Jan. 31, 1928. 1,657,598

J. F. WHITMAN

COMBINED SWIMMING POOL AND AMPHITHEATER

Filed Sept. 28, 1925 3 Sheets-Sheet 1

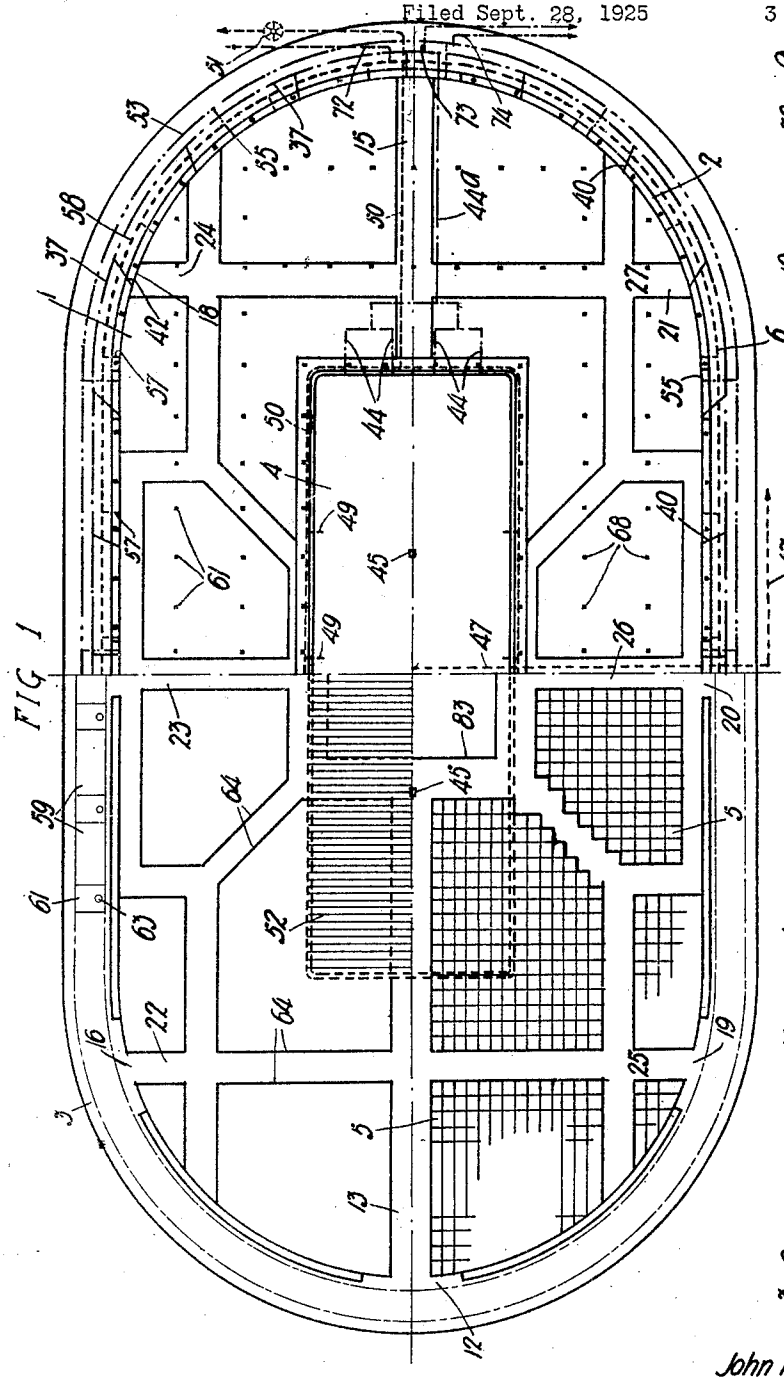


FIG 1

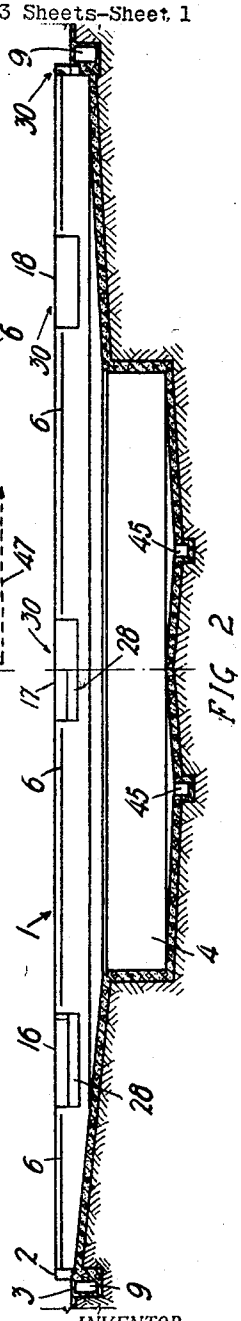


FIG 2

INVENTOR.

John Franklin Whitman.

BY Harvey Cole

ATTORNEYS.

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J. F. WHITMAN

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Filed Sept. 28, 1925 3 Sheets-Sheet 2

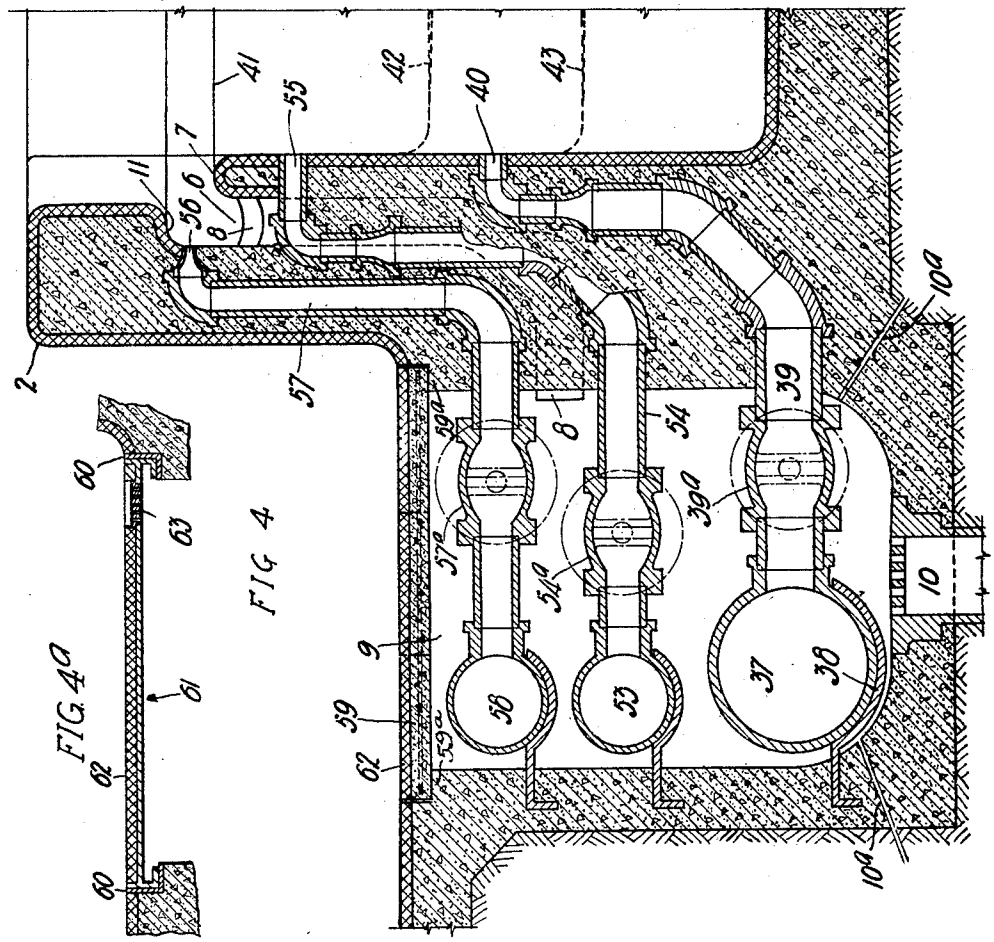



FIG 4

FIG 4a

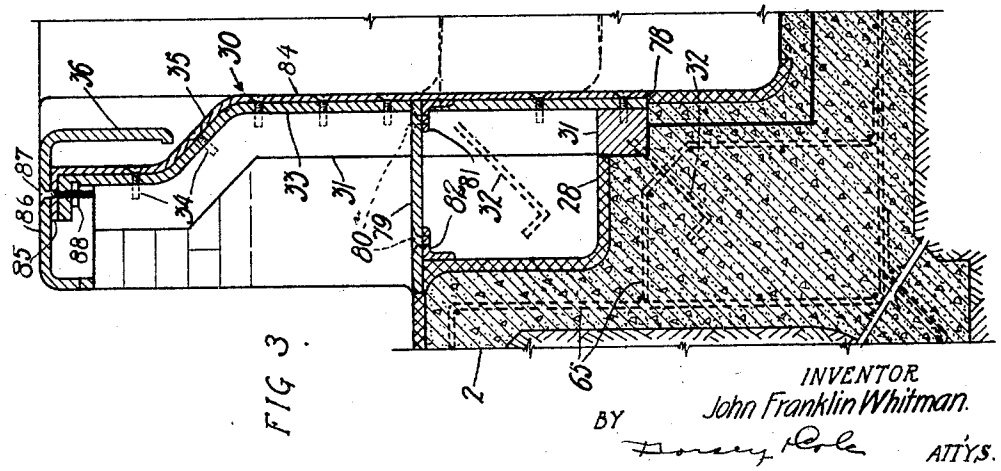



FIG 3.

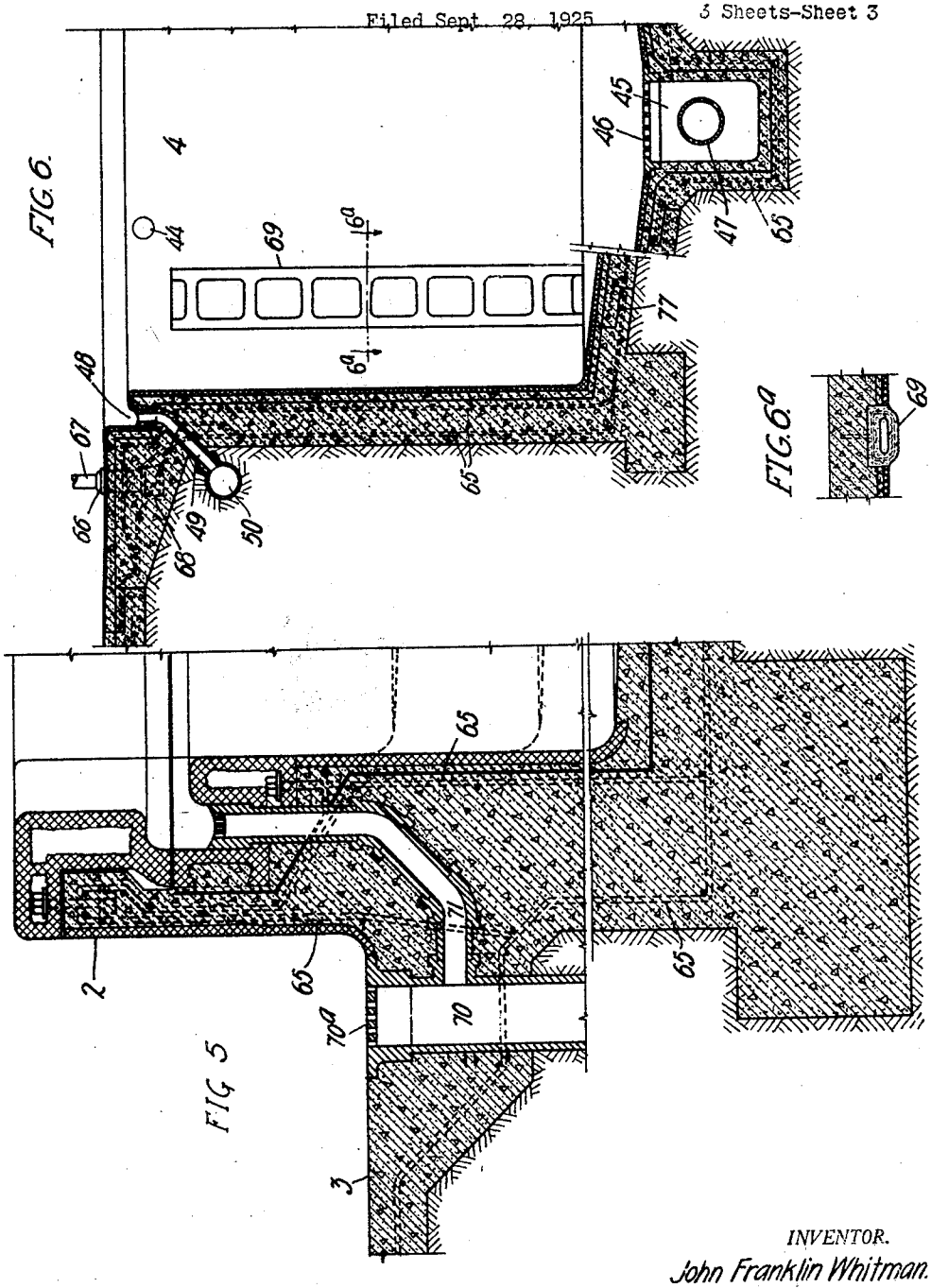
INVENTOR
John Franklin Whitman.
BY
ATT'YS.

Jan. 31, 1928. 1,657,598

J. F. WHITMAN

COMBINED SWIMMING POOL AND AMPHITHEATER

Filed Sept. 28, 1925 3 Sheets-Sheet 3




INVENTOR.
John Franklin Whitman.
BY Fonney & Cole
ATTORNEYS.

Patented Jan. 31, 1928. 1,657,598

# UNITED STATES PATENT OFFICE.

JOHN FRANKLIN WHITMAN, OF BROOKLYN, NEW YORK.

## COMBINED SWIMMING POOL AND AMPHITHEATER.

Application filed September 28, 1925. Serial No. 59,054.

This invention relates to a combined swimming pool and amphitheater and more particularly to a structure in which, when the pool is partially or wholly drained, a portion of the pool may be used for exhibition purposes and the floor of the rest of the pool may be used to accommodate the spectators.

An important object of the invention is to provide a novel structure which can easily be converted into proper form for use either as a swimming pool or an amphitheater.

In carrying out the invention, provision may be made of a structure of this kind in which there is a deep pool inside the main pool and spaced from the walls so that, when there is water in the deep pool only, the floor of the shallow portion of the pool may be used for seating space, the downward slope of such floor towards the deep pool tending to give a good view of the deep pool when used for diving contests and contests of the same general nature.

According to another application of the invention the deep pool may be covered by members such as planks to form a platform of which the central portion may be used as an arena for boxing bouts and the like and the surrounding portions of the platform may be used to accommodate ring side seats to increase the seating capacity.

Other important objects of the invention are to provide a structure of the kind specified in which there are openings, at suitable points in the enclosing wall, closed water tight by bulkheads removable to open the ends of corresponding aisles starting from said openings; an arrangement of the floor relative to a surrounding promenade so that at one of the openings the corresponding aisle is substantially level with the promenade at its outer end and slopes downwardly therefrom toward the deep pool, and at the other openings the outer ends of the aisles are at one or a plurality of steps down, additional steps being formed in the enclosing wall at such openings; a construction in which there is a pipe trench for the main pipes of such systems as a skimmer system for cleaning the surface water, a water vacuum cleaner system to remove sediment from the bottom of the pool and a water supply and circulation system; means for draining the scum gutter of the shallow pool into the pipe trench; means for draining the promenade directly into the pipe trench; independent water supply systems for the deep and shallow pools; a scum gutter for the deep pool affording a support for a cover of the deep pool; and means for filling and draining the deep pool.

Preferably the combined swimming pool and amphitheater proper is part of a structure arranged for permanent seats around the swimming pool and amphitheater which may be designed for use for circus performances, horse shows, etc. To prepare the empty pool for such purposes the deep pool is covered and the shallow pool floor and deep pool cover are covered with a protective layer of suitable material such as sawdust. The entire pool then becomes an arena and for circus exhibitions the cover of the deep pool may be used to accommodate one or more rings and one or more platforms or squares and the surrounding portion of the floor may be used for the usual parades, chariot races, etc.

Ordinarily both the shallow and deep pools are kept full in summer and empty during the winter when, the deep pool being kept covered, the whole pool is used for athletic exhibitions, circus performances, horse shows, etc. When, however, during the period when the pool is arranged for sports other than swimming, it is desired to have diving exhibitions, the cover is taken off the deep pool and the latter is filled with water.

In the summer period while the entire pool is full, such diving exhibitions in the deep pool are usually given without draining the outer pool. Although considerable expense would be involved in draining and refilling the shallow portion of the pool, there might be occasions during the summer period which due to the prices charged for tickets might make it worth while to drain the shallow pool to provide additional seating capacity for diving or similar exhibitions or for exhibitions given on the cover of the deep pool.

Other features and advantages will hereinafter appear.

In the accompanying drawings:

Fig. 1 is a plan view illustrating at one end the appearance of the structure when used for a swimming pool and at the other end the appearance of the structure when used as an amphitheater; certain under-

lying parts of the periphery being indicated in displaced position along one-half of the periphery for greater clearness;

Fig. 2 is a vertical section taken along the longitudinal axis of Fig. 1;

Fig. 3 is a sectional view showing one of the removable bulkheads in effective position;

Fig. 4 is a schematic sectional view at the edge of the shallow pool;

Fig. 4ª is a sectional view illustrating the manhole construction.

Fig. 5 is a schematic view similar to Fig. 4 but illustrating a modified structure;

Fig. 6, is a sectional view illustrating features of the deep or diving pool; and

Fig. 6ª is a section taken on the line 6ª—6ª of Fig. 6.

As illustrated in Fig. 1, the combined swimming pool and amphitheater comprises a pool 1 separated by a wall 2 from a surrounding promenade 3 and including an inner deep or diving pool 4. Ordinarily the pool 1 is kept substantially full, but, when it is desired to give exhibitions such as boxing matches, the shallow portion is left empty, the diving pool is covered as hereinafter described, and seats are supplied as indicated at the left in Fig. 1. Also if the diving pool 4 only is to be used for exhibition purposes, the surrounding shallow portion may be left dry and utilized for seating purposes.

The surrounding wall 2 is provided with a scum gutter 6 of which the inner wall 7 projects inwardly beyond the top of the main wall and serves as a foot rest for persons sitting on the top of the wall. Preferably the top of the wall 2 projects over the scum gutter 6 and forms an automatic wave return 11 as well as a shield for the scum gutter. Water entering the scum gutter is drained through pipes 8 into a pipe trench 9 (Fig. 4) and finally through drains 10 at the bottom of the trench. The floor or bottom of the pipe trench is arranged so that the drains 10 are at points where the floor is lower than at intermediate points, thus assuring suitable drainage. The variation of elevation of the floor at different points along the pipe trench is indicated by breaks 10ª in the concrete structure.

As indicated in Fig. 2, the floor of the pool 1 comes up at one end to substantially the level of the promenade, at the other end to one step below such level, and at intermediate points to two or more steps below such level. When the structure here illustrated is to be used as an amphitheater, the wall is opened at both ends and at three intermediate points on each side.

At the main entrance 12, the aisle 13 starts at the level of the promenade and slopes downwardly toward the adjacent end of the deep pool 4; at the opening 14 at the other end of the pool the aisle 15 is one step down from the level of the promenade and at the side openings 16, 17, 18, 19, 20 and 21, the corresponding side aisles 22, 23, 24, 25, 26 and 27 are two steps below the promenade, a step 28 being provided in the wall at each of such side openings as indicated in Fig. 2. A corresponding step 28 may also be provided in the wall at the opening 14.

When the pool is in use all of the openings 12, 14, 16, 17, 18, 20 and 21 are closed by suitable bulkheads 30, as illustrated in Fig. 3 for one of the side openings at which a step 28 is provided. At the openings in the wall 2, provision is made of frames 31 of suitable material such as iron anchored in the structure of concrete or like material by members 32 of which angle portions are buried in the concrete and other portions are secured to portions of the iron frame.

To enable water tight closures to be effected, gaskets 33 of suitable material such as rubber are interposed between the frames 31 and the removable bulkheads 30 and screws 34 passed through openings in the bulkheads 30 (preferably of steel) and gaskets and screwed into said frames 31. As shown in Fig. 3 each bulkhead 30 is provided with a false scum gutter 35 and an automatic wave return 36.

For water supply and circulation, provision is made of a pipe 37 supported in the pipe trench by brackets 38 set in the concrete wall, and of pipe lines 39 leading to inlet nozzles 40 arranged at different heights around the pool, preferably at points midway between the water level indicated at 41 (Fig. 4) and the floor of the pool. The inlet nozzle 40 shown in Fig. 4 is approximately at the middle of the pool at one side thereof and the other nozzles would be successively higher toward the shallow end of the pool (the bottom at such end being indicated by the line 42) and also towards the deeper end of the pool (the bottom at such end being indicated by the line 43). Preferably all inlet nozzles point toward the center and all pipe lines 39 are provided with valves 39ª.

The supply and circulation of water in the diving pool may be effected in the same general way as described for the shallow portion of the pool. To this end provision is made at the right hand end of the diving pool (Fig. 1) of water inlets 44 supplied by a pipe line 44ª. Preferably these inlets are located near the top of the diving pool. The diving pool is provided at two depressed portions of its bottom with two sumps 45 covered by grills 46 set in suitable frames. These sumps are connected to an outlet pipe line 47 connected with a suitable pump (not shown). The deep pool is also provided with a scum gutter 48 connected by pipes 49 with a drain pipe 50 which is controlled

by a suitable valve 51 which may be in any convenient location. The inner wall of the scum gutter 48 may be used as a support for the cover 52 which may be made up of planks or the like.

Also mounted on brackets in the pipe trench 9 is a pipe line 53 of a vacuum cleaner system and at a plurality of points around the pool pipe lines 54, preferably having valves 54ª, are provided for connecting the pipe line with nozzles 55 to which may be attached vacuum cleaner devices (not shown) for removing sediment and the like from the bottom of the pool. For skimming the surface of the water in the pool provision is made at suitable intervals of flat fan-shaped nozzles 56 each connected by a pipe line 57 and a valve 57ª with a main pipe line 58 mounted on brackets in the pipe trench.

To cover the pipe trench 9, use is made of slabs 59 of reinforced concrete resting on ledges 59ª in the concrete walls of the pipe trench. Between the ends of successive slabs are placed manhole frames 60, which may be of suitable metal, and manhole covers 61 formed of central plates and frames fitting into said frames 60 and projecting above the central plates to such an extent that their upper edges are substantially flush with the upper edges of the frames 60 and with the upper faces of rubber tiling 62 on the promenade floor and on said covers 61. During the use of the pool considerable water drains on the promenade floor from bathers standing or walking thereon or sitting on the coping or top of the wall 2. To enable this water to drain freely into the pipe trench provision is made of suitable openings near the inner edges of the manhole covers 61 and covered by perforated plates 63. The rubber tiling is also cut away above said opening so that the water from the promenade drains freely therethrough. Water from the coping also runs down on the inner side thereof and, due to the fact that the inner face of the coping is offset outwardly from the inner face of the inner wall of the scum gutter, drops directly into the scum gutter.

It should be understood that a constant circulation of water in the pool is effected by drawing out water through the sumps 45 and pipe line 47 and returning it through the inlets 50 of the shallow pool portion or the inlets 44 of the deep pool portion or through both sets of inlets at one time. Preferably provision is made of a main pump for use when the shallow pool is in use and of a separate pump for use with the deep pool only, and the operation of the main pump is such that the water in the whole pool is completely changed in six hours. Before the water drawn out through the pipe 47 is restored to the pool, it is treated to bring it into the condition of ocean water in the corresponding latitude by passing it through salt tanks; it is filtered in connection with a treatment for coagulation; it is passed through heaters to temper or heat the water to the proper temperature; it is passed through an ultra-violet ray sterilizer; and it is treated with chlorine by material from a chlorinator fed into the main receiving the water from said ultra-violet ray sterilizer. Such apparatus is more fully disclosed in my prior application Ser. No. 734,547, filed Aug. 27, 1924, (patented January 5, 1926, No. 1,568,117).

For convenience in placing the chairs, the concrete floor of the shallow portion of the pool may be marked (Fig. 1) to outline the aisles and thereby determine the location of the seats. Preferably such marking is obtained by the use of strips or insets of concrete of different color from the rest of the floor. Exposed portions of the structure, such as the scum gutter and the inner surfaces of the walls of the pool, may be covered with suitable tiling. The reinforcement of the concrete may be effected by members 65 as indicated in the various figures.

Attaching devices 66 for steel supports 67 of suitable diving structures are provided at suitable intervals around the deep pool and provision is made at different points in the bottom of the pool of eyes or inserts 68 located below the surface of the floor and adapted for use in connection with removable athletic apparatus.

Ladders 69 such as shown in Fig. 6, may be provided in the walls of the deep and shallow pool portions. These ladders which are of cement or like construction are sanitary and are set in the wall so as to be substantially flush with the wall and thereby decrease the chance of accident by striking the same.

In the modified structure shown in Fig. 5, provision is made of special drain pipes 70 for the promenade. These pipes have at their upper ends grids 70ª in the floor of the promenade and receive the drainage from the scum gutter through pipes 71.

As indicated in Fig. 1, the skimmer pipe line 58 is supplied with water through an inlet 72; the water supply pipe 37 receives water through an inlet 73, and the vacuum cleaning pipe 52 is connected with the pump through a pipe 74. It should be understood that the drainage from the pipe trench through the drains 10 may be carried off in any suitable manner.

Structures built according to the present invention may vary widely as to size, but for illustrative purposes the dimensions of an approved structure will be given. The inner dimensions of the main pool 1 are length, 196 feet, 7½ inches, and breadth,

87 feet, 5 inches; and those of the diving pool 4 are length, 75 feet, and breadth, 25 feet. When the deep pool is covered, the seats are so arranged as to leave a space 31 feet square, thus providing for an arena 21 feet square for boxing and other purposes and a passage 5 feet wide on each side of said arena. The main or end aisles are 5 feet wide and all of the other aisles are 4 feet wide, with the exception of the short aisles leading diagonally to the corners of the arena, such aisles being 3 feet wide. The bulkheads 30 are of different lengths, such as 6 feet, 8 feet and 12 feet, to correspond with the various widths of openings. In such large concrete structures it may be necessary to provide expansion joints as shown at 77 on Fig. 6.

As shown in Fig. 3, the lower edge of each bulkhead rests on a ledge 78 of tile projecting beyond the frame 31. Preferably there is the same arrangement at all of the side openings in the wall 2. At the end openings, however, no such ledge exists and it is found advantageous to provide in the concrete floor a groove (not shown) to receive the lower edge of the bulkhead.

As shown in Fig. 3, the opening over the step is covered, when the bulkhead is in position, by a plate 79 secured in position by screws 80 passing therethrough and threaded into ears or lugs 81 secured to the bulkhead. Also secured to the plate 79 by screws 80 is a flange 82 which rests against the inner face of the wall above the intermediate step. The plate 79 may serve to some extent as a brace for the bulkhead but its principal service is to cover said opening. The advantage of placing the step 28 in the wall is evident inasmuch as if a permanent step were placed so as to project into the pool there would be considerable danger that bathers would be injured by striking the same.

Although the bulkheads 30 may be constructed in different ways, the form shown in Fig. 3 is preferred. In this form there is a vertical web 84 curved outwardly to form the false scum gutter 35, then extended vertically upward to substantially the height of the wall and then outwardly to form a flange 85. Mounted on the flange 85 is a coping in the form of an inverted channel member 86 secured to the web 84 by screws 87 passing through the channel member 86, the flange 85 and the gasket 33, and threaded into one or more members 88.

To clean the bottom of the pool use is made of the vacuum pipe line connections and nozzles 55. When any one nozzle 55 is to be used, an attendant reaches down beneath the surface of the water and unscrews a cap (not shown) and attaches the tube of a suction cleaner (not shown) which is handled from a boat and serves to clean the bottom of the pool over a segment of a circle of which the radius is determined by the length of the tube. The suction cleaners or nozzles used for this purpose may be substantially the same as those used for household purposes in buildings provided with vacuum cleaner systems.

At suitable times, preferably after use of the suction cleaner, the skimmer system is used to clean the surface of the water of any waste material. The skimmer nozzles 56 are on one side of the pool and when they are in use additional water may be supplied, the surface water overflowing into the scum gutter on the side opposite the skimmer nozzles 56.

When it is desired to use the structure for exhibition purposes the water is withdrawn by draining through the sumps 45 and the pipe line 47. If diving exhibitions are to be given, the water is kept at the level of the deep pool scum gutter, the valve 51 being open at the time to permit drainage through the scum gutter. Usually, however, during the winter season the whole pool is kept dry and chairs are arranged on the floor of the shallow pool portion in accordance with the markings on the floor. The bulkheads 30 are, of course, removed to give access to the aisles. When the exhibition is, for example, a boxing contest, the seating is continued over a portion of the cover leaving a boxing ring 83 surrounded by an aisle.

To restore the structure to condition for using the whole pool, the cover 52 is removed and all of the bulkheads are placed in position in the wall 2. Then the valve 51 is closed to prevent the escape of water through the deep pool scum gutter and water is admitted through the various inlets until the pool is filled.

The foregoing detailed description has been given for clearness of understanding, and no undue limitation should be deduced therefrom, but the appended claims should be construed as broadly as possible, in view of the prior art.

Having thus described my invention, I claim:

1. In a combined swimming pool and amphitheater, a deep central pool portion having substantially vertical walls of sufficient height to permit diving, and a surrounding shallow pool portion of which the bottom slopes outwardly and upwardly from the top of the deep pool portion and serves as the floor of the amphitheater when the water level is sufficiently low as to bare the bottom of the shallow pool portion while leaving sufficient water in the deep pool portion for diving.

2. In a combined swimming pool and amphitheater, a deep central pool portion, a surrounding shallow pool portion of which

the bottom serves as the floor of the amphitheater when the water level is sufficiently low, said floor being so constructed that aisles indicating the seating arrangement are outlined by floor material of different color from that of the adjacent floor material, a water retaining wall surrounding said shallow pool portion and having openings at the ends of certain of said aisles, and means including shiftable bulkheads for effecting a water tight closure of said openings.

3. In a combined swimming pool and amphitheater, a deep central pool portion, a surrounding shallow pool portion of which the bottom serves as the floor of the amphitheater when the water level is sufficiently low to leave such floor uncovered, and separate water circulation systems for said deep and shallow pool portions.

4. In a combined swimming pool and amphitheater, a deep central pool portion, a surrounding shallow pool portion of which the bottom serves as the floor of the amphitheater when the water level is sufficiently low to leave such floor uncovered, and a water circulation system including a portion for use with the deep pool portion only.

5. In a combined swimming pool and amphitheater, a deep central pool portion, a surrounding shallow pool portion of which the bottom serves as the floor of the amphitheater when the water level is sufficiently low, a scum gutter surrounding the deep pool for use when the deep pool only is in use, a drainage system for said scum gutter, and means to prevent the flow of water from said scum gutter when the shallow pool is in use.

6. In a combined swimming pool and amphitheater, a deep central pool portion, a surrounding shallow pool portion of which the bottom serves as the floor of the amphitheater when the water level is sufficiently low, a scum gutter for said deep pool portion having an upwardly extending outer wall and a lower interior wall to determine the water level for the deep pool portion and serve as a support for a cover for said deep pool portion.

7. In a combined swimming pool and amphitheater, a deep central pool portion, a surrounding shallow pool portion of which the bottom, when the water level is sufficiently low, serves as the floor of the amphitheater with seating room extending entirely around the deep pool portion, a promenade surrounding said shallow pool portion, and a water retaining wall surrounding said shallow pool portion and separating the same and the amphitheater floor from the promenade.

8. In a combined swimming pool and amphitheater, a deep pool portion having a wall rising abruptly from the bottom thereof and of sufficient height to permit the deep pool portion to be used for diving, a surrounding shallow pool portion of which the bottom extends outwardly and upwardly from the upper edges of the wall of the deep pool portion and, when the water is sufficiently low to leave the same uncovered, serves as the floor of the amphitheater with seating room extending entirely around the deep pool portion, and a cover for said deep pool portion to provide an arena.

9. In a combined swimming pool and amphitheater, a deep pool portion having the upper portion of the surrounding wall offset outwardly to provide a gutter extending entirely around said deep pool portion beneath the top of said wall, a shallow pool portion surrounding the deep pool portion and having a bottom which, when the water is sufficiently low to leave the same uncovered, serves as the floor of the amphitheater with seating room extending entirely around the deep pool portion, and a cover for the deep pool portion resting on inner wall of said gutter and providing additional seating room as well as a central arena or exhibition space.

10. In a combined swimming pool and amphitheater, a deep central pool portion, a surrounding shallow pool portion, of which the bottom, when the water level is sufficiently low, serves as the floor of the amphitheater with seating capacity entirely around the deep pool portion, a promenade surrounding said shallow pool portion, a water retaining wall surrounding said shallow pool portion and separating the same and the amphitheater floor from the promenade, and bulkheads in said wall removable to permit access to the outer edge of the amphitheater floor.

11. In a combined swimming pool and amphitheater, a peripheral promenade floor, a water-retaining wall at the inner edge of said promenade floor, a main pool bounded by said wall and comprising an inner deep portion of which the upper edges around the whole periphery thereof are spaced from said wall and a shallow pool portion completely surrounding the deep pool portion, the floor of the shallow portion serving as the floor of the amphitheater when the water level is sufficiently low and being so shaped relative to the promenade floor that at one end the floor of said shallow portion is substantially on a level with the promenade floor and at the other end is one step down, and bulkheads adapted to close openings at said ends and removable to permit entrance and exit at said ends to the amphitheater floor.

12. In a combined swimming pool and amphitheater, a peripheral water retaining wall, a main pool in which the water is normally maintained at such a height that said wall serves to retain the water therein, said main pool comprising a deep central portion and a shallow portion between said deep portion and said wall, and having a down-

wardly and centrally inclined floor adapted for use as an amphitheater when the water level is sufficiently low, water circulating means for said shallow portion including inlets midway between the bottom and the normal water level and separate water circulating means for the deep pool including inlets near the upper edges of the sides thereof.

13. In a combined swimming pool and amphitheater, a peripheral promenade floor, a main pool comprising a deep central portion, an outside wall separating the main pool from the promenade, a shallow portion bounded by said outside wall and having a floor inclined inwardly and downwardly toward the deep pool portion and so related to the plane of the promenade floor as to be substantially level therewith at one end, one step down at the other end and two steps down at intermediate points, and water supply and circulating means including a plurality of inlets arranged around the inside wall substantially midway, in each case, between the bottom of the pool and the normal water level.

14. In a combined swimming pool and amphitheater, a peripheral promenade floor, a water-retaining wall at the inner edge of said promenade floor, a main pool bounded by said wall and comprising an inner deep portion of which the upper edge around the whole periphery thereof is spaced from said wall and a shallow pool portion completely surrounding the deep pool portion, the floor of the shallow portion serving as the floor of the amphitheater when the water level is sufficiently low and being so shaped relative to the promenade floor that at one end the floor of said shallow portion is substantially on a level with the promenade floor, at the other end is one step down, and at an intermediate point along the side is down two steps, of which the intermediate step is formed in the wall, and bulkheads adapted to close openings in said wall at said ends and intermediate points and removable to permit exit and entrance at such points.

15. In a combined swimming pool and amphitheater, a peripheral promenade floor, a wall serving to demark the amphitheater from the promenade and as a retaining means for water in the swimming pool, a floor for the amphitheater serving as the bottom of the swimming pool, and bulkheads in said wall removable to open the ends of main and auxiliary aisles, the floor of the amphitheater being inclined downwardly on all sides toward the center thereof and being so related at its periphery to the plane of the promenade floor that the outer end of the main aisle is at substantially the level of the promenade floor and the outer ends of the auxiliary aisles are down one step formed by the water retaining wall or down two steps, an intermediate step being formed in said wall below the level of the promenade floor.

16. In a combined swimming pool and amphitheater, a peripheral promenade floor, a wall serving to demark the amphitheater from the promenade and as a retaining means for water in the swimming pool, a floor for the amphitheater serving as the bottom of the swimming pool and having aisles marked thereon, said floor of the amphitheater and bottom of the swimming pool being inclined downwardly toward the center thereof and being so related at its periphery to the plane of the promenade that the main aisle at said periphery is on a level with the promenade floor and different auxiliary aisles are respectively one and two steps down, the upper step being at the level of the promenade and the intermediate step, where one is used, being in said wall, and a diving pool located centrally of the main pool.

17. In a combined swimming pool and amphitheater, a peripheral promenade floor, a wall serving to demark the amphitheater from the promenade and as a retaining means for water in the swimming pool, a floor for the amphitheater serving as the bottom of the swimming pool, said floor of the amphitheater and bottom of the swimming pool being inclined downwardly toward the center thereof and having its periphery so related to the plane of the promenade that the main aisle at said periphery is on a level with the promenade floor and different auxiliary aisles are respectively one and two steps down, the upper step being at the level of the promenade and the intermediate step, where one is used, being in the wall, and a stage or arena centrally located in said amphitheater.

18. In combination, a swimming pool, a water retaining wall surrounding the same, a scum gutter at the inner face of said wall, drainage means for said scum gutter extending to the outer side of said wall, and a pipe trench surrounding said pool at the other side of said wall and receiving the scum gutter drainage through said drainage means.

19. In combination, a swimming pool, a water retaining wall surrounding the same, a scum gutter at the inner face of said wall, drainage means for said scum gutter extending to the outer side of said wall, a pipe trench surrounding said pool outside of said wall and receiving the scum gutter drainage from said drainage means, the floor of said pipe trench varying in elevation to provide low portions to which water in the pipe trench will drain, and drains at such low portions of the pipe trench floor.

20. In combination, a swimming pool, a water retaining wall surrounding the pool, a pipe trench surrounding the pool outside

of said wall, means for draining the pipe trench, and a promenade floor surrounding said wall and comprising slabs extending over the top of the pipe trench and devices between successive slabs adapted to permit the water on the promenade floor to drain into the pipe trench.

21. In combination, a swimming pool, a water retaining wall surrounding the pool, a pipe trench surrounding the pool outside of said wall, means for draining the pipe trench, and a promenade floor surrounding said wall and comprising a row of slabs extending over the pipe trench, and cover members between said slabs and formed near their inner edges with drain openings through which water will drain from the promenade floor into the pipe trench.

22. In combination, a swimming pool, a water retaining wall surrounding the pool, inlets in said wall arranged at intervals around the pool, a pipe trench around said pool outside of said wall, a water supply pipe line in said trench and extending around said pool, individual connections between said inlets and said pipe line, and a valve in each of said connections and located in said pipe trench.

23. In a swimming pool, a peripheral water retaining wall, a bottom or floor so arranged that the depth of the pool varies at different points of the periphery, a row of inlets in said wall arranged at intervals around the pool and generally midway between the normal water line and the bottom of the pool, and a water supply system connected with said inlets.

24. In a combined swimming pool and amphitheater, a peripheral promenade floor, a water retaining wall at the inner edge of said promenade floor, a pool bounded by said wall and comprising a deep central portion and a surrounding shallow portion having a floor inclined inwardly and downwardly toward the deep pool portion and so related to the plane of the promenade floor as to be substantially level therewith at one point, and bulkheads normally closing openings in said wall at different points, including the point at which the pool floor is level with the promenade floor, but removable to permit entrance to the pool when the floor of the shallow portion thereof is available for seating purposes.

25. In a combined swimming pool and amphitheater, a peripheral promenade floor, a water retaining wall at the inner edge of said promenade floor and having openings at convenient points, means including bulkheads normally closing said openings, a main pool bounded by said wall and comprising an inner deep pool portion of which the upper edge around the whole periphery thereof is spaced from said wall and a shallow pool portion completely surrounding the deep pool portion, the floor of the shallow portion serving as the floor of the amphitheater when the water level is sufficiently low and being so shaped relative to the promenade floor that at one of said openings the floor of the shallow pool portion is substantially on a level with the promenade floor and at other openings is down a plurality of steps below the promenade floor, the intermediate steps being formed in the wall.

26. In a combined swimming pool and amphitheater, a peripheral promenade floor, a wall serving to demark the amphitheater from the promenade and to retain water in the swimming pool, a floor for the amphitheater serving as the bottom of the swimming pool and bulkheads in said wall removable to open the ends of main and auxiliary aisles, the floor of the amphitheater being inclined downwardly on all sides toward the center thereof and being so related at its periphery to the plane of the promenade floor that the outer end of a main aisle is at substantially the level of the promenade floor and that the outer ends of other aisles are at levels differing from that of the promenade floor by a plurality of steps.

27. In a combined swimming pool and amphitheater, a peripheral promenade floor, a wall at the inner edge of said promenade floor having passages therethrough, bulkheads normally closing said passages, a deep central pool portion, and a surrounding shallow pool portion bounded by said wall and having a bottom which serves as the floor of the amphitheater when the water level is sufficiently low and is so related at its periphery to said promenade floor as to require steps in said wall at certain of said passages.

28. In a combined swimming pool and amphitheater, a peripheral promenade floor, a deep central pool portion, a surrounding shallow pool portion having a bottom which serves as the floor of the amphitheater when the water level is sufficiently low and is so related at its periphery to said promenade floor at a plurality of passage points as to require steps for convenient passage from one to the other of said floors at certain of said points, a water retaining wall separating said shallow pool portion from said promenade floor and having therein openings at all of said passage points and steps where required, bulkheads normally closing said openings and comprising in each case a generally vertical web portion at the inner surface of said wall and a top of the same width as said wall, and plate members covering said steps at the level of said promenade floor when the bulkheads are in position and secured to the bulkheads.

29. In a combined swimming pool and amphitheater, a peripheral promenade floor, a pool enclosed thereby and having a bottom

to serve as the floor of an amphitheater when the water level is sufficiently low and being so related to the plane of the promenade floor at the outer end of one aisle that it differs from the level of the promenade floor to such an extent as to require an intermediate step, a water retaining wall separating said promenade from said pool and having therein an opening and a step therein at the end of said aisle, and a bulkhead to seal said opening and comprising a vertical web at the inner face of said wall and a top of the same width as the top of said wall.

JOHN FRANKLIN WHITMAN.