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SWIMMING POOL COVER

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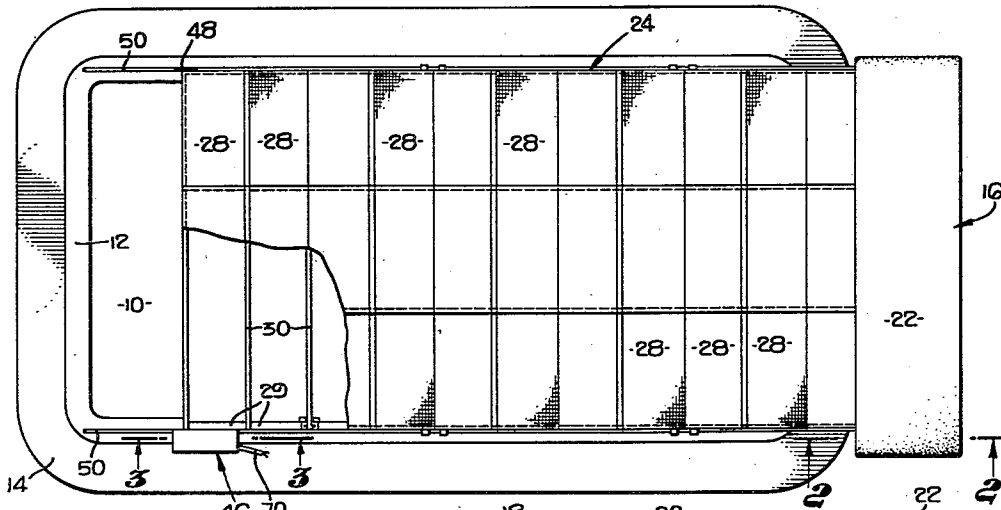


FIG. 1.

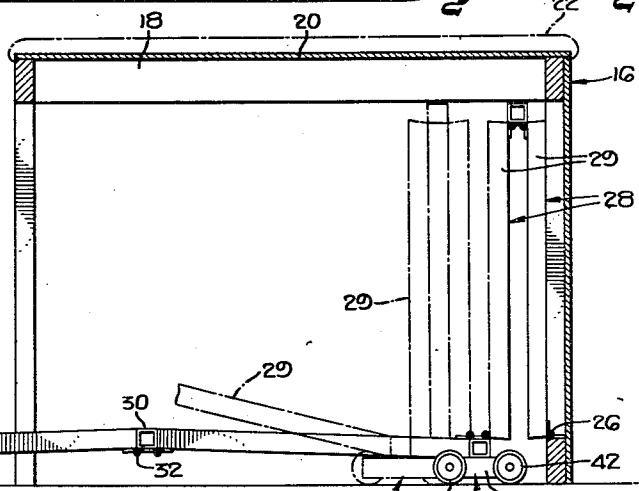


FIG. 2.

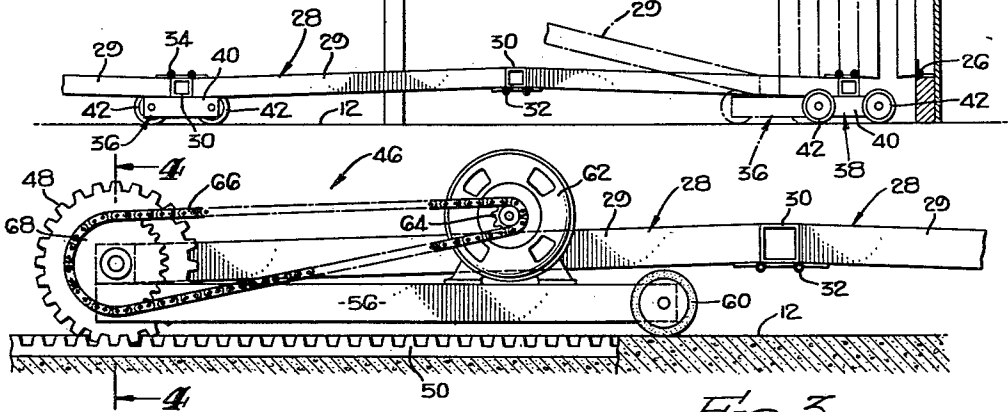


FIG. 3.

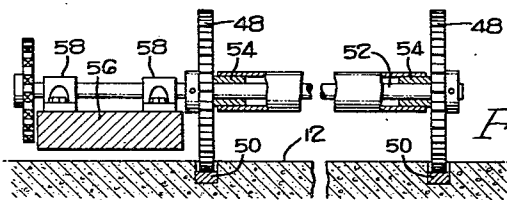


FIG. 4.

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## SWIMMING POOL COVER

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5 Claims. (Cl. 160—188)

My present invention relates to swimming pool covers, and it relates particularly to a swimming pool cover which may be selectively extended out over a swimming pool or compactly folded into a housing at one end of the swimming pool.

It is well known in the art to provide fabric swimming pool covers which may be stretched across a swimming pool from a plurality of anchoring members disposed about the edge of the swimming pool in order to keep the water in the swimming pool clean and in order to prevent children from falling into the pool.

However, prior art swimming pool covers of this character are very difficult to install and to remove, so that a considerable amount of time is consumed in installing and removing swimming pool covers of this type. Another difficulty in connection with this type of prior art swimming pool cover is that it does not have sufficient strength to insure against the possibility of children falling through the swimming pool cover.

Another type of prior art swimming pool cover consists of substantially rigid, sliding panels which slide over the swimming pool. This type of swimming pool cover has the disadvantage of being highly expensive and of occupying a great deal more space than can normally be allotted to a swimming pool cover.

It is therefore an object of my present invention to provide a swimming pool cover which is motor driven into and out of its covering position over a swimming pool.

Another object of my present invention is to provide a swimming pool cover which may be moved alternatively between its covering position over a swimming pool and into a folded position within a housing at one end of the swimming pool.

Another object of my present invention is to provide a swimming pool cover consisting of a plurality of hinged sections which may be folded compactly together while the swimming pool cover is being stored, and which may alternatively be opened out to form a flat cover which extends over the entire surface of the swimming pool.

Other objects and advantages of my present invention will be apparent from the following description and claims, the novelty of my invention consisting in the features of construction, the combinations of parts, the novel relations of the members and the relative proportioning, disposition and operation thereof, all as is more completely described herein and as is more particularly pointed out in the appended claims.

In the accompanying drawings, forming a part of my present specification,

Figure 1 is a plan view of a swimming pool with my swimming pool cover in its partially extended position.

Figure 2 is a vertical section along the line 2—2 of Figure 1 illustrating the manner in which my swimming pool cover is housed in its closed position.

Figure 3 is a vertical section along the line 3—3 of Figure 1 illustrating my driving means for extending and retracting my swimming pool cover.

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Figure 4 is a vertical section along the line 4—4 of Figure 3 showing my drive gears in operative engagement with my subsurface racks, and also showing my means for supporting the motor for driving my swimming pool cover between the extended and retracted positions.

Referring to the drawings, in Figure 1 I have illustrated a typical swimming pool 10 having an edge coping 12 with a surrounding walk 14.

Extending all of the way across swimming pool 10 at one end thereof is my cover housing 16 for enclosing my swimming pool cover when the cover is in its retracted position. Cover housing 16 consists of a frame construction 18 which is preferably composed of aluminum, but which alternatively may be composed of wood or of any metal, or any other suitable materials, the frame 18 being provided with a substantially rigid top portion 20 upon which is mounted an upholstered cushion 22.

By thus situating my cover housing 16 at one end of the swimming pool, and by providing the upholstered cushion 22 on the top thereof, my cover housing 16 forms an ideal sun and drying deck upon which bathers may comfortably recline.

My cover housing 16 is enclosed on all sides except the side facing the swimming pool, this side being left open for the retraction of the swimming pool cover into cover housing 16.

My swimming pool cover consists, in general, of a cover member 24 which is preferably composed of duck canvas treated with plastic, this canvas cover member being supported upon a foldable framework which is adapted to fold into the recess within cover housing 16. Although I prefer to use duck canvas treated with plastic because of its high textile strength, any other suitable cloth, plastic or rubber cover member 24 could be used.

Alternatively, a plurality of light weight metal cover sections (not shown) could be used in place of the single preferred cover member 24.

The frame which supports my cover member 24 is hingedly attached near the rear wall of cover housing 16 as at 26, and consists, in general, of a plurality of folding legs 28 which are adapted to fold in an accordion-like manner as is best illustrated in Figure 2 of the drawings.

Each of the folding sections 28 comprises a framework including a pair of parallel longitudinal members 29 disposed, in their extended positions, over the swimming pool edge coping 12 at opposite sides of the swimming pool. The longitudinal members 29 of each folding section 28 are joined at one end to a lateral member 30 by hinges 32 located underneath the longitudinal members 29 and the lateral member 30, and are joined at the other end to another lateral member 30 by means of hinges 34 located at the top of longitudinal members 29 and this lateral member 30.

By thus alternating the hinges between successive folding sections 28 with alternate bottom hinges 32 and top hinges 34, the sections 28 will fold in an accordion-like manner as in Figure 2 of the drawings.

I prefer to provide longitudinal and lateral members 29 and 30, respectively, which are composed of a light weight metal in tubing form, such as aluminum tubing. For example, longitudinal members 29 may be composed of rectangular aluminum tubing which is three (3) inches wide by one and three-quarter ( $1\frac{3}{4}$ ) inches high, and lateral members 30 may be composed of square aluminum tubing which is one and three-quarters ( $1\frac{3}{4}$ ) inches wide and one and three-quarters ( $1\frac{3}{4}$ ) inches high. However, it is to be understood that tubing of any other dimensions may be used, and that other longitudinal and lateral members 29 and 30, respectively, may be used,

such as angle members instead of rectangular and square tubing members.

Each end of the lateral members 30 having top hinges 34 attached thereto is supported on an integral truck which is adapted to roll along the side edge coping 12 on the swimming pool 10 to permit the extension and retraction of my swimming pool cover. In order to facilitate the storage of my swimming pool cover within cover housing 16, I place alternate trucks on each side of the swimming pool in a different lateral position so that the trucks will overlap when the cover is in its folded position. Thus, I provide alternate inner and outer trucks 36 and 38, respectively, which are laterally spaced from one another a sufficient distance to permit overlapping of the trucks in the manner illustrated in Figure 2 of the drawings.

Each of the trucks 36 and 38 includes a support block 40 upon which is mounted one or more rollers or wheels 42 to permit the trucks to freely roll along the edge coping 12 of swimming pool 10. Both ends of alternate lateral members 30 are integrally supported on the blocks 40 of trucks 36 or 38, as the case may be.

In Figures 3 and 4 of the drawings, I have shown my preferred drive mechanism 46 for driving my swimming pool cover between its extended and retracted positions. Drive mechanism 46 includes a pair of drive gears 48, one of which is disposed on each side of my swimming pool cover near the forward end of the cover. Each of the drive gears 48 is in driving engagement with a subsurface rack 50, subsurface racks 50 being disposed slightly below the surface of edge coping 12 along each side edge of swimming pool 10, and having upwardly directed teeth.

Drive gears 48 are mounted on a shaft 52 which is housed in the forwardmost lateral member 30 and which is journaled in shaft support bearings 54 that are mounted within the forward lateral member 30.

The forward end of a motor platform 56 is suspended, by means of platform support bearings 58, from one end of shaft 52 which extends beyond one of the drive gears 48 at one side of the swimming pool cover. The rear end of motor platform 56 is mounted on one or more suitable rollers or wheels 60 which are in turn in rolling engagement with edge coping 12.

Drive motor 62 is mounted on motor platform 56, and is operatively connected in driving engagement to shaft 52 by means of motor sprocket 64 attached to the motor drive shaft, drive chain 66 and driven sprocket 68 which is integrally connected to shaft 52.

Power is supplied to motor 62 by means of electric power line 70 which is preferably contained on a spring loaded reel (not shown) associated with cover housing 16 which will pay out electric line 70 as the cover is moving toward its extended position, and which will automatically reel in the power line 70 as the swimming pool cover is moved toward its retracted position. A suitable control switch (not shown) for controlling the electric power applied to motor 62, and also for controlling the direction of rotation of motor 62, may likewise be associated with cover housing 16, or may alternatively be disposed in any other convenient place.

Having thus completely described the preferred embodiment of my swimming pool cover, I will now describe the preferred manner in which my swimming pool cover operates.

When the swimming pool 10 is in use, or when it is not desired to have the swimming pool 10 covered, my swimming pool cover is normally in its completely folded position wherein it is entirely contained within cover housing 16. If it is then desired to cover the swimming pool, all that is necessary is to operate the control switch or lever (not shown) to provide power to motor 62 in such a manner that the motor will turn anti-clockwise in Figure 3 of the drawings. Motor 62 then drives shaft 52 through drive chain 66, whereby the drive gears 48 on

opposite sides of the swimming pool cover are driven in an anti-clockwise direction. The driving engagement between drive gears 48 and their respective subsurface racks 50 will drive the gears 48, and hence the front end of the swimming pool cover, out of the stored position within cover housing 16 out over the swimming pool 10 in the manner best shown in Figure 1 of the drawings until the swimming pool has been entirely covered. At this point, the power to electric motor 62 may be shut off manually by a suitable control switch (not shown), or it may be shut off automatically by suitable automatic shut-off means (not shown).

The cover will remain in this extended position until such time as a power switch (not shown) is actuated to provide electric power to motor 62 in such a manner that motor 62 will turn clockwise in Figure 3 of the drawings to drive the drive gears 48 clockwise along subsurface racks 50 until the cover is in its completely housed position within cover housing 16.

My swimming pool cover has the obvious advantages of being operable by the mere throw of a switch to automatically cover or uncover a swimming pool in a matter of seconds.

When my swimming pool cover is not in use, it is conveniently stored in a minimum of space within a container which is so positioned at one end of the swimming pool as to form a convenient sun and drying deck.

My swimming pool cover has sufficient strength to prevent children or other persons from accidentally falling within the swimming pool, and it so completely covers the swimming pool that no dirt or debris of any kind can fall into the pool. My preferred swimming pool cover which has a duck canvas cover member 24 impregnated with plastic will withstand pressure of more than 100 pounds per square foot at any point on the surface of the cover, and if it is desired, stronger cover members 24 may be provided, or additional frame members may be added, such as additional longitudinal members similar to longitudinal members 29 which may be placed intermediate the longitudinal members 29 which are disposed at each end of each of the folding sections 28.

A further advantage of my swimming pool cover is that no protrusions above edge coping 12 or walk 14 about swimming pool 10 are required to anchor my swimming pool cover. This prevents tripping, toe stubbing and other accidents which might occur by coming into contact with a protrusion extending above the edge coping or walk about a swimming pool.

It is to be understood that the form of my invention herein shown and described is my preferred embodiment and that various changes in the shape, size and arrangement of parts may be resorted to without departing from the spirit of my invention, or the scope of my appended claims.

I claim:

1. A swimming pool cover alternatively movable between stored and extended positions, and drive means attached to said cover near its front end and in driving engagement with the ground adjacent to said swimming pool for moving said cover between said stored and extended positions.

2. A swimming pool cover alternatively movable between stored and extended positions, a rack having upwardly directed teeth disposed along one edge of a swimming pool, a drive gear rotatably mounted on said cover near its front end and in driving engagement with said rack, and a source of rotary power operatively connected to said drive gear to drive said drive gear in either direction along said rack for moving said cover between said stored and extended positions.

3. A swimming pool cover including a plurality of hinged sections which may be alternatively collapsed in a folded storage position adjacent to one edge of a swimming pool and extended over said pool to substantially cover said pool, a rack having upwardly directed teeth

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disposed adjacent to said swimming pool, a drive gear rotatably mounted on said cover near its front end and in driving engagement with said rack, and a source of rotary power operatively connected to said drive gear for driving said drive gear in either direction to move said cover between said folded and extended positions.

4. A swimming pool cover alternatively movable between a stored position at one end of a swimming pool and an extended position substantially covering said swimming pool, including a rack with upwardly directed teeth disposed adjacent to each side of said swimming pool, a drive gear rotatably mounted on each side of said cover near its front end, said drive gears being in driving engagement with the respective said racks, and power means for rotating said drive gears in unison in either direction to move said cover between said stored and extended positions.

5. A swimming pool cover including a plurality of hinged sections which may be alternatively collapsed in a folded storage position adjacent to one end of a swimming pool and extended over said pool to substantially

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cover said pool, a rack having upwardly directed teeth disposed adjacent to each side of said swimming pool, a rotatably mounted drive shaft extending across said cover near its front end, a source of rotary power for driving said drive shaft in either direction of rotation, and a pair of drive gears mounted on said drive shaft on opposite sides of said cover and in driving engagement with the respective said racks for moving said cover between said folded and extended positions.

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