

Aug. 18, 1964

A. MEYER

3,144,665

SWIMMING POOL COVER

Filed March 15, 1962

2 Sheets-Sheet 1

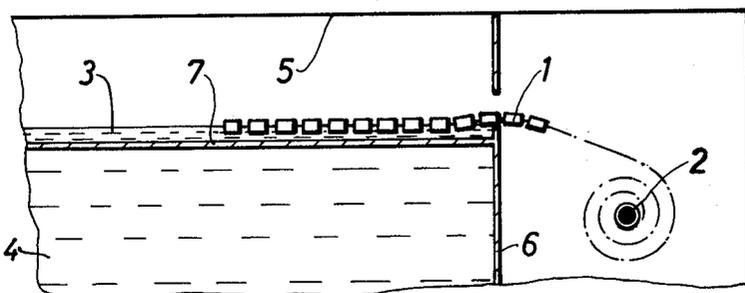


FIG. 1

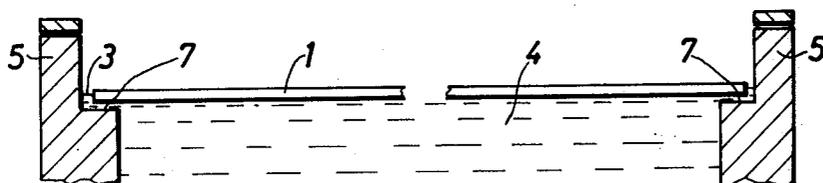


FIG. 2

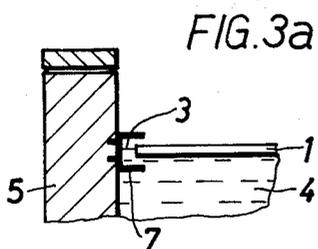


FIG. 3a

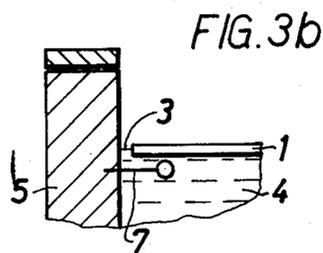


FIG. 3b

INVENTOR
ALBERT MEYER

BY

Burgess, Linkage & Sprung
ATTORNEYS

Aug. 18, 1964

A. MEYER
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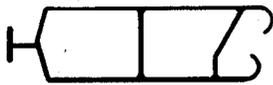


FIG. 4a



FIG. 4b



FIG. 5a



FIG. 5b

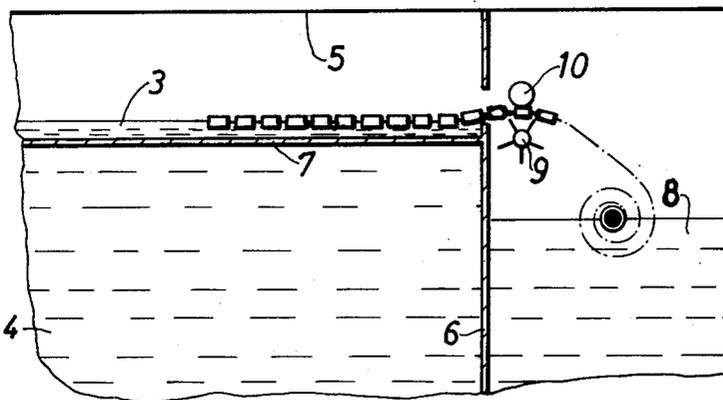


FIG. 6

INVENTOR
ALBERT MEYER

BY

Surgess, Dinklage & Sprung
ATTORNEYS

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SWIMMING POOL COVER

Albert Meyer, Kantstrasse 4, Bergisch-Neukirchen, Germany

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3 Claims. (Cl. 4—172)

This invention relates to a protective cover for swimming pools.

It is known that swimming pools, especially those which are situated on private grounds, present an imminent danger. Thus, it is possible that children or other persons which are unable to swim or animals, such as dogs, can fall into these swimming pools. The owner of the swimming pool has, therefore, a special responsibility for his pool. Especially private swimming pools become a source of danger, since such pools are not under constant supervision. Therefore, it is necessary to take special measures to avoid accidents and unauthorized use of the swimming pool. Fences around the swimming pool are thereby a very unsatisfying solution, since therewith only an insufficient protection can be obtained. Furthermore, the open swimming pools are easily contaminated by leaves etc. To avoid these disadvantages it has been proposed to provide swimming pools if not used with a cover. As covers there have been used for example plastic sheets or nets or panels. The plastic sheets or nets have the disadvantage that they do not give sufficient security or that they might endanger the persons falling on them and possibly through them. The arrangement of panels over the swimming pool is only possible with small swimming pools and requires in general extensive and inconvenient work. In consequence thereof this cover is not always put over the swimming pool after each use. To avoid these difficulties it has been proposed to use a swimming pool cover which consists of buoyant, elongated, rigid cover members in side by side relationship which can be wound and unwound on one side of the swimming pool and which can be moved over the swimming pool by means of cables whereby the cover is supported at the side-walls of the pool by bearing plates over which the swimming pool cover is pulled (see U.S. Patent 2,958,083). This swimming pool cover shows remarkable advantages over the other swimming pool covers, but has the disadvantage that in consequence of the high weight of the swimming pool cover and in consequence of the fact that due to the frictional forces which have to be overcome while winding and unwinding the swimming pool cover over the bearing plates relatively high power is needed which make the mechanical parts of the winding mechanism expensive.

It is an object of the present invention to provide a new swimming pool cover. It is a further object to provide a swimming pool cover which can be operated without the need of high power. Still another object is to provide a swimming pool cover which can be operated by a push-button device. A still further object is to provide a swimming pool cover which can be operated on pools having a shape other than a rectangular. A still further object of the invention is a buoyant free floating swimming pool cover provided with safety supports which act if the cover is forcibly immersed. Still more objects will appear hereinafter.

It has been found that the aforementioned objects can be obtained by using a protective cover for a swimming pool consisting of buoyant, elongated, rigid cover members in side by side relationship which can be wound and unwound on one side of the swimming pool if the swimming pool cover is moved on the water surface of the swimming pool while floating on the water whereby

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the other swimming pool walls are provided with a safety support near the water surface, but which is in such a distance beneath the water surface that the floating of the swimming pool cover is not hindered while being moved over the swimming pool.

The invention will be more apparent from an inspection and consideration of the accompanying drawings. FIG 1 is a longitudinal section of the upper portion of a swimming pool showing besides the pool a well or chamber for a winding mechanism of the pool cover.

FIG. 2 is a cross-sectional view of the upper portion of a swimming pool showing the swimming pool cover in operation over the water.

FIGS. 3a and 3b are a cross-sectional view of the upper portion of one side of a swimming pool showing some safety devices beneath the swimming pool cover.

FIGS. 4a and 4b are a cross-sectional view illustrating cover support members which may be employed with the device.

FIGS. 5a and 5b are another similar cross-sectional view illustrating cover support members and illustrating how two cover support members can be connected.

FIG. 6 is a longitudinal section of the upper portion of a swimming pool showing besides the pool a well or chamber for a preferred embodiment of the winding mechanism.

Referring specifically to the drawings the swimming pool is provided at one end or if large pools or very irregular pools have to be protected on several ends of the pool with a winding mechanism 2 for a swimming pool cover 1. This winding mechanism can be housed in a separate chamber or it can be separated from an installed swimming pool in any desired manner by a wall etc. 6. This winding mechanism consists of a drum 2 on which one end of the cover is fixed. The drum can be rotated by known methods to wind up or to unwind the swimming pool cover. The swimming pool cover which consists of buoyant, elongated, rigid cover members 1 in side by side relationship covers the swimming pool 4 completely from one side to the other if unwound. The swimming pool cover floats on the water surface 3 of the swimming pool and is, therefore, very easy to move over the water surface, since practically no frictional forces have to be overcome. Therefore, the forces necessary for the rotation of the driving drum 2 are only minimal. Practically only the friction of the driving drum has to be overcome.

Along the side walls of the swimming pool below the water surface 4, but very near the water surface 3 of the swimming pool the pool contains a safety support 7. This safety support shall be near the surface of the water, but shall be in such a distance therefrom that the floating of the swimming pool cover is not affected. This safety support has the following purpose:

The safety support has the purpose to avoid that a person or another object falling on the swimming pool cover causes the cover to dip deep into the water whereby the person, for example a child, glides from the cover into the water and possibly below the cover. The safety support can have any desired form, such as a hand-rail or a track or rim or a shelf in the pool wall.

The cover members can be made of any desirable material which is buoyant or which is made buoyant by its special form. Examples of such materials are wood or plastics, such as polyvinyl chloride, polyethylene or polypropylene, which are buoyant due to their content of hollows (see FIGS. 4 and 5). The cover members may be extruded for example from a metal or plastic material. The open ends of such extruded cover members can be closed for example with epoxy resins. The cover members can be connected by the most different methods, an example of which is shown in FIG. 5.

Therein it is shown how the cover members can be flexibly interlocked. Many other different methods are obvious. Preferably the cover members are fixed to each other in such a manner that they can be wound up on the driving drum, but that they do not bend in the other direction. Such structures will improve the bearing strength of the swimming pool cover. The cover members shall be made from such material and in such thickness that they are strong enough to bear persons falling on them. Since the swimming pool cover floats on the water also relatively thin cover members are able to bear relatively heavy weights.

If the swimming pool cover shall be installed in existing swimming pools and if it is not desired to install it inside the swimming pool at one end, since this will cause a loss of the space available in the swimming pool then the well, respectively chamber, for the winding mechanism can be also arranged above the water surface outside the swimming pool.

If the swimming pool cover has covered the swimming pool for sometime and is then wound up on the winding mechanism then it is possible to remove the leaves and other contaminations on the cover by washing the cover with water while it is rolled up. This can be done for example by a water spray in the well of the winding mechanism.

The swimming pool cover may be moved over the swimming pool by any traction power. This can be done for example by means of ropes which can be mechanically operated. Since the cover is always floating while moved over the swimming pool only small forces are necessary for its moving.

Especial advantages are obtained if the winding mechanism for the swimming pool cover is arranged in such a manner that the rolled up cover is immersed partly or entirely into water. This can be obtained for example by filling water into the chamber which houses the winding mechanism. This can be done for example by a water overflow from the swimming pool to the aforementioned chamber whereby a certain water stand is kept in the chamber by known methods. FIGURE 6 shows one possible arrangement. This immersing has the advantage that the axle load of the winding drum is substantially reduced. This makes it again easier to unwind and rewind the cover, since only small forces are needed therefor. Furthermore, longer driving drums can be used and the materials from which the driving drums can be made need not to be so strong. If the apparent specific weight in water of the swimming pool cover is about 0.5 then it is of advantage if the driving drum of the winding mechanism is arranged on the water surface or near the water surface. If the apparent specific weight is larger than 0.5 then it might be of advantage to arrange the driving drum beneath the water surface and if the apparent specific weight in water of the cover is smaller than 0.5 then obviously it might be of advantage to arrange the driving drum above the water surface. The immersing of the swimming pool cover into the water effects at the same time a cleaning of the cover. If necessary, there can be arranged a water spray above the winding mechanism which can be used if the swimming pool cover is rewound.

In some cases it might be of advantage to arrange the winding mechanism in such a manner that it is in the wound up state entirely above the water surface of the swimming pool. This might be for example if the

swimming pool cover shall be built in in an existing swimming pool as mentioned before. Then the force of gravity can be used for the unwinding of the swimming pool cover.

In another embodiment of the invention, especially in those cases in which the force of gravity for the unwinding is used or when the winding mechanism respectively the wound cover is immersed into water, the unwinding of the swimming pool cover can be done by means of a sprocket drive as shown in FIGURE 6. The sprocket drive 9 or sliding gear shoves thereby with its sprockets the individual cover members onto the water of the swimming pool by gearing into the spaces between the individual cover members thus unwinding the cover from the drum and pushing it at the same time over the swimming pool. 10 is a counter support for the sprocket drive. Since the swimming pool cover is moved floating over the swimming pool only small forces are needed for the sprocket drive. Such an arrangement makes it possible to avoid the use of ropes which otherwise might be necessary for the moving of the cover over the swimming pool. Therefore, this arrangement is the most preferred one of the present invention. Since in this case no ropes are necessary it is possible to use the swimming pool cover also for very irregular shaped swimming pools. Furthermore, the use of such a sprocket drive has the advantage that the danger of canting of the cover during the unwinding is avoided.

The rewinding of the cover can be carried out by rotating the driving drum of the winding mechanism. Since the cover is floating on the pool there are again only small forces necessary therefor.

I claim:

1. In combination with a water-filled swimming pool; a protective cover therefor, comprising a multiple number of buoyant, elongated rigid cover members flexibly connected in side by side relationship and freely floating on the surface of the water in the pool when extended, extending transversely between opposed walls of the pool with the ends of said cover members closely adjacent said walls, safety support means extending along said walls below the surface of the water in closely spaced relationship below the ends of said rigid cover members adapted to be contacted by and support said cover members if the same are forcibly immersed, and means for winding said flexibly connected cover members for storage at one end of the pool and for unwinding the same onto the pool's surface for use.

2. Combination according to claim 1 in which said means for winding and for unwinding comprises a winding drum positioned in a water containing well at one end of said pool and extending beneath the surface of the water in said well.

3. Combination according to claim 1 in which said means for winding and unwinding includes a sprocket wheel drive with the sprocket teeth thereof engaging between the individual rigid cover members.

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