

Nov. 20, 1962

J. P. KWAKE
SWIMMING POOL

3,064,273

Filed Aug. 28, 1959

2 Sheets-Sheet 1

Fig. 1.

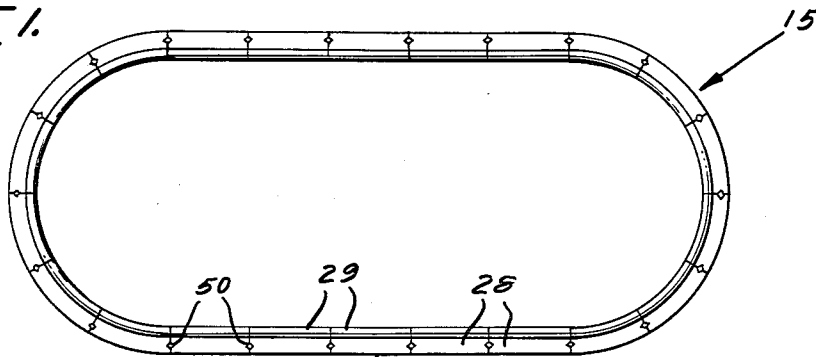


Fig. 5.

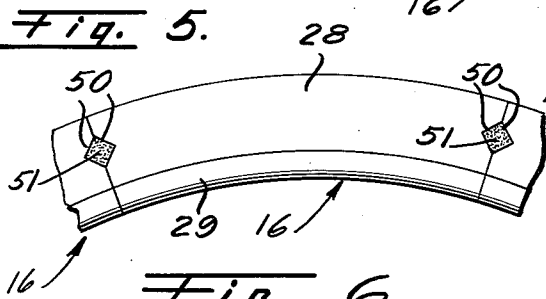


Fig. 7.

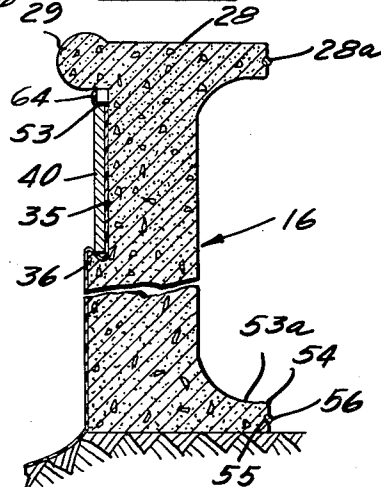


Fig. 6.

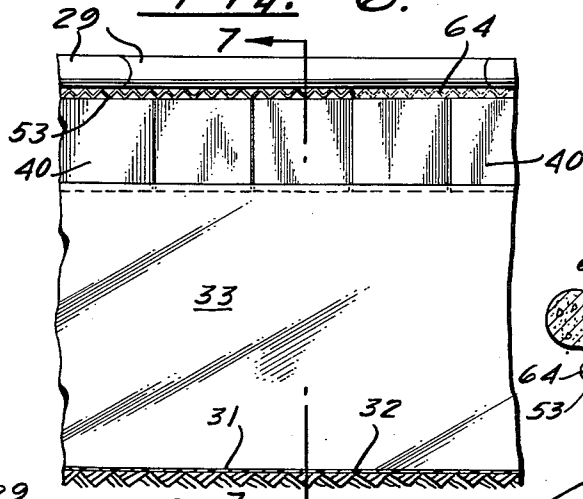


Fig. 8.

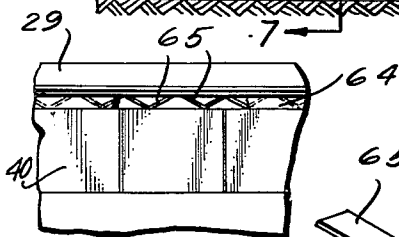
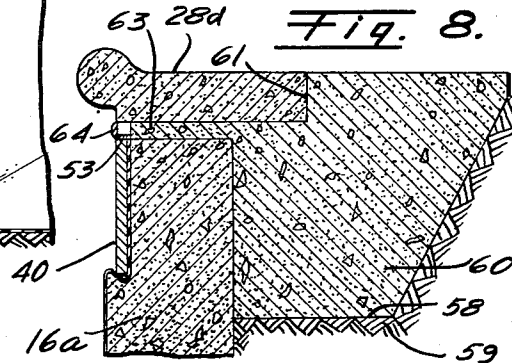
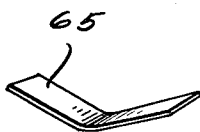


Fig. 9.

Fig. 10.



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Nov. 20, 1962

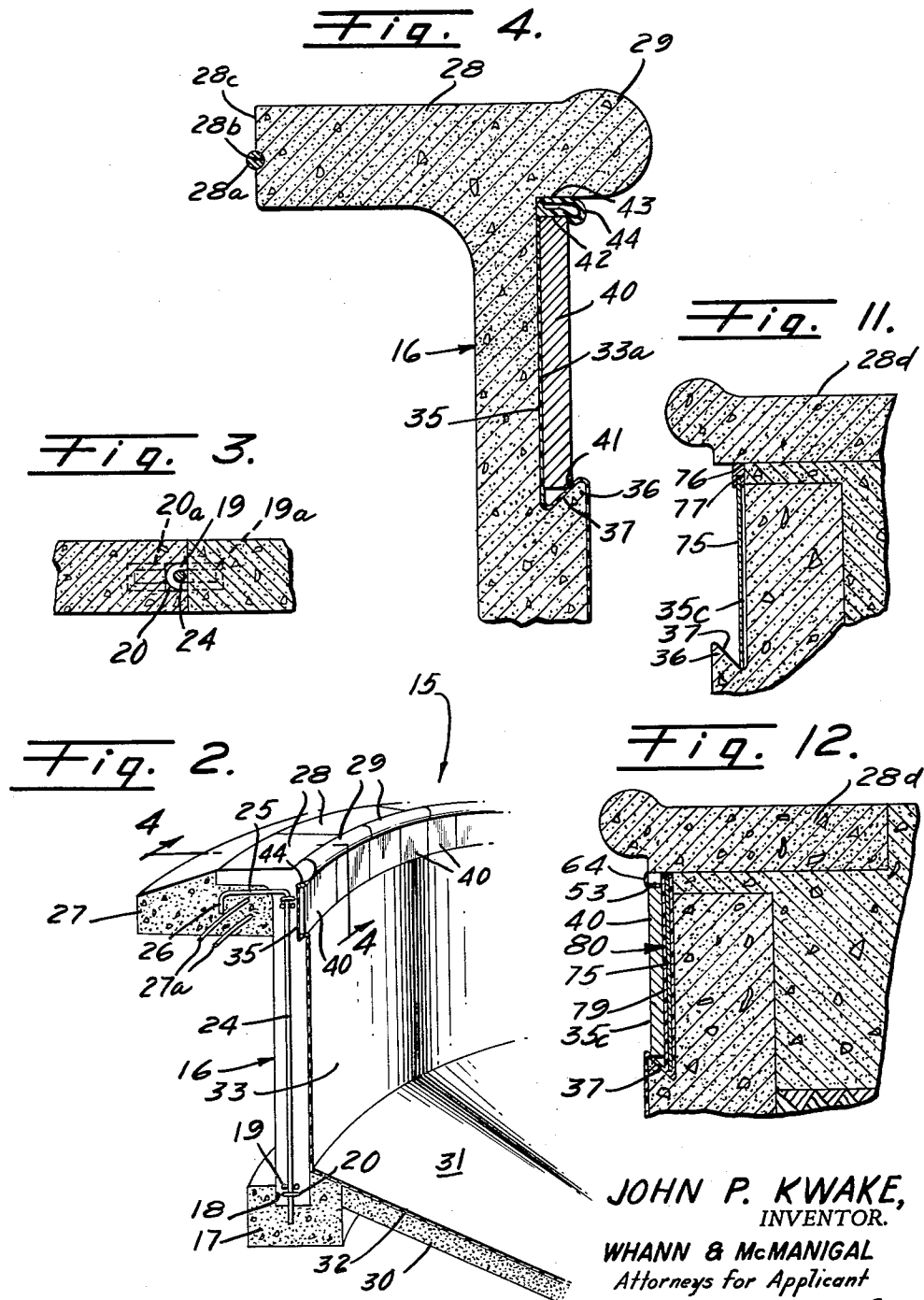
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2 Sheets-Sheet 2



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3,064,273

SWIMMING POOL

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Filed Aug. 28, 1959, Ser. No. 836,771

3 Claims. (Cl. 4-172)

This invention relates generally to swimming pools and relates more particularly to what may be termed prefabricated pools.

Swimming pools of the conventional type require considerable time to construct or install. Such pools also require the services of skilled workmen to put in the tile and the like, and are quite costly.

While the invention has particular utility in connection with prefabricated swimming pools, and is shown and described in such connection, it is to be understood that its utility is not confined thereto.

It is an object of the present invention to provide a swimming pool the parts of which may be prefabricated at the factory and packaged for shipment to the place of installation.

It is another object of the invention to provide a pool of this character that requires no complicated machinery in the assembly and installation.

It is still another object of the invention to provide a swimming pool of this character the walls of which are in prefabricated sections and which may be easily assembled and secured together.

A further object of the invention is to provide a pool of this character having a waterproof liner which may be easily and quickly installed.

A still further object of the invention is to provide, in a pool of this character, simple and effective means for securing the liner to the wall. This is effected by providing a groove in the wall formed by the wall sections and adjacent the top of said wall. The upper part of the liner is secured in said groove by means of locking members of tile or other suitable material.

It is a further object of the invention to provide means for locking the tile in said groove.

It is a further object of the invention to provide means for holding the liner in position at the base of the wall.

Another object of the invention is to provide a pool of this character that is relatively inexpensive to assemble and install.

It is still another object of the invention to provide a pool of this character that may be installed in a relatively short time.

It is a further object of the invention to provide a pool of this character that does not require the services of highly skilled workmen to install.

The characteristics and advantages of the invention are further sufficiently referred to in connection with the following detailed description of the accompanying drawings which represent certain embodiments. After considering these examples, skilled persons will understand that many variations may be made without departing from the principles disclosed, and I contemplate the employment of any structures, elements, or modes of operation that are properly within the scope of the appended claims.

Referring to the drawings, which are for illustrative purposes only:

FIG. 1 is a top plan view of a swimming pool embodying the present invention;

FIG. 2 is a perspective view, partially in section, of one arrangement of the pool embodying means for securing the liner in place;

FIG. 3 is an enlarged, fragmentary sectional view showing means for securing adjacent wall sections together;

FIG. 4 is an enlarged sectional view taken on line 4-4;

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FIG. 5 is an enlarged top plan view of a portion of the pool showing an alternative wall structure;

FIG. 6 is an enlarged view of a portion of the pool as viewed from the interior thereof showing an alternative arrangement for securing the liner in position in the pool;

FIG. 7 is an enlarged sectional view taken on line 7-7 of FIG. 6;

FIG. 8 is an enlarged sectional view of an alternative wall arrangement using the liner retaining means shown in FIGS. 6 and 7;

FIG. 9 is a fragmentary view of the interior of a pool showing another alternative means for securing the liner securing tile or plates in position;

FIG. 10 is an enlarged perspective view of the tile or plate securing means of FIG. 9;

FIG. 11 is a fragmentary sectional view of a wall part showing a gage for positioning the coping relative to the recess for a portion of the liner; and

FIG. 12 is a fragmentary portion of a wall part showing an alternative means for securing the liner.

Referring more particularly to FIG. 1 there is shown a swimming pool, indicated generally at 15, embodying the present invention. The pool, shown in FIG. 1, is oval in shape although it is to be understood that it may be of any other desired shape such as round, rectangular, square, irregular, or the like. The wall of the pool is made up of sections indicated generally at 16 which are secured together in various ways. The wall sections may be of any suitable material but are shown as being of concrete which may be suitably reinforced in any well-known manner as by metal rods or the like.

In FIG. 2 there is disclosed one type of pool construction wherein there is a footing 17 of concrete having an upwardly facing groove 18 which extends longitudinally of the footing and in which is disposed lower end portions of the wall sections 16. The vertical ends of the wall sections are provided with eyes 19 and 20 respectively which have portions 19a anchored in the material forming the wall sections. The eyes 19 are attached at one end of the respective wall sections while the eyes 20 are at the opposite end and are offset vertically from the eyes 19. Further, the eyes 20 are disposed in vertical recesses in the ends of the respective wall sections and the eyes 19 fit into said recesses so that the openings of said eyes 19 and 20 are vertically aligned and receive the vertical portions of rods 24 which tie the wall sections securely together. The lower end of each rod 24 may extend downwardly into the concrete footing 17, as best shown in FIG. 2 and at the upper end the rod has an outwardly turned substantially horizontal portion 25 which terminates at its outer end in a downturned portion 26 which is anchored in a concrete header 27 which extends about the upper part of the pool.

The wall sections 16 shown in FIG. 2 have a horizontal coping 28 at the upper end, said coping extending outwardly of the upper end of each section 16. At the inner edge of the coping is a bead 29 which is generally round in cross section. There may also be a cable 28a disposed in a groove 28b in the outer edge 28c of the coping to thereby additionally secure the upper ends of the wall sections against outward displacement. The cable 28a may be used alone or in connection with the header 27. The latter may also be used alone and it is to be noted that there are reinforcing rods 27a which extend lengthwise of the header and are embedded therein.

The bottom of the pool has a layer of concrete 30 which supports the bottom portion 31 of a liner 32 of suitable flexible material such as plastic, for example. Various types of plastic or other waterproof material in

sheet form may be used but polyethylene has been found to be highly satisfactory.

The liner 32 extends upwardly at 33 and lies against the inner faces of the wall sections 16, there being means for securing the upper edge portion of the liner to the upper part of the wall defined by said wall sections 16.

Just below the bead 29 of the coping of each wall section there is a recess 35 which extends longitudinally of each wall section and the lower end of the recess is generally V-shaped and defined by an upwardly projecting flange 36 which extends longitudinally of the recess and is provided with an inner side 37 which extends upwardly and outwardly relative to said recess 35.

An upper edge portion 33a of the liner is disposed in the recess 35 and engages or lies on the wall part 37 defining the lower end of recess 35 as well as against the vertical wall defining the bottom of the recess. In order to secure the upper edge portion 33a of the liner in the recess, plates 40 of suitable material such as tile, for example, are inserted into the recess, as best shown in FIGS. 2 and 4. The thickness of the tile is less than the depth of the recess 35 and the width of the tile is less than the width of the recess so that when the tile is disposed in said recess the lower outer edge 41 will rest on that portion of the liner which lies on the wall 37 and said edge portion 41 is rounded to prevent damage by cutting or otherwise of the liner portion against which it rests. Because of the upwardly and outwardly inclination of wall 37 the lower edge of the tile is wedged in the V-shaped portion at the lower end of said recess to thereby securely clamp the liner in position. The upper edge 42 of the tile is spaced downwardly from the adjacent portion 43 of the underside of the inner part of the coping to thereby form a recess which extends lengthwise of the wall sections. Disposed under compression in said recess is an enlarged tubular bead 44 which extends along the free edge of the liner and is formed integrally therewith. Normally said bead 44 is annular in cross section but when the tile 40 is pushed into position in the recess 35 after the upper edge portion of the liner has been disposed in said recess said bead is compressed and urges the tile downwardly into the V-shaped portion of the lower end of said recess to thereby wedge the liner securely in the recess. It is to be noted that the wall of the tubular bead 44 is of substantial thickness so that when compressed, there is sufficient pressure on the upper edge of the tile to provide the necessary pressure for maintaining the tile in position to hold the liner. It is also to be noted that the bead 44 is sufficiently large so that a portion thereof extends outwardly beyond the plane of the front or outer space of the tile 40 to thereby more securely hold the bead in position and prevent same from being pulled downwardly between the walls of the recess and the tile. The size of the bead may vary in accordance with the requirements of different installations.

In the arrangement shown in FIG. 5, the ends of the wall sections 16 are provided with vertical grooves 50 which are shown as being V-shaped in cross section although they may be of other suitable shape. When the wall sections are arranged with the ends in abutting relationship, the grooves 50 of adjacent abutting ends define vertical openings which are filled with concrete 51 or the like to hold the wall sections securely in position so that abutting ends thereof will not move laterally relative to each other.

Referring to FIGS. 6 and 7, there is disclosed an alternative arrangement whereby the tile or plates 40 are held in position in the grooves 35 of the wall sections. In this arrangement there is provided a strip of resilient sheet metal or the like, indicated at 53 which is corrugated or pleated, and which may be considered as key elements holding the tile in position. These elements may be of convenient lengths for easy handling.

After the edge portion of the liner has been properly positioned in the recess or groove 35 and the tile 40 are

placed therein, the strip 53 is pulled longitudinally so as to reduce its width and then placed in the space between the upper edge of the tile and the under side of the adjacent part of the coping beneath the bead 29. When the strip 53 has been inserted and the longitudinal tension released, the resiliency of said strip will cause it to contract lengthwise but increase in width. The corrugations or pleats of the strip 53 will then react between the upper edge of the tile and the adjacent part of the underside of the coping and urge the tile 40 downwardly to wedge and secure the liner in the recess or groove 35.

In the wall section shown in FIG. 7, there is an outwardly extending flange 53a at the base of the wall section, said flange extending lengthwise of said section. The outer edge 54 of the flange 53a is provided with a recess 55 which extends lengthwise of the wall section and in which is disposed a cable 56 which cooperates with the cable 28a to hold the wall sections in position and prevent outward displacement of any of said sections. It is to be understood, of course, that the cables are drawn tight in order to prevent outward movement of the wall sections.

Referring to FIG. 8, the coping is indicated at 28d and is a separate element from the wall section 16a. About the upper edge portion of the wall section 16a there is a trench 58 in the surrounding earth or other formation 59, trench 58 being filled with concrete 60 or the like to form a border section.

Extending along the inner upper edge of the border section 60, there is a notch or recess 61 in which an outer end portion of coping 28d is received and bonded by the cement. There is a space between the upper end of the wall section 16a and the adjacent portion of the underside of the coping 28d, said space being filled with grouting or cement 63 to securely bond the parts together. The upper edge of the tile 40 is in substantially the same plane as the upper end of the wall section 16a so that there is a space between the upper edge of said tile and underside of the coping for reception of means for retaining the tile securely in position for holding the liner in place. As shown, this means comprises strips 53 and in this arrangement, as well as the arrangement shown in FIGS. 6 and 7, grouting 64 is used to fill in the recess or groove in which the strips 53 are disposed so as to cover said strips.

In FIGS. 9 and 10 there is shown an alternative arrangement for securing the tile 40 in position. This securing means comprises clips 65 having a width substantially the same as the thickness of the tile 40. These clips are in the shape of a wide V and when inserted in the space between the upper edges of the tiles 40 and the adjacent underside of the coping said clips 65 urge the tile downwardly to hold same in position in substantially the same manner as the strips 53. Grouting may be used to fill in the space between the upper edges of the tile and the adjacent part of the grouting so as to cover the clips 65.

FIG. 11 shows a wall section or part similar to that shown in FIG. 8. The coping 28d is a separate part and there is an elongated plate 75, of metal or other suitable material, which is of substantial length and may be of the same length as a wall section. Along one longitudinal edge, the top edge for example, there is disposed a strip of material 76 which may be of plastic or the like and which has a longitudinally extending groove 77 in its under edge in which is received an upper edge portion of the plate 75. From the upper edge of the strip 76 to the adjacent part or bottom of the groove 77 is a distance substantially equal to twice the thickness of the liner so that when the plate 75 with the strip 76 is disposed in the recess 35c of the wall with the lower edge of the plate disposed at the lowest point of the recess 35c, the coping 28d will be spaced from the lowest portion of the groove 35c a distance equal to the width of the plate 75 and two thick-

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nesses of the liner. The reason of this arrangement will be described hereinbelow.

In FIG. 12 the plate 75 is shown as disposed in a tubular edge portion of the liner which is formed by turning back a free edge portion 79 of the liner to define the tubular portion indicated generally at 80.

It is to be understood that the tubular portion 80 extends about the periphery or free edge of the liner and there are a series of spaced slits in the tubular portion in which a series of plates 75 are inserted so as to fill the tubular portion 80 with the parts of the liner at opposite sides of said plates lying against said sides, as best shown in FIG. 12. The plate 75 is positioned at the back of the recess 35c and it is to be noted that at both top and bottom edges of the plates there is a thickness of the liner so that when the plates 75 are positioned in the recess 35c it is snugly disposed therein. Any pull from the lower portion of the liner will tend to wedge the lower edge portion of the plates against the upwardly and outwardly inclined bottom wall 37 of the recess so that the liner is securely held in position.

A series of tile 40 are then positioned in the recess 35c in front of the liner portion at the front side of the plates.

The lower edge of each tile 40 is disposed within the recess 35c and below the upper end of the wall portion 37 so as to prevent the lower edge portion of the tile from pulling out. Between the upper edges of the tile 40 and the adjacent underside portion of the coping 28d are either strips 53 or the clips 65 to resiliently urge the tiles downwardly and retain them in position. Thereafter, grouting is added in the spaces between the strips or clips and the upper edges of the tile and underside of the coping, as in the case of the arrangements shown in FIGS. 6, 7, 8 and 9, the grouting being indicated at 64.

After the grouting has set and hardened, the tile are held in position. The tile 40 serve as a decoration along the upper edge of the pool as in the other arrangements herein disclosed.

It is thought that the invention and many of its attendant advantages will be understood from the foregoing description and it is believed that it will be apparent that

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various changes may be made in the form, construction and arrangement of the parts of the invention without departing from the spirit and scope thereof or sacrificing all of its material advantages, the embodiments hereinbefore described being merely for purposes of illustration.

I claim:

1. In a liner for swimming pools and the like: a sheet of flexible material having a tubular portion along the free edge thereof, said tubular portion having a series of spaced slits to receive plates to fill said tubular portion.

2. In a swimming pool: a wall having a longitudinally extending recess therein, the lower wall of said recess being inclined upwardly and outwardly relative to said recess; a liner having an enlarged tubular portion along the free edge thereof; and plate means disposed in said tubular portion, said tubular portion and plate means being disposed in said recess and said tubular portion engaging top and bottom walls of said recess, said engagement with said bottom walls being inwardly of their highest surfaces.

3. The invention defined by claim 2 wherein there is also tile means disposed in said recess in front of the tubular portion of the liner disposed in said recess with a lower edge portion held in position by the lower wall of the recess; and means for securing the upper edge portion of said tile in position.

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