United States Patent

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[54] ABOVE GROUND SWIMMING POOL CONSTRUCTION

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[52] **U.S. Cl.** **4/172.19,** 52/241, 52/579, 52/593

[51] **Int. Cl.** **E04h 3/16,** E04h 3/18

[58] **Field of Search** 4/172.19, 172, 172.21; 52/579, 52/593, 241

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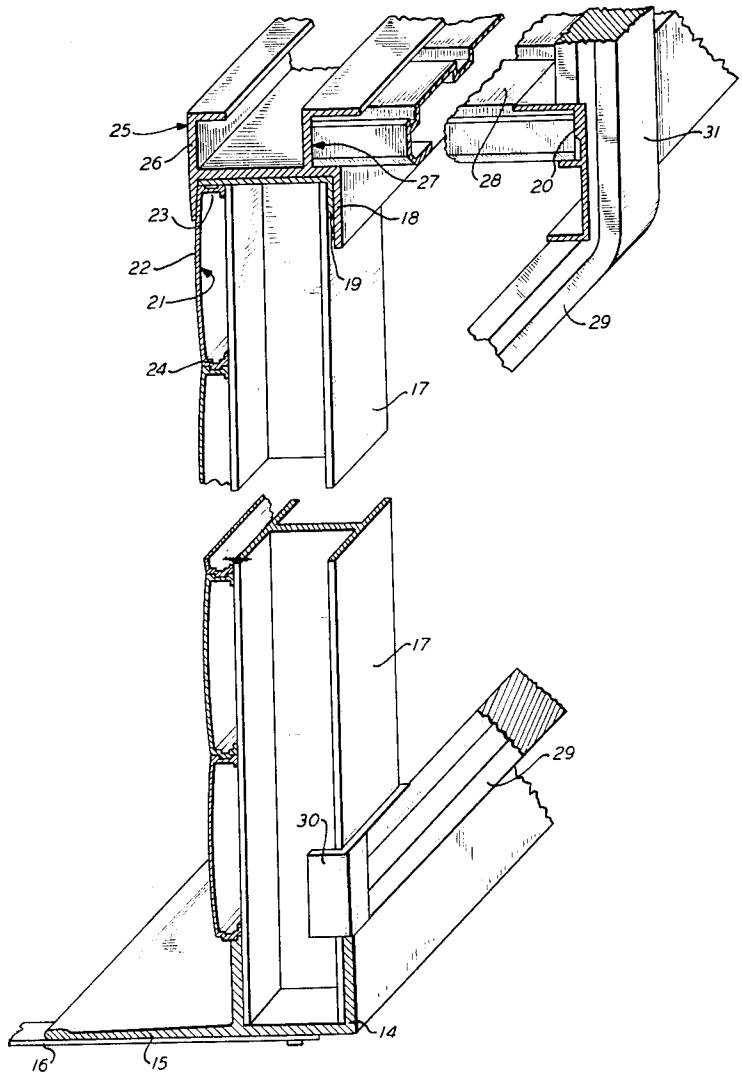
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[57] **ABSTRACT**

An above ground swimming pool construction wherein the pool is hexagonal, the vertical walls are supported in channels and the decks are supported by arms, which are anchored to the channels; and the arms extend upwardly and outwardly, also extend above the deck to support deck rails, and the channels are cross-connected to opposite channels.

7 Claims, 7 Drawing Figures



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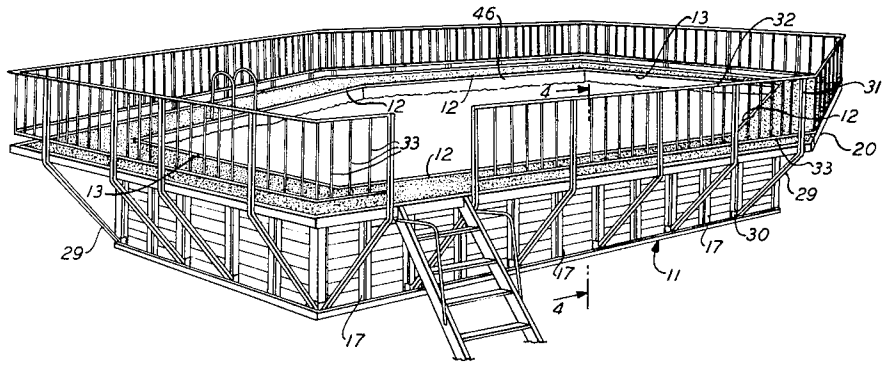


FIG. 5

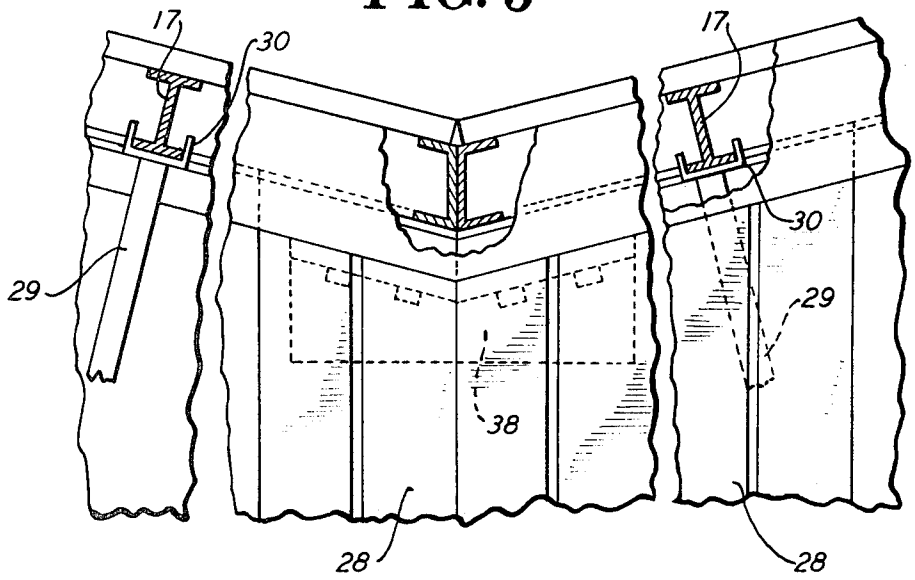


FIG. 6

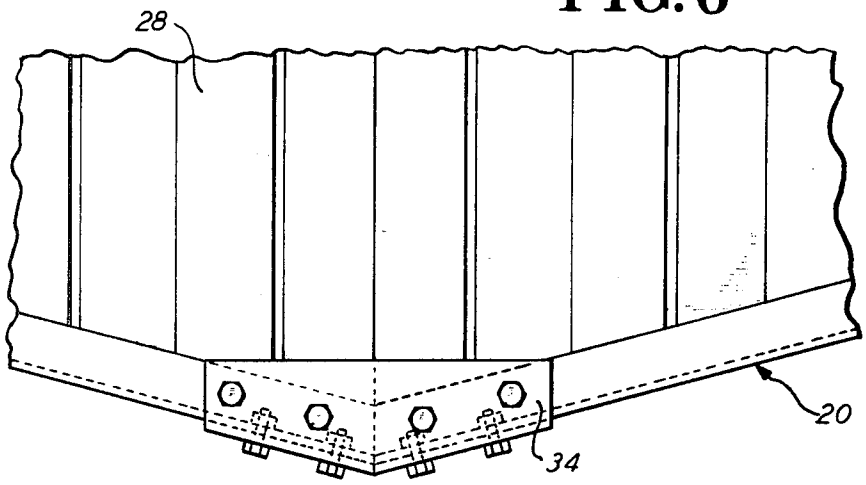
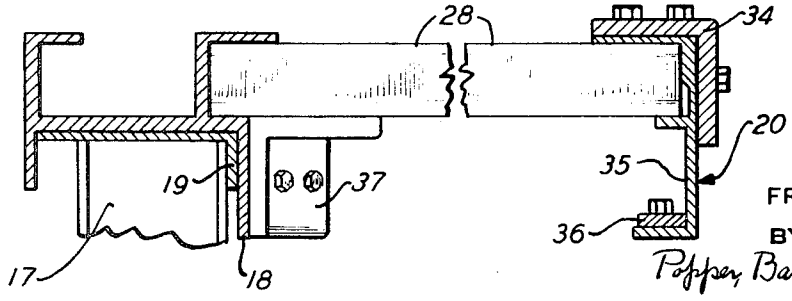


FIG. 7



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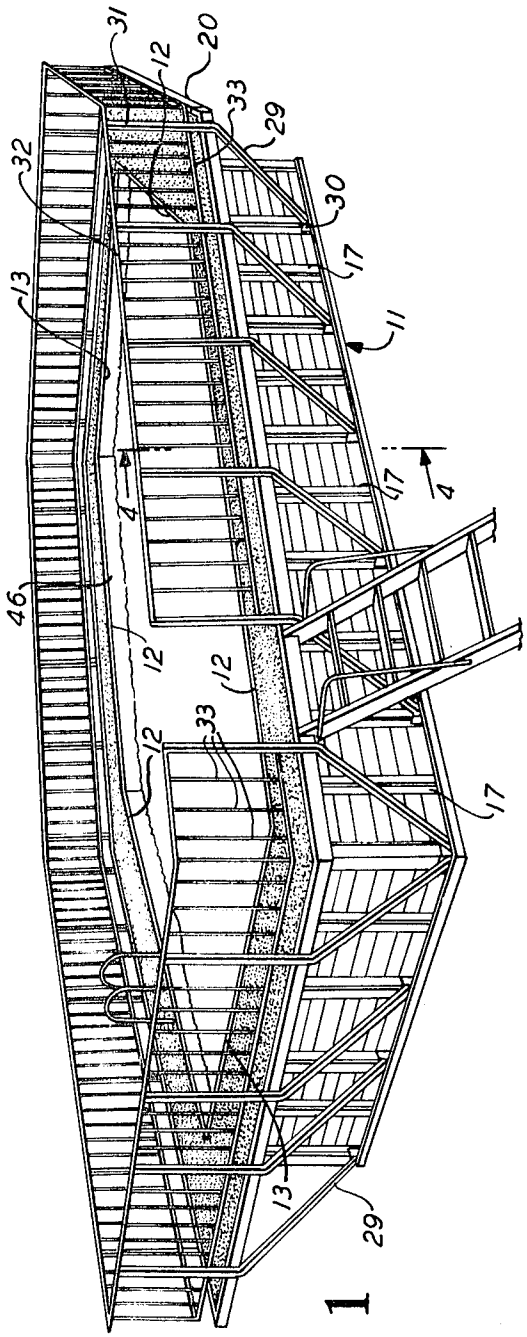


FIG. 1

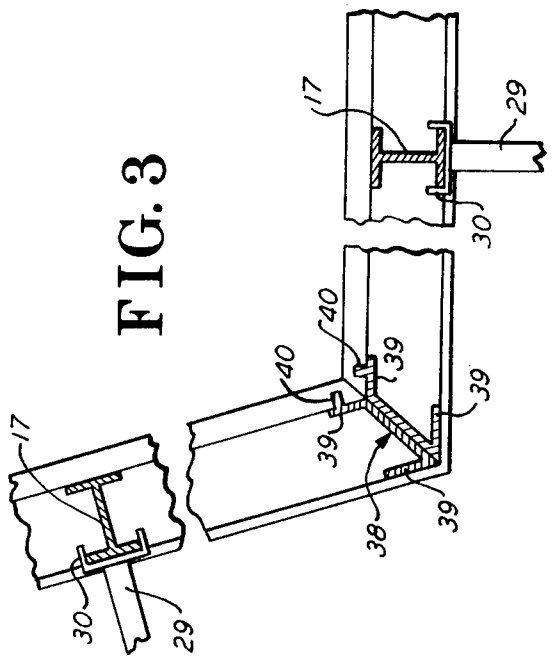


FIG. 3

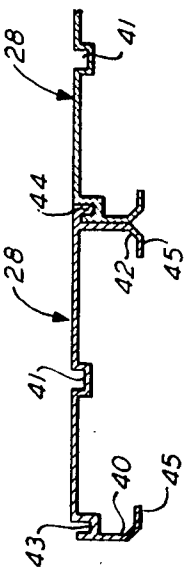


FIG. 2

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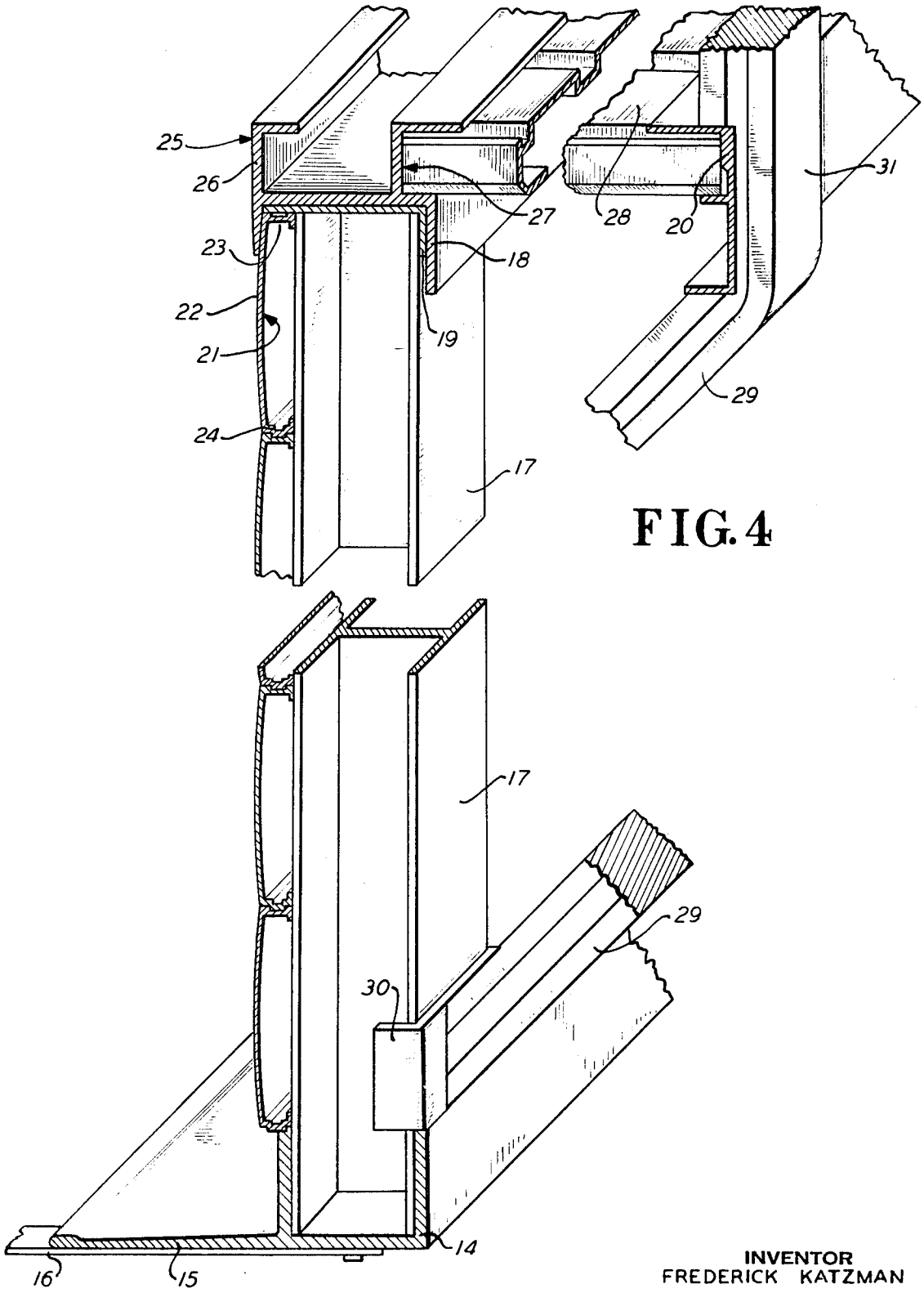


FIG. 4

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ABOVE GROUND SWIMMING POOL CONSTRUCTION

BACKGROUND OF INVENTION

1. Field of Invention

This invention relates generally to above ground swimming pool constructions, and specifically to a frame which rigidly supports the decks, and a vinyl liner, and is resistant to torsional stress and deformation, which holds the contained water securely, without risk of collapse.

2. Prior Art

The appeal of the costly in-ground swimming pool has lead to the development of the above-ground swimming pool which is much less costly. Unfortunately, such swimming pools, if they are to be priced reasonably, must be rather small. The increase in size of the above ground pool of round or rectangular construction requires the use of thicker, heavier, and stronger structural members, due to increased gallonage so that the cost has increased so as to make such desireable larger pools beyond the reach of persons of modest means. If lighter, thinner, weaker structural members are used, they tend to deform under the weight of the contained water, and they soon collapse, with disastrous results from the release of the contained water.

SUMMARY OF INVENTION

It has been found that the weight of water in a hexagonal above ground swimming pool can be well controlled by the use of vertical braces for the walls, set in top and bottom channels, with support attached to the brace extending upwardly and outwardly to the deck level, and then upwardly above the deck to support a railing. Furthermore, horizontal deck supports, extending from the top channel to the braces, which are in turn united by a peripheral brace will impart great strength to the walls and high resistance to deformation. Bottom stringers between the opposite channels will provide additional resistance to deformation. Finally, arranging the walls hexagonally with four long side courses and opposite, end, shorter courses, will provide a pool of attractive size and width, without an extravagant volumetric increase such as might necessitate the use of heavy and costly braces.

DRAWINGS

These object and advantages as well as other objects and advantages may be attained by the construction shown by way of illustration in the drawings in which:

FIG. I is a perspective view of the swimming pool construction;

FIG. II is a partial cross-sectional view of the deck beam assembly;

FIG. III is a horizontal sectional view of the intersection of two sides of the swimming pool walls;

FIG. IV is a partial vertical sectional view of the swimming pool wall;

FIG. V is a partial top plan view of the deck at the intersection of two courses, with portions exploded away;

FIG. VI is a partial bottom view of the deck at the intersection of two courses; and

FIG. VII is a partial vertical sectional view of the deck assembly.

PREFERRED EMBODIMENT

Referring now the the drawings in detail, an outer, base frame **11** is provided which is hexagonal, with four sides **12**, equal in length, and two equal ends **13**, but shorter than the sides.

The base frame **11** is formed of generally U-shaped base channels **14** having an inwardly extending leg **15**. The frame **11**, when resting on a flat surface is braced by the inwardly extending leg **15**, and resists torsional forces. Transverse straps **16** are attached to each of the sides **12** at suitable intervals and extend across the base frame **11** to the opposite side **12** of the base frame **11** where the straps **16** are also attached. In this manner the hexagonal configuration of the base frame **11** is stabilized.

At suitable intervals, vertical I-beams **17** are set into the channels **14** and attached thereto. To secure together the upper ends of the beams **17**, an inverted U-shaped channel **18** is provided. An L-shaped cap strip **19** is placed over the I-beams **17** and the inverted U-shaped channel **18** is placed over the cap strip **17**. The inverted channel **18** is wider than the I-beam **17**, providing on the outside, a space for the vertical leg of the cap strip **19**, and on the inside, a space for the vertical wall panel to fit between the inverted channel **18** and the I-beam **17**.

The wall panel is made of a plurality of horizontal, interlocking beams **21**. These beams **21** have a slightly arcuate face **22**, and rearwardly extending legs at the top and bottom of the face **22**. One leg **23** has a concave longitudinal groove, and the other leg **24**, has a convex longitudinal rib. Thus when the beams **21** are stacked edgwise vertically, they will interlock by virtue of the interengagement of the convex and concave portions, to form a sturdy wall panel which, by virtue of water pressure on the arcuate faces **22**, will strongly interlock as the pressure tends to flatten the arcuate faces **22**.

The inverted U-shaped channel **18** has an inner edge L-shaped enlargement **25** whose vertical wall **26** is coplanar with the inner vertical wall of the channel **18**. There is also an inner L-shaped enlargement **27** which is spaced inwardly from the outer wall of the U-shaped channel **18**, thereby to form an inner socket for a deck.

An outer socket for the deck is provided by a generally U-shaped perimeter channel **20** disposed in opposition to the inner socket. Deck planks **28** fit into these sockets in edge abutment with each other. The perimeter channel **20** is supported by a brace **29**. The brace **29** has a U-shaped seat **30** at its lower end which is attached to the vertical I-beam **17** by bolting or welding. The brace **29** extends upwardly and outwardly until it reaches the perimeter channel **20**, where it then has a vertical portion **31** and is attached to the perimeter channel **29**.

A railing is provided for the deck by a top rail **32** and a bottom rail **33** being attached to the vertical portion **31**, with numerous vertical rails **33** interconnecting the top and bottom rails **32** and **33**.

The chosen hexagonal shape for the pool requires that the six sides be rigidly connected together at their outer deck intersections. This is accomplished by splice plates **34**, which are bolted to the abutting deck sections at the point of intersection of the adjacent perimeter channels. The perimeter channels **20** have downwardly extending L-shaped legs **35**, and an additional splice plate **36** connect the leg **35** to the adjacent leg **35**.

Inner splice plates **37** are provided to be bolted to the abutting ends of the inverted U-shaped channels **18**, to unite them together. Inner bottom splice plates **38** are bolted to abutting ends of the base channels **14**.

To provide additional wall strength at the intersection of the base channels **14**, and the inverted U-shaped channels where reinforcing vertical I-beams **17** cannot be inserted to strengthen these intersections, special corner posts, two part I-beams **38** are provided to fit into the top and bottom channels **14**, **18**. These special two part I-beams **38** have angularly disposed legs **39**, angled to fit into the opposing channels **14**, **18**. They are bolted or welded to the channels **14**, **18**, and then the two parts of the beams **38** are bolted or welded together to provide a rigid corner. For additional strength, lock leg **40** may be provided on the legs **39** to fit into slots in the channels **11**, **18** to impart even greater rigidity.

Deck planks **28** are shown sectioned in FIG. 2. They have a generally flat top surface with a central longitudinal channel **41** to provide for the run-off of water from the decks. At one longitudinal edge, the plank **28** is provided with a downwardly extending support leg **40**. At the other lateral edge the plank **28** is also provided with a downwardly extending support leg **42**. Each of these legs, **40** and **42** have inturned ends **45**

disposed in general parallelism with the top surface. One leg **40** has a longitudinal slot **43** and the other leg **42** has a longitudinal hook **44**. In this manner, the planks **28** may be assembled with the longitudinal side edges interlocked with the longitudinal hook **44** of one locked into the longitudinal slot **43** of another. Since the perimeter channel **20** is not connected to the enlargement **27** which defines an inner socket for the deck by any cross-members, the interlocking planks **28** are attached, preferably by welding at each end to the enlargement **27** on the U-shaped channel **18** and also by welding to the perimeter channel **20**, thereby locking them together. In addition, the individual planks **28** are attached to each other in abutting edge relationship, preferably by welding. In this manner, the inner and outer supports for the decks are rigidly secured together around the entire perimeter of the swimming pool, produces a top support for a swimming pool liner **46** which is exceedingly strong, rigid, and not subject to deformation. Likewise the base frame **11** connected thereto by the vertical I-beams **17** is also a rigid support for the horizontal interlocking beams **21** which define wall panels supporting the liner. Further rigidity and resistance to torsional forces is provided by the transverse straps **16** inter-connecting the sides **12**.

The hexagonal shape of the above ground swimming pool construction provides a large swimming area wherein the weight of the water is readily supported in the vinyl liner without the generation of forces sufficient to deform the supporting structure.

I claim:

1. An above ground swimming pool construction comprising:

a. a generally hexagonal base frame,
b. an inwardly disposed leg on the frame,
c. the frame having a generally U-shaped cross section,
d. straps attached across the frame to opposite sides thereof,
e. a plurality of vertical beams attached at their lower ends to the base frame and extending upwardly therefrom,
f. a generally hexagonal top channel over the top of the beams,
g. the top channel having a generally U-shaped cross section,
h. a plurality of horizontal beams, in stacked array attached to the vertical beams,
i. a concave groove on one edge of each horizontal beam, and a convex rib on the other edge of each horizontal beam,
j. the concave grooves and convex ribs arranged in oppositional engagement with each other,
k. each of said beams having an arcuate inner face whereby pressure thereon will tend to flatten the beam and urge the convex ribs and concave grooves into tighter engagement with each other.

2. The device according to claim **1**, and:

a. two part vertical corner beams at the intersections of each of the hexagonal courses,
b. the webs of the corner beams being attached together,
c. the legs of the corner beams being angularly deflected to correspond with the adjacent hexagonal courses.

3. The device according to claim **1** and:

a. a generally L-shaped enlargement on the top of the top channel to define with the top channel, an inner seat for deck planks.

4. The device according to claim **3** and:

a. braces extending upwardly and outwardly from the base frame,
b. a U-shaped seat on the bottom of the braces attached to the vertical beams,
c. a perimeter channel attached to the braces and lying in the same horizontal plane as the inner slot for deck planks and defining an outer seat for deck planks,
d. a plurality of deck planks attached at either end to the inner and outer seats.

5. The device according to claim **4** and:

a. vertical extensions on the braces above the deck planks,
b. a fence attached to the vertical extensions.

6. The device according to claim **2**, and:

a. lock legs on the legs of the corner beams fitted into slots in the base channel.

7. The device according to claim **5**, and:

a. each deck plank provided with a longitudinal edge slot and an opposite edge longitudinal hook,
b. the slot of one deck plank interlocked with a hook of the adjacent deck plank.

* * * * *