Aug. 2, 1927. 1,637,423

P. C. MILLER

SWIMMING POOL

Filed Dec. 27. 1926 2 Sheets-Sheet 1.

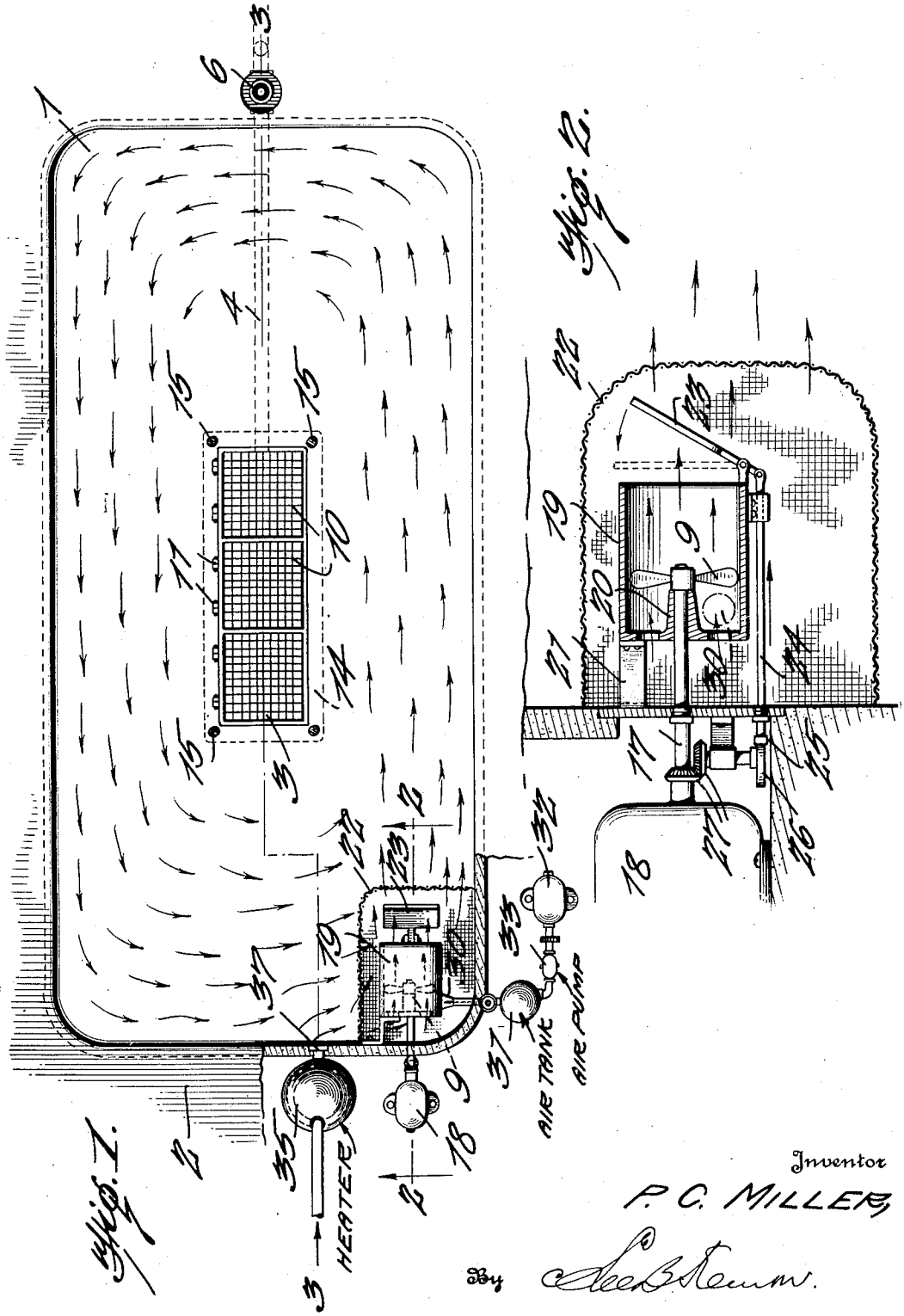


Fig. 1.

Fig. 2.

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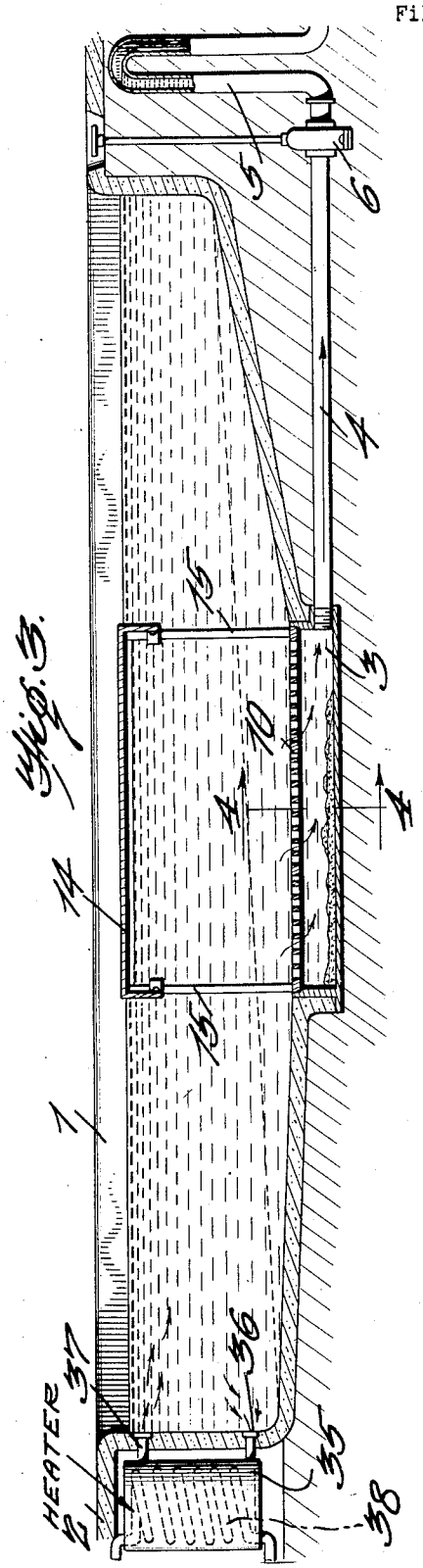


Fig. 3.

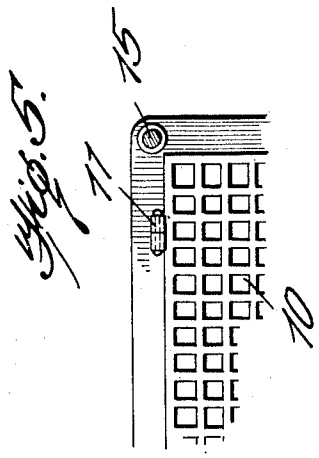


Fig. 5.

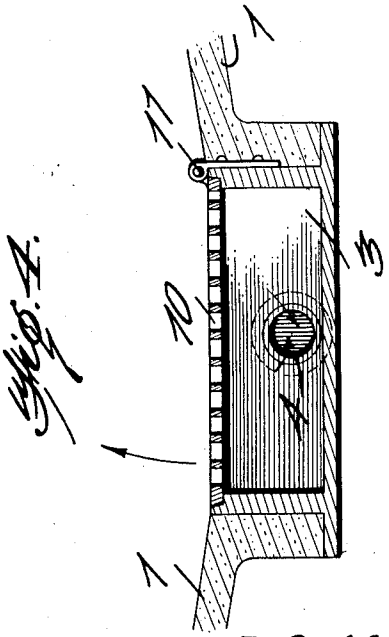


Fig. 4.

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UNITED STATES PATENT OFFICE.

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SWIMMING POOL.

Application filed December 27, 1926. Serial No. 157,159.

My invention relates to certain improvements in a swimming pool and its object, in general terms, is to improve the facilities which a recreational pool of this character affords and to improve the pool from the standpoint of sanitation and cleanliness.

A swimming pool, in accordance with my invention, comprises a tank of generally conventional shape having corners rounded for a purpose hereinafter described. A circulation of water is maintained in the tank around the perimeter thereof with a mild vortex at the center where the currents are minimum. A sump is arranged in the bottom of the tank at the center thereof to receive the solid foreign matter which tends to settle out of the water at the vortex of the currents. The outlet for the tank extends from this sump so that the discharge of water from the tank through the outlet tends to carry out the foreign matter and maintain the interior of the tank and the water in a satisfactory condition.

Artificial swimming tanks as heretofore constructed are relatively small in proportion to the number of people employing the pool for bathing purposes. Consequently the problem of maintaining the water uncontaminated in order that the bathing facilities might compare with those afforded by surf bathing has been a difficult one. It has been proposed to maintain a large flow of clean water into such tanks, but this is not only expensive, but has been found ineffective because the insoluble foreign matter in the tank tends to collect on the bottom of the tank or in various portions thereof, and even the constant changing of the water does not prevent this accumulation.

One object of my invention, as indicated above, is to prevent the formation of such deposit or accumulation of foreign matter and to improve the tank in various other particulars in order that the conditions may approach those of surf bathing, without the disadvantages of the latter in respect of climatic and other conditions.

In accordance with a preferred embodiment of my invention, means is provided for heating and aerating the water in the tank and for producing waves in the currents of water in the tank. A platform for the use of the bathers may also be conveniently arranged directly above the sump in the center of the tank and supported by or upon the grating covering the sump.

For a better understanding of my invention, reference may be had to the accompanying drawings, in which:

Fig. 1 is a plan view of a swimming pool embodying my invention;

Fig. 2 is a sectional view to an enlarged scale on the line 2—2 of Fig. 1;

Fig. 3 is a vertical sectional view of the pool on the line 3—3 of Fig. 1;

Fig. 4 is a transverse sectional view of the sump on the line 4—4 of Fig. 3; and

Fig. 5 is a detail view of the grating which covers the sump shown in Figs. 1, 3 and 4.

Referring particularly to Figs. 1 and 3, a swimming pool embodying my invention comprises a substantially rectangular tank 1, which may be made of reinforced concrete and arranged in an excavation in the ground in such a manner that the peripheral edge 2, is substantially level with the surface of the ground. The bottom or floor of the tank 1, is lower at one end of the tank than at the other, as is usual in tanks of this character, in order to accommodate those who are just learning to swim, as well as those who desire to bathe in a considerable depth of water. The floor of the tank slopes from each side to the center as shown in Fig. 3. At the center of the tank there is a further depression or sump 3, below the level of the floor. An outlet 4 for the tank extends from the sump 3 through the stand-pipe 5 to a suitable drain (not shown). The usual control valve 6 may be provided in the outlet 4.

A motor-driven propeller 9 is arranged adjacent one side of the tank and is so constructed as to maintain a peripheral current of water around the tank, which has rounded corners so that the flow of water is unimpeded. The current in the water is indicated by the arrows shown in Fig. 1, and from this figure it will be apparent that a mild vortex is produced at the center of the tank above the sump 3. The flow of water around the periphery of the tank maintains the walls of the tank clean and prevents an accumulation of foreign matter in the bottom of the tank near the edge thereof.

In the center of the tank, however, the water is least disturbed and there is a tendency for solid, insoluble, foreign matter to collect at this point. The foregoing matter gradually settles out of the water and passes into the sump 3, through a cover or grating 10 having openings large enough to permit the matter to pass through readily. Since

the outlet 4 communicates directly with the sump 3, substantially all of the foreign matter will be carried away as soon as it settles out of the tank, although the grating is preferably provided with hinges 11, as shown in Figs. 4 and 5, so that the grating may be opened to provide access to the sump if it is desired to clean or flush out any accumulation of foreign matter therein.

Directly above the sump, an elevated platform or floor 14 is arranged for the use of bathers. The platform 14 may be supported by vertical posts or standards 15 mounted in the support for the grating 10. The platform 14 is disposed near the greatest depth of water and, therefore, may be used for diving purposes. Furthermore, the arrangement of the platform in the center of the tank is particularly advantageous, because as described above, the water underneath the platform is less desirable for bathing purposes, by reason of the collection of impurities and foreign matter therein.

The detailed construction of the motor-driven propeller may be modified for different applications, but I have shown a construction which I consider particularly simple and efficient.

As shown in Figs. 1 and 2, the propeller 9 is mounted directly upon a shaft 17 of a driving motor 18, and is arranged in a hollow casing 19, the open ends of which are directed along one edge of the tank. The rear wall of the casing 19 is provided with a bearing 20 for the propeller shaft 17. The casing 19 is mounted upon a suitable bracket 21, and is enclosed in a protective guard 22 in order to prevent injury to the bathers and accidental derangement of the propeller. A wave-inducing element 23 is pivotally mounted in front of the casing 19, and comprises an oscillating plate or paddle which is driven through the oscillating rod 24 by the motor 18. The rod 24 may be provided with a cam member 25 which cooperates with a rotatable cam 26 driven by the motor 18 through the bevel gears 27. The oscillation of the plate 23 impedes the circulation of water from the propeller 9 at frequently recurring intervals so that the effect of waves in the water current is produced.

The casing 19 is provided with an air inlet 30 through which air is admitted from a tank 31 for aerating the water. The arrangement of an air inlet near the propeller 9 provides an efficient arrangement on account of the continuous circulation of water through the propeller casing. A motor 32 and an air pump 33 may be provided in connection with the compressed-air tank 31 or an air pump driven by the motor 18 may be employed.

In order that the swimming pool may be used in cool weather, a heater 35 having a lower inlet opening 36 and an upper outlet opening 37 communicating with the tank is provided. The heater 35 is provided with the usual heating coil 38 through which steam or hot gases may be circulated to heat the water in the tank.

It will be apparent that the principal feature of my invention relates to the arrangement of a tank with means for producing a desired circulation of water therein and a sump so arranged as to collect the foreign matter which settles out of the water. This result, alone, is of substantial value in view of the difficulties which have been encountered in attempting to construct bathing pools which had facilities that are comparable with those provided by surf bathing. However, the other details of the swimming pool shown including the central platform and the heating and aerating devices, are of importance in the specific arrangement shown and I desire that only such limitations shall be placed upon the scope of my invention as are indicated in the appended claims.

I claim:

1. A swimming pool comprising a substantially rectangular tank with rounded corners, means for creating a current in the water around the perimeter of the tank with a mild vortex at the center thereof and a sump in the center of the tank below the floor and opening directly into the main body of water near said vortex to receive the matter which settles out of the water.

2. A swimming pool comprising a substantially rectangular tank with rounded corners, means for creating a current in the water around the perimeter of the tank with a mild vortex at the center thereof and a sump in the center of the tank below the floor and opening directly into the main body of water near said vortex to receive the matter which settles out of the water, the top of the sump being covered with a grating through which the solid matter deposited in the sump may pass readily.

3. A swimming pool comprising a substantially rectangular tank with rounded corners and a floor sloping from each side to the center of the tank, a propeller near one side of the tank and arranged to create a current in the water around the perimeter of the tank with a mild vortex at the center thereof and means for collecting and retaining the matter which settles out of the water at said vortex.

4. A swimming pool comprising a substantially rectangular tank with rounded corners and a floor sloping from each side to the center of the tank, a propeller near one side of the tank and arranged to create a current in the water around the perimeter of the tank with a mild vortex at the center thereof, means including a depression in the

floor of the tank for collecting and retaining the matter which settles out of the water at said vortex and a platform above said depression and adjacent the surface of the water.

5. A swimming pool comprising a substantially rectangular tank with rounded corners and a floor sloping from each side to the center of the tank, a propeller near one side of the tank and arranged to create a current in the water around the perimeter of the tank with a mild vortex at the center thereof, means cooperating with said propeller for aerating the water current and means for collecting and retaining the matter which settles out of the water at said vortex.

6. A swimming pool comprising a substantially rectangular tank with rounded corners, a propeller near one side of the tank and arranged to create a current in the water around the perimeter of the tank with a mild vortex at the center thereof, a sump at the center of the tank for collecting and retaining the matter which settles out of the water at said vortex and an outlet for the tank from said sump.

7. A swimming pool comprising a tank with rounded corners, a propeller for creating a current in the water in said tank and aerating and wave-forming means cooperating with said propellers.

8. A swimming pool comprising a tank with rounded corners, a propeller for creating a current in the water in said tank and wave-forming means cooperating with said propeller.

PAUL CHARLES MILLER.