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CIRCULATING AND FILTERING SYSTEM FOR SWIMMING POOLS AND THE LIKE

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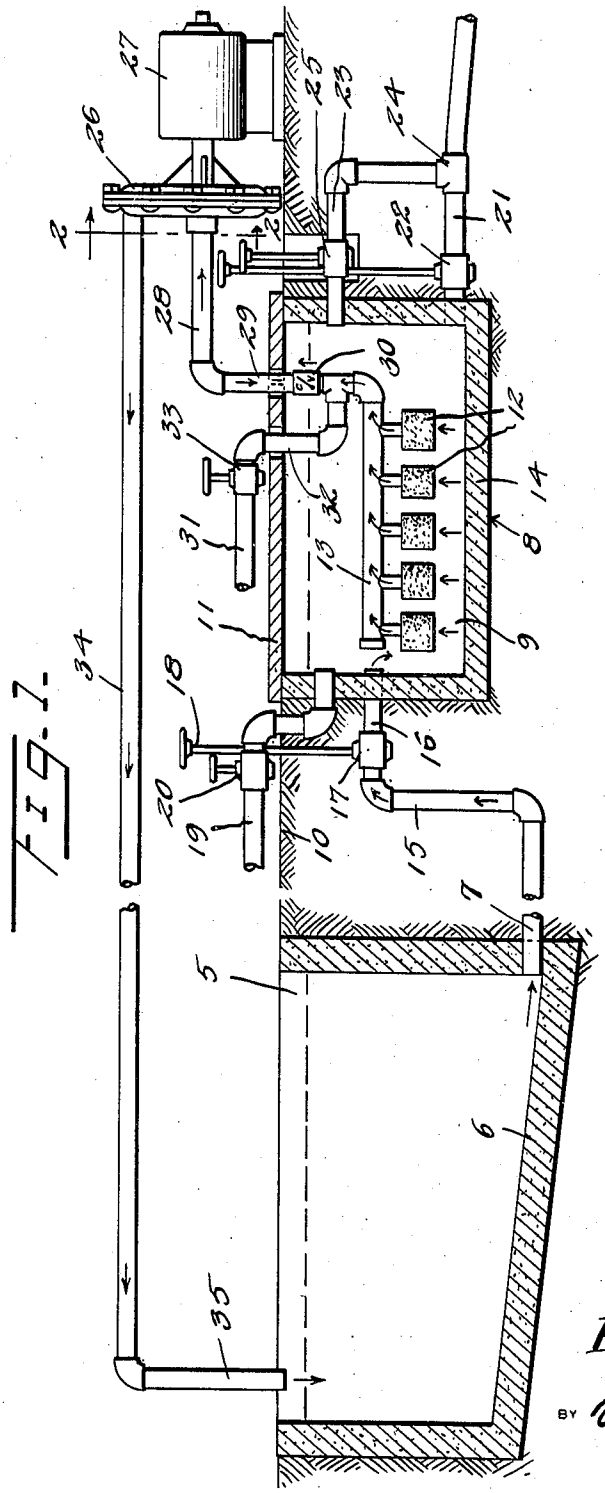


FIG. 1.

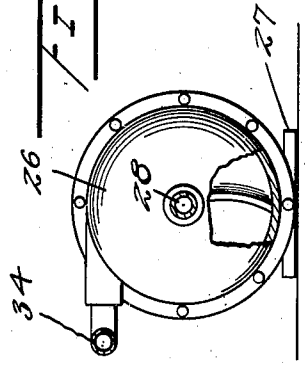


FIG. 2.

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CIRCULATING AND FILTERING SYSTEM FOR SWIMMING POOLS AND THE LIKE

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3 Claims. (Cl. 210—11)

The present invention relates to an improved circulating and filtering system for swimming pools, vats, pits and the like.

The primary object of the invention is to provide a filtering system associated with a swimming pool or the like that will assure the supply and maintenance of water that is clean and pure.

Another object of the invention resides in the provision of a filtering system that will permit the building of a swimming pool near any kind of water supply, the filtering system assuring a continuous supply of purified water at all times and allowing for the water to be circulated from the pool through the purifying means at various intervals which will also result in an appreciable saving of water.

The invention also consists in certain other features of construction and in the combination and arrangement of the several parts, to be hereinafter fully described, illustrated in the accompanying drawing and specifically pointed out in the appended claims.

In describing my invention in detail, reference will be had to the accompanying drawing wherein like characters denote like or corresponding parts throughout the several views, and in which:

Figure 1 is a vertical sectional view of a swimming pool with the improved filtering system associated therewith.

Figure 2 is a vertical sectional view of the pump being taken substantially on line 2—2 of Figure 1.

Referring to the drawing for a more detailed description thereof, a swimming pool of conventional construction is designated by the reference numeral 5 and as is customary, the bottom 6 converges at an angle and has an outlet pipe 7 connected therewith for permitting water to be circulated through the pool or to be drained therefrom. For purposes of illustration only, a swimming pool of conventional formation has been illustrated but it is to be understood that the filtering system to be hereinafter described is adapted to be used with various forms of vats, pits and the like.

The filtering system generally designated by the reference numeral 8 is adapted to be buried in the ground relatively near to the swimming pool 5. The filtering system includes a pit 9 formed of concrete or the like, the upper edge of which is on a plane with the level of the ground 10 and is closed by means of a removable cap 11. As is apparent from an inspection of Figure 1 of the drawing, the pit 9 is positioned adjacent the swimming pool but in ordinary practice, the depth of the pit 9 will be considerably less than the depth of the swimming pool 5.

A plurality of filters 12 are suspended in spaced relation from a section of tubing 13 held within the pit 9, said filters being preferably supported above the bottom wall 14 of the pit. The filters 12 are of the type commonly employed for filtering cisterns, dams, lakes and streams, the construction of which forms no part of the present invention.

The outlet pipe 7 from the swimming pool 5 is coupled with a vertical section of pipe 15, the latter being in turn coupled with a horizontal section of pipe 16 which enters into the pit at a level above the filters 12. The pipe 16 is provided with a control valve 17 operated from a handle 18 for controlling the discharge of water from the swimming pool into the pit 9.

Water from a source of supply is discharged into the pit 9 through the pipe 19, said pipe being also provided with a control valve 20. When initially filling the swimming pool 5, the valve 20 is opened for the discharge of water into the filter from where it is pumped, as will be hereinafter described, into the swimming pool. It will be observed that the pipe 19 enters the pit 9 at a point above the pipe 16.

An outlet pipe 21 extends from the lower end of the pit 9 having a control valve 22 provided therein, said pipe, when the valve is in open position, being employed for draining the pit for cleaning purposes. An overflow pipe 23 extends from the upper end of the pit 9 and connects with the outlet pipe 21 by means of a coupling 24, said pipe 23 adapted to prevent overflow of the pit when the circulating and filtering pit is in operation. A control valve 25 is provided in the pipe 23.

A low pressure centrifugal pump 26 is operated by a motor 27 for discharging water from the pit 9 into the swimming pool 5. A pipe 28 leads into the pump 26, said pipe being a section of the pipe 29 which extends from the filter supporting tube 13. A check valve generally designated by the numeral 30 which acts as a foot valve is disposed intermediate the ends of the pipe 29.

A section of pipe 31 connected with the pressure water supply at one end is coupled with the pipe 29 between the check valve 30 and filters 12 through the medium of the pipe 32. A control valve 33 is provided in the pipe 31 adapted to be opened for admitting water under pressure when desiring to backwash the filters 12 for cleaning purposes. As is to be understood, water enters the pipe 32 and is discharged into the pipe

29 and through the filters 12 to eliminate any sediment, dirt or the like which may be present in the filters. When cleaning the filters in this manner, the valves 22 and 25 will be opened to permit the water from the pit to be discharged through the pipes 21 and 23, respectively. It is, of course, to be understood that when backwashing the filters the valves 17 and 20 are also closed.

Assuming that the swimming pool 5 is empty, the valves 17, 33 and 22 are closed, while the valves 20 and 25 are opened. Water will be discharged into the pit 9 through the pipe 19 and upon starting the low pressure centrifugal pump 26, the water entering the pit after passing through the filters will be discharged upwardly through the pipes 28 and 29 and from the pump will be discharged through the pipes 34 and 35 into the swimming pool 5. Thus water being discharged into the swimming pool after passing through the filters 12 will be completely purified. Should it be desired to circulate the water from the swimming pool through the pit 9, the valve 17 will be opened and the valve 20 closed whereupon starting the pump 26 water from the swimming pool will be discharged into the pit through the filters and from the pump into the pipes 34 and 35. With the water circulating from the swimming pool through the pit, the level of the water in the pool and pit will be equal at all times.

Should it be necessary to prime the pump 26 when initially starting the same, water will be admitted into the pipes 28 and 29 through the check valve 30 from the pipe 31. The valve 30 acting as a foot valve will retain the water in the pipes 28 and 29 to a sufficient degree for the pump to be started.

It will be readily understood that the filtering system in accordance with the present invention can be installed at a minimum cost of installation. Also the employment of a low pressure pump reduces the general expenses ordinarily incurred in systems of this type. Employment of the present filtering system does not require the supplying of absolutely fresh water to the swimming pool as any water entering the filtering system will be completely purified therein.

Also it will be understood, of course, by those skilled in the art that variations in the hereinabove described device involving the substitution of substantial equivalents for the devices described are intended to be comprehended within the spirit of the present invention and that the invention is capable of extended application and is not confined to the exact showing of the drawing nor to the precise construction described and, therefore, such changes and modifications may be made therein as do not affect the spirit of the invention nor exceed the scope thereof as expressed in the appended claims.

What is claimed is:

1. In a filtering system, a pool forming chamber, a filtering chamber spaced from the pool chamber, a pump mounted above the liquid level of the said chambers, a liquid feed conduit having connection with the outlet of the pump and discharging into the pool chamber, filter means mounted within the intermediate portion of the filter chamber, a conduit connecting the said filter means with the intake of the pump adapted to create suction through the filter means, a valve controlled conduit connecting a drain outlet at the bottom of the pool chamber with the filter chamber, and a liquid supply conduit opening into the filter chamber.

2. In a pool filtering system, a pool forming chamber, a filter chamber spaced from the pool chamber, a circulating pump mounted above the liquid level of the said chambers, a feed pipe connected with the outlet of the pump for discharging liquid into the pool chamber, a horizontally disposed pipe mounted in the filter chamber, a plurality of filter elements depending from and having communicative connection with the said pipe, a conduit connecting one end of the filter supporting pipe with the inlet end of the pump for creating suction through the filter elements, a drain pipe connecting with a drain outlet at the bottom of the pool chamber and discharging at a higher level into the filter chamber, and a conduit connecting with a source of liquid supply having connection with the outlet end of the filter supporting pipe for backwashing the said filter elements.

3. In a pool filtering system, a pool forming chamber, a filter chamber adjacent to the pool chamber, the said chambers being disposed so that the normal liquid level will be in close proximity to the top edges thereof, a circulating pump mounted above the liquid level of the said chambers, a horizontally disposed pipe mounted in the filter chamber below the liquid level thereof, a plurality of filter elements depending from the said pipe and communicating therewith, a pipe connecting one end of the said horizontal pipe with the inlet of the pump whereby to create suction in the said horizontal pipe and the filter elements, a discharge pipe connected with the outlet of the pump for conducting liquid from the filter chamber to the pool chamber, a pool drain pipe connecting with the bottom of the pool chamber and discharging into the filter chamber at a level corresponding to that of the horizontal filter pipe, a valve controlled pipe for conducting filling liquid into the filter chamber, a valve controlled pipe connecting with the bottom of the filter chamber for draining the liquid therefrom, an overflow pipe connecting with the filter chamber immediately below the liquid level therein and discharging into the filter chamber drain pipe, and a conduit connected with the pipe from the filter to the pump for introducing liquid thereinto for backwashing the said filters.

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