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CHEMICAL DISPENSER FOR SWIMMING POOLS

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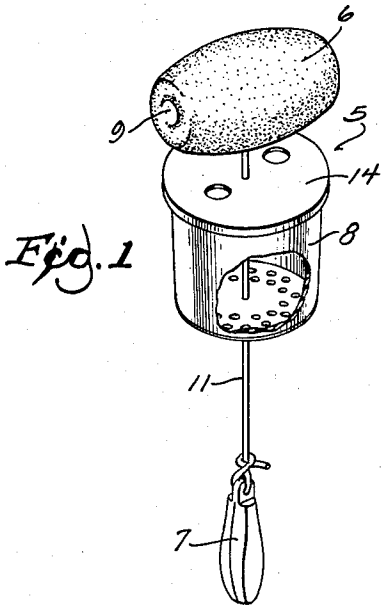


Fig. 1

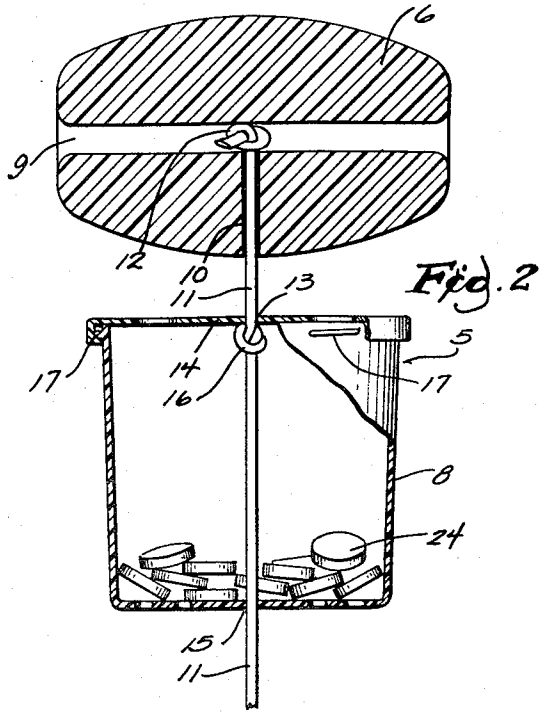
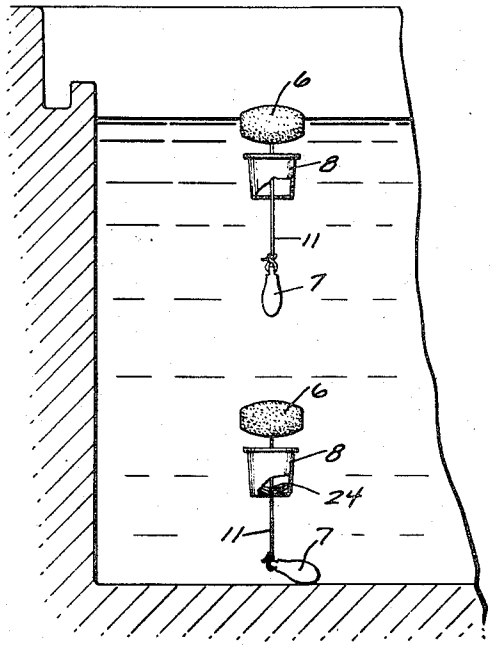


Fig. 2

Fig. 3



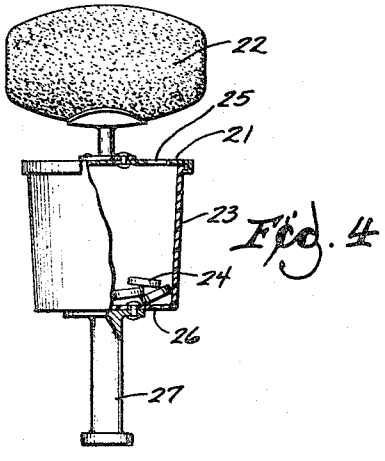


Fig. 4

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CHEMICAL DISPENSER FOR SWIMMING POOLS

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5 Claims. (Cl. 23—267)

This invention relates generally to chemical dispensers and more particularly to an improved dispenser adapted to properly and uniformly dispense chemicals in swimming pools and the like.

A general object of my invention is to provide an improved chemical dispenser for selective placement in swimming pools and tanks.

Another object of the invention is to provide a floatable-submersible chemical dispenser of simple and inexpensive construction.

Another object is to provide a dispenser which is adapted to receive disinfectants in tablet or chunk form and to provide controlled dissolution thereof while the dispenser is suspended in the proximity of the bottom of a pool or tank.

A further object is to provide an improved chemical dispenser which is designed to sink to the bottom of the pool when loated with a disinfecting chemical and rise to the surface when such chemicals have ben dissolved and dispensed therefrom.

According to this invention, a dispenser of chemicals for use in swimming pools and other reservoirs of liquids is comprised of a float, container and weight operably disposed on a cord. The float and weight are attached to opposite ends of the cord while the container and its cover are disposed to slide within prescribed limits on or along the cord. The buoyant capacity of the float is slightly greater than that necessary to support the dispenser assembly when the container or basket is empty, but is not sufficient to support the dispenser when the container accommodates a chemical disinfectant. Thus, when the loaded dispenser unit is put into the water of a swimming pool, it will immediately sink to the bottom whereat the chemicals can dissolve at a predetermined rate in the water contained in the pool. If the dispenser is positioned over the drain in the bottom of the pool and the pool filter system is in operation, any residue or sediment resulting from the dissolving chemical will be drawn into such drain and into the filter and not rest on the bottom of the pool. When the crystalline, tablet, chunk or solid chemical is fully dissolved, the dispenser unit will float to the surface and signal the user that the dispensing cycle has been completed and that the unit can be removed from the pool.

The foregoing and other objects of the invention will become more fully apparent from the following detailed description of the invention and its use and the depiction thereof in the accompanying drawings, in which:

Figure 1 is a perspective view of a chemical dispenser showing the various details thereof;

Figure 2 is an enlarged sectional view of the float, container and cover and the mounting thereof on the cord;

Figure 3 is a schematic drawing depicting a chemical dispenser floating on the surface of a pool and resting on the bottom of a pool; and

Figure 4 depicts a modified version of the invention

wherein the float is attached to the cover and the weight is attached to the bottom of the basket.

The use of swimming pools creates a contamination of the water which becomes progressively nocuous and necessitates periodic sanitary steps to destroy the bacterial growths therein. Originally, a chemical, such as calcium hypochlorite was dissolved and poured or injected into the water; this method resulted in cloudiness of the pool water which was disliked by some swimmers. Chemicals in crystal or solid form were also thrown into the water and permitted to dissolve, or placed in cloth bags and suspended along the sides of the pool or tank. The latter methods were undesirable insofar as the direct contact of the chemical with the sides or bottom of the pool often resulted in the permanent staining thereof; the resultant residue from the chemical caused a cloudiness of the water and ultimately settled to the bottom of the pool and remained there until the water was drained or the pool was cleaned. All such methods or attempts at pool sanitation proved unsatisfactory to owners of swimming pools and tanks and, consequently, sanitary maintenance was often neglected. No simple way to inject the bacteria-destroying chemicals into the water by inexperienced pool owners and helpers was known. This single factor often proved to be a deterrent to pool ownership by home buyers. Since they could not afford the expensive pumping and chemical injection equipment, they often forfeited the recognized pleasures and advantages of swimming pool availability entirely, or failed to follow recommended periodic sanitary measures.

Referring more particularly to the drawings and especially to Figs. 1 and 3 thereof, a chemical dispenser embodying the invention is shown in the vertically suspended position assumed while operably floating in a liquid, such as the water in a swimming pool or tank. The dispenser **5** is comprised of three main elements, namely, a float **6**, a weight **7** and a basket or container **8**. The float **6** is preferably spherical or elongated spheroidal in shape to better ride ripples on the surface of the water. As shown in Fig. 2, a longitudinal hole **9** through the float intersecting with a hole **10** tangential thereto serves to permit the securement of one end of a cord or rope **11**. The cord can best be secured by tying a knot **12** in the end of the same which is slightly larger than the diameter of the hole **10**. Other well known means including the cementing or wedging of the cord in the float body might conceivably be adapted to attach the rope **11** to the float.

The weight **7** is secured to the opposite end of the cord in a manner to constantly maintain the dispenser **5** in the vertical position indicated in Fig. 3 while the dispenser is floating on the surface or is submerged in the pool.

The basket or container **8** is operably suspended on the cord **11** intermediate the float **6** and the weight **7**. This is accomplished with the cord passing through a hole **13** in a cover member **14** and a hole **15** in the bottom of the basket **8**. A knot **16** in the cord **11** serves to define the extent of movement of the cover **14** and the basket **8**. As shown in Fig. 2, the cover **14** is limited in movement to the space between the bottom of the float **6** and the knot **16**, while the basket **8** is limited in movement to the space between the knot and the weight **7**. The cover is designed to be secured or locked to the top of the container by means of threads **17** formed in the respective bodies thereof. Whenever the container is to be refilled with chemicals, the cover need only be partially rotated with respect to the container in order to effect separation therebetween. After a prescribed amount of chemical has been placed in the container,

the cover can again be readily replaced with a minimum of interference from the cord. It should be recognized that there are various ways in which the aforelisted elements can be arranged to provide a chemical dispenser 5 for equally successful use in swimming pools but that the arrangement described herein is believed to best disclose the inventive concept or principle.

The buoyant capacity of the float 6 is designed to fully support the entire dispenser on the surface of the pool whenever the basket or container 8 is empty, as shown in Fig. 3. However, whenever any prescribed amount of chemical has been placed in the basket, the float can no longer support the added weight and the dispenser will sink to the bottom of the pool. The fact that the buoyant capacity has been accurately computed to provide for automatic operation of the dispenser between the bottom and surface of the pool is the very basis for the successful and trouble-free use of the device. Further, the presence of the dispenser 5 on the surface of the pool is a visual signal that the chemical has been fully dispensed and that the dispenser can be either refilled or removed from the pool.

For use in connection with a swimming pool or tank, the basket or container 8 is generally filled with calcium hypochlorite crystals or tablets 24. Such tablets are used because of their bacteria-destroying capabilities and their tendency to dissolve slowly and release the chlorine at a uniform rate. If the dispenser or feeder device 5 is adapted for any other similar use, other chemicals could just as readily be carried therein. The basket and cord are made of polethylene or other plastic material which is not subject to attack by the chemical carried therein. The size and number of the holes in the cover 13 and basket 8 may be varied depending on the form of chemical carried therein; for example, if crystals were used the holes would be smaller, whereas if pellets or tabets were used the holes would be larger. The number of holes serve to control the rate at which the chemical is dispensed. In some cases the location of the holes might serve to vary the results obtained. All of such changes are deemed to be fully within the contemplated scope of my invention.

A modified version of the invention is shown in Fig. 4 and includes a cap member 21 fixedly secured to a float 22. The cap member is adapted to be threadedly secured to the top of a container 23 disposed to receive a selected quantity of chemical pellets 24. Holes 25 in the cap 21 and holes 26 along the bottom face of the container 23 permit liquid to flow through the container when the chemical dispenser is submerged in the pool and effect the dissolution of the pellets 24. A pedestal shaped weight 27 fastened to the bottom of the container 23 operates to maintain the dispenser in a vertical position while fully submerged at a fixed distance above the floor of the pool. The buoyancy of the float is sufficient to support the empty dispenser on the surface of the pool but is incapable of supporting the dispenser when the container 23 is loaded with the chemical pellets. The automatic operation of the modified form of dispenser is identical to that aforedescribed.

It is conceivable that a dispenser of the type herein described could be constructed without the weight attached or suspended from the bottom of the container in either version of the invention. In this case the buoyancy of the float would be calculated to carry the dispenser assembly without the weight and the operation would be the same as aforedescribed. The weight-float combination does have the advantage of holding the dispenser upright whenever the unit is disposed on the bottom of a pool.

While the two forms of the chemical dispenser herein shown and described are believed preferred exemplifications of my invention, it should be apparent that various changes in the structure may be made and are to be deemed within the spirit and scope of the invention as defined in the following claims.

I claim:

1. A floating-submergible type dispenser disposed to dispense chemicals while in a liquid filled pool and comprising a float, a weight, a cord having said float and said weight secured to opposite ends thereof, a chemical receiving container having a hole to receive said cord, a cover having a hole to receive said cord, a movement limiting knot in said cord disposed to limit the axial movement of said container and cover thereon, and locking means to secure said cover to said container after the deposit of chemicals therein, whereby the buoyancy of said float is sufficient to support the dispenser in a floating position on the surface of a pool when said container is empty but is insufficient to support the dispenser except in a submerged position at the bottom of a pool when said container is filled with chemical.

2. A chemical dispenser for use in swimming pools comprising a float provided with an axial bore and intersecting bore, a cord having one end disposed in the intersecting bore and secured in the axial bore of said float, a weight attached to the other end of said cord, said cord being provided intermedially of said float and said weight with a movement limiting knot, a container operably mounted for slidable movement between said weight and the knot on said cord, a cover slidable on said cord for movement between said float and the knot on said cord, a locking means on said cover and said container to permit selective locking engagement therebetween, and a plurality of liquid admitting openings in said cover and said container whereby said container may be filled with a chemical and said cover placed thereon, said chemical filled dispenser positioned in a swimming pool where the buoyancy of said float is insufficient to support the dispenser and said dispenser will sink until said weight touches the bottom of the pool and the fluid of the pool will circulate via said cover and said container openings to dissolve the chemical therein and dispense the same into the fluid of the pool, said dispenser floating to the surface of the pool when the chemical is dissolved.

3. A chemical dispenser of the floating submergible type for use in tanks wherein it is necessary to dispense chemicals near the bottom thereof and comprising a float of predetermined buoyant capacity, a weight of predetermined submerging capacity, a container assembly attachably secured intermediate said float and weight whereby the introduction of a chemical into said container will force the dispenser to submerge to the bottom of the tank whereat the chemical is dispensed from the container until the buoyancy of the float is again sufficient to raise the dispenser to the surface.

4. A floatable-submersible chemical dispenser for use in liquid filled pools and comprising a float of predetermined buoyant capacity, a chemical receiving container of predetermined volumetric capacity secured to said float, and a weight secured to said container and having a weight relationship to said float whereby the weight thereof and the weight of the container is less than the buoyant capacity of said float whenever said container is empty to permit said dispenser to float on the surface of a liquid filled pool and a weight relationship to said float whenever chemical is placed in said container whereby the total weight of the weight and of the chemical filled container is greater than the buoyant capacity of said float whereby the dispenser will settle to the bottom of the pool until chemical dispensation is effected from the container to a degree sufficient to permit the buoyant capacity of the float to gradually raise the dispenser to the surface of the pool.

5. A floatable-submersible chemical dispenser for use in liquid filled pools and comprising a container of predetermined weight and chemical capacity, a float of predetermined weight connected to said container, a weight

of predetermined weight connected to said container, the total of the predetermined weights of said container, weight and float being equal to the buoyant force of the liquid in the pool to sustain the dispenser on the surface of the pool, but with the total of the predetermined weights of said container, weight and float plus the weight of a chemical material placed in said container being more than the buoyant force of the liquid in the pool to cause the dispenser to submerge to the bottom of the pool until the chemical in said container is discharged whereat the buoyant force will again cause said dispenser to rise to the surface of the pool.

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