United States Patent [19]

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[11] 3,724,666

[45] Apr. 3, 1973

[54] UNIVERSAL REPLACEABLE WEIR ASSEMBLY

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[22] Filed: **Apr. 9, 1971**

[21] Appl. No.: **132,639**

[52] **U.S. Cl.**.....**210/169**, 49/397

[51] **Int. Cl.**.....**E04h 3/20**, E05d 7/00

[58] **Field of Search**.....4/172.17; 210/169; 61/25; 49/55, 397

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[57] **ABSTRACT**

A weir assembly for use in a swimming pool skimmer wherein the weir assembly includes individually replaceable components including a buoyant weir plate hingedly connected to an expandable anchor block mounted within the skimmer inlet, the various components of the weir assembly being constructed and arranged to be fabricated at the job site whereby the assembly is adapted to fit all types and makes of skimmers.

9 Claims, 4 Drawing Figures

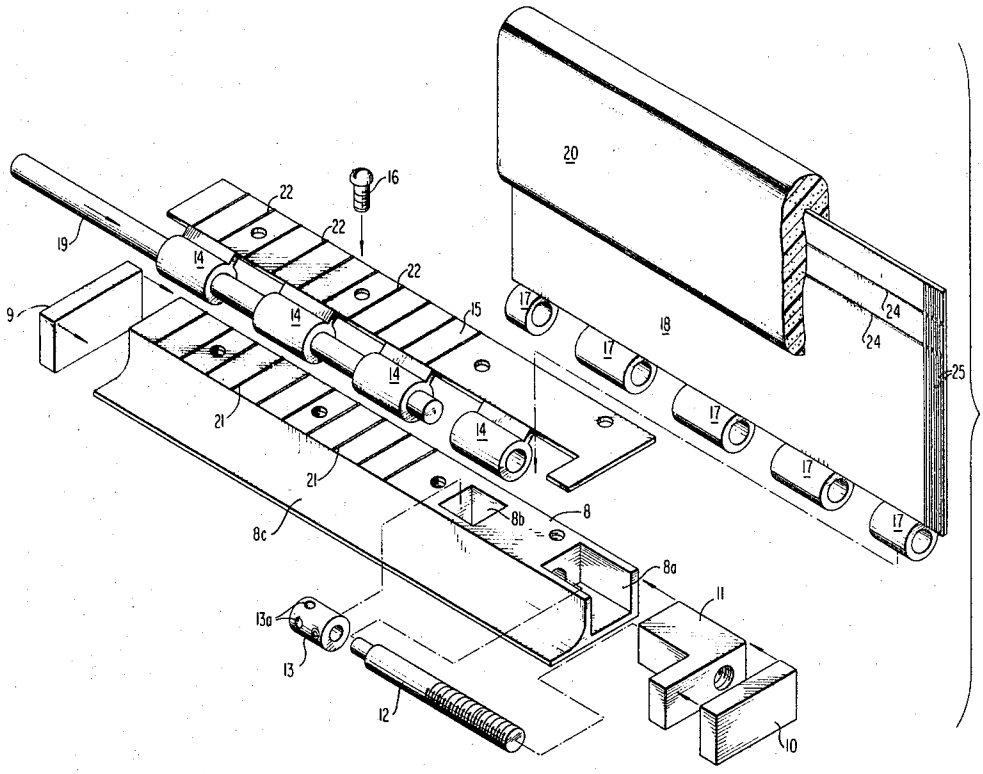
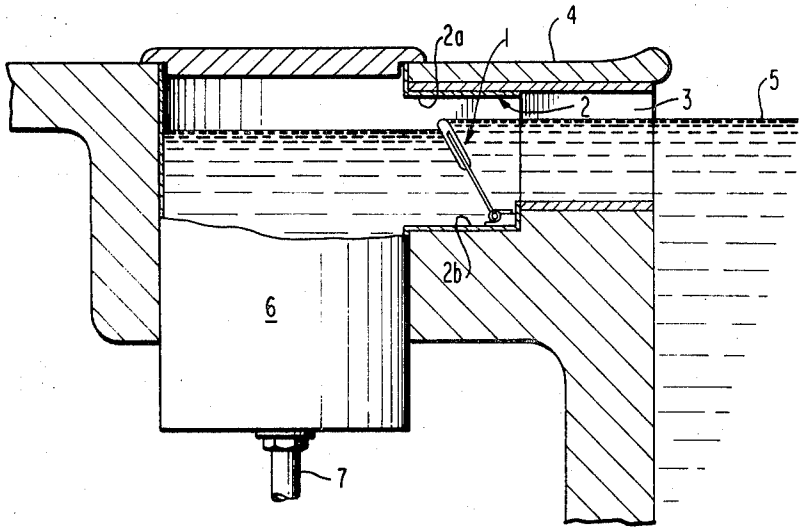


FIG.1



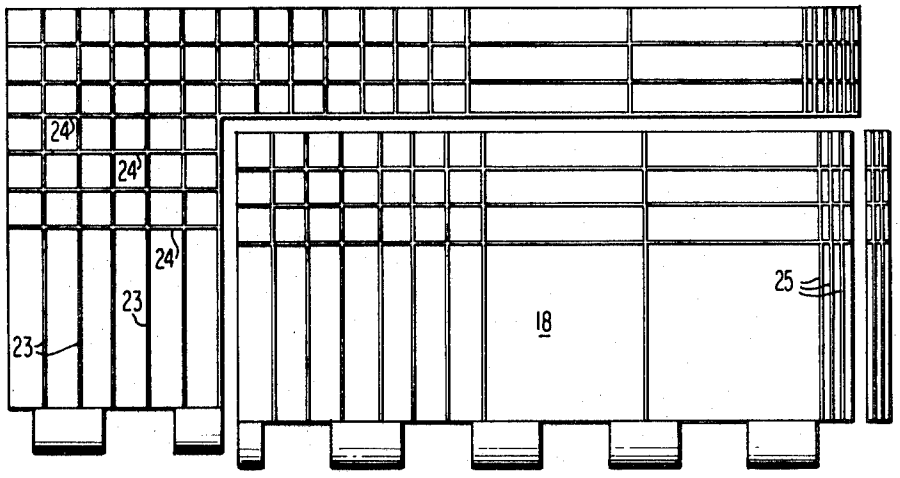


FIG.3

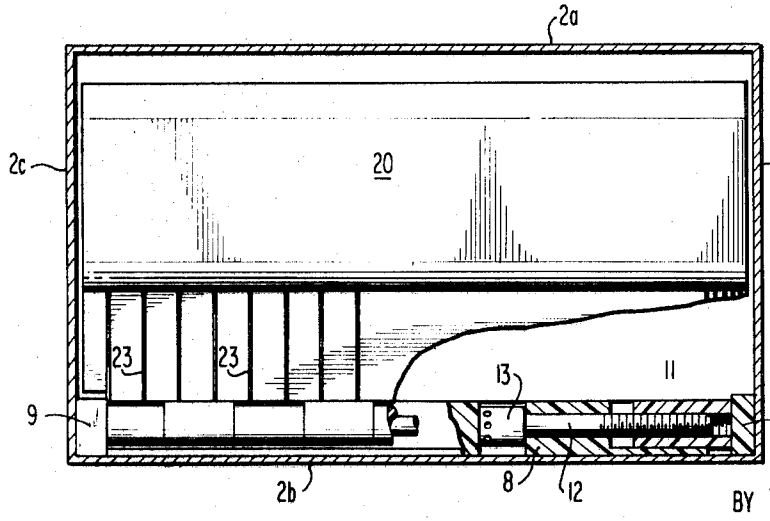
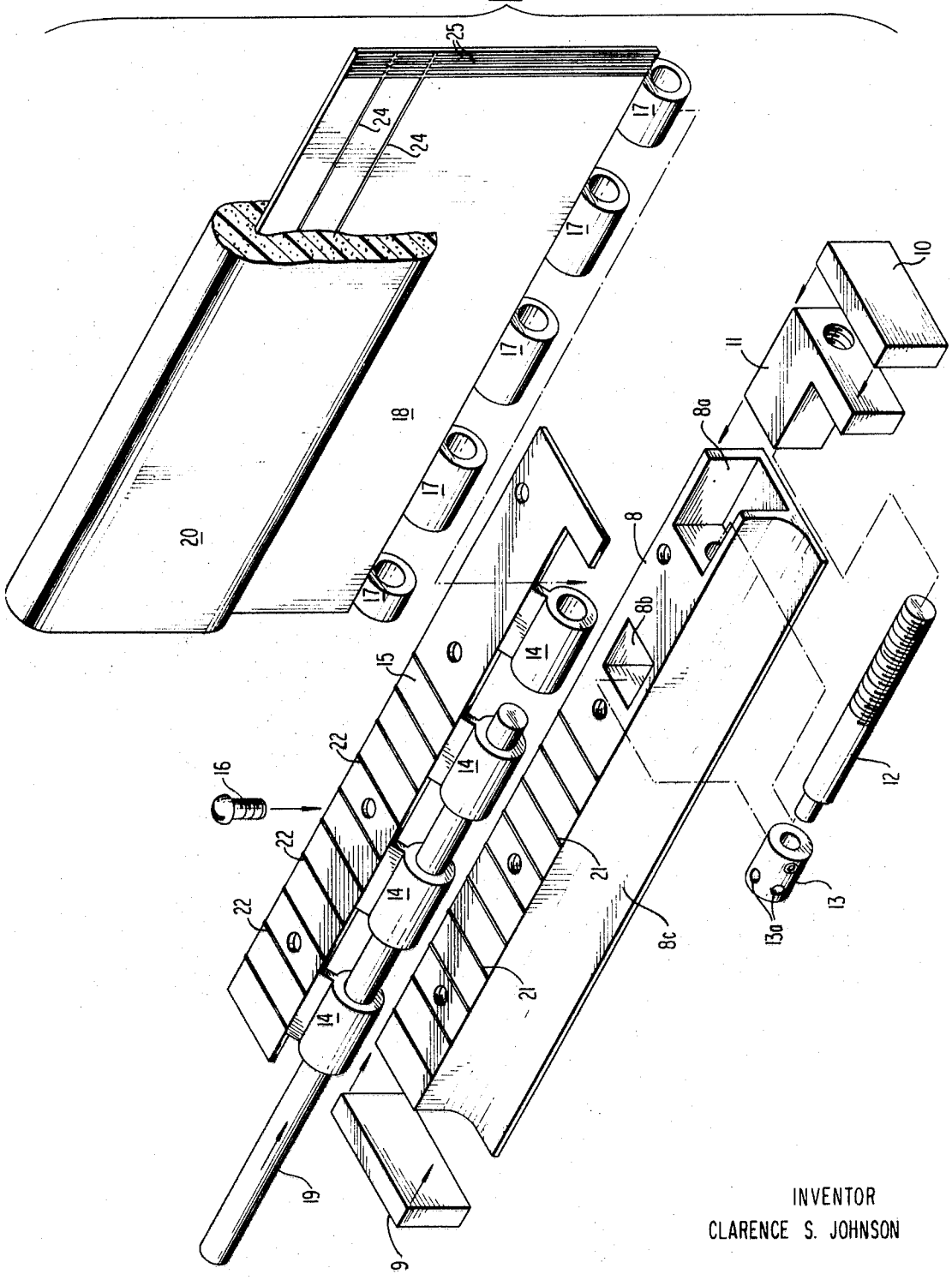


FIG.4

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FIG2



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UNIVERSAL REPLACEABLE WEIR ASSEMBLY

BACKGROUND OF THE INVENTION

Conventional swimming pool installations require circulating apparatus for maintaining the water of the pool in clean condition. This apparatus includes a skimmer for removing leaves, insects and other debris from the surface of the water, and a vacuum cleaning attachment for removing solid material that adheres to or is located on the walls and bottom of the pool. Much of the debris on the surface of the water is skimmed from the surface before the debris becomes waterlogged and sinks to the bottom of the pool, thus precluding the necessity of frequently vacuuming the pool floor. The skimmer is positioned in the pool wall and usually includes an elongated rectangular inlet communicating with the water surface of the pool. The skimmer is located in the pool wall at a point where the floating debris will be ordinarily blown by the prevailing winds toward the skimmer inlet, assisted by the pool water circulation pattern wherein the pool pump draws water through the skimmer outlet and forces the water through a filter and heater and back into the pool through a return line system. In order to increase the flow of pool water-surface debris into the skimmer, it is customary to pivotally mount a buoyant weir plate adjacent the skimmer inlet to thereby vary the flow cross-section of the inlet depending upon the flow rate of the pool circulation system.

Various weir assemblies have been proposed for pool skimmers, and while they have been satisfactory for their intended function, they have been subject to certain objections particularly with regard to their limited strength and wear qualities. The normal life-expectancy of many of today's weir assemblies is in the neighborhood of 10 to 24 months. Many of the weir assemblies are installed as original equipment and are damaged during the construction of the pool; none are physically adjustable for various finish-level heights of the skimmer inlet; very few have any individually replaceable parts, and there are so many manufacturer-controlled types and sizes of original equipment that local pool supply stores cannot afford to carry replacements.

In order to overcome the disadvantages experienced in hitherto employed weir assemblies, the weir assembly of the present invention has been devised which is strong, rigidly affixed, installable by non-mechanics, and adapted to fit all types and makes of skimmers having rectangular inlets. The weir assembly of the present invention is constructed to have a life expectancy of 3 to 5 years before any parts need replacing, whereupon standard, individual, inexpensive replacement parts can be purchased and installed by the pool owner.

The weir assembly of the present invention comprises, essentially, a base fitting adapted to seat on the skimmer floor, the ends of the base fitting having friction pads adapted to engage the side walls of the skimmer, a jack-screw being contained within the base fitting for moving one of the pads outwardly toward the adjacent skimmer wall whereby the base fitting is frictionally held in operative position. A hinge bracket is detachably connected to the base fitting and carries a pintle to which the lower end of a buoyant weir panel is pivotally connected. The weir panel, hinge bracket and base fitting are provided with measurement indicia whereby they may be cut to size at the job site to fit the weir assembly to the particular skimmer, the various components also being molded from a suitable plastic to thereby prevent corrosion of the assembly by the pool water and associated chemicals.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a sectional, side elevational view showing the weir assembly of the present invention mounted in operative position in a pool skimmer;

FIG. 2 is an exploded, perspective view of the weir assembly of the present invention;

FIG. 3 is a front, elevational view of the weir panel illustrating the panel being cut transversely and longitudinally to form a panel of predetermined size; and

FIG. 4 is a fragmentary, front elevational view, partly in section, showing the weir mounted in the skimmer inlet.

Referring to the drawings, and more particularly to FIG. 1, the weir assembly 1 of the present invention is shown mounted in operative position within a housing 2 disposed within a horizontal passageway 3 forming the skimmer inlet and positioned under the pool coping 4, the skimmer inlet extending from the pool water surface 5 to a skimmer reservoir 6, connected to a circulation pump (not shown) through suction pipe 7.

The housing 2 may be of any suitable plastic, metallic, cementitious, ceramic or other suitable material constructed to have an elongated, rectangular inlet formed by top, bottom and side walls 2*a*, 2*b*, 2*c* and 2*d*, respectively (FIG. 4).

The details of the construction of the weir assembly are illustrated in FIGS. 2 and 4 wherein it will be seen that a base fitting 8 is supported on the bottom wall 2*b* of the housing 2 and is provided with friction pads 9 and 10 at each end thereof for engaging the housing side walls 2*c* and 2*d*, respectively, whereby the weir assembly is fixedly mounted within the housing. The friction pad 10 is mounted on the end of an anchor block 11, the opposite end of which is slidably mounted within a slot 8*a* formed in the end portion of the base fitting. The anchor block is threadably mounted on a jack screw 12 extending longitudinally through the end portion of the base fitting and having an actuating head 13 disposed within a recess 8*b* formed in the base fitting, the actuating head being provided with apertures 13*a* for receiving a suitable pin wrench for turning the jack screw whereby the anchor block and associated friction pad may be moved longitudinally with respect to the base fitting. By this construction and arrangement, the base fitting may be fixedly mounted in skimmer inlets of various lateral dimensions.

The longitudinally extending side edge of the base fitting is formed with a concave surface 8c for accommodating a plurality of spaced, depending, hinge sleeves 14 connected to a hinge bracket 15, the hinge bracket being secured to the top face of the base fitting through suitable screws 16. A plurality of hinge sleeves 17 are connected to the bottom edge of a weir panel 18, the panel being pivotally connected to the hinge bracket 15 by means of a pintle 19 extending through the complementary hinge sleeves 14 and 17. The hinged weir panel 18 is made buoyant by securing a plastic float 20 to the upper edge thereof.

An important feature of the weir assembly of the present invention is the capability of fabricating and fitting the various components at the job site, whereby the weir assembly may be adapted to fit various makes of skimmers having rectangular inlets. To facilitate this feature, the weir components are formed from plastic and the base fitting and hinge bracket are provided with score lines **21** and **22**, respectively, disposed at ½ inch increments, the weir panel **18** also being provided with vertical and horizontal score lines **23** and **24** (FIG. **3**) disposed at ½ inch increments, the right end portion of the panel being provided with additional vertical score lines **25** disposed at ⅛ inch increments.

To install the weir assembly, the following measurements are required:

1. Skimmer inlet floor width, side wall-to-side wall;
2. Skimmer inlet side wall height, floor-to-ceiling;
3. Width of jack screw expansion (after base fitting is installed). Subsequent readings are the direct reading indicia on the component parts.

The base fitting **8** is then cut on the left end, as viewed in FIG. **2**, at the nearest ½ inch score line **21**, shorter than the actual measurement of the housing floor width **2***b* (FIG. **4**). A corresponding number of ½ inch segments are also cut from the left end portion of the hinge bracket **15**, pintle **19** and weir panel **18**. The friction pad **9** is adhesively secured to the end of the base fitting which is then positioned on the housing floor **2***b* with the concave surface **8***c* facing in a direction toward the skimmer reservoir **6** (FIG. **1**). The jack screw **12** is then rotated to move the anchor block **11** and associated friction pad **10** outwardly against the housing side wall **2***d* (FIG. **4**). A measurement is taken of the amount the anchor block has been expanded outwardly from the base fitting to the nearest longer ⅛ inch and the right edge of the weir panel is cut along a vertical score line **25** corresponding to this measurement. The weir panel height is cut off at the horizontal direct-reading indicia which has a figure corresponding to the next-shorter ½ inch segment shorter than Measurement (2) noted above. The finished assembly installation will then have proper height fit. The plastic float **20** is positioned on the top edge of the weir panel with the right edge of the float aligned with the corresponding edge of the panel, the left end of the float then being cut to correspond to the left edge of the panel which is then adhesively secured to the panel. The buoyant weir panel is hingedly connected to the hinge bracket **15** through pintle **19** which is then secured to the base fitting **8** by screws **16**.

From the above description, it will be readily apparent that the weir assembly of the present invention provides an improved assembly designed for step-by-step fit, capable of being installed by non-mechanics using a minimum of tools, and being designed as a universal-type replacement for any rectangular type skimmer inlet, and having component parts which are individually replaceable whenever necessary.

It is to be understood that the form of the invention herewith shown and described is to be taken as a preferred example of the same, and that various changes in the shape, size and arrangement of parts may be resorted to, without departing from the spirit of the invention or scope of the subjoined claims.

I claim:

1. A weir assembly for use in a swimming pool skimmer, comprising, a base fitting adapted to be supported on the bottom wall of a passageway formed in the pool wall and communicating with the water in a swimming pool, one end of the base fitting being adapted to abut a side wall of the passageway, an anchor block slidably mounted on the opposite end of the base fitting, jack screw means connected to the anchor block for moving the anchor block relative to the base support to abut the opposite side wall of the passageway, hinge means connected to said base fitting, and a weir panel connected to said hinge means.

2. A weir assembly according to claim **1** wherein the jack screw is disposed within the base fitting, a slot being formed in the end portion of the base fitting for receiving the anchor block, and a recess formed in the base fitting for receiving the actuating head of the jack screw, said recess forming an access opening for the insertion of a tool for turning the jack screw.

3. A weir assembly according to claim **1**, wherein friction pads are secured to the ends of the base fitting.

4. A weir assembly according to claim **1**, wherein the hinge means comprises, a hinge bracket secured to the base fitting, a plurality of spaced hinge sleeves connected to said hinge bracket, a plurality of spaced hinge sleeves connected to the edge of the weir panel, and a pintle extending through the complementary hinge sleeves.

5. A weir assembly according to claim **1**, wherein a plastic float is secured to the upper edge portion of the weir panel.

6. A weir assembly according to claim **4**, wherein a longitudinally extending side wall of the base fitting is formed with a concave surface for accommodating the hinge sleeves connected to the hinge bracket.

7. A weir assembly according to claim **1**, wherein direct-reading measurement indicia are contained on the base fitting, hinge means, and weir panel, whereby the various components of the assembly may be fabricated at the job site to fit in passageways of various dimensions.

8. A weir assembly according to claim **7** wherein the measurement indicia comprises a plurality of transversely extending score lines spaced longitudinally at predetermined increments on the base fitting, hinge bracket and weir panel, and additional score lines being formed on the weir panel extending normal to the first mentioned score lines.

9. A weir assembly according to claim **1** wherein the base fitting, hinge means and weir panel are constructed of plastic.

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