

March 24, 1931.

J. F. BOORAEM ET AL  
SWIMMING POOL CONSTRUCTION

1,797,397

Filed Sept. 20, 1929

10 Sheets-Sheet 1

*Fig. 1.*

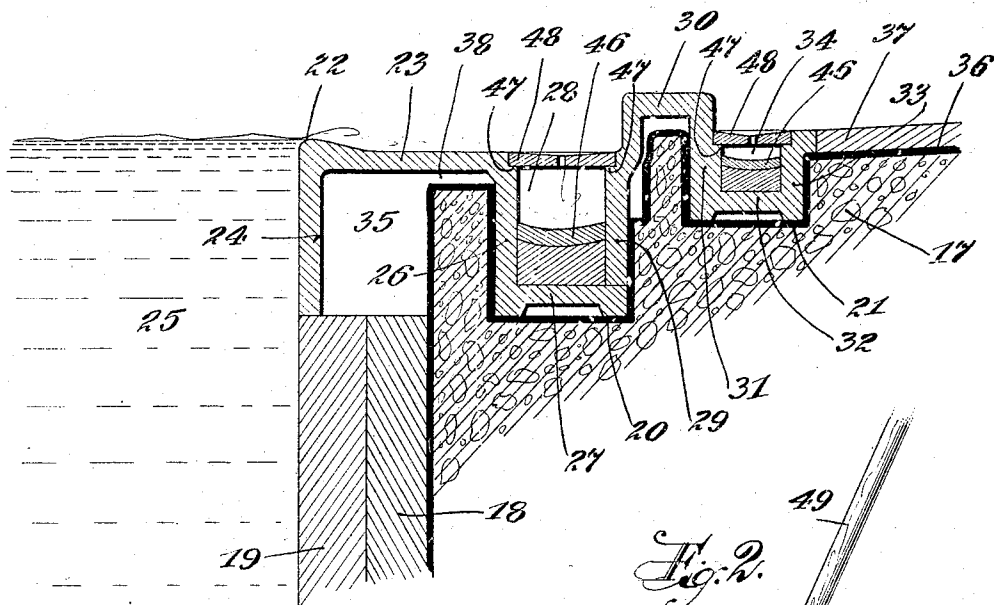
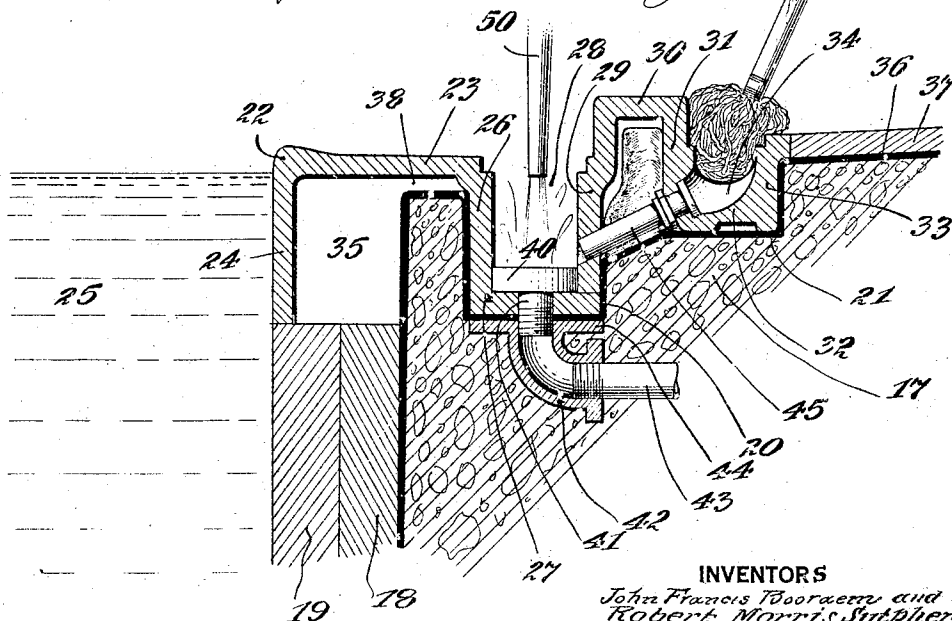


*Fig. 2.*



INVENTORS

John Francis Booraem and  
Robert Morris Sutphen

By *C. F. Sipe*  
their ATTORNEY

March 24, 1931.

J. F. BOORAEM ET AL  
SWIMMING POOL CONSTRUCTION

1,797,397

Filed Sept. 20, 1929

10 Sheets-Sheet 2

*Fig. 3.*

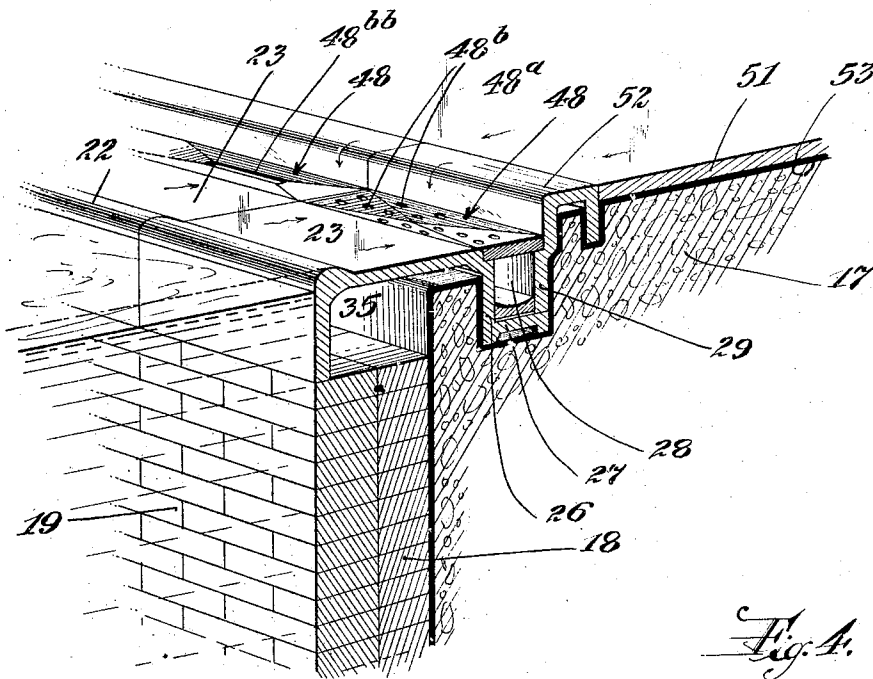
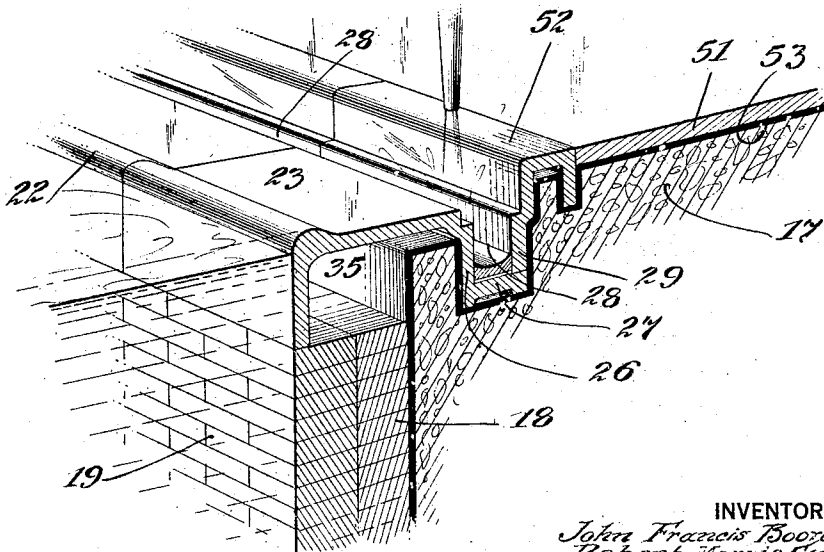


*Fig. 4.*



INVENTORS  
*John Francis Booraem and  
Robert Morris Sutphen*  
By *C. F. Geyer*  
their ATTORNEY

March 24, 1931.

J. F. BOORAEM ET AL  
SWIMMING POOL CONSTRUCTION

1,797,397

Filed Sept. 20, 1929

10 Sheets-Sheet 3

Fig. 5.

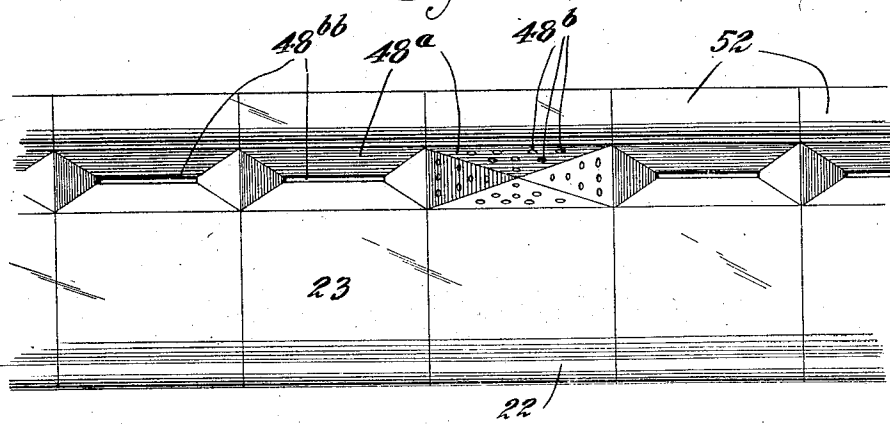


Fig. 6.

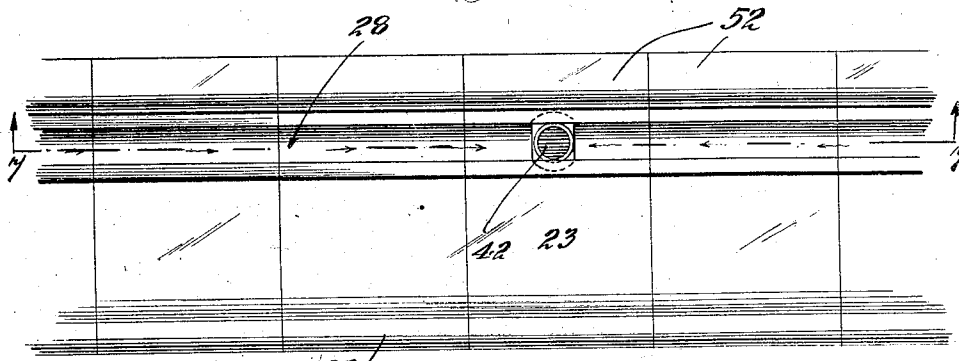
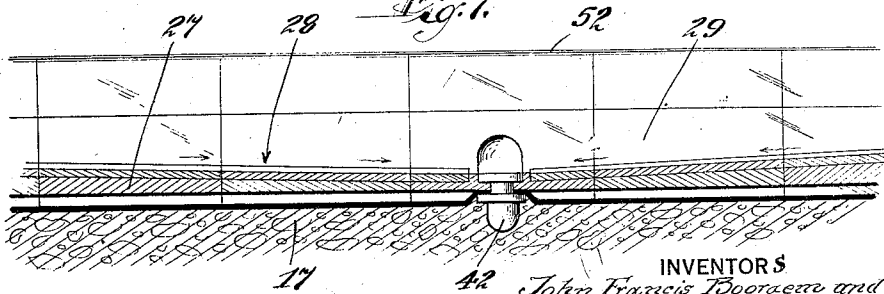


Fig. 7.



INVENTORS

John Francis Booraem and  
Robert Morris Sutphen

BY *C. F. Krepel*  
their ATTORNEY

March 24, 1931.

J. F. BOORAEM ET AL

1,797,397

SWIMMING POOL CONSTRUCTION

Filed Sept. 20, 1929

10 Sheets-Sheet 4

*Fig. 8.*

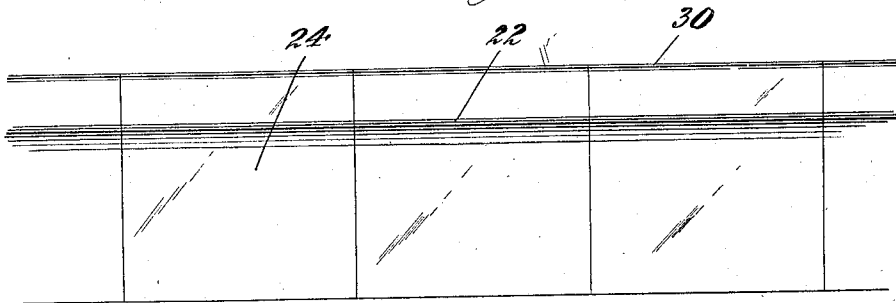


*Fig. 9.*

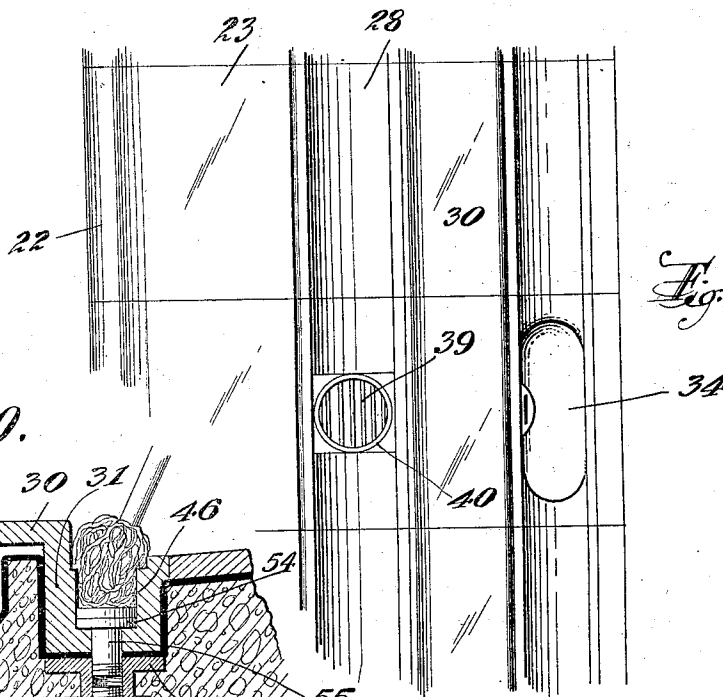
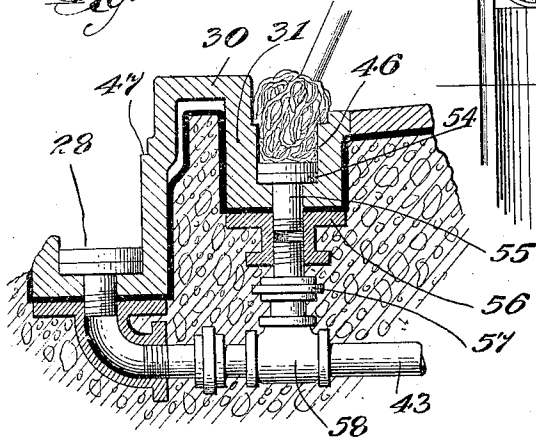


*Fig. 10.*



INVENTOR

*John Francis Booraem and  
Robert Morris Sutphen*

By *C. P. Hoepel*  
their ATTORNEY

March 24, 1931.

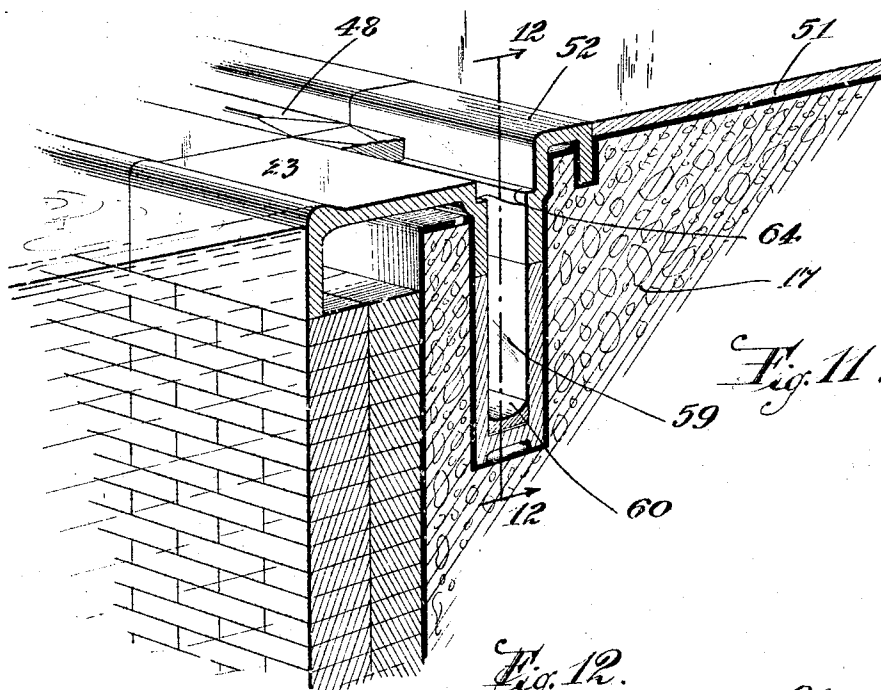
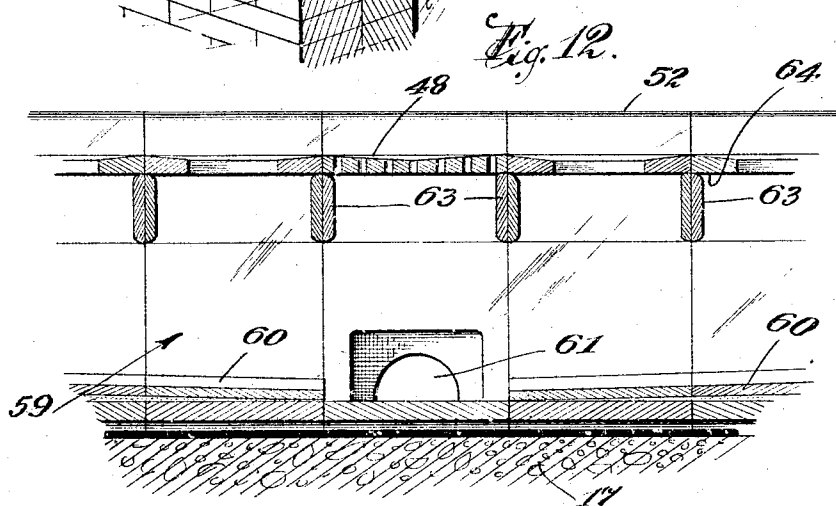
J. F. BOORAEM ET AL

1,797,397

SWIMMING POOL CONSTRUCTION

Filed Sept. 20, 1929

10 Sheets-Sheet 5



INVENTORS

John Francis Booraem and  
Robert Morris Sutphen

By *C. P. Greer*  
their ATTORNEY

March 24, 1931.

J. F. BOORAEM ET AL

1,797,397

SWIMMING POOL CONSTRUCTION

Filed Sept. 20, 1929

10 Sheets-Sheet 6

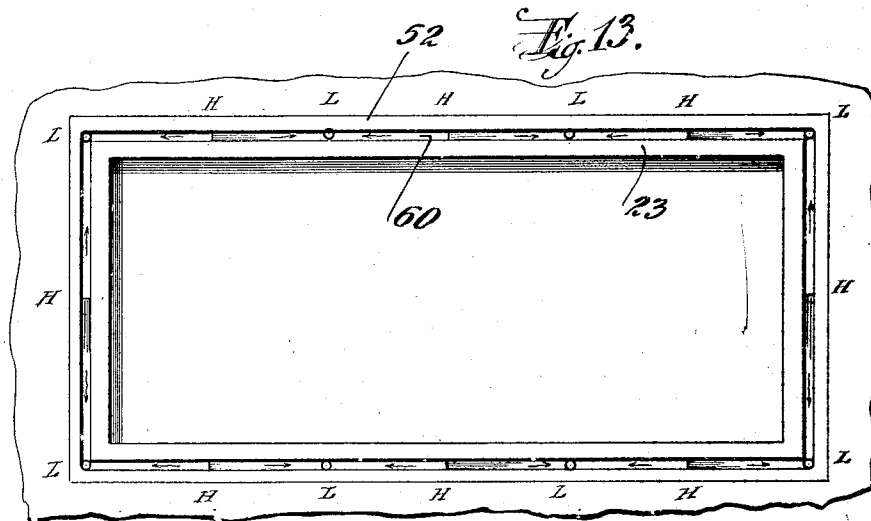
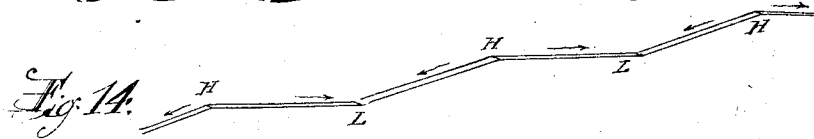


*Fig. 16.*

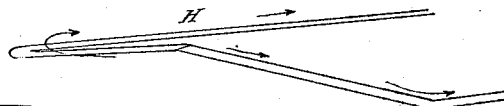
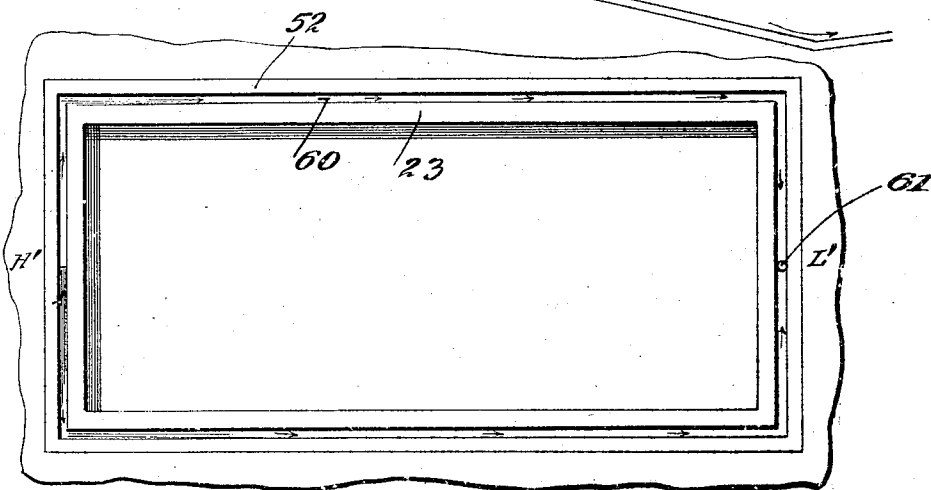


*Fig. 15.*

INVENTORS

John Francis Booraem and  
Robert Morris Sutphen

By *C. F. Cooper*  
their ATTORNEY

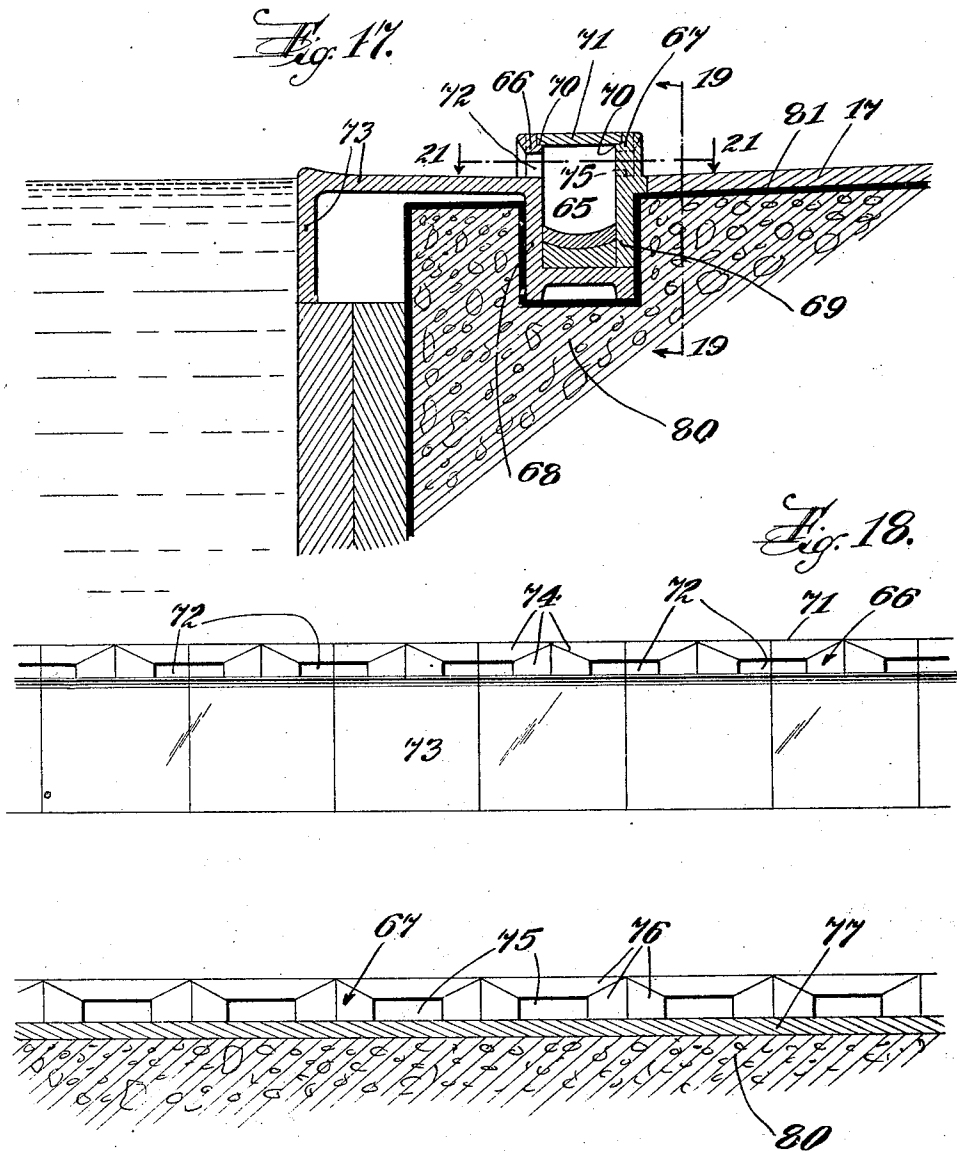
March 24, 1931.

J. F. BOORAEM ET AL  
SWIMMING POOL CONSTRUCTION

1,797,397

Filed Sept. 20, 1929

10 Sheets-Sheet 7



INVENTORS  
*John Francis Booraem and*  
*Robert Morris Sutphen*  
By *C. D. Goeppel*  
their ATTORNEY

March 24, 1931.

J. F. BOORAEM ET AL

1,797,397

SWIMMING POOL CONSTRUCTION

Filed Sept. 20, 1929

10 Sheets-Sheet 8

*Fig. 20.*

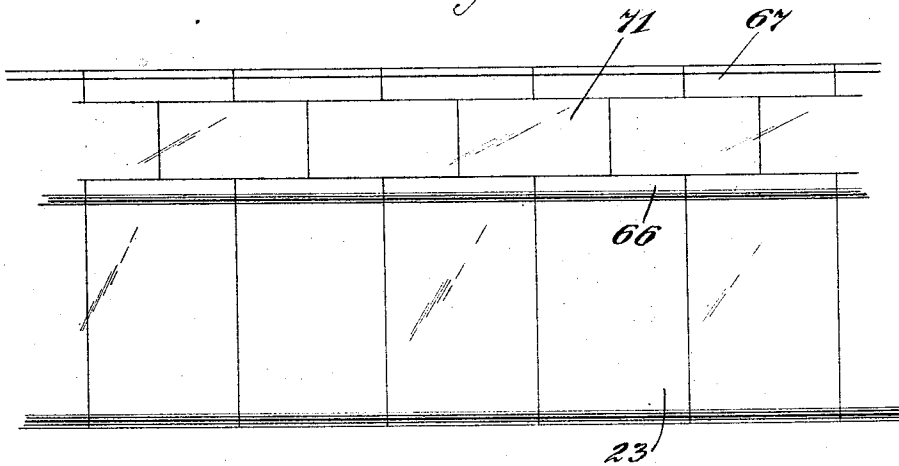
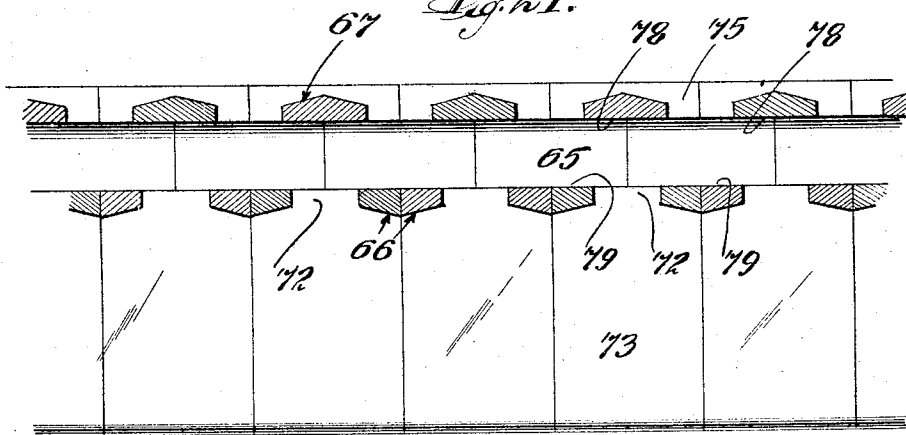


*Fig. 21.*



INVENTORS

*John Francis Booraem and  
Robert Morris Sutphen*

By

*C. P. Goejel*  
their ATTORNEY

March 24, 1931.

J. F. BOORAEM ET AL

1,797,397

SWIMMING POOL CONSTRUCTION

Filed Sept. 20, 1929

10 Sheets-Sheet 9

*Fig. 22.*

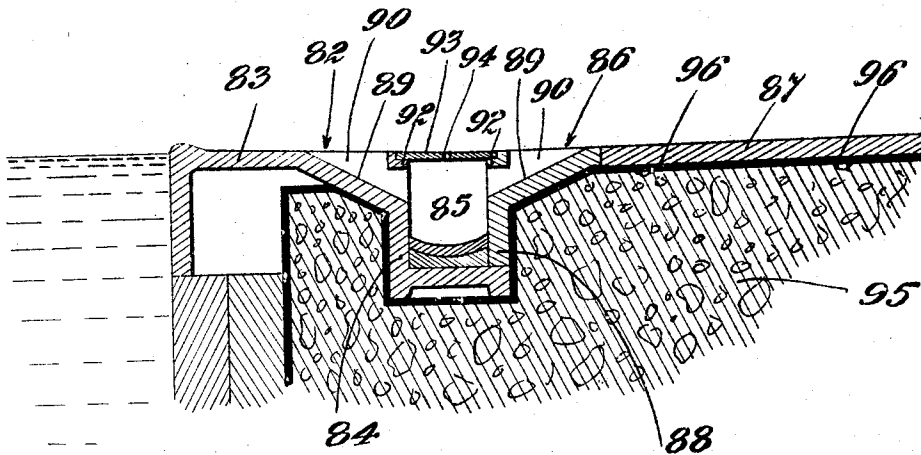
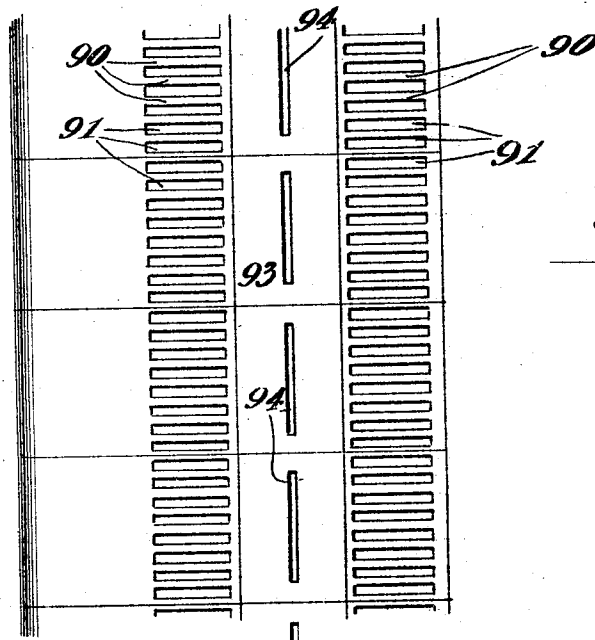


*Fig. 23.*

INVENTORS

*John Francis Booraem and  
Robert Morris Sutphen*

By

*C. D. Grefel*  
their ATTORNEY

March 24, 1931.

J. F. BOORAEM ET AL

1,797,397

SWIMMING POOL CONSTRUCTION

Filed Sept. 20, 1929

10 Sheets-Sheet 10

*Fig. 24.*

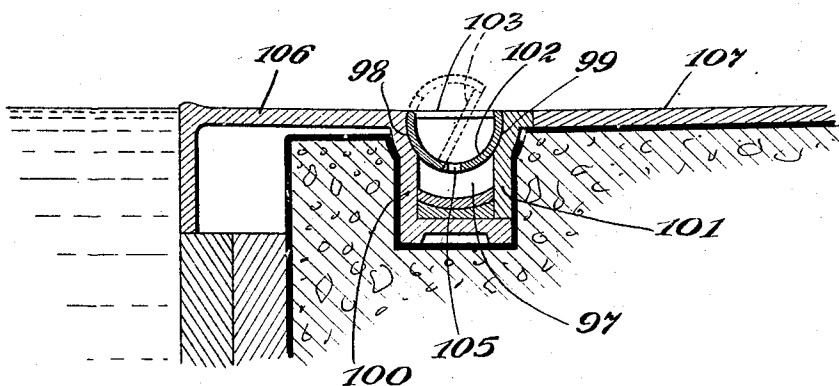
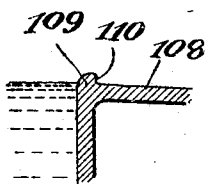


*Fig. 26.*

*Fig. 25.*

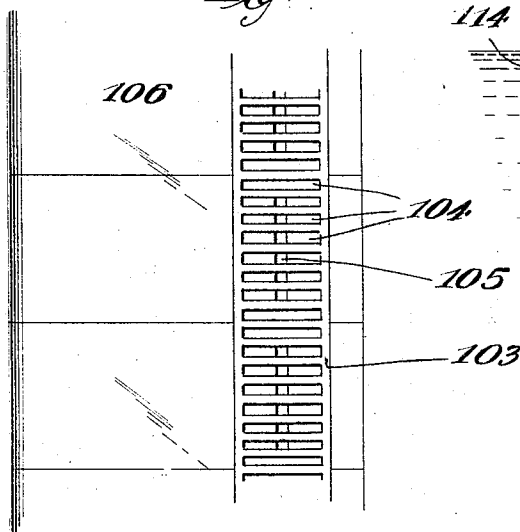
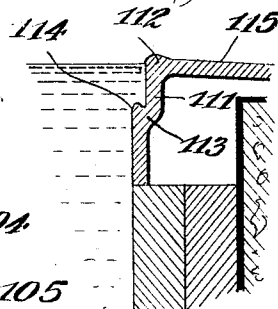


*Fig. 27.*



INVENTORS

*John Francis Booraem and  
Robert Morris Sutphen*

BY

*C. P. Guefel*  
their ATTORNEY

# UNITED STATES PATENT OFFICE

JOHN FRANCIS BOORAEM, OF GREENWICH, CONNECTICUT, AND ROBERT MORRIS SUTPHEN, OF NEWARK, NEW JERSEY; SAID SUTPHEN ASSIGNOR TO SAID BOORAEM

## SWIMMING-POOL CONSTRUCTION

Application filed September 20, 1929. Serial No. 393,871.

This invention relates to swimming pools and has for an object the provision of an improved construction of this character which will embody certain desired features of simplicity, convenience, and of sanitation, more particularly with respect to the construction and arrangement of the life rail coping, drainage gutter and trench means, and waterproofing system.

The invention is characterized, as important features thereof, by a combination life rail coping and sitting ledge, defining the brim portion of the pool and providing for pool surface overflow transversely to drainage gutter or trench means, and by a barrier which rises higher than the life rail coping along the outer side of the gutter or trench means, the arrangement including as part of the sitting ledge adjacent the barrier a perforated cover course for flowing the overflow water into the gutter or trench means, which cover course is disposed for ready removal to provide ready access to the gutter or trench means for thorough cleaning. According to a characteristic feature of the invention, the barrier constitutes an embankment, compelling the transverse overflow from the pool, that takes place transversely over the life rail coping and sitting ledge, to drain through the removable perforated cover course into the trench gutter there below. With this construction the water line of the pool can be kept flush with or closely adjacent to, the crest of the life rail coping so that the bathers can readily and with ease from a swimming position on the surface of the water move over the life rail onto the sitting ledge. By this arrangement, the life rail and sitting ledge course can readily be kept clean and it normally is kept clean by reason of the transverse overflow of water from the pool. By providing the removable cover course, the trench gutter, irrespective of its depth, is accessible throughout for thorough cleaning by a mop, by a hose or by steam. The provision of a sanitary gutter trench accessible throughout for thorough cleaning, is exceedingly important, for it is found that with the transverse overflow systems now in use, the gutter trenches or considerable portions

of them are practically inaccessible for cleaning purposes, so that in the course of time they become foul and unsanitary.

It is within the province of the present invention to provide a construction consisting of standardized units of tiling or other similar material suitable for the purpose and capable of being mounted and assembled upon concrete or similar retaining walls, and further to provide a construction which will permit a satisfactory and durable waterproofing of the concrete retaining walls and of the drainage outlets for the trench gutter.

A further object of the present invention is the provision of a construction which will readily admit of the incorporation, when desired, of a separate, readily cleaned, trench gutter for the floor surface water, which separate trench gutter may be located along the outer side of the barrier and be conveniently drained either into the first-named trench gutter or into the drainage outlets therefor.

It is further within the province of the present invention to provide a form of construction in which the barrier may be combined with the trench gutter in such manner that the side walls of the barrier may comprise extensions of the side walls of the gutter and constitute means for supporting the removable cover course. In carrying this form of construction into effect, the opposite side walls of the barrier are provided with spaced apart drainage openings, which are preferably out of alinement, the drainage openings on the pool side providing for the escape of the overflow water from the pool into the gutter while the drainage openings on the floor side provide for the escape of drainage from the floor into the gutter. With this form of construction also, in order to prevent any projections above the surfaces of the sitting ledge and floor, the top of the barrier may terminate at or slightly below the surrounding surfaces and the gutter walls may be produced in the form of a grating designed to admit and direct the water into the gutter.

According to another feature of the improvements, the covering for the trench gutter may be produced in the form of a semi-

cylindrical element mounted for partial rotation, to permit the surface at one side of the gutter to be flushed and cleaned without interfering with the normal use of the surface at the opposite side of the gutter.

Other objects and aspects of the invention will appear hereinafter.

The invention resides in the improved swimming pool construction and in the form and relative arrangement or arrangement of parts, as will be hereinafter more fully described, illustrated in the accompanying drawings, and particularly pointed out in the subjoined claims.

The invention will be best understood by referring to the accompanying drawings, forming a material part of this specification, and in which I have shown several desirable and practical embodiments.

In the accompanying drawings:—

Figure 1 represents a fragmentary vertical section through a construction according to the present invention;

Figure 2 represents a similar view, taken on a line showing the fittings for draining the water from the gutters to a drainage outlet, and also showing the drainage covers removed from the gutters, along with a representation of means which may be used for cleaning the gutters;

Figure 3 represents in perspective a fragmentary elevation and section, showing a construction with a single drainage gutter;

Figure 4 represents a view similar to Figure 3, but showing the drainage covers removed from the gutter and an illustration of means whereby to clean the gutter;

Figure 5 represents a fragmentary top plan view of the parts shown in Figure 3;

Figure 6 represents a view similar to Figure 5, but showing the drainage covers removed;

Figure 7 represents a vertical section, taken on the line 7—7 of Figure 6;

Figure 8 represents a front elevational view, showing the life rail coping and barrier courses as they appear when looking from the pool;

Figure 9 represents a top plan view of the form of construction shown in Figure 2;

Figure 10 represents a fragmentary vertical sectional view, showing a modification in the mode of draining the water from the floor gutter;

Figure 11 represents in perspective an elevation and section showing a relative deep trench construction;

Figure 12 represents a vertical sectional view taken on the line 12—12 of Figure 11;

Figure 13 represents a top plan view of a pool embodying a shallow gutter construction with a series of drainage outlets;

Figure 14 represents a fragmentary perspective view, more or less diagrammatic in character, showing the course of water travel

to the drainage outlets for a shallow gutter;

Figure 15 represents a top plan view of a pool embodying a deep trench construction with a single bottom outlet;

Figure 16 represents a fragmentary perspective view, more or less diagrammatic in character, showing the course of water travel to a single bottom outlet for a deep trench construction;

Figure 17 represents a modified form of construction in which the barrier and trench gutter are combined, with the walls of the barrier provided with openings through which the water passes into the gutter;

Figure 18 represents an elevational view of the parts shown in Figure 17, looking outwardly from the pool;

Figure 19 represents an elevation and section on the line 19—19 of Figure 17;

Figure 20 represents a top plan view of the parts shown in Figure 17;

Figure 21 represents a horizontal sectional view, taken on the line 21—21 of Figure 17;

Figure 22 represents a further modification showing the top of the barrier terminating somewhat below the surrounding surfaces;

Figure 23 represents a top plan view of the parts shown in Figure 22;

Figure 24 represents still another modification showing the covering for the trench gutter produced in the form of a semi-cylindrical element;

Figure 25 represents a top plan view of the parts shown in Figure 24;

Figure 26 represents a fragmentary sectional view, showing the life rail member made with a finger grip; and

Figure 27 represents a similar view, showing the brim coping member produced with a finger grip at a point below the water level.

Referring with more particularity to the accompanying drawings, and first to Figs. 1 and 2, wherein the invention is disclosed as carried into effect according to one convenient manner, 17 denotes a retaining wall for the pool built of concrete or other similar material, this retaining wall extending of course all around the pool and being faced at the water side by suitable lining or facing means preferably comprising courses of brick which may consist of an outer course of common brick 18 and an inner course of enameled brick 19. The retaining wall is constructed or provided with inner and outer trench cavities 20 and 21, both spaced from the margin of the pool as shown and extending continuously in such spaced relation all around the pool.

A peripheral brim coping course, herein disclosed as comprising combined life rail and sitting ledge units, extend all around the pool, being mounted upon the facing means and retaining wall, the numeral 22 denoting the life rail part and the numeral 23 the sitting ledge part of such combined cop-

ing units. With the life rail part 22 is formed a vertically depending part 24 which rests upon the enameled brick course 19 and is united therewith by cementitious or other suitable material in a manner well known in the art. This construction provides a boundary wall for the water 25 of the pool, comprising the enameled brick 19 and the superposed portions 24 of the coping course, so that the water level may be maintained at or closely adjacent the crest of the life rail 22 to spill thereover and flow outwardly over the sitting ledge when the pool is in use.

The sitting ledge is herein represented as having a vertically depending portion 26 and a horizontal portion 27, which portions form respectively the inner side wall and base of the trench gutter 28 constructed in the trench cavity 20 of the retaining wall.

While, in the present exemplification, the brim coping is illustrated as one piece units composed of the parts 24, 22, 23, 26 and 27, it will be understood that in practice such coping units may be made up of separate parts constructed, united or connected in any suitable or approved manner known in the art for assembling, uniting or connecting tile.

The rear wall portions 29 for the trench gutter 28 are herein represented as being made integral with barrier units 30 which rise higher than the crest of the life rail 22 so as to constitute an outer brim for the pool adapted to direct the overflow and splash water into the trench gutter 28. Said barrier units 30 are herein shown as constructed with wall portions 31, 32, and 33, forming the outer trench gutter 34 within the trench cavity 21 of the retaining wall. Although said parts 29, 30, 31, 32 and 33 are herein represented as integral structure, it will be understood that in practice they may be produced of component parts as desired, assembled, connected, or united in any manner well known or approved in the art.

According to an important constructional feature of the invention, the combined life rail 22 and sitting ledge 23 with accompanying portions 24 and 26, are associated with the facing courses 18 and 19 and with the retaining wall 17 so as to provide an enclosed pocket 35, which may be filled with any suitable filler material, if desired, but which is preferably employed as air sealing means for preventing seepage of water to the material of the retaining wall in a manner as will presently appear. According to a characteristic feature of the invention by making the pool construction with inner and outer trench gutters spaced from the margin of the pool, with an outer brim or barrier rising between the trench gutters and with an inner brim consisting of the life rail, a novel arrangement of parts is provided which permits positive and adequate waterproofing of the retaining wall whereby to prevent disintegra-

tion of the retaining wall by seepage of water. Thus, by referring to Figs. 1 and 2, it will be seen that by reason of the arrangement of the constructional features referred to, I can provide a layer of waterproofing material 36 over the entire surface of the retaining wall so that any leakage through the tiling construction will positively be prevented from reaching the material of the retaining wall. Upon referring to Figs. 1 and 2, it will be seen that the layer of waterproofing material 36 may be disposed below the floor 37 of the pool, the outer trench structure 34, the barrier structure 30, the inner trench structure 28, and thence extended as a waterproofing lining upon the retaining wall, through the pocket 35, and thence interposed between the brick course 18 and retaining wall. The retaining wall is thus not exposed within the pocket 35, but is sealed therefrom by the waterproofing 36, so that if water should seep through the cementitious unions of the tiling or of the tiling with the facing brick 19, such seepage cannot contact with the retaining wall so as to injuriously effect the same. Another feature of advantage involved in this construction is that any considerable seepage into the pocket 35 will result in compressing the air therein at the top of the pocket and especially within the pocket portion 38 thereby providing an air seal adapted effectually to prevent any seepage alongside the parts of the inner trench gutter 28.

The trench gutters 28 and 34 are of the type known as shallow gutters; and in order to take care of rapid discharge of the water, it is expedient to provide intervally spaced outlets. Preferably and as shown, each outlet for the trench gutter 28 consists of a sieve 39 (Fig. 9) arranged in an outlet head 40 (Fig. 2) having a stem 41 passing through a suitable aperture in the base 27 and screw-threaded into the hard pipe fitting 42 with which is connected a suitable outlet pipe 43 leading to a sewer or other suitable method for disposing of the overflow water. Said stem 41 is of course passed through the waterproofing 36 and when it is threaded tightly into the hard pipe fitting 42, said fitting is drawn toward the base 20 so that the flange 44 of the fitting will tightly compress the waterproofing and make a water tight joint.

In the present embodiment, the outer trench gutter 34, which is of less depth than the inner trench gutter 28 is provided, as necessary or convenient, with bottom outlet pipes as 45 which drain into the inner trench gutter, the outlet pipes 45 being arranged in suitable openings in the side walls of the barrier structure 30 as shown. By preference, each bottom outlet pipe as 45 drains into the inner trench gutter 28 adjacent the bottom outlet 40 therein; and it will be noted in this connection that the bottom outlet pipes as 45, are located exteriorly of the waterproofing

36. It may be remarked here that in practice it is desirable and convenient to provide the trench gutters with a bottom outlet at each spaced interval of twenty feet. By so  
 5 doing there will be ample drainage capacity to take care of rapid and voluminous overflow. From an inspection of the drawings, it will be readily understood that the barrier structure 30 not only serves as an outer brim  
 10 for the water of the pool, but also serves as means for directing the drainage from the surface of the inclined floor 37 into the outer trench gutter 34. As previously intimated, the trench gutters are continuous about the  
 15 pool. The bases of these gutters, however, preferably do not have longitudinal inclination, the drainage to the bottom outlets being accomplished by means of insert pieces or tiling 46 set or otherwise arranged so as to  
 20 slope toward the interval bottom outlets.

In this connection, by referring to Fig. 13, wherein there is illustrated by way of example a swimming pool in plan, the reference characters L indicate the low points of the  
 25 trench gutter where the bottom outlets are located, while the reference characters H indicate the high points in the gutter from which the water drains to the low points and hence to the bottom outlets.

In carrying the invention into effect, as disclosed in Figs. 1 and 2, the opposing side walls of each of the trench gutters 28 and 34  
 30 are provided with shoulders 47 forming seats for suitable removable drainage cover units 48. As illustrated in Fig. 5, these drainage covers may be formed with inwardly sloping top portions 48a provided with apertures 48b;  
 35 or, if desired, they may be produced with inwardly sloping portions 48aa which direct the water into a central elongated slot 48bb. From an inspection of Fig. 1, it will be understood that the removable perforated drainage covers for the trench gutter 28 constitute in effect a continuation of the sitting  
 40 ledge portion 23 of the coping units. This affords a highly convenient and sanitary form of construction, since upon the removal of the drainage covers, the trench gutters can be thoroughly cleaned by means of a mop as  
 45 illustrated at 49 (Fig. 2) or by means of a hose as 50 which may be employed as means for cleaning by the medium of water or steam. The drainage covers, when positioned in their seats, manifestly cover over the trench  
 50 gutters so that the bathers cannot step or fall into the latter and thereby injure themselves.

An important advantage of the pool construction herein described resides in the fact that, since the water level is at or close to the  
 55 crest of the life rail 22, the bathers may easily and readily, from a swimming position upon the surface of the water, advance onto the sitting ledge, where they may either sit or stand as they desire. In Figs. 3 and 4, there  
 60 is shown a modified form of construction in

which the outer trench gutter has been entirely eliminated, with the sloping floor 51 draining onto the top of the barrier or outer  
 65 brim 52 which, being sloped in symmetry with the floor, directs the water into the inner trench gutter whose construction is substantially the same as that shown in Figs. 1 and 2. With this construction the waterproofing 53 is arranged as in the previous instance over the  
 70 entire outer surface of the retaining wall 17. The construction of the coping units, inner trench 28 and removable perforated drainage covers 48, and as well the location of the bottom outlets for the trench gutter 28, are all the same as hereinbefore described. In  
 75 Fig. 10, there is illustrated a construction substantially similar to that shown in Figs. 1 and 2, except that in this instance each bottom outlet for the outer trench gutter 46 is connected with the corresponding line pipe 43  
 80 through which the water flows from the inner trench gutter. There is disclosed a sieve containing outlet head or thimble 54 having a stem 55 passing through the base of the outer trench gutter and as well through the water-  
 85 proofing for threaded connection with the flanged fitting 56 whereby, as in the instance previously described, the waterproofing is compressed so as to effect a water tight joint. Associated with the fitting 56 is a pipe joint  
 90 57 having connection with a suitable T-piece 58 incorporated in the pipe line 43. By this arrangement, the water collected in the outer trench gutter is drained into the same pipe line which carries off the water from the inner  
 95 trench gutter 28.

In Figs. 11, 12, 15 and 16, there is disclosed a construction in which the inner trench gutter is made in the form of a deep trench gutter  
 100 59 having ample capacity to provide for a continuous inclination of the insert members 60 (Figs. 11 and 12) from a high point as H' at one end of the pool to a single low point illustrated at L' at the opposite end of the pool. Located at the low point L' is a spill-  
 105 way outlet structure 61 (Fig. 12) which leads to piping communicating with the sewer. The construction of the coping course, of the barrier or outer brim 52 and of the perforated removable drainage covers 48 is substantially  
 110 the same as hereinbefore described. Manifestly with this deep trench form of construction, the floor 51 of the pool may drain over the barrier or outer brim 52 in the same manner as in the case of the construction dis-  
 115 closed in Figs. 3 and 4; or, with this deep trench construction there may be produced an outer trench as disclosed in Figs. 1 and 2. An advantage of this deep trench construction is that it avoids the cost and expense  
 120 of the intervally spaced bottom outlets, the one spillway outlet 61 sufficing to carry off the entire overflow water from the pool and as well the drainage water from the surface of the floor. In this form of construction,  
 125

owing to the provision of the deep trench, suitable cross members 63 may be provided or formed in conjunction with the side walls of the deep trench, for supporting the removable perforated drainage covers 48 in addition to the seating shoulders 64.

In the form of construction shown in Figs. 17 to 21, inclusive, the barrier structure is represented as combined with the trench gutter 65 so as to constitute a closure therefor. The opposite side walls of the barrier structure are represented as comprising tiling courses 66 and 67 built up or erected upon the respective side walls 68 and 69 of the trench gutter 65. The members of the tiling courses 66 and 67 are formed with suitable inside shoulders or seats 70 for the removable top cover pieces 71. The members of the tiling course 66 are formed with suitable transverse openings 72 through which the overflow water will pass into the gutter from the sitting ledge 73. With each opening 72 may be associated a suitable tapering mouth 74, narrowing or tapering from the outer face of the tiling to the opening 72 so as to gather and direct the overflow water for rapid passage to the trench gutter. The members of the opposite tiling course 67 are formed with similar openings 75 having enlarged feeding mouths 76, to provide for the passage into the trench gutter of water draining from the floor 77. As best illustrated in Fig. 21, the interally spaced openings 72 and 75 in the respective tiling courses 66 and 67 are out of alignment so that water flowing from the sitting ledge 73 through the openings 72 will be directed by the opposing body portions 78 into the trench gutter and thereby prevent any flowing of water from the sitting ledge to the floor of the pool. In a similar manner, the body portions 79 serve as baffles for preventing water flowing through the openings 75 from reaching the sitting ledge. As clearly illustrated in Fig. 17, the concrete retaining wall 80 may, under this construction, be suitably protected by a layer of water-proofing material 81, arranged below the sitting ledge, trench gutter and floor.

In the exemplification shown in Figs. 22 and 23, a tiling course in the form of a grating, indicated generally by the numeral 82, is associated with the sitting ledge 83 and inner side wall 84 of the trench gutter 85; and a similar tiling course in the form of a grating, indicated generally by the numeral 86, is associated with the floor 87 and outer side wall 88 of the trench gutter. The members of these grating courses 82 and 86 are formed with inclined bottoms 89, inclining downwardly toward the interior of the trench gutter, as shown in Fig. 22, so as to direct the water into the trench gutter. Rising from the inclined bottoms 89 are suitable spaced apart partitions 90 forming drain openings 91 through which the water passes onto the

downwardly inclined bottoms 89 and thence into the trench gutter. The members of the grating courses 82 and 86 are also formed with inside shoulders or seats 92 for the support of removable cover pieces 93, in which are preferably provided central elongated drain slots 94. By this construction, water flowing transversely over the sitting ledge 83 or draining from the floor 87 is directed into the trench gutter; and it will be observed that in accordance with an important feature of this form of construction there is no structure or projection extending upwardly from the ledge or floor surrounding the pool and affording an obstacle with which persons walking about the pool may come into contact, to become injured. With this form of construction, the concrete retaining wall 95 may be suitably protected against seepage of water by a layer of waterproofing 96.

In accordance with the embodiment of the invention illustrated in Figs. 24 and 25, the closure for the trench gutter 97 comprises a device mounted for adjustment or swiveling movement in suitable concavely curved bearing portions 98 and 99, formed in the members constituting the respective side walls 100 and 101 of the trench gutter. This closure device is represented as comprising an elongated structure having a semi-cylindrical portion 102 adapted turnably to fit in the concavely curved bearings 98 and 99, and a flat portion 103 provided with a series of spaced apart transversely extending drain openings 104. In the semi-cylindrical portion 102 is provided a central longitudinally extending drain opening 105. When this closure device is in one position of use as illustrated in full lines in Fig. 24, the flat portion 103 comprises a bridge which spans the trench gutter, extending from the sitting ledge 106 to the floor 107. In this position of use, the water from the sitting ledge and floor obviously drains through the transversely extending openings 104 and longitudinally extending openings 105 into the trench gutter. By turning this closure device into the position shown in broken outline in Fig. 24, a clear space is provided between the straight portion 103 and the seat 99 for the passage of water from the floor into the trench gutter, and in this position the said straight portion 103 becomes a baffle plate for engaging the water and directing it into the trench gutter. By this arrangement the floor 107 may be washed and cleaned by means of a scrubbing mop or through the use of a hose or the like without interfering with the normal use of the pool or with the persons upon the sitting ledge. Manifestly, by turning the closure device in the direction opposite to that shown in broken outline in Fig. 24, the straight portion 103 will serve as a baffle plate for directing water from the sitting ledge into the trench gutter. Owing to

the central position of the elongated drain opening 105, when the closure device is adjusted into the position shown in broken outline in Fig. 24, the overflow water passing over the sitting ledge will drain through this opening 105 and thence through the transverse openings 104 into the trench gutter.

It is in place to state here that the forms of construction shown in connection with the gutter 65 in Fig. 17, the gutter 85 in Fig. 22 and as well the gutter 97 in Fig. 24, may be utilized in connection with shallow gutters as shown, or in connection with deep gutters of the character illustrated in Figs. 11 and 12. Where the gutter is of the shallow type, there may be a series of intervally spaced outlets therefor arranged after the fashion shown in Figs. 13 and 14. On the other hand, where the gutter is of the deep type, there may be provided but one outlet therefor in accordance with the disclosure of Figs. 15 and 16.

Where desired, as shown in Fig. 26, the sitting ledge 108 may be combined with a life rail 109 formed with a suitable finger grip 110 adapted to be engaged or gripped by the fingers, when a swimmer is coming out of the pool onto the sitting ledge. In Fig. 27, a further modification in this regard is illustrated, the portion 111 depending from the life rail 112 being suitably offset inwardly of the pool at 113 and formed with a finger grip 114 located below the water line of the pool, for use by swimmers coming out of the pool onto the sitting ledge 115.

It is to be understood that in carrying the invention into effect, not only the retaining wall structure but also any or all of the parts associated therewith, including the life rail and sitting ledge, the trench gutters and covers, the barrier or similar structure, floor, facing and other parts, may be constructed or produced out of concrete, or out of any material whatsoever, irrespective of its nature or kind, whether tiling, terra cotta, brick, concrete or metal, usable or capable of being used with advantageous results.

While several desirable and satisfactory embodiments of the invention have been disclosed herein, it will nevertheless be understood that the improved pool construction is susceptible to still further modifications in the form, construction and relative arrangement of its several parts. Reservation, therefore, is made to the right and privilege of adopting all such legitimate changes as may be fairly embodied within the spirit and scope of the invention as claimed.

I claim:

1. A swimming pool construction comprising a brim consisting of an overflow life rail and sitting ledge, a trench gutter for receiving the water from the sitting ledge, and closure means for the gutter having openings

therein for the passage of the water into said gutter.

2. A swimming pool construction comprising a brim consisting of an overflow life rail and sitting ledge, a trench gutter for receiving the water from the sitting ledge, and closure means for the gutter having openings therein for the passage of the water into said gutter, said closure means including a removable cover.

3. A swimming pool construction comprising a brim consisting of an overflow life rail and sitting ledge, a trench gutter for receiving the water from the sitting ledge, and closure means for the gutter, consisting of supporting walls and cover pieces held in place thereby, said cover pieces having openings therein for the passage of the water into said gutter.

4. A swimming pool construction comprising a brim consisting of an overflow life rail and sitting ledge, a floor, a trench gutter between the sitting ledge and floor arranged to receive water therefrom, and closure means for the gutter having openings therein for the passage of the water into said gutter.

5. A swimming pool construction comprising a brim consisting of an overflow life rail and a sitting ledge, a floor, a trench gutter between the sitting ledge and floor arranged to receive water therefrom, closure means for the gutter having openings therein for the passage of the water into said gutter, a retaining wall structure supporting the aforesaid parts, and a waterproofing layer interposed between the retaining wall structure and the aforesaid parts.

6. A swimming pool construction comprising a brim consisting of an overflow life rail and sitting ledge, a trench gutter for receiving the water from the sitting ledge, and a structure which rises higher than the crest of the life rail extending along the outer side of the trench gutter and constituting an outer brim for the pool.

7. A swimming pool construction comprising a brim consisting of an overflow life rail and sitting ledge, a trench gutter spaced from the margin of the pool for receiving overflow water, a structure which rises higher than the crest of the life rail extending along the outer side of the trench gutter and constituting an outer brim for the pool, and removable perforated drainage units arranged to form a cover for the trench gutter and constituting part of the sitting ledge.

8. A swimming pool construction comprising, in combination, a retaining wall structure with facing brick for the pool, an overflow life rail and sitting ledge mounted on the facing and retaining wall, a trench gutter extending inwardly into the retaining wall in a plane spaced from the plane of the facing brick, to receive the overflow water from the sitting ledge, a structure which rises higher

than the crest of the life rail extending along the outer side of the trench gutter, and a waterproofing layer on the outer surface of the retaining wall to protect the latter from leakage through the aforesaid parts associated therewith.

9. A swimming pool construction comprising, in combination, a retaining wall structure with facing brick for the pool, an overflow life rail and sitting ledge mounted on the facing brick and retaining wall, a trench gutter extending inwardly into the retaining wall in a plane spaced from the plane of the facing brick, to receive the overflow from the sitting ledge, a barrier which rises higher than the crest of the life rail extending along the outer side of the trench gutter, waterproofing arranged to protect the retaining wall from leakage through the aforesaid parts associated therewith, said facing brick, life rail and sitting ledge forming an enclosed pocket with the retaining wall, and said waterproofing arranged to protect the retaining wall from the contents of the pocket.

10. A swimming pool construction comprising an overflow life rail coping and sitting ledge, a trench gutter spaced from the margin of the pool in relation to the sitting ledge, a barrier which rises higher than the crest of the life rail coping extending along the outer side of the trench gutter with its top in plan with the floor of the pool, said barrier affording means for directing into the gutter, overflow water from the sitting ledge and as well the water received from the floor of the pool.

11. A swimming pool construction comprising, in combination, a retaining wall, a floor, an overflow life rail and sitting ledge, a trench gutter spaced from the margin of the pool in relation to the sitting ledge and extending downwardly into the retaining wall, a barrier which rises higher than the crest of the life rail extending along the outer side of the gutter with its top in plan with the floor, said barrier affording means for directing into the gutter, overflow water from the sitting ledge and as well the water received from the floor, and a layer of waterproofing separating the retaining wall from the aforesaid parts for the protection of the retaining wall.

12. In a swimming pool construction, embodying a retaining wall and facing means therefor terminating below the water line, and coping course units joining the facing means below the water line and joining the retaining wall back from the margin of the pool, said units forming with the facing means and retaining wall an enclosed pocket in which sealing air may be compressed by seepage water entering the pocket.

13. In a swimming pool construction, embodying a retaining wall and facing brick

therefor, combined life rail and sitting ledge units joining the facing brick below the water line and joining the retaining wall back from the margin of the pool, said units forming with the facing brick and retaining wall an enclosed pocket in which sealing air may be compressed by seepage water entering the pocket, and a waterproof lining on the retaining wall within said pocket and extending between the facing brick and retaining wall.

14. In a swimming pool construction, embodying a retaining wall and pool facing means therefor, a trench gutter in the retaining wall spaced from the margin of the pool, life rail and sitting ledge units joining the facing means below the water line and forming a union with the inner wall of the gutter, the sitting ledge constituting means for directing overflow water into the gutter.

15. In a swimming pool construction, embodying a retaining wall and pool facing means therefor, a trench gutter in the retaining wall spaced from the margin of the pool, life rail and sitting ledge units joining the facing means below the water line and forming a union with the inner wall of the gutter, removable perforated cover units for the gutter, said sitting ledge constituting means for directing overflow and splash water onto the cover units for passage into the gutter.

16. In a swimming pool construction, embodying a retaining wall and pool facing means therefor, a trench gutter in the retaining wall spaced from the margin of the pool, life rail and sitting ledge units joining the facing means below the water line and forming a union with the inner wall of the gutter, the outer wall of the gutter being higher than the crest of the sitting ledge to direct overflow water into the gutter.

17. In a swimming pool construction, embodying a retaining wall and pool facing means therefor, a trench gutter in the retaining wall spaced from the margin of the pool, life rail and sitting ledge units joining the facing means below the water line and forming a union with the inner wall of the gutter, the outer wall of the gutter being higher than the crest of the sitting ledge to direct overflow water into the gutter, and removable cover units for the gutter, perforated to permit the overflow water to pass into the gutter.

18. In a swimming pool construction embodying a retaining wall having therein a trench spaced from the margin of the pool, and a coping course associated with the retaining wall and forming the brim of the pool, said coping course comprising life rail and sitting ledge units arranged to direct overflow water laterally of the pool and into said trench.

19. In a swimming pool construction, embodying a retaining wall having therein a

trench spaced from the margin of the pool, a coping course associated with the retaining wall and forming the brim of the pool, said coping course comprising life rail and sitting ledge units arranged to direct overflow water laterally of the pool into said trench, the outer wall of said trench rising higher than the crest of the life rail and constituting an outer brim for the pool, and removable perforated cover units for the trench constituting a part of the sitting ledge and permitting passage of the overflow water into the trench.

20. In a swimming pool construction, embodying a retaining wall having therein inner and outer trenches spaced from the margin of the pool, life rail and sitting ledge units forming the brim of the pool and arranged to direct overflow water into the inner trench, barrier units constituting an outer brim for the pool arranged between said trenches, the outer trench arranged to receive the drainage from the floor of the pool, bottom outlets for each of said trenches and removable perforated cover units seated between the defining walls of each of said trenches.

In testimony that we claim the foregoing as our invention, we have signed our names hereto.

JOHN FRANCIS BOORAEM.  
ROBERT MORRIS SUTPHEN.