United States Patent

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[54] WALLED STRUCTURES SUCH AS SWIMMING POOLS

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[51] **Int. Cl.** **E04b 1/18**

[58] **Field of Search** ..... 52/163, 102, 319, 339, 340, 52/159, 165, DIG. 3, 293, 169; 4/172.19

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[57] **ABSTRACT**

A walled structure of cast concrete is provided having a vertical sheet of flexible corrosion-resistant sheet material formed to the desired wall contour and having an exposed face surface, a series of vertical ribs on the sheet opposite the face surface, a series of spaced support members engaged in a base support having a U-shaped receptacle on the top thereof receiving the bottom edge of said sheet to hold the bottom edge in a desired selected position, a plurality of spaced vertical standards engaged in said base support and extending to a point adjacent the top edge of the vertical sheet and engaged with the ribs on said sheet and a continuous cast concrete layer surrounding the vertical sheet opposite the face surface from a point adjacent the top edge to the base support and extending beneath and engaging a portion of the lower edge of said sheet.

5 Claims, 3 Drawing Figures

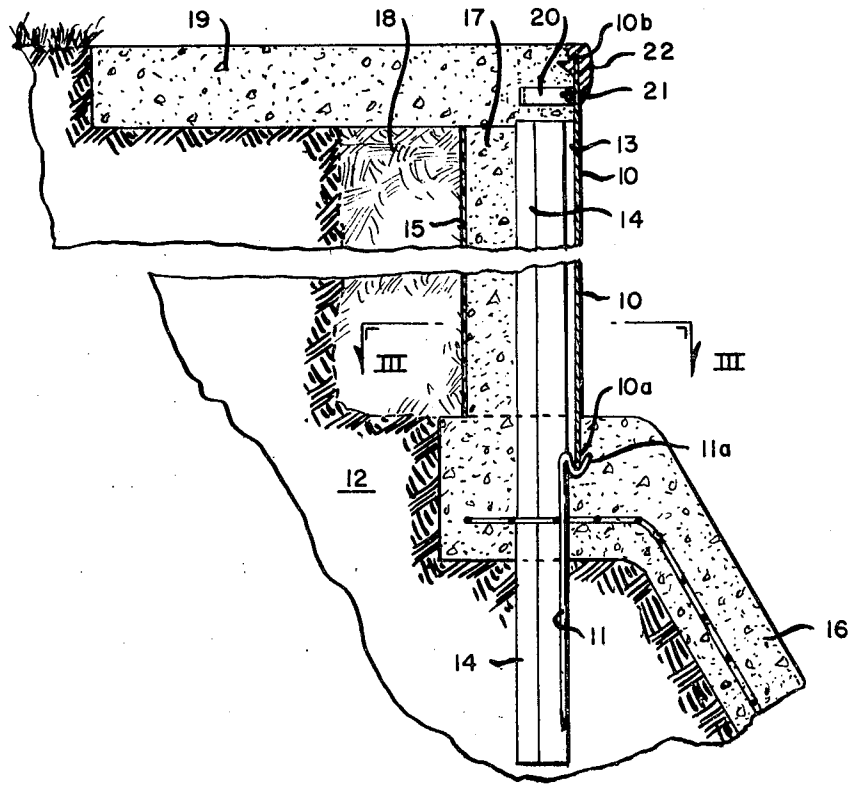
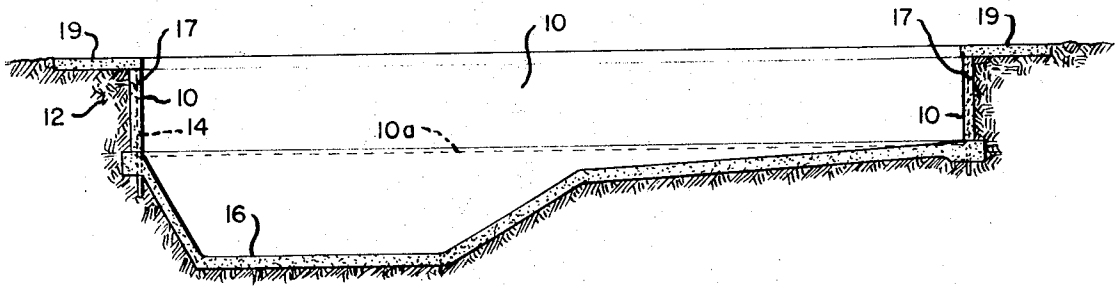


Fig. 1.



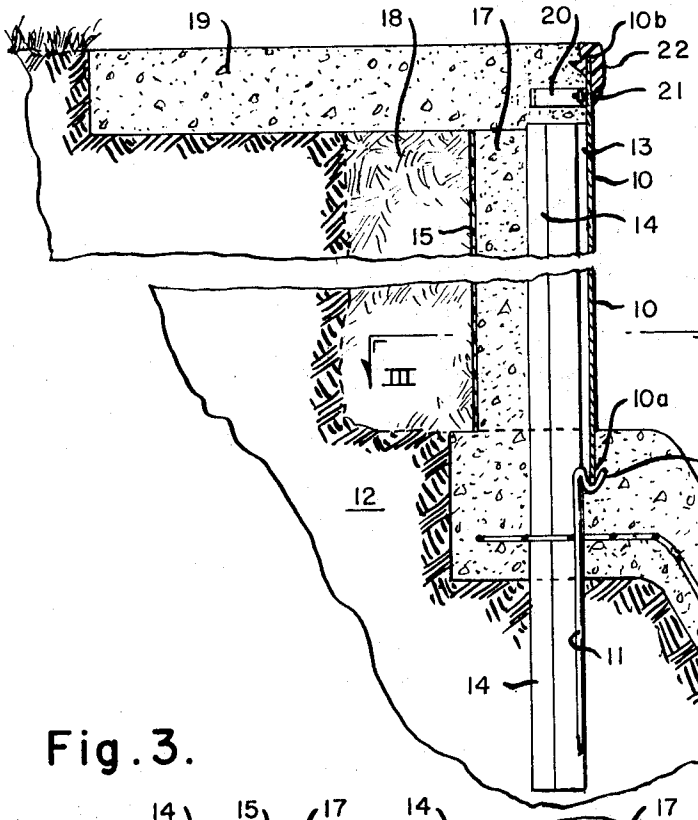
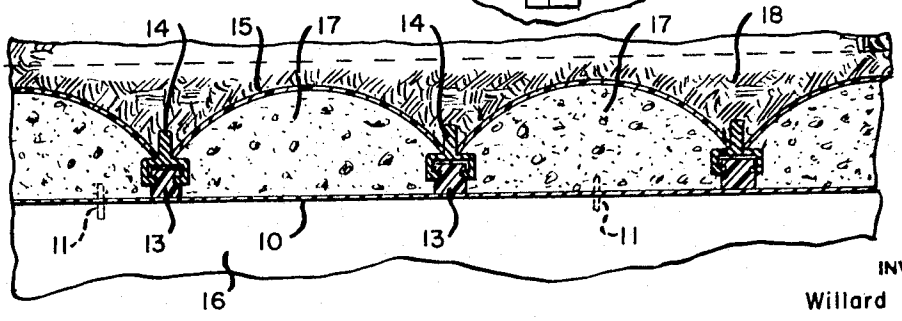


Fig. 2.

Fig. 3.



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WALLED STRUCTURES SUCH AS SWIMMING POOLS

This invention relates to walled structures such as swimming pools and methods of making the same and particularly to a swimming pool of cast concrete having walls faced with a preformed corrosion-resistant surface sheet which acts both as a casting form and the finished surface and to a method of casting and forming such a pool.

Swimming pools and the like walled structures have been cast of concrete for years. Generally such structures have been faced with a number of problems. First the face surface is frequently porous and less smooth than desired and frequently is blemished by mold marks. As a result the surface must be refinished by some means after the molds are removed. A second problem is that such structures develop cracks which are difficult to seal and which are frequently unsightly. Finally the surface finish is colorless and drab and must be painted or coated with some material to give it a desired color and texture. All of these problems are solved by the structure of this invention.

Preferably I provide a walled structure of cast concrete comprising a vertical sheet of flexible corrosion-resistant sheet material formed to the desired wall contour and having a face surface, a series of spaced vertical ribs on the sheet opposite the face surface, a series of spaced support members having a U-shaped receptacle on the top thereof receiving the bottom edge of said sheet to hold the bottom edge in a desired selected plane and engaged in a base support, a plurality of spaced vertical standards engaged in said base support and extend to a point adjacent the top edge of the vertical sheet, said vertical standards having grooves engaging and fixed to the spaced vertical ribs on said sheet and a continuous cast vertical concrete layer extending around the vertical sheet opposite the face surface from a point adjacent the top edge to the base support and extending beneath and engaging a portion of the lower edge to form with the sheet, the vertical standards and support members a unitary monolithic structure. Preferably the vertical sheet of flexible corrosion-resistant sheet material is stainless steel or industrial laminate (glass fiber-resin) and the vertical ribs are cast or extruded of glass fiber-resin mixture and attached thereto by heat sealing. The support members are preferably steel pins having a U-shaped bend in the top, which pins are driven into the earth as a base support to hold the bottom edge of the sheet. The vertical standards are preferably extruded aluminum but may be formed of other suitable metal which can be driven into the earth and act as a guide to hold the sheet vertically plumb and level. The ribs on the sheet are attached to the vertical standard by frictional engagement or adhesives or both. An outer form spaced from the sheet is attached to the vertical standards to complete the mold into which concrete is poured behind the vertical sheet. This outer form may be of plastic, metal or other suitable material and may be removed or left in place. In the case of swimming pools a walkway is preferably poured around the top of the sheet, normal thereto and extending away from the sheet to rest on a portion of undisturbed earth surrounding the pool excavation.

In the foregoing general description I have set out certain objects, purposes and advantages of my invention. Other objects, purposes and advantages will be evident from a consideration of the following description and the accompanying drawings in which:

FIG. 1 is a vertical section through a swimming pool according to my invention;

FIG. 2 is an enlarged section of sidewall of the pool of FIG. 1;

FIG. 3 is a section on the line III—III of FIG. 2.

Referring to the drawings I have illustrated a continuous vertical sheet of industrial laminate **10** formed into a desired

shape and having the two ends overlapped and glued or otherwise fastened together. A series of support pins **11** having a U-shaped receptacle **11***a* on the top thereof are driven into the earth **12**. The receptacle **11***a* receives the bottom edge **10***a* of the sheet **10** so as to hold the sheet in a preselected position with the top edge **10***b* in a single plane. A plurality of spaced ribs **13** are fixed to the surface of the sheet **10** opposite its face or exposed surface **10***b*. A like plurality of vertical standards or posts **14** are driven into the earth **12** and fixed to the ribs **13**. Preferably the ribs **13** have a grooved or I-shaped section and the standards have a C-shaped portion which engages the grooves in the ribs as more clearly seen in FIG. 3. A form **15** is placed behind the sheet **10** and standards **14** and fixed to the standards **14**. A bottom **16** of concrete is poured within the sheet **10** and engaging a portion of the bottom edge **10***a*. At the same time a vertical concrete wall **17** is poured between the form **15** and the rear side of sheet **10** so as to surround the sheet **10** with a vertical concrete wall connected to the bottom **16** of the pool. When the concrete wall **17** has set, the area **18** between the wall **17** and the virgin soil **12** is backfilled. A concrete walk **19** is then poured around the top of the sheet **10** resting on the wall **17** and the virgin soil **12**, thus avoiding reliance on the backfilled area for support. The walk **19** is preferably fixed to the sidewall **10** by a perforate steel strip **20** fixed to the sheet **10** adjacent its top by bolts **21** or some similar fastening means. A coping **22** of rubber, vinyl or similar material is preferably placed on the top edge **10***b* of sheet **10** prior to casting walk **19** so as to be held in place by the solidified concrete.

In the foregoing specification I have illustrated and described a preferred embodiment and practice of my invention as embodied in a particular swimming pool structure. It will be obvious that the invention can be otherwise embodied and practiced.

I claim:

1. A walled structure of cast concrete comprising a vertical sheet of flexible corrosion-resistant material formed to a desired wall contour and having an exposed face surface, a series of vertical ribs on the sheet opposite the face surface, said ribs having grooves along each face paralleling the vertical sheet, a series of spaced support members engaged at one end in a base support and having a U-shaped receptacle on the other end receiving the bottom edge of said sheet to hold the bottom edge in a selected position spaced from said base support, a plurality of T-shaped spaced vertical standards engaged in said base support and extending to a point adjacent the top edge of said sheet, the top of said T having a reentrant groove engaging the ribs on said sheet at the grooves therein, a plurality of secondary sheets frictionally held between the legs of each pair of adjacent T-shaped standards, said secondary sheets being wider than the distance between said legs whereby they engage said legs under compression and a continuous cast concrete layer behind and around the periphery of the vertical sheet opposite the face surface and extending vertically from a point adjacent the top edge downwardly to the base support and extending beneath and engaging a portion of the lower edge of said sheet.

2. A walled structure as claimed in claim **1** wherein the sheet is made of industrial laminate.

3. A walled structure as claimed in claim **1** wherein the sheet is made of stainless steel.

4. A walled structure as claimed in claim **1** wherein the base support is earth and the support members are engaged therein at one end.

5. A walled structure as claimed in claim **1** wherein the vertical standards are aluminum posts having a C-shaped groove receiving the ribs on the sheet which ribs have an I-section.

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