

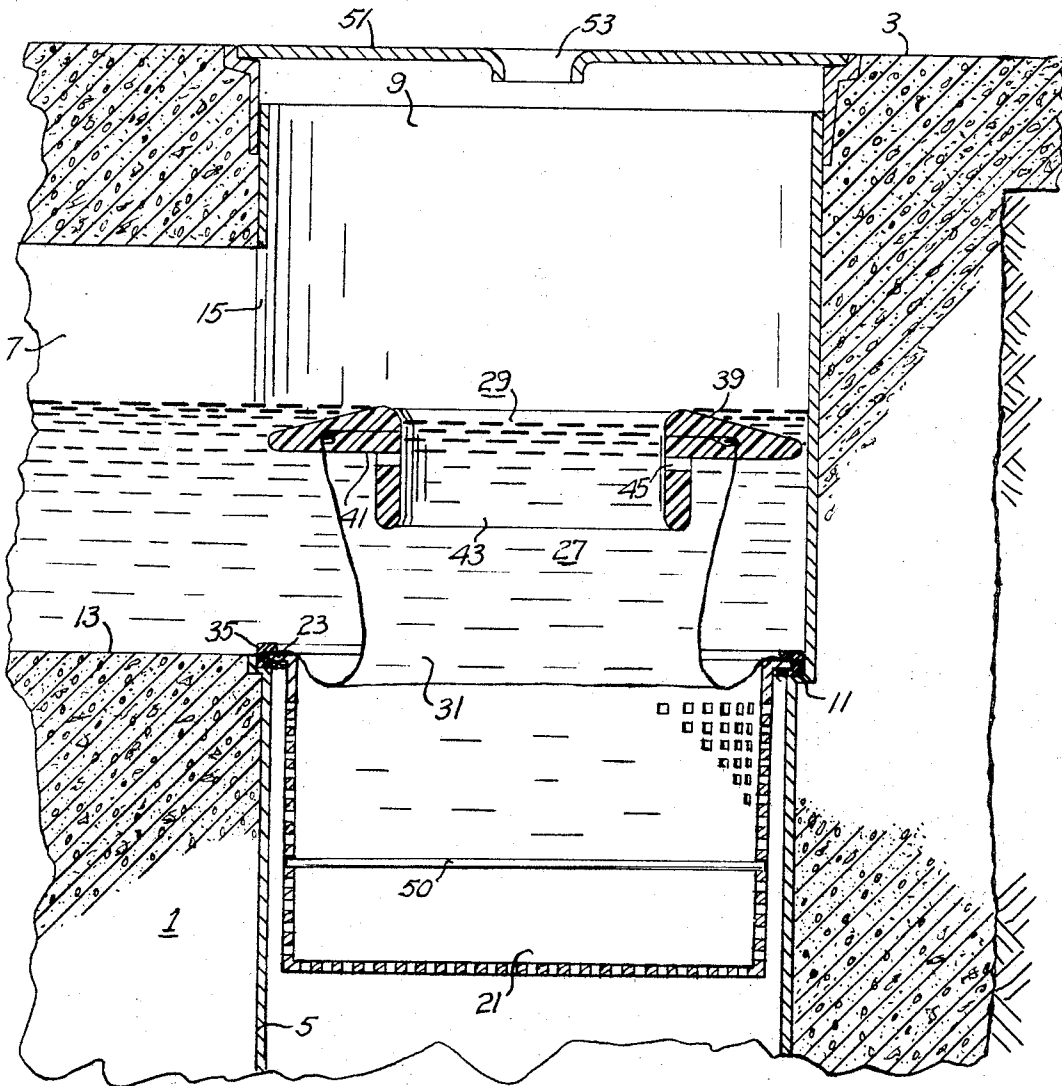
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SKIMMER ASSEMBLY AND INCLUDED WEIR ASSEMBLY

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SKIMMER ASSEMBLY AND INCLUDED

WEIR ASSEMBLY

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ABSTRACT OF THE DISCLOSURE

A skimmer assembly including a circular weir in the skimmer tank, the weir involving an annular float having a depending water impermeable collapsible wall.

My invention relates to swimming pools or the like, and more particularly to a skimmer assembly and included weir assembly for such pools.

Skimmer assemblies to which the present invention relates, involve a skimmer tank in a wall of a pool, flow connected with the water in the pool by a skimmer tunnel at normal water level range for such pool.

A weir, adapted to adjust with water level changes within the normal water level range of the pool, as reflected by a change in water level in the tunnel, responds to withdrawal of water from the skimmer tank by the pool pump, to cause skimming of the water in the tunnel, along with debris carried thereby.

Such weir normally takes the form of a barrier across the skimmer tunnel, hingedly secured at its lower edge or corners, and of an overall specific gravity less than that of water, so that it tends to float at an angle determined by the prevailing water level conditions in the skimmer assembly.

A strainer basket conventionally installed in the skimmer tank, removes such debris from the water withdrawn by the pump, and periodically may be emptied.

While the hinged skimmer weir can function as intended, a certain amount of flow leakage thereby, must exist in providing clearances necessary along the bottom and sides of the weir, to enable the same to rock on its hinge axis.

The skimming length of the weir is necessarily determined by the width of the skimmer tunnel, and due to the necessary clearances required at the walls of the tunnel, the length of the weir must necessarily be slightly less than the width of the tunnel.

Among the objects of my invention are:

- (1) To provide a novel and improved skimmer assembly;
- (2) To provide a novel and improved skimmer assembly of greater skimming capacity than a conventional one of comparable size;
- (3) To provide a novel and improved skimmer assembly which can be readily installed and serviced;
- (4) To provide a novel and improved skimmer weir assembly;
- (5) To provide a novel and improved skimmer weir assembly which shall not be limited in its dimensions by the skimmer tunnel;
- (6) To provide a novel and improved skimmer weir assembly having a greater skimming capacity for a given skimmer tunnel than a hinged type weir;
- (7) To provide a novel and improved skimmer weir assembly which may be conveniently installed and removed;
- (8) To provide a novel and improved skimmer weir assembly capable of being economically manufactured; and
- (9) To provide a novel and improved skimmer weir

assembly in association with the strainer basket, and adapted to be handled as a unit.

Additional objects of my invention will be brought out in the following description of a preferred embodiment of the same, taken in conjunction with the accompanying drawings, wherein,

The figure depicts, in cross section, an installed skimmer assembly embodying the features of the present invention.

For details of my invention in its preferred form, reference will be made to the accompanying drawing wherein is depicted the pertinent portion of a wall 1 and deck 3 of a pool, the wall having a cavity 5 exposed through an aligned opening in the deck and having a flow communication with the water in the pool through a skimmer tunnel 7, preferably of substantially rectangular section, and so located as to span the normal range of water level in the pool.

Installed in the cavity is a skimmer tank 9 having a shoulder 11 in approximately the plane of the floor 13 of the skimmer tunnel, and a side opening 15 at the inner end of the skimmer tunnel, and preferably conforming to the sectional contour of such tunnel. In the absence of a tank 9, the wall cavity 5 will function as the tank.

In accordance with conventional practice, the skimmer tank will have an outflow opening (not illustrated) at the lower end thereof, flow connected by suitable piping to the intake side of the pool pump.

Disposed within the skimmer tank is a strainer basket 21 formed with an upper flange 23 to support the same on the shoulder of the skimmer tank, to trap debris which may enter the skimmer assembly.

The weir assembly 27 preferably includes an annular float 29 of an outside diameter just slightly less than the inner diameter of the skimmer tank, to provide a sliding fit, which will result in the float diameter being greater than the inner diameter of the strainer basket, whereby such a float, with a sufficient lowering of the water level, will ultimately come to rest upon the upper rim of the basket.

Depending from the annular float, is a flexible substantially cylindrical water impervious membrane 31, which is stabilized about its lower end along the upper rim of the strainer basket, to encourage all flow of water through the skimmer assembly by way of the annular float. Rubber would be a suitable material for the membrane.

Such stabilizing of the lower end of the membrane may be accomplished through attachment of an annular weight to the lower end of the membrane and of a diameter which will enable the same to rest on the upper edge of the strainer basket, but I prefer in lieu thereof, to employ the strainer basket as the stabilizing means by removably securing the lower edge of the membrane to the flange 23 of the strainer basket. The strainer basket thus also becomes a part of the skimmer weir assembly, which may thereafter be handled as a unit.

One manner of attaching the lower end of the membrane to the upper rim of the strainer basket, may be realized by folding the lower edge of the membrane about the flange 23, and retaining it in such position by a clamping ring 35.

With the annular float thus installed, it can rise and fall with changing water level conditions in the skimmer assembly, the membrane accommodating itself to such changes while preventing water, entering through the skimmer tunnel, from entering the strainer basket, except by way of the annular float.

Under such conditions of water level changes, it is desirable that the membrane during collapsing, shall, in all events, fold inwardly instead of outwardly, and in a smooth uniform fold, the strainer basket being capable of

receiving such fold should the water level in the pool be permitted to drop and cause a corresponding dropping of the annular float.

To assure such collapsing pattern, the upper end of the membrane is preferably attached to the float on a diameter somewhat less than the inner diameter of the strainer basket. When the membrane is of stretchable rubber, the above differences in diameter will present no problem in installing the membrane.

The head of water about the membrane being slightly higher than that within the membrane, will encourage such inward folding of the membrane.

A preferred form of attachment of the membrane to the float, calls for molding the float of two parts, an upper or main part 39 and a lower component in the form of an insert 41 capable of being glued or otherwise affixed to the main part with the upper edge of the membrane gripped between them.

For most effective operation, the annular float is formed relatively thin, and tapers downwardly toward its outer edge, while along its inner diameter, it is formed with a depending lip 43.

The downward taper, during a static condition, brings the water close to the spill-over rim bordering the opening through the float, whereby upon operation of the pool pump, the resulting withdrawal of water from the skimmer tank will produce a prompt and sensitive response in the operation of the skimmer assembly.

The depending lip 43 will discourage inward ballooning of the membrane to the point where it might interfere with smooth functioning of the skimmer assembly, and because the lip will be of a somewhat smaller diameter than the inner diameter of the strainer basket, it can enter the strainer basket and thereby permit maximum range of movement of the float to take care of a larger range of change in water level in the tank. One or more holes 45 through the lip, will enable release of water or air which may conceivably otherwise become trapped between the lip and the upper portion of the membrane and interfere with the smooth operation of the float.

The float may be of plastic, such as a low density polyethylene having a specific gravity approaching that of water, whereby the float during a static condition, will be almost entirely submerged.

This characteristic imparts two advantages in the operation of the weir assembly. For one thing, it renders the operation of the skimmer very sensitive, and in the second place, the maximum permissible weight of the float will assist in effecting the desired collapsing pattern of the membrane during any lowering of the float.

The entire weir assembly is capable of being installed or withdrawn through the opening in the deck of the pool, and to facilitate such installation or withdrawal, the strainer basket may be provided with a diametrical grip bar 50 adapted to be reached through the opening in the float. Once installed, the deck opening may be closed by a suitable cover 51 having a finger opening 53 for enabling convenient removal thereof, when access to the skimmer assembly is desired.

From the foregoing description of my invention in its preferred form, it will be apparent that the same fulfills all the objects of my invention, and while the same is subject to alteration and modification without departing from the underlying principles involved, I do not desire to be limited in my protection to the specific details illustrated and described, except as may be necessitated by the appended claims.

I claim:

1. A skimmer assembly comprising a skimmer tank having a side opening above the lower end thereof for entrance of liquid and establishment of a liquid level at said side opening, when installed in a pool, and a bottom opening for outflow of liquid when installed in a pool, a skimmer weir in said tank involving a substantially annular float adapted to move vertically in said tank with changes in liquid level therein, and a collapsible substantially cylindrical water impervious membrane affixed at one end about said float and depending therefrom in said tank, and means for blocking flow of liquid longitudinally along the outer side of said membrane to a point below said membrane, to thereby cause all flow to be over the top of said annular float and longitudinally through the passage defined by said collapsible substantially cylindrical membrane when said skimmer assembly is installed in a pool, said means for blocking flow including means for effecting a stationary seal between said membrane and the wall of said skimmer tank.

2. A skimmer weir assembly comprising a substantially annular float, a collapsible substantially cylindrical water impervious membrane, a strainer basket of substantially the diameter of said membrane, means anchoring an end of said membrane to said strainer basket in a flow impervious connection, said membrane at its other end being affixed to said float on a diameter less than the inside diameter of said strainer basket to encourage uniform inward folding of said membrane into said basket, as said float approaches said basket from a vertical spaced position.

3. A skimmer assembly in accordance with claim 2 characterized by said annular float having an outside diameter greater than the inside diameter of said strainer basket, and an inside depending lip of an outside diameter less than the inside diameter of said strainer basket, to permit said depending lip to enter said strainer basket.

4. A skimmer weir assembly comprising a substantially annular float, a collapsible substantially cylindrical water impervious membrane affixed at one end about said float and forming a flow impervious annular connection with the float, and anchoring means comprising a strainer basket with a substantially cylindrical side wall, the impervious membrane being affixedly secured around the upper edge of the cylindrical side wall to form a flow impervious substantially cylindrical connection between the impervious membrane and the strainer basket.

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