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SECTIONAL ABOVE GROUND SWIMMING POOL CONSTRUCTION

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3 Sheets-Sheet 1

Fig. 1.

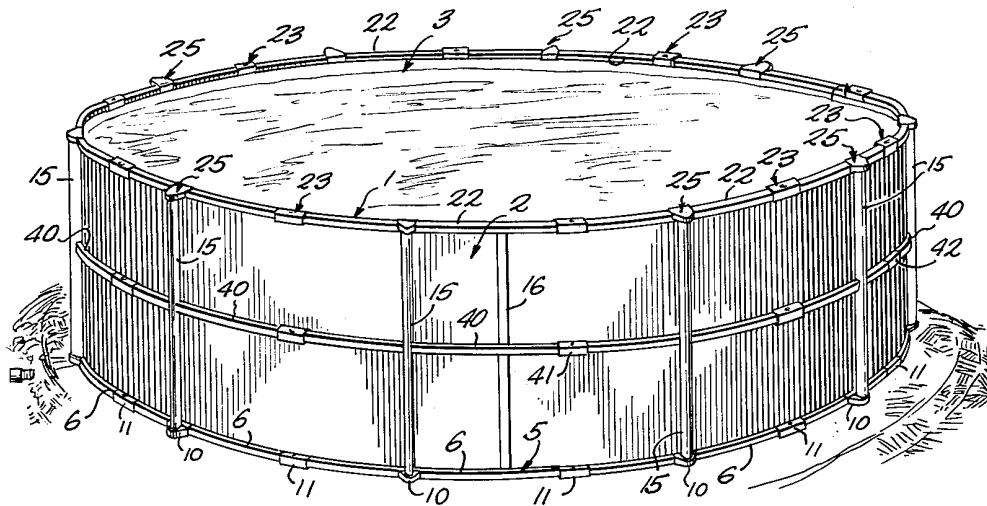
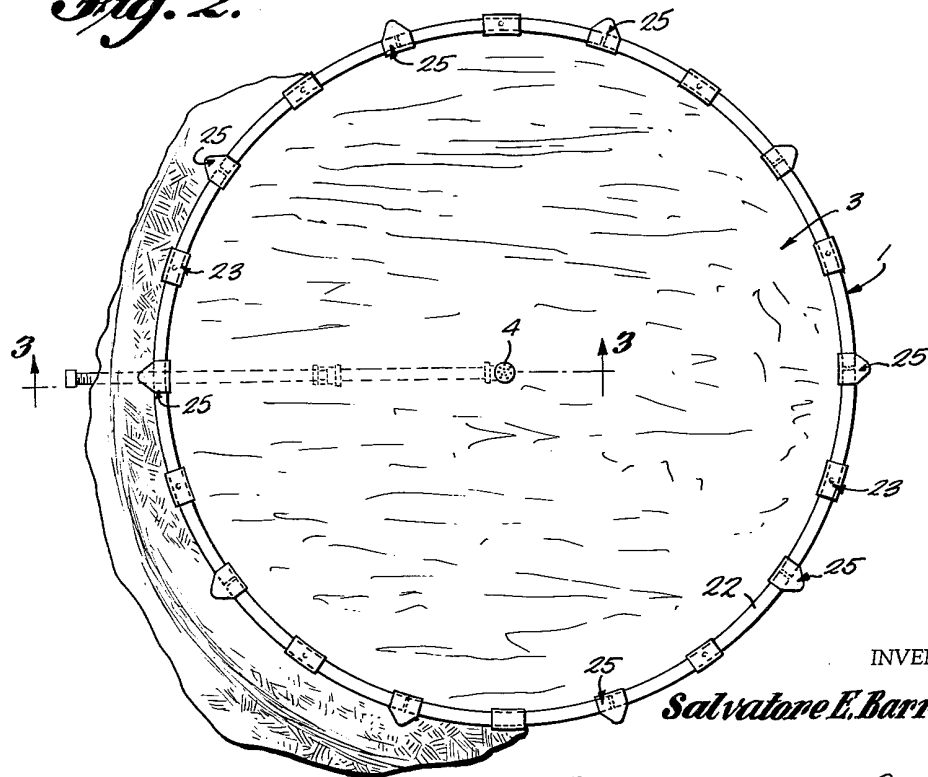


Fig. 2.



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3 Sheets-Sheet 2



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3 Sheets-Sheet 3

Fig. 4.

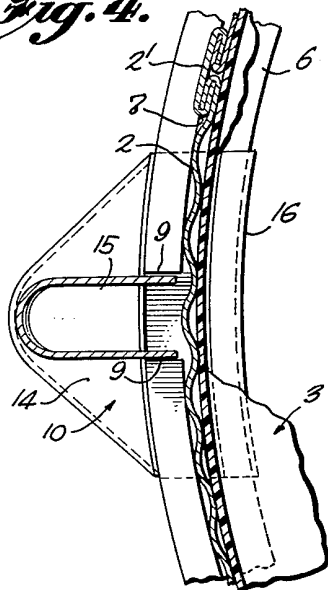


Fig. 6.

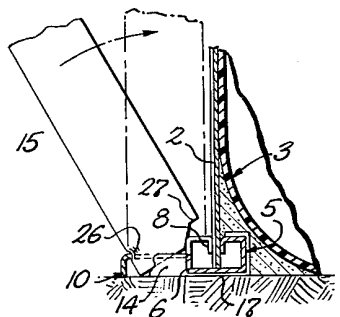
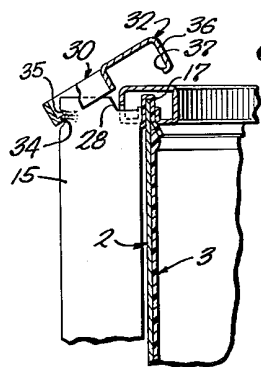
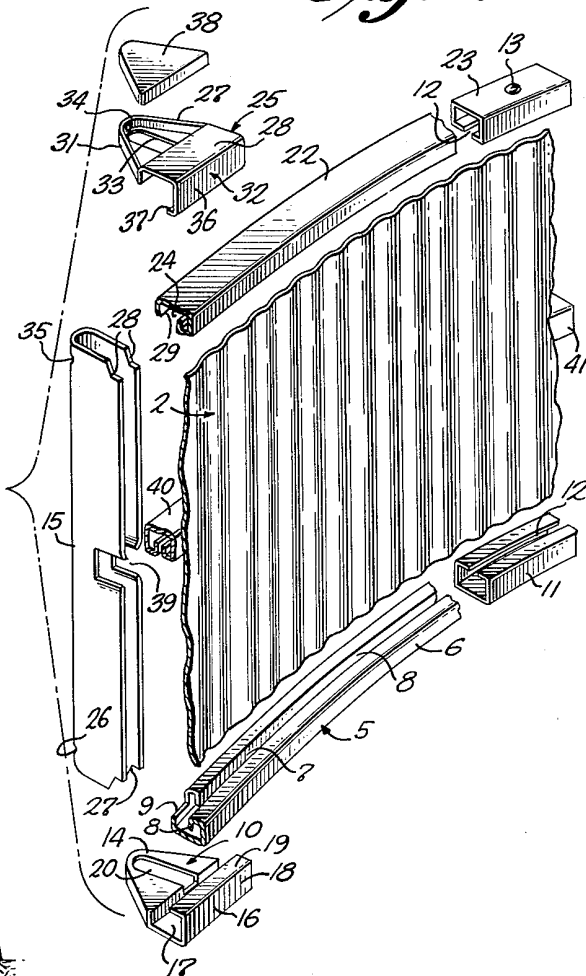


Fig. 5.



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9 Claims. (Cl. 4—172)

This invention relates to swimming pools, or other open top tanks, and particularly to such structure which is adapted for, but not limited to, use where the pool, or tank is to be erected above ground.

The use of above ground swimming pools constructed from prefabricated parts purchased in kits is becoming more prevalent. These usually consist of a frame to support an outer wall, in which a plastic, or other flexible, tank is supported. In most cases, the kit is purchased and assembled by persons relatively unskilled in the use of tools. It is important, therefore, that the parts be assembled in a simple manner. It is desirable that the kit be assembled either wholly, or for the most part, without the use of tools.

The general object of the present invention is to provide a pool structure which will be easy to assemble, yet extremely rigid when set up for use.

A more specific object is the provision of improved means for interconnecting bottom and top rails of a pool frame to rigidify the frame and to provide a connecting upright.

Another object of the invention is to provide a simple connector to lock the upright to the top rail to serve as a snap lock to tie the assembly together.

Other objects of the invention will become apparent from the following description of one practical embodiment thereof, when taken in conjunction with the drawings which accompany, and form part of, this specification.

In the drawings:

FIGURE 1 is a perspective view of the improved pool structure incorporating the principles of the present invention;

FIGURE 2 is a top plan view of the structure shown in FIGURE 1;

FIGURE 3 is a partial vertical section through the pool taken on the line 3—3 of FIGURE 2, and shown on an enlarged scale;

FIGURE 4 is a detail horizontal section through a rail-connecting vertical post and associated structure, and is taken on the line 4—4 of FIGURE 3;

FIGURE 5 is an exploded perspective view of one of the vertical posts, the upper and lower rails, and associated structure;

FIGURE 6 is a partial vertical section through the lower portion of a vertical post and the bottom rail, illustrating the manner of seating the vertical post in the bottom rail; and

FIGURE 7 is a partial vertical section through the upper portion of a vertical post and the top rail, illustrating the manner of connecting the post and top rail.

In general, the invention consists of an improved pool structure, wherein the frame includes vertically spaced rails held in position by uprights, or vertical posts, the uprights being connected to the bottom and top rails by improved connectors which serve to lock the assembly together.

Referring to the drawings in detail, the pool structure includes a circular frame 1 which supports an upright wall 2 in which a flexible liner, or tank, 3 is held. The liner, or tank, forms the water-receiving element, and, when the pool is properly erected, will have its bottom resting upon the earth.

Before setting up the pool, a proper site is selected, and the earth excavated to provide a shallow concavity. The center is definitely located at the geometric center of the excavation to provide for a drain 4. After the drain position is located, the bottom rail 5 of the frame is set up. The bottom rail consists of a number of arcuate rail sections 6, with the assembled rail sections forming a circle.

The rail sections are hollow members, generally rectangular in cross-section, with a slot 7 extending the full length centrally of the top. The slot may be conveniently formed by the inturned edge portions 8 of the sheet material from which the rail section is made. Each rail section is cut out in its outer upper edge midway between its ends, to provide a notch 9.

Before the rail sections are laid about the rim of the pool excavation, a slide connector 10 is slipped onto each rail section and moved to the midsection of the section for alignment with the rail notch 9, as will be described. The ends of adjacent sections are then slipped into rail connectors 11 to join the sections into a circular base rail.

Rail connectors 11 are short, open-ended couplings having the general cross-sectional shape of the rail sections. These connectors are generally rectangular in cross-section, with a central slot 12 to provide for continuation of the rail slot 7 across the coupling. If desired, the rail connectors may have a central dimple, or obstruction 13, in their bottom walls to provide stops to limit the distance the connector may be moved onto a rail section end.

The slide connectors 10 include a box-like base 14 for the frame uprights 15, and a rail clip 16. The rail clip is C-shaped, having a foot member 17 to underlie the rail sections, a vertical leg 18 to extend upwardly along the inner side of the rail sections, and an overhanging toe 19 to overlie the inner rim of the tops of the rail sections. The wall of the base 14 contacts the outer face of the rail sections to fix the position of the clip radially of the bottom rail. The base has an opening 20 in its top wall to form a socket for the base of the upright 15. The slide connectors should be arranged on the rail sections so that each one has its socket opening 20 radially centered on the notch 9 of the adjacent rail section.

After the bottom rail is assembled and the connectors properly centered, the wall 2 is set in place with its bottom edge within the slot 7 of the bottom rail. Wall 2 is formed from one or more lengths forming a sheet of corrugated metal. The sheet is arranged with its corrugations vertically extending, and is formed into a circular wall as the bottom edge is introduced into the slot in the bottom rail. A suitable connecting assembly 2' joins the turned edges of the sheet, to seal the wall and hold the edges of the sheet together.

The flexible tank 3 is then put into position within the wall with its channeled upper edge 21 hooked over the top of the wall 2. The tank is then spread to lie smoothly along the inner side of the wall and to rest smoothly upon the excavated ground. The central grommet of the tank will be secured about the drain 4. Top rail sections 22 are then interconnected by rail connectors 23 slipped over the upper edge of the wall to secure the tank to the wall. Rail sections 22 are identical to bottom rail sections 6, with the central slot 24 entering into the bottom face of the top rails. Top rail connectors 23 are identical to rail connectors 11, and, in fact, the two may be interchangeable.

It is now necessary to tie the top and bottom rails together to lock the top and bottom frame elements into a rigid whole. This is done by means of uprights 15 and top slide connectors 25.

The uprights 15 are elongated members which are U-

3

shaped in cross-section. Near the bottom, each upright is indented at the outer edge, which is the bridge of the U, to provide a notch 26. The legs of the U are cut away at the inner bottom corner of the upright, as at 27, but the cut out does not extend to the height of the bottom rail. As mentioned, the bottom rail sections are provided with notches 9 in their upper outer edges, and these allow entry of the inner edges of the legs of the upright into the rail. This serves to lock the upright against sidewise tilting.

The bottom of the upright is inserted into the socket 20 of a slide connector while the upright is tilted outwardly from the wall to engage the notch 26 of the upright at the outer edge of the base socket. The upright is then tilted forwardly to a vertical position against the wall with the edges of the upright legs seated in the notch 9 in the bottom rail. In this position, the upright will rise parallel to the pool wall with its inner edge closely adjacent the wall. The upper, inner corner of the upright is cut away, as at 28, similarly to the bottom, and the upright legs fit into notches 29 in the top rail sections 22.

The top snap connectors 25 are very similar to the bottom connectors, previously described. Each has an upright cap portion 31 to fit over the top of the upright and a rail clip 32. The cap portion has an opening 33 which snugly embraces the top of upright 15, and there is a lip 34 at the opening end to engage a notch 35 formed in the back edge of the upright.

When the upright is moved to vertical position after engagement with the bottom rail, the leg edges move into the notch 9 in the top rail to fix the upright against lateral movement relative to top rail. This rigidifies the entire bottom rail, upright and top rail assembly. The top snap connector is put on by tilting to project the upright top end through the opening 33 and to engage the notch 35 in the upright with the lip 34 (see FIGURE 7). When this is done, the inner end of the snap connector, that is the clip end, is forced downward over the top rail. The downwardly extending inner leg 36 of the clip will spread from the cap section to allow the locking toe 37 to move down the inner face of the top rail. As soon as the toe clears the bottom of the rail, the leg 36 will spring back to its original position pulling the toe under the bottom edge of the rail to lock the connector in place.

In order to provide a finished appearance for the top rail connection, a closure 38 is provided to fit frictionally within the cap portion of the snap connector.

Each of the uprights has a central notch 39 in its inner edge, midway between the ends of the upright. This allows for the use of a central rail to support the wall when a wall of considerable height is used. Rail sections 40 are inserted in sequence into the notches 39 of the uprights. Each rail section has a rail connector 41 slipped over its trailing end before insertion into notch 39 of an upright, and the inserting movement is continued until the leading end of the rail section seats in the connector 41 on the end of the rail section previously inserted. A special connector 42 which will slide wholly into a rail section, is placed upon the trailing end of the last rail section to be inserted. When this section is in place, connector 42 will be slid back to embrace the end of the next adjacent section and bridge the gap between the ends of the sections.

If it is desired to disassemble the pool, the locking toes 37 of the snap connectors 25 can be forced outwardly so as to clear the inner edge of the top rail, and the connectors 25 removed. The remaining procedure will be a reversal of the erection process.

The above described frame structure can be assembled and disassembled by hand, without tools, and when erected will be extremely rigid. The uprights not only hold bottom and top rails properly spaced, but they prevent them from vertical separation. The interlocking of the uprights and rails prevents tilting of the uprights

4

or circumferential shifting of one ring relative to another.

While in the above one practical embodiment of the invention has been disclosed, it will be understood that the specific details of structure shown and described are merely by way of illustration and the invention may take other forms within the scope of the appended claims.

What is claimed is:

1. An above ground pool structure comprising, a peripheral base rail having a wall-receiving seat therealong, an endless wall having a bottom edge seatable in the base rail seat, a pool liner having an upper edge formed to fit over the top of the wall, a top rail seatable over the liner upper edge and the top of the wall, and means to interconnect the base and top rails including base rail slide connectors having a rail-engaging clip portion and an upright-seating box, the box having a socket therein, uprights seatable in the box sockets and having portions engageable with the box sockets to prevent movement of the uprights vertically when seated in the sockets, and top rail snap connectors having upright cap portions and top rail clip portions, the upright cap portions having openings to embrace the upper ends of the uprights with interengageable means on the upright cap portions and the uprights to hold the top snap connectors against vertical movement when seated on the uprights, and the top rail clip portions having means to snap over and lockingly engage the top rail.

2. A pool structure as claimed in claim 1, wherein the uprights and the base rail have interengaging means to hold the uprights normal to the base rail, and the uprights and the top rail have interengaging means to hold the uprights normal to the top rail.

3. A pool structure as claimed in claim 1, wherein the top and base rails are notched and the uprights fit into the notches to hold the uprights normal to the top and base rails.

4. A pool structure as claimed in claim 1, wherein the top and base rails each are composed of a plurality of rail sections, and there are rail connectors to join the rail sections.

5. An above ground pool structure comprising, an annular base rail composed of a plurality of sections of equal length, each section having an arcuate slot in its top extending the full length thereof, a plurality of rail connectors to seat the ends of adjacent base rail sections, an endless wall having a bottom edge seated in the slot in the base rail, a top rail composed of a plurality of sections of equal length to the base rail sections each having a wall-receiving slot in its bottom, rail connectors to seat the ends of adjacent top rail sections, the sections of the top rail being seated upon the wall with the top edge of the wall in the top rail section slots, the top rail sections being vertically aligned with the base rail sections, a plurality of base rail slide connectors each having a rail-encircling clip portion about one of the base rail sections, each base rail slide connector having an upright-receiving box with a socket therein, uprights supported in the base rail slide connector sockets, the uprights and base rail sections having means interengageable within the base rail slide connectors to prevent movement of the base rail sections within the base rail connectors, and top rail snap connectors having upright cap portions fitting over the tops of the uprights and top rail clips for snap-over engagement with the top rail sections, the upper portions of the uprights and the top rail sections having means interengageable within the top rail snap connectors to prevent movement of the top rail sections within the top rail connectors.

6. A pool structure as claimed in claim 5, wherein there are interengaging means on the bottom portions of the uprights and the base rail slide connector sockets to prevent endwise movement of the uprights relative to the sockets when the uprights are in vertical position, and interengaging means on the upper portions of the uprights and the upright cap portions to lock the uprights and

5

top rail snap connectors against relative vertical movement when the cap portions are fitted over the upright ends.

7. An above ground pool structure comprising, an annular base rail composed of a plurality of arcuate sections of equal length, each section having an arcuate slot in its top extending the full length thereof, a plurality of rail connectors to seat the ends of adjacent base rail sections, an endless wall having a bottom edge seated in the slot in the base rail, a top rail composed of a plurality of arcuate sections of equal length each having a wall-receiving slot in its bottom, rail connectors to seat the ends of adjacent top rail sections, the top rail being seated upon the wall with the top edge of the wall in the top rail section slots, the base rail sections and the top rail sections each having notches in one edge intermediate their ends with the notches of the respective base and top rail sections being in vertical alignment, a plurality of base rail slide connectors each having a rail-encircling clip positioned about a base rail section at the notch in the base rail section, each base rail slide connector having an upright-receiving box with a socket therein, uprights supported in the base rail slide connector sockets in engagement with the notches in the base rail sections and in the top rail sections, and top rail snap

6

connectors having upright cap portions fitting over the tops of the uprights and top rail clips for snap-on engagement with the top rail sections.

8. A pool structure as claimed in claim 7, wherein there are interengaging means on the bottom portions of the uprights and the base rail slide connector sockets to prevent endwise movement of the uprights relative to the sockets when the uprights are in vertical position, and interengaging means on the upper portions of the uprights and the upright cap portions to lock the uprights and top rail snap connectors against relative vertical movement when the cap portions are fitted over the upright ends.

9. A pool structure as claimed in claim 8, wherein the uprights have notches intermediate their ends, and there are central rail sections seated in the upright notches.

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