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CLEANING SYSTEM INSTALLATION FOR SWIMMING POOLS

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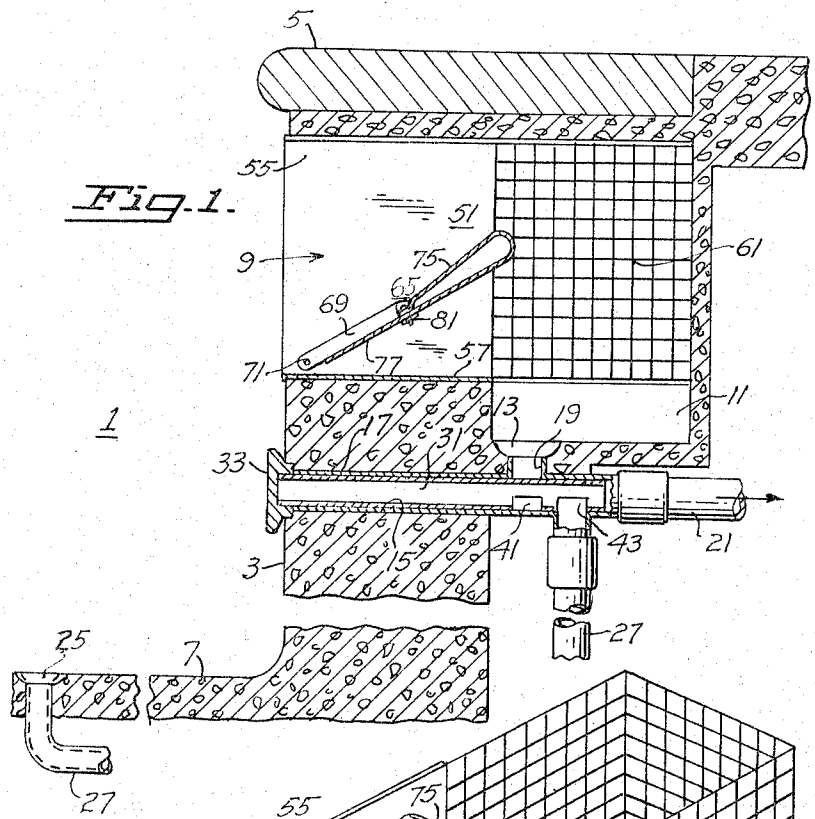

Fig. 1.

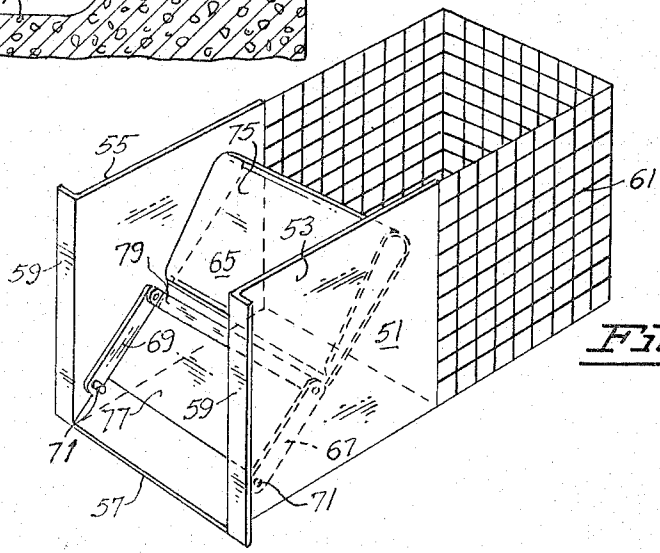

Fig. 2.

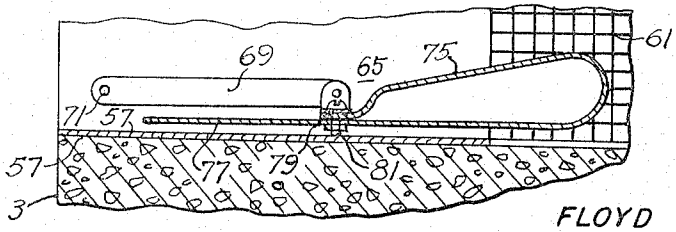

Fig. 3.

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CLEANING SYSTEM INSTALLATION FOR SWIMMING POOLS

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My invention relates to swimming pools and more particularly to a cleaning system arrangement for swimming pools.

The water in a swimming pool should be continually cleaned and filtered, and the pool itself should be maintained clean and free of dirt and sediment accumulation on the floor thereof, and floating debris on the surface of the water.

A drain, at the lowermost point of the pool floor, and connected to the intake of the pool pump, permits of continual circulation of the pool water, while skimming means built into the pool wall serves to skim off floating debris from the surface. A long handled vacuum cleaner permits of vacuuming sediment accumulations from the floor of the pool.

Among the objects of the present invention are:

(1) To provide a novel and improved means in the construction of a swimming pool for facilitating all the cleaning operations associated with the maintenance of such pool;

(2) To provide a novel and improved skimmer installation for swimming pools;

(3) To provide a novel and improved vacuum cleaner coupling installation for a swimming pool;

(4) To provide novel and improved means in a swimming pool construction for selectively or jointly connecting a pool drain and skimmer to the suction line of the pool pump.

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:

FIGURE 1 is a view in section through the pertinent portion of a swimming pool embodying the present invention;

FIGURE 2 is a three-dimensional view of a skimmer assembly included in the construction of FIGURE 1;

FIGURE 3 is a fragmentary view in section through the skimmer assembly of FIGURE 2, depicting the skimmer component in its low level position.

Referring to the drawings for details of my invention in its preferred form, the swimming pool embodying the present invention comprises a pool **1** having a side wall **3** topped by a pool deck **5**, and at its lower end connecting with the pool bottom **7**. This side wall has a skimmer cavity **9** just below the pool deck and which extends beyond the thickness of the side wall, terminating over a shallow sump **11**, in the floor of which is provided a drain opening **13**.

Just below the skimmer cavity, the wall is provided with a cylindrical valve passageway **15** extending through the wall and beyond.

Both the cylindrical valve passageway **15** and the drain opening **13** are lined with pipe or tubing **17**, **19** respectively, the pipe **17** connecting with the suction line **21** of the pool pump (not shown) and the drain pipe **19** connecting into the valve passageway pipe **17** to provide for flow from each to the suction line of the pump.

In the pool bottom is provided a conventional drain **25**, connected by pipe **27** to the valve passageway pipe **17** whereby the pool drain will also be flow connected to the pool pump, the point of connection of the drain pipe **27** being shown not in alignment with the drain pipe **19**.

In the valve passageway is disposed a hollow cylindrical valve **31**, open at one end, and closed at its other end, preferably by a permanently secured cap or flanged closure **33**. This valve is insertable into the valve passageway, with its open end toward the suction line of the pump, and its capped end exposed adjacent the proximate wall surface where it may be conveniently grasped for rotation or removal of the valve.

This valve is provided with openings **41**, **43** in alignment respectively with the drain pipe **19** from the skimmer cavity and the drain pipe **27** from the pool drain, such valve openings being so disposed as to enable flow connection to the valve passageway from either or both the drain opening and the pool drain.

The exposed end of the valve may be suitable indexed to indicate relative positions of the valve openings **41**, **43** with respect to the drain opening from the skimmer cavity and the pool drain connection. Thus either or both may be coupled to the pool pump by way of its suction line **21**.

As an alternative, the drain pipe **27** may be connected to the valve passageway pipe **17** in alignment with the drain pipe **19** whereby only the one opening **41** would be required.

When it is desired to vacuum the pool, the valve **31** may be withdrawn from its passageway, and the hose line from the vacuum head of a pool vacuum cleaner inserted into the valve passageway to effect a flow connection from the vacuum head to the pool pump.

The skimmer cavity is adapted to removably receive skimmer means **51** of a construction illustrated in detail in FIGURES 2 and 3 as including a pair of sheet metal side walls **53**, **55** connected by a bottom **57**, the side walls having outwardly directed flanges at one end with a screen cage **61** connected to the rear edges of the side walls **53**, **55** and bottom **57**, and extending over the skimmer drain opening **13**.

A weir assembly **65** extends between the side walls **53**, **55** to which it is pivotally secured adjacent the entrance to the skimmer cavity. This weir assembly includes a pair of pivot arms **67**, **69**, each adapted at one end for pivotal securement to one of the side walls, which pivotal securement may be realized by providing a pivot pin **71** at a proper location on each of the side walls adjacent the entrance to the skimmer cavity, and pivotally securing one of the side arms to the proximate one of such pins by providing a pin opening at that end of the side arm to receive such pin.

To the free ends of the side arms **67**, **69**, is hingedly secured a float gate **75** having an apron **77** extending to the opposite side of the hinged axis, the weight of which, however, is not sufficient to counter-weight the float gate **75**. To hingedly secure the float gate to the side arms, the free ends of the arms are connected in spaced relationship by a hinge strap **79** to which the float gate may be bolted.

In operation, the float gate will rise with increase in level of water in the pool, and will be maintained just below the surface of such level by the lower edge of the apron striking the floor **57** of the skimmer means, whereby the thin film of water flowing over the gate will carry with it such floating debris as may enter the cavity. Debris such as leaves or twigs, will be strained out by the screen cage while the smaller particles will be carried off down the drain and pumped through the filter of the pool system and thereby removed from the water.

In affixing the float to the hinge strap **79**, the attaching bolts **81** are inserted from above so that the ends to which the nuts are attached, will extend below the float sufficiently to engage the floor **57** of the skimmer means in advance of the float gate during a lowering of the water level in the pool, whereby the float and its apron will remain in horizontal spaced relationship to the floor of

the skimming means. With such spacing, skimming action can continue until the water level in the pool should drop below the floor elevation of the cavity.

Otherwise, if the float gate were permitted to drop into engagement with the floor **57**, the skimming function would be inhibited when the water level dropped to the upper edge of the float gate, thus materially cutting down the range of water level wherein skimming may be accomplished.

While I have illustrated and described my invention in detail, it will be appreciated that the same is subject to alteration and modification without departing from the underlying principles involved, and I accordingly, 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. Swimming pool installation comprising a pool having

a pool wall topped by a pool deck and connecting at its lower end with the pool bottom,

said pool wall having a skimmer cavity just below said pool deck having a floor and including a downwardly directed drain opening,

a valve passageway in said wall at an elevation below said skimmer cavity,

means flow connecting said skimmer drain opening with said valve passageway,

a drain in said pool bottom,

means flow connecting said pool bottom drain with said valve passageway,

valve in said valve passageway,

said valve being provided with opening means, which, in the installed position of said valve, may be selectively rotated to bring said opening means either into flow communication with said skimmer drain connecting means or said pool bottom drain connecting means,

a pool pump suction line,

means flow connecting said valve passageway with said pump suction line, whereby said pump suction line may be selectively connected to either said skimmer drain or said pool bottom drain,

and skimmer means in said skimmer cavity, said skimmer means including

a pair of side walls within and adjacent the entrance to said cavity,

a screen cage including a screen bottom and unstanding sides, with said sides connected to the rear ends of said walls, said cage being of a length to extend over said skimmer drain opening, and

a weir assembly extending between said side walls and pivotally secured thereto adjacent the entrance to said skimmer cavity,

said weir assembly including

a pair of pivot arms, each adapted at one end for pivotal securement to one of said side walls,

a float gate of a length comparable to the width of said skimmer cavity and hingedly mounted to the free ends of said pivot arms in slight spaced relationship to the floor of said cavity when said arms are in their lowermost position,

said float gate having an apron extending to the other side of the hinge axis of said gate and also in slight spaced relationship to the floor of said cavity in the lowermost position of said pivot arms.

2. Swimming pool installation comprising a pool having

a pool wall topped by a pool deck and connecting at its lower end with the pool bottom,

said pool wall having a skimmer cavity just below said pool deck having a floor and including a downwardly directed drain opening,

a cylindrical valve passageway extending through said wall at an elevation below said skimmer cavity,

means flow connecting said skimmer drain opening with said valve passageway,

a drain in said pool bottom,

means flow connecting said pool bottom drain with said valve passageway,

a hollow cylindrical valve having an open end and a closed end, insertable in said valve passageway with said closed end exposed,

said hollow cylindrical valve being provided with opening means, which, in the installed position of said valve, may be selectively rotated to bring said opening means either into flow communication with said skimmer drain connecting means, said pool bottom drain connecting means, or both,

a pool pump suction line,

means flow connecting said valve passageway with said pump suction line, whereby said pump suction line may be selectively connected to either said skimmer drain, said pool bottom drain or to both,

and skimmer means in said skimmer cavity, said skimmer means including

a pair of side walls within and adjacent the entrance to said cavity,

a screen cage including a screen bottom and upstanding sides, with said sides connected to the rear ends of said walls, said cage being of a length to extend over said skimmer drain opening, and

a weir assembly extending between said side walls and pivotally secured thereto adjacent the entrance to said skimmer cavity,

said weir assembly including

a pair of pivot arms, each adapted at one end for pivotal securement to one of said side walls,

a float gate of a length comparable to the width of said skimmer cavity and hingedly mounted to the free ends of said pivot arms in slight spaced relationship to the floor of said cavity when said arms are in their lowermost position,

said float gate having an apron extending to the other side of the hinge axis of said gate and also in slight spaced relationship to the floor of said cavity in the lowermost position of said pivot arms.

3. Skimmer means for installation in the skimmer cavity of a swimming pool wall, said skimmer means including

a pair of side walls and means adjacent the bottom of said wall for maintaining the walls in spaced relationship,

a screen cage including a screen bottom and upstanding sides, with said sides connected to the rear ends of said walls, and

a weir assembly extending between said side walls and pivotally secured thereto adjacent the opposite ends thereof,

said weir assembly including

a pair of pivot arms, each at one end pivotally secured to one of said side walls,

a float gate of a length comparable to the width of such skimmer cavity and hingedly mounted to the free ends of said pivot arms in slight spaced relationship to said spacing means when said arms are in their lowermost position,

said float gate having an apron extending to the other side of the hinge axis of said gate and also in slight spaced relationship to said spacing means in the lowermost position of said pivot arms.

4. Skimmer means for installation in the skimmer cavity of a swimming pool wall, said skimmer means including

a pair of side walls connected by a bottom, said side walls having outwardly directed flanges at one end for engagement with such pool wall when installed therein,

a screen cage including a screen bottom and upstand-

ing sides, with said sides connected to the other ends of said walls, and

a weir assembly extending between said side walls and pivotally secured thereto adjacent the flanged ends thereof,

said weir assembly including

a pair of pivot arms, each at one end pivotally secured to one of said side walls,

a float gate of a length comparable to the width of said skimmer cavity and hingedly mounted to the free ends of said pivot arms,

an element extending from the hinge axis of said float gate and adapted to strike said bottom in advance of said float gate to maintain said float gate in slight spaced relationship to said bottom when said arms are in their lowermost position,

said float gate having an apron extending to the other side of the hinge axis of said gate and also in slight spaced relationship to the bottom of said skimmer means in the lowermost position of said pivot arms.

5. Skimmer means for installation in the skimmer cavity of a swimming pool wall, said skimmer means including

a pair of spaced apart side walls,

a weir assembly extending between said side walls and pivotally secured thereto adjacent corresponding ends of said side walls,

said weir assembly including

a pair of pivot arms, each at one end pivotally secured to one of said side walls,

a float gate of a length comparable to the spacing between said side walls and hingedly mounted to the free ends of said pivot arms,

and means located between the walls for maintaining said float gate in slight spaced relationship to the floor of a skimmer cavity when installed therein and when said arms are in their lowermost position.

6. Skimmer means for installation in the skimmer cavity of a swimming pool wall, said skimmer means including

a pair of spaced apart side walls,

a weir assembly extending between said side walls and pivotally secured thereto adjacent corresponding ends of said side walls,

said weir assembly including

a pair of pivot arms, each at one end pivotally secured to one of said side walls,

a float gate of a length comparable to the spacing between said side walls and hingedly mounted to the free ends of said pivot arms,

means located between the walls for maintaining said float gate in slight spaced relationship to the floor of a skimmer cavity when installed therein and when said arms are in their lowermost position,

said float gate having an apron extending to the other side of the hinge axis of said gate and maintained also in slight spaced relationship to the floor of such cavity in the lowermost position of said pivot arms.

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