propelled in a pool cleaning operation.

In the present case, the space 14 is controlled by the height of three roller ball supports 15 that are affixed to the plate 10 inwardly of the skirt and extend, as shown,

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to a height that creates the uninterrupted space 14. Thus, as the head 5 is moved along the surface 7, the same will move through surrounding water that will, in part, enter the space 12 through the rim space 14 and, in part, enter said space 12 through the slots 13.

In the above manner, only water in the path of the skirt 11 is disturbed by the movement of the head and, particularly, water on or adjacent the pool bottom 7 is not agitated by such movement.

At the center of the plate 10 or at any other desirable point, an outlet nozzle 16 is provided, the same extending as a threaded collar upwardly from said plate and surrounding an outlet passage 17 for water circulating in the interior space 12 of the head.

While agitation of the water outside head 10 is desired to be kept at a minimum so as to minimize scattering disturbance of particles in said water, it may be desired to impart turbulence to the water in space 12 to facilitate loosening of encrusted accumulations of particles on the surface 7 and more facile removal thereof through the outlet 17. To this end, the plate 10 is provided with a plurality of baffles or flow-diverting walls or fins 18 that extend downwardly from the under face of plate 10 between the slots 13 and said outlet 17. Said fins may be so overlapped and so formed as to impede flow toward the outlet, said flow, thereby being rendered turbulent and capable of loosening encrustation on the surface 7 of the pool.

Instead of the fins 18 or in combination therewith, as shown, the sweeping means 6 may be provided. As shown, said means comprises a pair of brushes 19 that are affixed to the head to extend from the under surface of plate 10 into sweeping contact with the pool surface 7 with supports 15 tracking over said surface. It will be clear that encrustations that are not removed by water turbulence within the head 5 are dislodged by the brushes 19 and swept into the turbulent flow to be drawn into the outlet 17.

In order to obviate leaves and twigs, for instance, hanging up on the brushes 19, the same may be disposed at an angle, such as shown to guide such leaves and twigs toward the outlet.

The handle 8 simply comprises an elongated stick or pole that preferably extends from mounting brackets 20 from the top face of the plate 10. Said handle may be carried on a pivot 21 and, in practice, is long enough so that a person on the edge coping of the pool may move the head over the entire pool bottom 7 simply by progressive movement around the pool.

The suction outlet means 9, in a generally conventional manner, includes a flexible hose 22, that is connected to a suction pump and has a fitting 23 for separable connection to the nozzle 16, as shown. It will be realized that the particle-laden water drawn upwardly in hose 22 is passed through a suitable filter to separate the particles from the water and allow the pump to return the cleaned water to the pool.

While a pool may be cleaned by movement of the head in a straight-line path, ordinarily, short back and forth movements of the head are used. Thus, all of the slots 12 around the area of plate 10 are sloped inwardly toward the outlet 17 to guide inlet water from the top in an inward and forward direction depending on the head movements.

While I have illustrated and described what I now contemplate to be the best mode of carrying out my invention, the construction is, of course, subject to modification without departing from the spirit and scope of my invention. Therefore, I do not wish to restrict myself to the particular form of construction illustrated and described, but desire to avail myself of all modifications

that may fall within the scope of the appended claims.

Having thus described the invention, what is claimed and desired to be covered by Letters Patent is:

1. A pool cleaning head comprising a plate having a plurality of openings therein, a depending skirt around the periphery of the plate, means located inwardly of the skirt to movably support the plate on a surface to be cleaned and with the skirt being uninterruptedly spaced thereabove, to permit pool water around the head to flow in a downward direction through said openings and flow through the space between the skirt and the support surface whereby said flows may merge in the interior of the head below the plate and within the skirt, and a suction outlet from said interior extending through the plate.

2. A pool cleaning head according to claim 1 in which said openings in the plate comprise a group of circularly arranged slots around the suction outlet.

3. A pool cleaning head according to claim 1 in which the support means are formed to freely track over the surface and are of a height to create the mentioned space between the bottom edge of the skirt and said surface, the total area of the openings in the head being greater than the area of the mentioned space between the skirt and the support surface.

4. A pool cleaning head according to claim 1 in which means to sweep over the support surface is provided within the interior of the head, said sweeping means comprising a pair of brushes affixed to the under surface of the head plate and extending downwardly approximately to the surface to be cleaned.

5. A pool cleaning head according to claim 1 in which means to sweep over the support surface is provided within the interior of the head, said sweeping means comprising a pair of brushes affixed to the under surface of the head plate, said brushes being disposed at an angle to each other and at an angle to the flow through adjacent openings in the head.

6. A pool cleaning head comprising a plate having a plurality of openings therethrough, a skirt around the periphery of the plate and having a lower edge, means located inwardly of the skirt to movably support the plate on a surface to be cleaned and with the skirt being uninterruptedly spaced thereabove to permit pool water around the head to pass through said openings and through the space between the skirt and the support surface and to enter the interior of the head below the plate and within the skirt, a suction outlet from said interior

extending through the plate, the mentioned openings in the plate comprising concentric groups of slots arranged adjacent to the rim of the plate, and baffle fins inward of said slots and extending from the under surface of the head plate downwardly from the plate to a lower edge coincidental to the lower edge of the skirt, and located in the path of movement of water from said openings toward said outlet.

7. A pool cleaning head comprising a plate having a plurality of openings therethrough and a downwardly projecting peripheral skirt, means located substantially inwardly of the edge of the plate to movably support the plate on a surface to be cleaned and to support the plate a short distance above the surface to be cleaned and to permit pool water around the head to pass through said openings and through the space between the bottom of the skirt and the support surface and to enter the interior of the head below the plate, and a suction outlet from said interior extending through the plate.

8. A pool cleaning head comprising a plate having substantial thickness provided with a plurality of slots arranged around a suction outlet, the plate being of a thickness which is at least equal to one dimension of the slots in the plate, the slots being inclined downwardly and inwardly toward the outlet, a skirt depending from the periphery of the plate, means located inwardly of the skirt and inward of at least the outer of the slots to support the plate on a surface to be cleaned with the skirt being uninterruptedly spaced thereabove to permit pool water around the head to pass under the skirt from all angles with a minimum of turbulence, and the slots being arranged for the pool water above the head to pass there-through and to enter the interior of the head below the plate and within the skirt, and to pass into the suction outlet.

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