

Jan. 21, 1964

J. R. TAYLOR ETAL

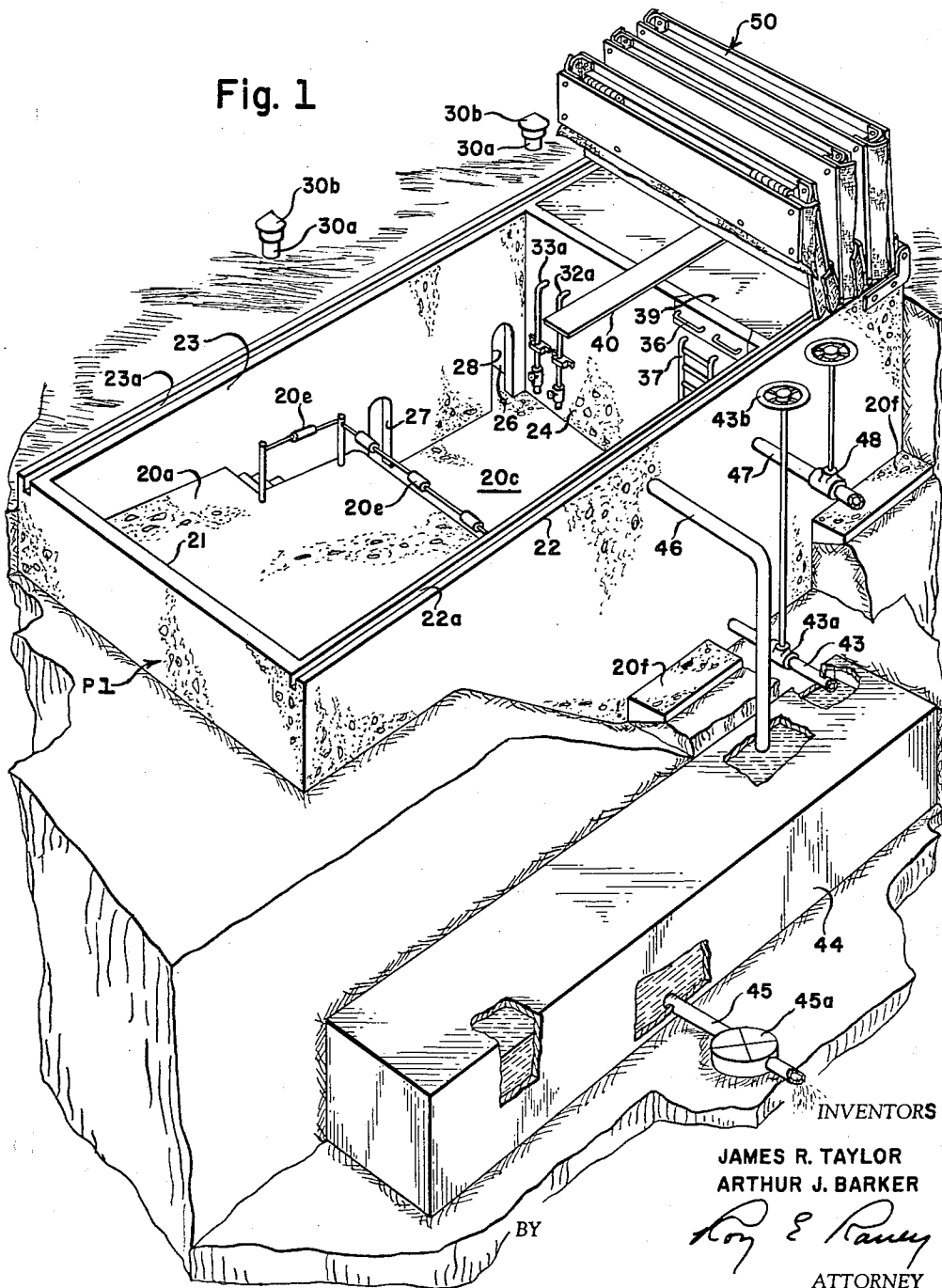
3,118,148

COMBINATION SWIMMING POOL AND BOMB SHELTER

Original Filed Sept. 21, 1960

5 Sheets-Sheet 1

Fig. 1



Jan. 21, 1964

J. R. TAYLOR ETAL

3,118,148

COMBINATION SWIMMING POOL AND BOMB SHELTER

Original Filed Sept. 21, 1960

5 Sheets-Sheet 2

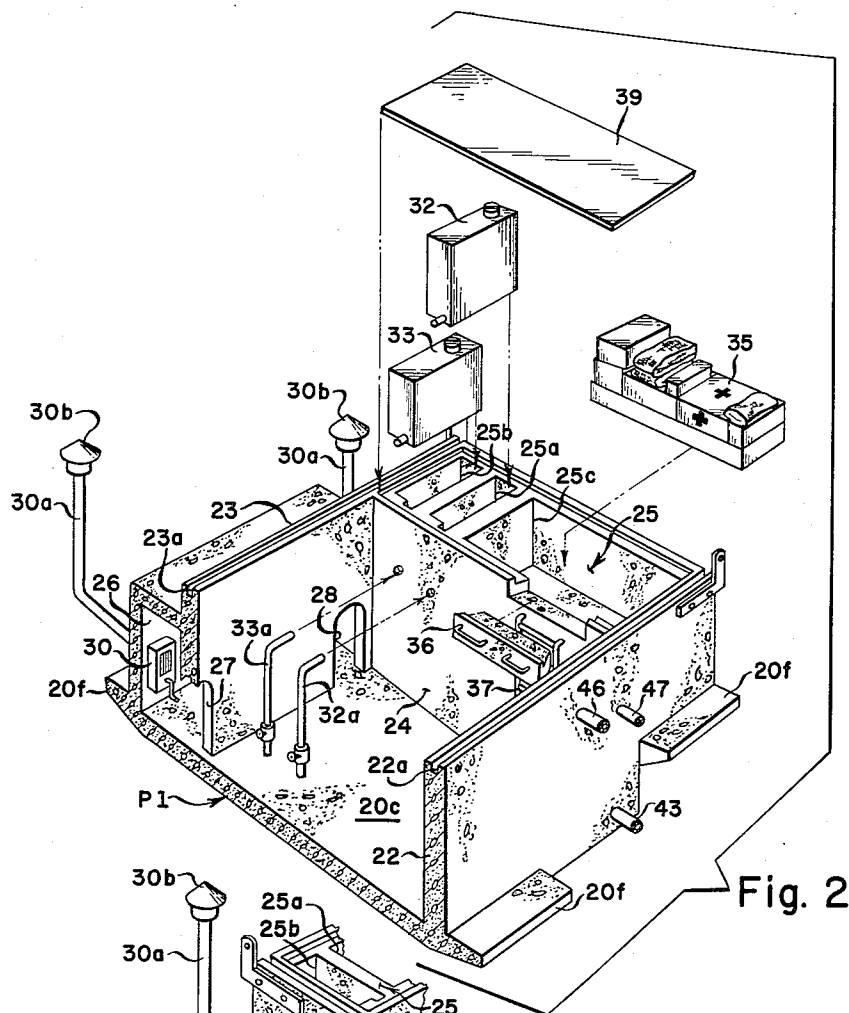


Fig. 2

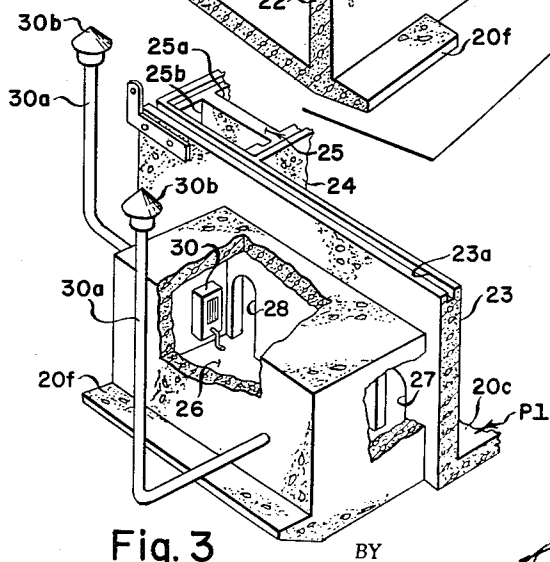


Fig. 3

BY

INVENTORS

JAMES R. TAYLOR
ARTHUR J. BARKER

Roy R. Haney
ATTORNEY

Jan. 21, 1964

J. R. TAYLOR ETAL

3,118,148

COMBINATION SWIMMING POOL AND BOMB SHELTER

Original Filed Sept. 21, 1960

5 Sheets-Sheet 4

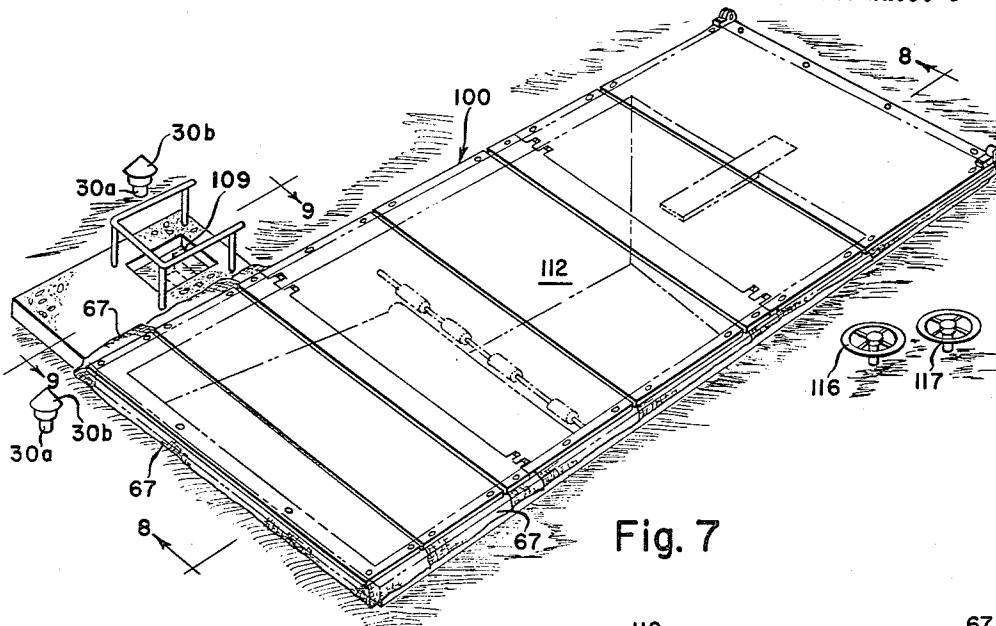
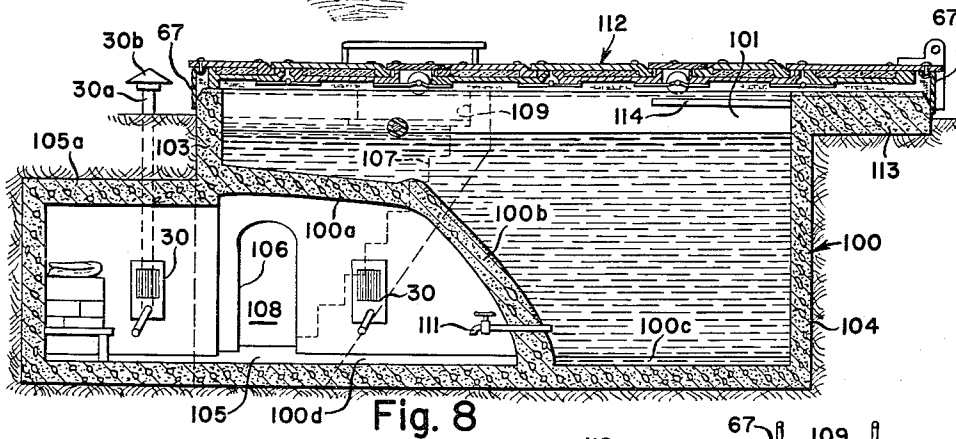
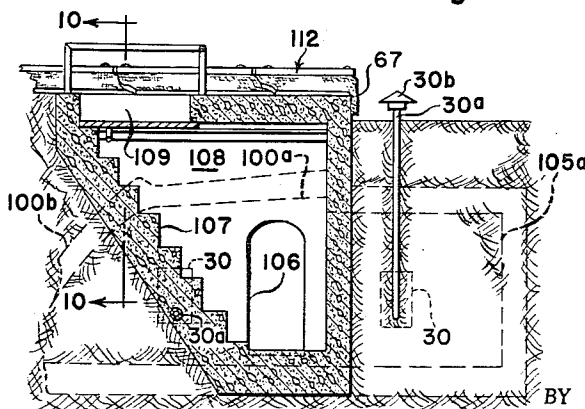
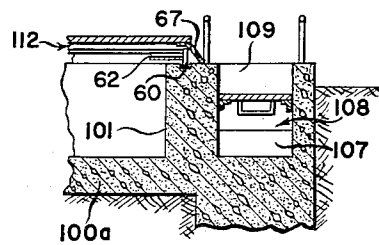


Fig. 10

INVENTORS

JAMES R. TAYLOR
ARTHUR J. BARKER

Ray & Loney
ATTORNEY

1

3,118,148

COMBINATION SWIMMING POOL AND BOMB SHELTER

James R. Taylor, 204 160th Terrace, Redington Beach, Fla., and Arthur J. Barker, 6226 11th Ave. S., Gulfport, Fla.

Continuation of application Ser. No. 57,540, Sept. 21, 1960. This application Mar. 8, 1962, Ser. No. 180,923 7 Claims. (Cl. 4—172)

The present invention relates to a novel structure which can be utilized both as a swimming pool for an individual home, for example, and which could be readily converted for use as a bomb shelter. The present application is a continuation of an application Serial No. 57,540, filed September 21, 1960, and now abandoned.

The principal object of the present invention is the provision of a swimming pool structure which can normally be utilized for swimming but upon short notice may be converted to a suitable bomb shelter for occupancy during and after a bombing attack which may include radiation "fall-out." The invention permits individual families to make an investment in a structure which can serve both as a swimming pool and a bomb shelter thereby encouraging the construction, use and maintenance of these facilities which would add to the health, enjoyment and security of the population.

In carrying out the invention, it is proposed to provide a more or less conventional swimming pool structure including a foldable cover normally maintained at one end or side of the pool which may be quickly and readily moved into place over the entire pool to convert the pool into a dwelling, providing shelter against radiation "fall-out" as well as against weather.

The invention also contemplates provision of a swimming pool structure in which one or more walls form a common wall of a bomb or "fall-out" shelter, and/or storage bunkers in which food, clothing, medical supplies, fuel, etc., may be stored and to which access may be had from the interior of the pool in time of emergency.

A further object of the invention is the provision of a novel swimming pool structure of the type mentioned having a surge tank in the drain line for the swimming pool whereby a substantial amount of water in the pool can be quickly drained for rapid conversion of the interior of the pool to a shelter structure for persons during or after a bombing attack, the surge tank being connected to the usual draining system for gradually draining into the public sewage system.

Still another object of the invention is the provision of a pool structure having laterally extending portions at the bottom thereof to prevent raising of the pool by hydrostatic pressure in the soil in the event the pool has been drained.

In the form of the invention, the swimming pool structure is provided with a concrete compartment to one side of the pool and well beneath the upper level thereof and having entranceways thereto, preferably at the deep end of the pool structure, and in another form of the invention, a relatively shallow portion of the pool is provided, the bottom wall of which comprises the roof and end wall of a bomb or "fall-out" shelter and storage compartment located beneath the shallow portion of the pool, which compartment preferably has an entranceway at one side of the pool structure and which is partially or substantially entirely located beneath the water in the pool so that the water in the pool affords protection from overhead blasts and "fall-out." Preferably, means are provided in the compartment for utilizing water in the pool for living within the compartment.

Other objects and advantages of the invention will be apparent from the following description of preferred forms

2

thereof, reference being made to the accompanying drawings wherein

FIG. 1 is a perspective view, partly broken away, showing an empty pool structure according to the invention;

FIG. 2 is a fragmentary sectional view of the pool shown in FIG. 1;

FIG. 3 is a fragmentary sectional view of the pool structure showing an auxiliary chamber;

FIG. 4 is a perspective view of the swimming pool structure showing the cover in place;

FIG. 5 is a sectional view of the pool structure taken substantially along line 5—5 of FIG. 4;

FIG. 6 is a sectional view taken substantially along line 6—6 of FIG. 4;

FIG. 7 is a perspective view of another form of pool structure, showing the cover for the pool in place;

FIG. 8 is a sectional view taken substantially along line 8—8 of FIG. 7;

FIG. 9 is a sectional view taken along line 9—9 of FIG. 7;

FIG. 10 is a sectional view taken along line 10—10 of FIG. 9;

FIG. 11 is a perspective view of the pool structure shown in FIG. 7 with the ground thereabout removed and certain parts being shown broken away;

FIG. 12 is a longitudinal sectional view of the cover structure shown in its closed position, as is illustrated in FIG. 8 but on a larger scale;

FIG. 13 is a view similar to FIG. 12 but showing the cover in its partially raised or open position; and

FIG. 14 is a fragmentary sectional view taken along line 14—14 of FIG. 12.

Referring to the form of the invention shown in FIGS. 1 through 6, a swimming pool P1 is shown which may be located adjacent to a home and which may be used as a swimming pool by the occupants of the home or it can be converted, when necessary, to a bomb shelter in which the home occupants can survive during and following a bombing attack. In the form shown, the pool is constructed in an excavation in the earth and is of concrete suitably waterproofed in a conventional manner. Although the pool shown is beneath the ground level, it could be more or less above the ground with suitable supporting means thereabout.

The pool includes the usual sloping bottom having a shallow portion 20a which is connected by a fairly steep slope 20b with a deep portion 20c. Preferably a stairway 20d is formed at one side of the pool leading from portion 20a to portion 20c and suitable guard lines 20e are provided as shown. The pool includes a shallow end wall 21, two parallel side walls 22 and 23, and a deep end wall 24. The bottom structure of the pool includes laterally projecting ledges 20f, preferably sloping upwardly on the undersides, for anchoring the pool against upwardly directed hydrostatic pressure therebeneath to prevent heaving of the pool when it is empty, the sloping undersides of the flanges facilitating the escape of water from beneath the pool structure.

The sides 22 and 23 extend beyond wall 24 and cooperate with the latter to form the ends and one side of a compartment 25 located in an excavation adjacent to the deep end of the pool, the details of which compartment are described more fully hereinafter.

On the outer side of wall 23 and well below the ground level is a rectangular bomb or fall-out shelter compartment 26 which is formed of concrete, and wall 23 forms one wall thereof and has doorways 27 and 28 formed therethrough by which persons may enter and leave the compartment from the deep end of the pool. Preferably, hand operated blower mechanisms 30 are provided within the compartment and include vent pipes 30a leading above ground to suitable intake hoods 30b

through which air may be brought into the compartment. These devices are conventional and the details thereof are not essential to the understanding of the invention. Additionally, compartment 26 may have a bench therein, or other minimal, waterproof furnishings.

Reverting to the construction and purpose of compartment 25, partitions are provided which form separate bunkers 25a, 25b, and 25c for living supplies, fuel oil and water tanks 32 and 33, for example, and food, tools, medical supplies, clothing, etc. Tanks 32 and 33 have valved discharge pipes 32a and 33a attached thereto which extend through openings in wall 24 by which water and oil can be drawn from the respective tanks by persons in the deep end of the pool, as required.

Bunker 25c, which is relatively large as shown, is utilized for the storage of food, medicines, clothing, etc. as indicated generally at 35, wall 24 having an opening or doorway normally closed by a tapered removable waterproof door 36 through which access may be had to bunker 25c. Preferably, a ladder 37 is attached to wall 24 to provide means for swimmers to climb from the deep end of the pool, or in the event the pool is used as a shelter to afford means of access to door 36 when it is necessary to gain access to materials in the bunker. Preferably, the top of compartment 25 is closed by a plate 39 which rests thereon. In the form of the invention shown, a diving board 40 is attached to the pool structure and it projects over plate 39 and into the pool, as seen in FIG. 1.

The deep portion 20c of the pool includes a dry well 42 from which water is pumped by a hand pump stowed in bunker 25c and which well may serve as a toilet when the pool is used as a shelter, suitable sanitizing chemicals being provided in chamber 25 for use in the toilet. The pool is emptied through a drain pipe 43 which discharges into a surge tank 44 located principally beneath the level of the bottom of pool 20c and which is connected by a pipe 45 including trap 45a to the public drainage sewer system. Preferably, the pool is provided with an overflow pipe 46 at the deep end which discharges into tank 44 and which maintains a normal level of water in the pool, as seen in FIG. 6, which is usual practice in swimming pools. Pipe 43 is controlled by a valve 43a which is actuated by a hand wheel 43b located above the ground surface.

The capacity of the surge tank 44 is such that when valve 43a is opened, a substantial portion of the water in the pool flows into tank 44 within a relatively short time whereby should an emergency arise for using the pool as a bomb shelter, the water can be rapidly discharged from the pool to make it usable as a bomb shelter by reason of surge tank 44 which retains a portion of the water in the event the public sewage system is overloaded from other pool drainage.

In the form of the invention shown, the pool is filled with water through a supply pipe 47 which is controlled by a hand operated valve 48. It is to be understood that the usual chlorinating and purifying or filter system is desirably utilized with the pool, but since such systems are well known, they are not shown here.

The top of the pool is adapted to be quickly closed by a foldable cover indicated generally at 50 and which cover comprises a plurality of panels 50a, 50b, 50c, 50d, 50e and 50f, hinged to one another as described more fully hereinafter so that they may be folded and normally retained in compact form over cover plate 39. These cover panels are preferably each formed of an upper and lower sheet, the upper sheet having a transversely downwardly extending ridge 50g along one edge which engages with the lower sheet, and the lower sheet having an upwardly extending transverse ridge 50h at the opposite edge engaging the upper sheet and which ridges space the sheets so as to accommodate hydrogen rich radiation shielding material 51, such as polyethylene, to minimize penetration of dangerous dosages of radiation

through the panels. The adjoining panels are connected with one another by hinge means, the alternate of which hinge means has rollers 60 which ride in tracks or grooves 22a and 23a formed longitudinally in the tops of the pool side walls 22 and 23, respectively. The rollers 60 include axles 61 which are journaled in hinge brackets 62 attached to the bottom plates of the cover panels to permit the adjoining edges of the panels to swing upwardly, as clearly seen in FIG. 13. The other hinge means comprises hinge plates 64 and pins 65 journaled therein so that the edges of the panels joined by these hinges may swing downwardly about the hinge.

The space between panels 50b and 50c, and 50d and 50e are closed by a flapper plate 66 pivoted at 66a to an inset in the panel so that the plate extends over the adjoining panel when the cover is in its closed position as shown in FIG. 4, for example, and which raises to a vertical position when the cover is folded back, as shown in FIG. 1. The hinges between plates 50a and 50b, and 50c and 50d are covered by transverse extensions of the top plates along one edge. Preferably, transverse grooves 50k are formed in the panels to drain off water which may seep around the cover plates.

Preferably, a flexible material, such as plastic 67 is attached to overhanging side edges of the panels and falls into place alongside the pool wall, as shown in FIG. 14, to prevent entrance of rain, snow and wind into the shelter formed by the pool structure.

It will be seen that by the construction shown, the non-wheeled hinges 64, 65 can be raised as the cover is moved toward the right hand end of the pool structure as shown in FIG. 1, so that the cover folds accordion-fashion over plate 39 as it is rolled on the rollers 60.

Another form of the invention is shown in FIGS. 7 through 11 and it comprises a pool formed in an excavation in the earth and includes a bottom which has a gradually sloping shallow section 100a, an intermediate sharply sloping section 100b and a relatively flat deep section 100c. The pool includes side walls 101, 102 and end walls 103 and 104 all of which are formed of waterproofed concrete in a conventional manner.

A shelter chamber 105 is formed beneath wall sections 100a and 100b which form the ceiling and one end wall of this shelter. The bottom of the shelter is formed by an extension 100d of bottom 100c, and preferably, the shelter includes a rectangular concrete section 105a which is enclosed on all but one side which is open to the section immediately beneath wall 100a. Access is had to shelter 105 through entrance 106 formed at one side of the pool, which opens into a vestibule of a stairway 107 constructed in a well 108 descending along the side of the pool. The stairwell has an entrance 109 which may have a railing around three sides thereof, as shown in FIG. 7.

Compartment 105a may have suitable seating or sleeping accommodations, and suitable hand operated ventilating air pumps or blowers 30 are provided.

In order to provide water from the pool for the occupants of shelter 105, a pipe and spigot 111 is imbedded in wall 100b and has one end opening into the lower part of pool 100c.

A cover 112, like cover 50, is provided which is normally folded over a platform 113 formed at one end of the pool and to which a diving board 114 may be attached.

Pool 100 may be drained and filled by operation of hand valves 116 and 117 in the normal fashion and the pool may be equipped with the conventional chlorinating and filtering system, but which are not shown.

In the form of the invention just described, it is desirable to maintain the water in the pool during its use as a bomb shelter, although cover 112 may be closed, as shown in FIGS. 7 and 8, to protect the water from excessive radiation. It will be seen that the water in the pool affords effective protection against effects of radiation and also cushions blast shocks of bombs. Further-

more, water from the pool can be utilized for living and is readily available to pipe 111 as desired, provided, however, it does not contain excessive radioactive materials.

It will be seen that by our invention we have provided a swimming pool structure which may serve as an effective bomb shelter and which costs but slightly more than a standard swimming pool. The fact that the structure has a dual purpose, one of which is highly desirable to most families and the other of which would ordinarily be deemed to be a doubtful investment of capital although of great importance in the event of a bomb attack, should encourage persons to make the investment therefor which will be highly desirable in either phase of its use.

While we have described but two forms of the invention, it is apparent that the two embodiments of the invention show the concept of combining a bomb shelter with a swimming pool in a unique manner such that one common structure is achieved having a cover over the pool of such construction that radioactive contamination of the water in the pool is prevented and wherein in the one embodiment the water in the swimming pool serves to protect the occupants of the bomb shelter at any time of the year as needed from the harmful effects of radiation from above, however it will be obvious to those skilled in the art that numerous modifications, alterations and deviations may be made without departing from the spirit or scope of the invention as defined by the following claims.

We claim:

1. A combination swimming pool and bomb shelter structure comprising side walls and a bottom wall defining a container for a body of water, a folding cover adapted to be moved over said pool structure to provide a closure against entry of radioactive material into said container, said cover comprising a plurality of panels hinged at the edges thereof to one another, track means along opposite edges of said structure, and rollers on said cover and guided by said track means, said panels each comprising an upper sheet and a lower sheet with a layer of hydrogen rich radiation absorbing material therebetween, and flap means pivotally mounted on said panels for covering the pivotal connections between said panels when in closing relation to said container.

2. A structure as defined in claim 1 and wherein said cover comprises flexible material attached to the edges of said panels for cooperation with said side walls of said structure when said cover is in closing relation to said container, whereby entrance of rain and snow borne radioactive materials is prevented.

3. A structure as defined in claim 1 and wherein said upper and lower sheets are formed of metal and said layer of radiation absorbing material comprises polyethylene.

4. A combination swimming pool and bomb shelter structure comprising side and bottom walls defining a container for a body of water, additional walls means defining a living compartment adjoining said container, a folding cover comprising a plurality of panels hinged to

one another for providing removable closure means for said container and said compartment, said panels comprising upper and lower sheets of rigid material and a layer of radiation absorbing material therebetween, flapper plates pivoted to said panels and adapted to cover the hinged connections between said panels when covering said container and compartment roller means on said folding cover, track means on said structure, said roller and track means cooperating to support said folding cover, and a surge tank connected with said container and connected to a waste drain, and valve means for controlling flow of water from said container to said surge tank and from said tank to said drain, said surge tank being of a size to accommodate a major portion of said body of water whereby water in said container may be rapidly transferred to said tank for subsequent slow disposal through said drain.

5. A combination swimming pool and bomb shelter structure as defined in claim 4 including flexible material attached to outside edges of said panels for cooperation with said side walls to prevent entry of radioactive water into said container.

6. A combination swimming pool and bomb shelter structure comprising side and bottom walls defining a container for a body of swimming water, additional wall means defining a living compartment adjoining said container, a folding cover comprising a plurality of panels hinged to one another for providing removable closure means for said container and said compartment, said panels comprising upper and lower sheets of rigid material and a layer of radiation absorbing material therebetween, flapper plates pivoted to said panels and adapted to cover the hinged connections between said panels when covering said container and chamber, roller means on said folding cover, and track means on said structure, said roller and track means cooperating to support said folding cover, and wherein said compartment is disposed at least in part beneath said bottom wall of said container so that water in said container acts as a shield over said compartment to shield against radiations resulting from atomic explosions and the after effects thereof.

7. A swimming pool and bomb shelter structure as defined in claim 6 and including a pipe having an open end in the swimming water container, and a valve on the other end of said pipe and opening into the compartment, whereby water from the container may be obtained in the compartment by opening said valve.

References Cited in the file of this patent

UNITED STATES PATENTS

2,406,413	Test	Aug. 27, 1946
2,580,555	Kroeger	Jan. 1, 1952
2,788,849	Lingard	Apr. 16, 1957

FOREIGN PATENTS

216,681	Great Britain	June 5, 1924
423,864	Italy	July 30, 1947