Aug. 6, 1968 A. R. TESCHNER 3,395,407

SWIMMING POOL

Filed May 14, 1965 3 Sheets-Sheet 1

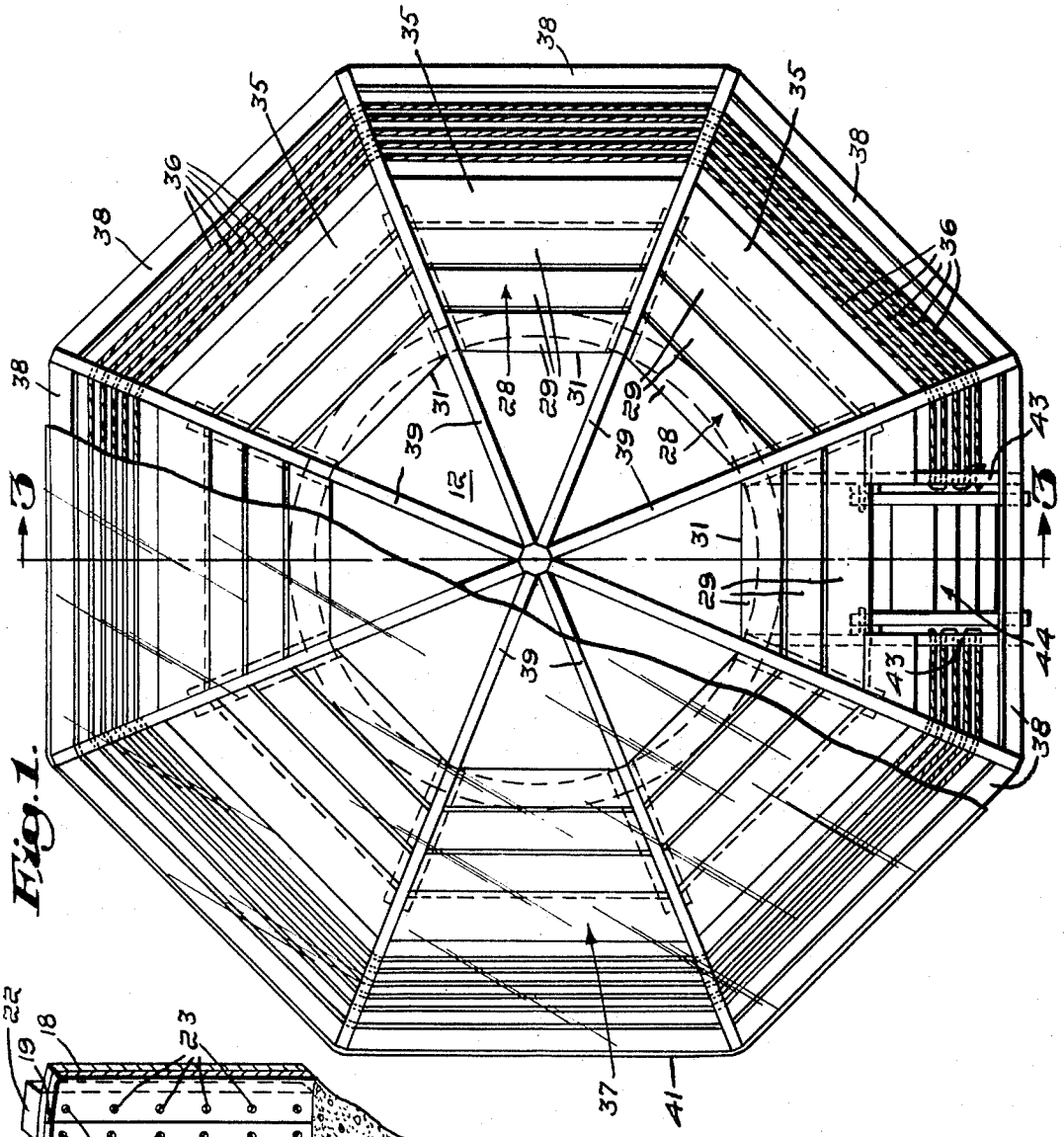


Fig. 1.

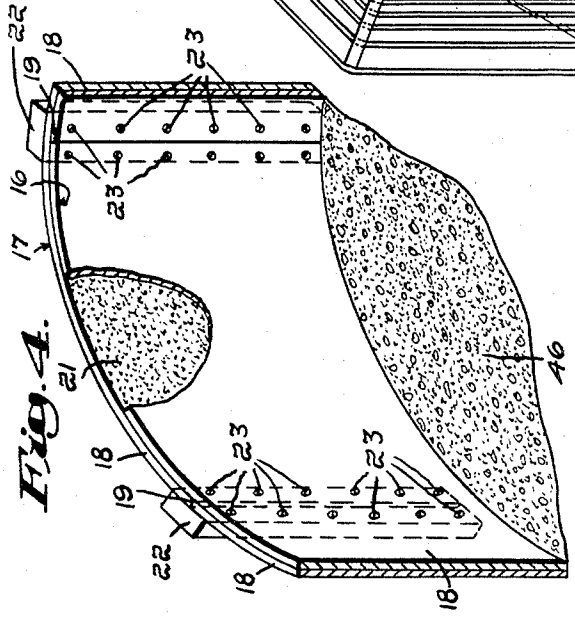


Fig. 4.

Inventor:
Allen R. Teschner,
by John E. Toupal
Attorney

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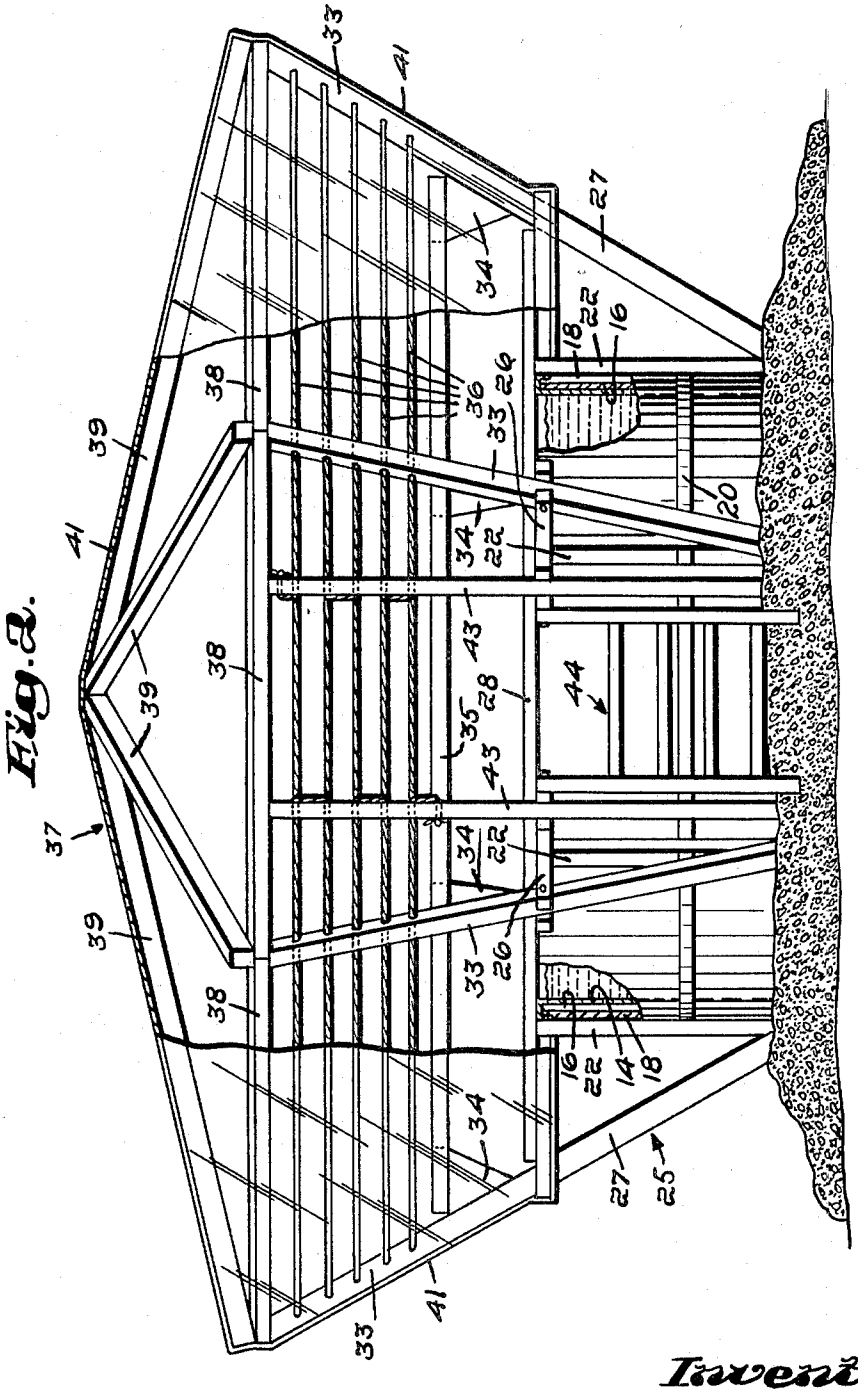


Fig. 2.

Inventor:
Allen R. Teschner
by John E. Toupal
Attorney

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SWIMMING POOL

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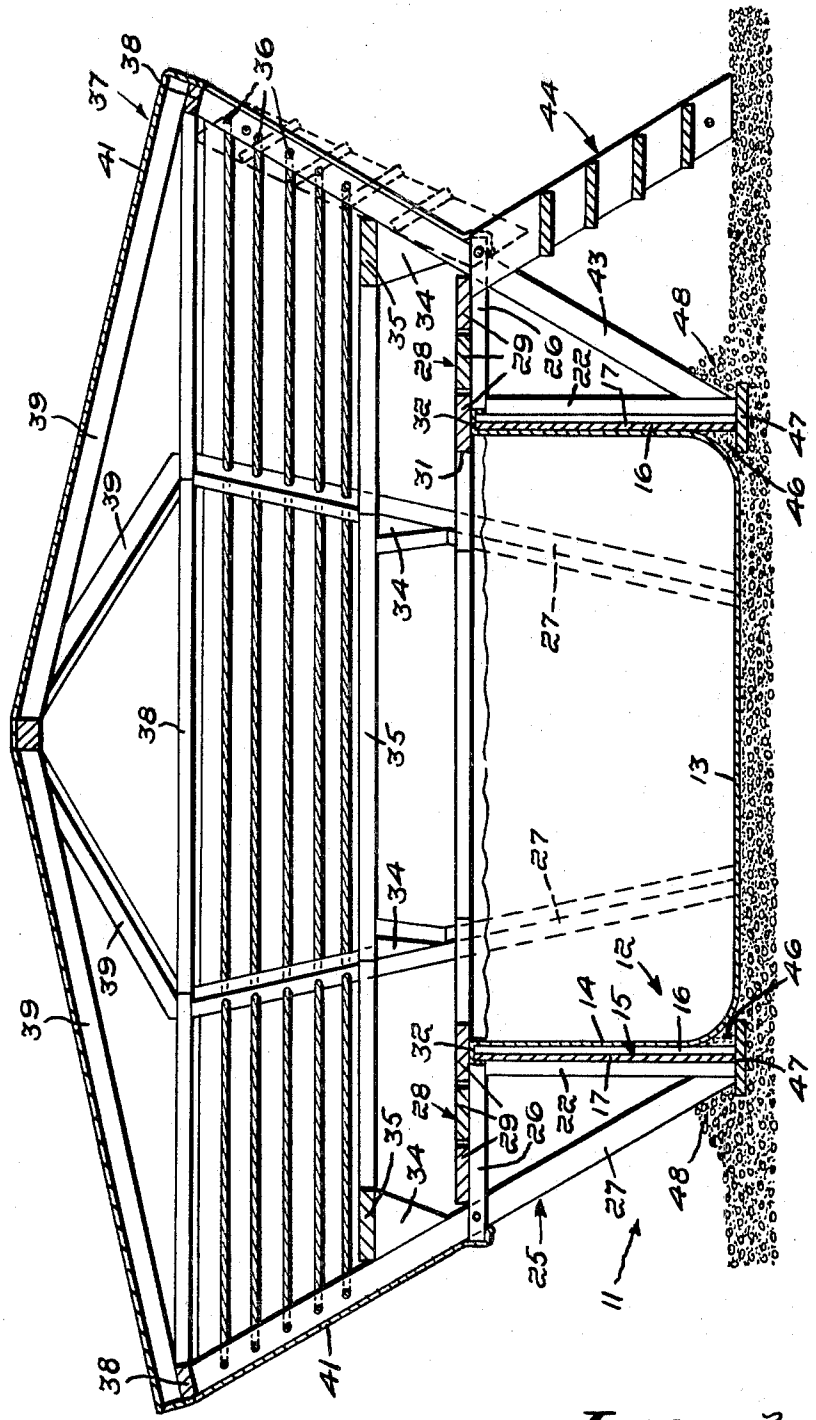


Fig. 3.

Inventor:
Allen R. Teschner
by John E. Toupal
Attorney

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SWIMMING POOL

Allen R. Teschner, 102 Lovering St., Medway, Mass. 02053

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ABSTRACT OF THE DISCLOSURE

A bathing pool structure having a flexible waterproof liner supported within a curved cylindrical side wall formed by edge joined elongated plywood panels. The joined panels have relatively large lengths which facilitates their formation into a support structure having a desirable closed plane curve shaped in horizontal cross section.

This invention relates generally to bathing pools and more particularly to above ground bathing pools suitable for swimming

A recent innovation in swimming pools has been the type now commonly known as the above ground pool. These pools basically include a framework supported water tight vinyl liner which is filled to provide a body of water suitable for bathing or swimming. The above ground pool has led to a substantial increase in the number of existing swimming pools because of their low cost, relative to comparatively sized pools of the conventional in-ground type. The low cost of the above ground pool results from a number of factors includnig lower installation cost, reduced maintenance requirements, potential portability, beneficial tax status, etc.

However, even the above ground pool has suffered from many disadvantages which render it unacceptable or unobtainable for the average family. For example, many existing above ground pools utilize a framework composed substantially of metallic elements which are highly susceptible to corrosion and rust especially in the extremely wet environment associated with their use. In attempts to overcome this disadvantage pool frameworks have been developed which utilize water damage resistant wood products for their basic construction. However, such pools have also proven generally unsatisfactory because of such factors as intricate and expensive installation requirements and water pressure induced distortion or weakening of the pool framework. Another inherent disadvantage of the above ground pool results from the height of the pool surface above the surface of the ground. This fact under some conditions subjects either the swimmer in the pool or the lounger on a pool deck to increased wind velocities by negating natural wind barriers. The cooling effect of the increased wind velocity can substantially detract from the comfort of the pool user.

The object of this invention therefore is to provide an above ground swimming pool which entails lower cost, reduced maintenance requirements, greater utility and increased user comfort than such pools now available.

One feature of this invention is the provision of an above ground swimming pool having a flexible pool liner supported by a circularly cylindrical plywood framework which exhibits substantial vertical strength in addition to a strong resistance to both corrosion and water pressure induced deformation.

Another feature of this invention is the provision of an above ground swimming pool of the above featured type wherein the plywood framework comprises a plurality of elongated plywood panels joined to form a circular shape and wherein the panels have a length of at least 15 feet enabling them to easily assume a desired curvature.

Another feature of this invention is the provision of an above ground swimming pool of the above featured

types wherein the plywood framework comprises of an outer cylinder having an inner diameter substantially equal to the outer diameter of an inner cylinder so as to be in intimate circumferential contact therewith and to thereby provide a framework of substantial structural strength.

Another feature of this invention is the provision of an above ground swimming pool of the above feature types wherein the vertical joints between adjacent plywood panels of the inner framework cylinder are staggered with those of the outer framework cylinder so as to increase the strength of the composite plywood framework.

Another feature of this invention is the provision of an above ground swimming pool of the above featured types including a plurality vertical support struts attached to the outer surface of the outer framework cylinder so as to be in alignment with the vertical joints of both the inner and outer framework cylinders.

Another feature of this invention is the provision of an above ground swimming pool of the above featured types wherein the support struts have a triangular shape with horizontal legs supporting deck spans at approximately the top level of the cylindrical framework.

Another feature of this invention is the provision of an above ground swimming pool of the above featured types wherein deck spans extend over the circular top edge of the cylindrical framework so as to form portions of chords therefor.

Another feature of this invention is the provision of an above ground swimming pool of the above featured types wherein the deck spans extend entirely around the framework cylinder to form a unitary deck having the shape of a polygon.

Another feaure of this invention is the provision of an above ground swimming pool of the above featured types wherein the triangular shaped support struts include hypotenuse legs which extend above the level of the deck and support both seat members and flexible back supports.

Another feature of this invention is the provision of an above ground swimming pool of the above featured types including a unique roof assembly having a plurality of brace members with ends connected around the circumference of the circular pool framework and opposite ends connected together at a point above the pool center.

Another feature of this invention is the provision of an above ground swimming pool of the above featured types including a layer of adhesive material disposed between the inner and outer framework cylinders so as to increase the strength of the pool framework.

These and other features and objects of the present invention will become more apparent upon a perusal of the following specification taken in conjunction with the accompanying drawings wherein:

FIG. 1 is an above plan view, partially cut away, showing a preferred embodiment of the present invention;

FIG. 2 is an end view, also partially cut away, of the bathing pool embodiment shown in FIG. 1;

FIG. 3 is a partial cross sectional view of the pool embodiment shown in FIGS. 1 and 2;

FIG. 4 is a detailed drawing illustrating the construction features of the pool side wall shown in the embodiment of FIGS. 1–3.

Referring now to the drawings there is shown the annular framework **11** which supports the flexible waterproof liner **12** having the circular bottom wall **13** and the cylindrical side wall **14**. The liner **12** is made, for example, of a suitable waterproof vinyl material. The framework **11** includes the circular cylindrical side wall **15** composed of plywood and including the inner cylinder **16** and the outer cylinder **17**. The liner cylindrical side wall **14** is vertically supported by attachment to the top edge

of the plywood wall **15** and is restrained from horizontal movement by the inner surface thereof.

The structural features of the cylindrical side wall **15** are shown more clearly in FIG. 4. Both the inner cylinder **16** and the outer cylinder **17** are composed of a plurality of elongated plywood panels **18** connected at their lateral ends to form vertical joints **19**. Each of the panels **18** is curved along its length so that the composite inner and outer cylinders **16**, **17** formed thereby are circular in horizontal cross section. The outer diameter of inner cylinder **16** and the inner diameter of outer cylinder **17** are approximately equal so as to provide an intimate circumferential contact between their surfaces which are preferably joined by a thin layer **21** of a suitable non-hardening cement. The vertical joints **19** are staggered so that each vertical joint of inner cylinder **16** is directly adjacent a solid portion of outer cylinder **17** and each vertical joint of outer cylinder **17** is adjacent a solid portion of inner cylinder **16**. The vertical strut members **22** are in parallel alignment with each of the vertical joints **19** and are secured to the outer surface of outer cylinder **17** by screws **23** which extend through both the outer cylinder **17** and the inner cylinder **16** on both sides of each vertical joint **19**. Additional radial support for the structure is provided by the metal band **20** which surrounds and is in intimate contact with the outer cylinder **17**.

The structural features of the cylindrical side wall **15** provide a support for the pool liner **12** which is extremely strong, stable and resistant to deterioration by the elements. The mechanical rigidity of the plywood structure produces a vertical support which is not subject to vertical bending while inherent chemical properties give the structure resistance to moisture causing corrosion. Furthermore the circular configuration is not subject to deformation because of the uniform radial forces exerted against its inner surface by the water contained within the vinyl liner **12**. The circumferential tensile forces induced in the cylindrical side wall **15** by the water pressure are strongly resisted by the tensile strength of the plywood panels **18**, the compensating strength of the staggered vertical joints **19** and the cement **21** which resists relative tangential movement between the inner cylinder **16** and outer cylinder **17**.

To obtain a pool framework of great mechanical strength and minimum cost the lateral length of the plywood panels **18** is of great importance. It has been found that lengths of at least 15 feet are desirable and lengths of greater than 20 feet are preferable. Plywood panels of such minimum lengths exhibit the flexibility required to assume the desired radius of curvature for the circular pool with a minimum of mechanical stress.

Evenly spaced around and extending radially from the cylindrical side wall **15** are the triangular deck supports **25** each of which have a vertical leg formed by a vertical strut **22**, a horizontal leg **26** extending radially out from the side wall **15**, and a hypotenuse leg **27** connected between the free ends of vertical leg **22** and horizontal leg **26**. A deck span **28** composed of a plurality of parallel and slightly spaced planks **29** is supported by each pair of adjacent horizontal legs **26**. The deck spans **28** extend completely around the cylindrical side wall **15** forming a unitary deck structure which with the triangular supports **25** increase the strength of the side wall **15**.

The particular features of the deck structure uniquely complement the circular sidewall **15** to provide an above ground pool and lounging deck at a minimum of cost and required construction time. According to the invention the deck spans **28** form a unitary deck structure having the shape of a polygon with the inner edges **31** of each deck span **28** extending a varying distance over the side wall **15** so as to form portions of chords for the upper edge **32** as viewed from above. This projecting deck arrangement, in addition to reducing structural costs, serves as a wave break and as an optical screen for any ring of dirt which accumulates at water level on the inner surface of the liner side wall **14**.

The upper portions **33** of the hypotenuse legs **27** extend above the level of the deck spans **28**. Attached to the upper portions **33** are triangular members **34** which support seating planks **35** extending around the circumference of the pool. Disposed behind and above the seating planks **35** are a plurality of spaced ropes **36** which extend through apertures in the uppr hypotenuse portion **33**. The ropes **36** are preferably made of a synthetic plastic, such as polyethylene, so as to exhibit a non irritating surface for contact with the exposed skin of bathers.

The roof assembly **37** includes the brace members **38**, the roof beams **39** and the flexible preferably transprent cover **41** composed of a suitable material, such as vinyl. The brace members **38** extend between and are attached to the ends of each pair of adjacent hypotenuse upper portions **33** so as to form an annular brace having the shape of a polygon. One end of a roof beam **39** is connected to each intersection between the brace members **38**. The other ends of the uniform length roof beams **39** are connected at a point directly above the center of circular liner bottom wall **13**. The cover **41** is supported by the roof beams **39**, extends down along the outer surface of upper hypotenuse portions **33** and is attached to the bottom surface of deck spans **28**. Thus the cover **41** completely encloses the surface of the pool and the deck assembly. The uniform and symmetrical triangular units formed by each pair of adjacent roof beams **39** and connecting brace member **38** provide a roof assembly of sufficient mechanical strength to withstand the forces of the elements.

The pair of parallel spaced ladder supports **43** are connected between the base of the side wall **15** and a brace member **38**. The upper end of ladder assembly **44** is pivotally connected between the ladder supports **43** and provides access to the pool deck. The bottom portion of ladder assembly **44** can pe pivoted upwardly and attached to the brace member **38** so as to prevent unauthorized use of the pool by infants, animals, etc.

During assembly of the pool any clearance between the outer surface of the liner **12** and either the ground level or inner surface of side wall **15** is filled with a suitable fluid substance **46** such as sand. Also the entire framework **11** is leveled by strategic positioning of leveling blocks **37** under the bottom edge of side wall **15** and a suitable aggregate **48**, for example gravel, is disposed entirely around the bottom edge of the side wall **15**.

The many unique construction features of this invention permit the building of a structurally sound above ground pool with a minimum of required material and labor. Consequently a substantial reduction in cost is obtained without a sacrifice of strength or utility. In fact, the resultant pool exhibits many utilitarian advantages not present in prior more expensive pools. For example, the novel roof assembly **37** makes practical and enjoyable year-round swimming or, in the colder climates, winter use of the pool as an ice skating rink. Furthermore, the unique roof arrangement and complementary circular pool structure allow large pools of greater than 20 foot diameter to be safely and easily enclosed.

Obviously many modifications and variations of the present invention are possible in light of the above teachings. It is therefore to be understood that within the scope of the attached claims the invention may be practiced otherwise than specifically described.

What is claimed is:

1. A bathing pool structure comprising a flexible waterproof liner adapted to confine a body of water and having a bottom wall and a liner cylindrical side wall, a framework surrounding said cylindrical side wall and comprising a vertical framework cylindrical side wall adapted to provide horizontal confinement of said liner cylindrical side wall, said framework cylindrical side wall compris-

ing a plurality of elongated wooden material panels having substantial vertical widths and horizontal lengths, said wooden material panels being curved along their lengths and joined at their ends to form a closed plane curve in horizontal cross section, connector means connecting the lateral ends of said wooden material panels to form vertical joints, a plurality of vertical strut members spaced around the outer surface of said framework cylindrical side wall, a plurality of horizontal leg members attached to said vertical strut members and extending radially outward from said framework cylindrical side wall, a plurality of hypotenuse leg members joining said cylindrical vertical strut and said horizontal leg members, and a plurality of horizontal deck spans supported between and by adjacent ones of said horizontal leg members, said deck spans extending over the curved top edge of said framework cylindrical side wall so that the inner edges of said deck spans form portions of chords for said curved top edge.

2. A bathing pool structure according to claim **1** wherein said plurality of deck spans extend completely around said cylindrical side wall forming a unitary deck having the shape of a polygon.

3. A bathing pool structure according to claim **2** wherein said hypotenuse legs include upper portions which extend above the level of said deck spans, and including seat members supported between said upper portions of said hypotenuse legs, and flexible back support means disposed above said seat members and also supported between said upper portions of said hypotenuse legs.

4. A bathing pool structure according to claim **3** including a roof assembly having a plurality of brace members connected between said upper portions of said hypotenuse legs and forming a polygon brace which extends around said cylindrical side wall, a plurality of roof beams each having one end attached to said polygon brace at a different intersection between said brace members and their other ends connected together at a point above the level of said polygon brace and in substantial perpendicular alignment with the center of said circular bottom wall.

5. A bathing pool structure according to claim **1** including a support band surrounding said outer cylinder and in intimate contact therewith so as to provide a radial support for said cylindrical side wall.

6. A bathing pool structure according to claim **1** wherein said framework cylindrical side wall comprises an inner wooden material cylinder encircled by an outer wooden material cylinder and wherein the exterior surface of said inner cylinder substantially conforms to the inner surface of said outer cylinder so as to provide intimate circumferential contact therebetween.

7. A bathing pool structure according to claim **6** wherein said vertical joints in said inner cylinder are adjacent solid portions of said outer cylinder and said vertical joints in said outer cylinder are adjacent solid portions of said inner cylinder.

8. A bathing pool structure according to claim **7** including a layer of adhesive substance between said inner and outer cylinders.

9. A bathing pool structure comprising a flexible waterproof liner adapted to confine a body of water and having a substantially circular bottom wall and a cylindrical side wall, a framework surrounding said cylindrical side wall of said flexible waterproof liner so as to provide horizontal confinement thereof, said framework comprising a vertical cylindrical side wall having in a horizontal plane a substantially circular shape, said framework cylindrical side wall being at least three feet in height and twenty feet in diameter, attachment means securing said liner cylindrical side wall to said framework, a plurality of triangular deck supports each having a vertical leg attached to the outer surface of said cylindrical side wall, a horizontal leg extending radially outward therefrom and a hypotenuse leg joining said vertical and horizontal legs, and further including a plurality of horizontal deck spans supported between and by adjacent ones of said horizontal legs, said deck spans extending over the circular top edge of said cylindrical side wall so that the inner edges of said deck spans form portions of chords for said circular top edge.

10. A bathing pool structure according to claim **9** including a roof assembly having a plurality of brace members connected between said upper portions of said hypotenuse legs and forming a polygon brace which extends around said cylindrical side wall, a plurality of roof beams each having one end attached to said polygon brace at a different intersection between said brace members and their other ends connected together at a point above the level of said polygon brace and in substantial perpendicular alignment with the center of said circular bottom wall.

11. A bathing pool structure comprising a flexible waterproof liner adapted to confine a body of water and having a substantially circular bottom wall and a cylindrical side wall, a framework surrounding said cylindrical side wall of said flexible waterproof liner so as to provide horizontal confinement thereof, said framework comprising a vertical cylindrical side wall having in a horizontal plane a substantially circular shape, said framework cylindrical side wall being at least three feet in height and twenty feet in diameter, a plurality of roof beams having outer ends attached at spaced intervals around said framework and inner ends connected together above the center of said substantially circular bottom, a plurality of brace members joining the outer ends of said roof beams, and a cover means supported by said roof beams and enclosing the inner surface of said bathing pool.

12. A bathing pool structure according to claim **1** wherein said wooden panels have horizontal lengths of at least fifteen feet.

13. A bathing pool structure according to claim **1** wherein said closed plan curve is circular in shape.

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LAVERNE D. GEIGER, *Primary Examiner.*

H. K. ARTIS, *Assistant Examiner.*