May 27, 1969 E. H. SHIELDS 3,445,866

SWIMMING POOL CONSTRUCTION

Filed May 4, 1967

Fig. 1

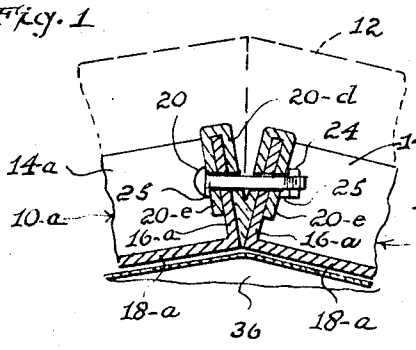


Fig. 2

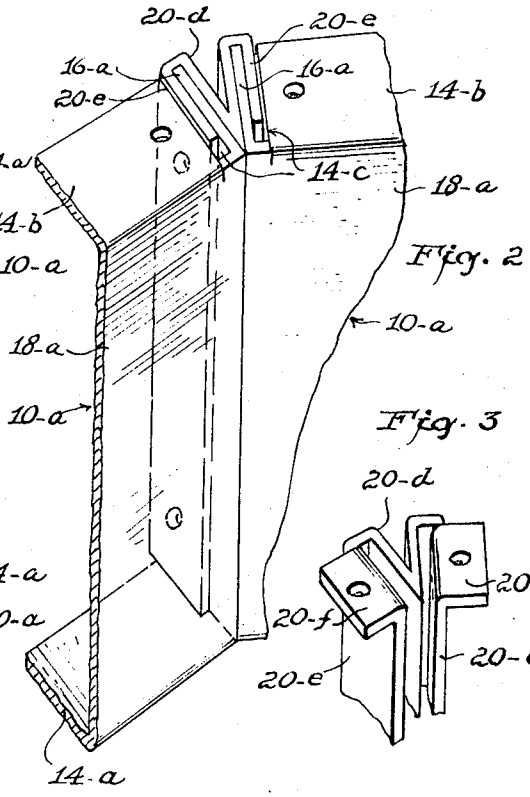


Fig. 3

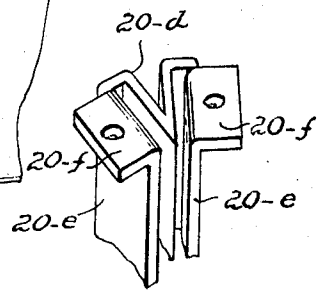


Fig. 4

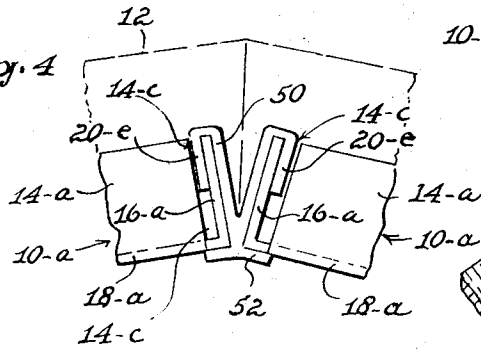


Fig. 5

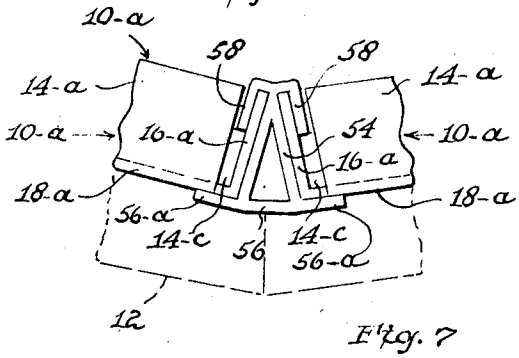


Fig. 6

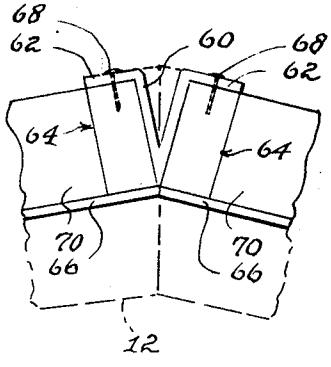
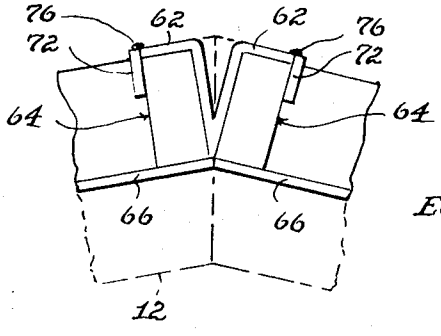


Fig. 7



Eugene H. Shields
INVENTOR.

BY J. N. Nell,
ATTORNEY

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SWIMMING POOL CONSTRUCTION

Eugene H. Shields, 45 Hartman Drive,
Hamilton Square, N.J. 08690

Continuation-in-part of application Ser. No. 407,815, Oct. 30, 1964, now Patent No. 3,317,927. This application May 4, 1967, Ser. No. 636,043
Int. Cl. E04h 3/18; E04g 11/06
U.S. Cl. 4—172 10 Claims

ABSTRACT OF THE DISCLOSURE

A swimming pool construction including a plurality of wall panels having end portions in right angular relation with said panels and including shims made of sheet metal or extruded plastic material in open V-shape in cross-section in various tapers for insertion between the end portions of opposed pairs of panels for arranging and maintaining them in generally curving formation.

This invention relates to swimming pool constructions of the type including a wall enclosure and a flexible sheet of vinyl or other waterproof material suspended from the upper edge of the wall and resting on a smooth sand bottom of the desired contour for containing water.

This is a continuation-in-part of my application Ser. No. 407,815, filed Oct. 30, 1964, now Patent No. 3,317,927.

Such structures may be formed of relatively short rectangular frames having pairs of horizontally spaced, vertically extending wooden posts or studs covered on the inside by panels of wood, asbestos or other sheet material enclosing the perimeter of the pool. In such structures the straight portions of the wall are easily formed by simply assembling the frames or panels in end to end contact. However, for pools of oval shape or having portions curving either inwardly or outwardly, the wall sections of the type mentioned must be assembled along a line pattern.

To overcome the disadvantages of installing wooden or other non-metal frames of the character referred to there have been devised mated integral panels cast or otherwise formed from metal, concrete or other rigid material in which the opposite surfaces of the panels for the curving portions of the wall are inclined in relation to the wall portions, instead of at right angles as in a frame having rectangular wooden studs at its ends.

Although such mated integral panels will form any desired number of wall constructions of a single shape and size, they have the great disadvantage that builders of swimming pool constructions must carry stocks of panels or patterns for panels having end surfaces at different angles to enable them to build swimming pools of various designs and sizes, thereby greatly increasing the cost of the pool structures.

Therefore, one of the objects of the present invention is to provide a swimming pool construction comprising rectangular frames or panels having flat end surfaces at right angles to their vertical wall portions, with inexpensive and positive means in cooperation with the flat surfaces referred to whereby swimming pool constructions may be made with wall portions in various general curvatures and sizes, and with no variation in the rectangular

frames, irrespective of whether they are made wholly or partially from wood, metal, concrete or other material, except in heights of the panels.

Accordingly, one of the more specific objects of the present invention is to provide a swimming pool construction including a plurality of rectangular frames comprising wooden top and bottom members connected by vertically extending studs of rectangular cross-sectional shape or, at least, having flat outer end surfaces at right angles to the top and bottom members, in which the opposed flat surfaces are in flat contact in the straight portions of a wall, and in the curving portions the opposed pair of frames are arranged and maintained in the curving relation by special shims of tapered or V cross-sectional shape, made of plastic, metal, wood or other suitable material, inserted between the flat end surfaces of opposed pairs of frames forming the curving portion of the wall, and secured thereto by bolts inserted through the studs and shims, or by other suitable means.

A further, still more specific, object of the present invention is to provide a swimming pool wall of the character referred to in which the shims are formed from sheet metal, extruded hardening plastic, or other suitable material in open V-shape in cross section, instead of in solid formation for flat contact with the outer surfaces of the end supports or portions of the wall panels and having integral wing portions or flanges for overlapping or interlocking engagement with the end supports.

A further specific object of the present invention is to provide a swimming pool wall construction comprising frames or panels made of sheet metal, plastic or other suitable material with integral vertical end supports in right angular relation with the panel portions and with the wing portions of the V-shaped shims referred to above in interlocking engagement with the integral end supports of the wall panels. In such a combination the shims may be interlocked with the end supports with such a close fit as to obviate the necessity of bolts or other fastening means. Such shims may also be interlocked in the same manner with end supports or studs made of wood or other non-metal material.

The open V-shaped shims are light in weight, strong and easily and quickly assembled with the wall panels. They are also inexpensive, thereby rendering it economical for a builder to carry an adequate supply of the shims in various tapers and lengths together with a supply of wall panels for building swimming pool walls of various different curvatures and heights.

Other objects and advantages of my improved swimming pool construction will be apparent or pointed out in the following specification in which reference is directed to the accompanying drawings forming a part thereof, and in which:

FIG. 1 is a detail plan sectional view of one form of my improved tapered shim inserted between the ends of integral frames of metal, concrete or other firm material, corresponding to FIG. 12 of my application Ser. No. 407,815;

FIG. 2 is a perspective view of the assembly shown in FIG. 1, with the fastening bolts omitted;

FIG. 3 is a perspective view of a modified form of the shim shown in FIGS. 1 and 2;

FIG. 4 is a detail top plan view similar to FIG. 1, but showing a modified form of shim for an outwardly curved wall;

FIG. 5 is a view similar to FIG. 4, but showing a shim for an inwardly curved wall;

FIG. 6 is a top plan view showing a modified tapered shim inserted between wooden or other non-metal studs for supporting the wall panels; and

FIG. 7 is a view similar to FIG. 6 but showing a further modified shim construction, designed for interlocking engagement with the studs.

Referring first to FIGS. 1 and 2 of the drawings, the frames or panels **10**–*a* therein illustrated may be formed with integral vertical end supports **16**–*a*, instead of studs made of wood or other non-metal material (as shown in FIGS. 5 and 6) the end supports connecting the integral horizonal wall portions **18**–*a*, instead of being separate panels (as also shown in FIGS. 5 and 6) these wall portions have outwardly projecting bottom flanges **14**–*a* for ground support and top flanges **14**–*b* for supporting the coping or other top members **12**, as shown in my application Ser. No. 407,815. The panels **10**–*a* may be formed integrally of metal, concrete or other suitable material with the opposed surfaces of the integral end supporting flanged portions **16**–*a* in right angular relation with the wall panels **18**–*a*. The top flange **14**–*b* may be cut away as indicated at **14**–*c* to permit telescopic engagement of the shim **20**–*d* over the right angular end support portions **16**–*a*.

As shown in FIGS. 1 and 2, the shims **20**–*d* may be formed from sheet metal or from hardening plastic material in open V-shape in cross section, instead of solid, for flat contact with the outer surfaces of the integral end supporting flanges **16**–*a* and also with integral return bent portions **20**–*e* in overlapping or interlocking contact with the inner surfaces of the supporting portions **16**–*a*. The wing portions **20**–*e* may be fastened to the supports **16**–*a* by bolts **20** projecting transversely through the wing portions, the support portions **16**–*a* and the inner V-shaped portions of the shim **20**–*d* and secured by nuts **24** as shown. Tapered washers **25** may be inserted between the inner surfaces of the end support portions **16**–*a*, the bolt heads and nuts **24**. However, it is possible to fit the wing portions **20**–*e* so closely over the end support portions **16**–*a* as to eliminate the need for the bolts **20** or other separate fastening means. A flexible water containing sheet **36** may be suspended to the top of the wall panels **18**–*a* by any suitable means (not shown).

In the form of the invention shown in FIG. 3, a flange **20**–*f* may be formed on one or both wing portions **20** as a coping support either as a substitute for, or as an addition to the flanges **14**–*b* on the top of the wall panels **18**–*a*.

The form of the shim **50** shown in FIG. 4 is similar to that of FIG. 1, which is designed for an outwardly curving wall, but is provided with an inner flange **52** for an additional support of the opposed wall sections **18**–*a*.

The form of the invention shown in FIG. 5 is similar to that of FIG 4, but is designed for an inwardly curving wall. This shim **54**, while being of open V-shaped formation, is closed at its wider edge by a web portion **56** having lateral flanges **56**–*a* extending from it sides, and is also provided at its tapered edge with wing portions **58** for interlocking engagement with the end support portions **16**–*a*.

In FIG. 6 is shown a shim **60** having outwardly oppositely extending, lateral wing portions **62** for overlapping engagement with the edges of wooden or plastic studs **64**, serving as end supports for separate wall panels **66**. The flanges may be secured to the studs **64** by nails **68** or other suitable fastening means, the studs of a panel being connected together at top and bottom by wooden

or plastic members **70** of the same cross-sectional dimensions as the studs **64**.

The form of the invention shown in FIG. 7 is similar to that of FIG. 6 except that the wing portions or flanges **62** have depending portions **72** at their ends for interlocking engagement with the studs **64**. The depending portions **72** may be formed integrally with the flanges **62** or attached by welding or other heat treatment, as indicated at **76**.

Since the means for supporting the flexible water containing sheet **36**, the lateral ground supports or braces for the wall construction and the ground formation of the swimming pool construction comprises no part of the present invention, they are not illustrated nor described.

The V-shaped shims illustrated may be formed at any required taper, including a 90 degree taper for connecting adjacent wall sections in right angular relation.

From the foregoing description it will be seen that I have povided an economical swimming pool wall enclosure made partially or wholly from wood, metal, concrete or other suitable materials in rectangular units, and in which the curved portions can be formed in various attractive curvatures and sizes by the employment of inexpensive tapered shims between the ends of the rectangular units.

Obviously various changes or modifications of my improved swimming pool construction may be made without departing from the spirit or scope of my invention. Therefore, it should be understood that the embodiments of my invention shown and described are intended to be illustrative only, and restricted only by the appended claims.

I claim:

1. In a swimming pool construction including a plurality of horizontally extending wall panels connected at their ends to vertical supports having their outer end surfaces in right angular relation with said panels and arranged in end to end relation to form a wall enclosure with, at least, a portion of said wall in generally curving formation; the opposed surfaces of the vertical supports being in normally flat contact relation but having shims of tapered cross-sectional shape inserted between each opposed pair in said curving portion for arranging and maintaining the panels in said curving formation, said shims extending from top to bottom of said supports, and said shims also have integral wing portions in overlapping contact with the outer edges of said vertical supports, and means for fixedly attaching said wing portions to said vertical end supports.

2. A swimming pool construction as in claim **1** in which the means for fixedly attaching the wing portions to the vertical end supports consist of integral portions overlapping the inner surfaces of the end supports.

3. A swimming pool construction as in claim **1** in which each shim if of open V-shape and with its walls formed of thin material.

4. A swimming pool construction as in claim **1** in which both the shims and the wall panels are made of thin material.

5. A swimming pool construction as in claim **1** in which the vertical end supports of the wall panels consist of integral right angular extending portions of the panels.

6. A swimming pool construction as in claim **1** in which the end supports of the wall panels consist of rectangular non-metal studs, and in which the wing portions of the V-shaped shims consist of lateral flanges over-lapping the outer surfaces of said studs.

7. A swimming pool construction as in claim **1** in which the V-shape shims are provided with integral, return bent wing portions for overlapping engagement with the inner surfaces of the end supports of adjacent wall panels.

8. A swimming pool construction as in claim 3 in which, at least, one of the wing portions is formed with a lateral, horizontally disposed flange for supporting a horizontal top member mounted on said shim and wall panels.

9. A swimming pool construction as in claim 5 in which the wall panels are each provided at its bottom end with an integral right angular flange for a ground support and a like integral flange at its top for supporting a top frame member.

10. A swimming pool construction as in claim 6 in which the lateral flanges are provided at their edges with right angular depending portions for interlocking engagement with the inner surfaces of the studs.

References Cited

UNITED STATES PATENTS

1,089,010	3/1914	Pugh	52—265
1,224,443	5/1917	Brindley	52—245
3,233,251	2/1966	Barrera	4—172

FOREIGN PATENTS

898,460	7/1944	France.
1,385,822	12/1964	France.

LAVERNE D. GEIGER, *Primary Examiner.*

H. K. ARTIS, *Assistant Examiner.*

U.S. Cl. X.R.

52—245, 265, 269.