Sept. 15, 1964 L. M. BARTOLUCCI ETAL 3,148,383

POOL COVER SECURING MEANS

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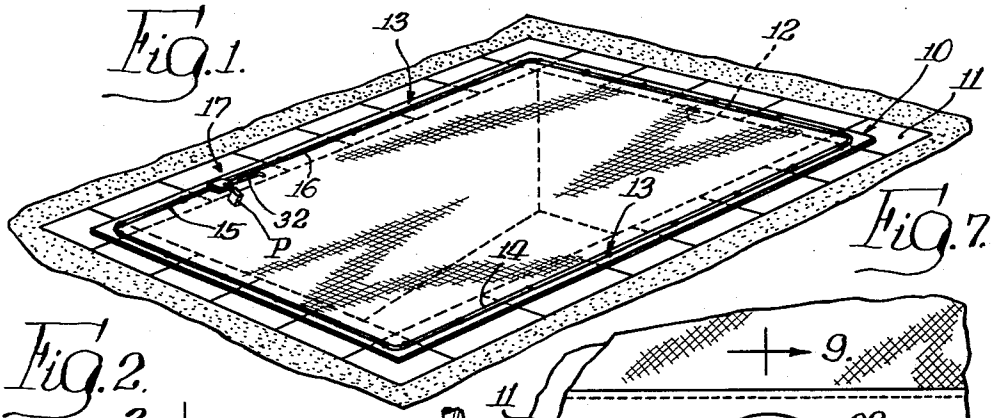


Fig. 1.

Fig. 7.

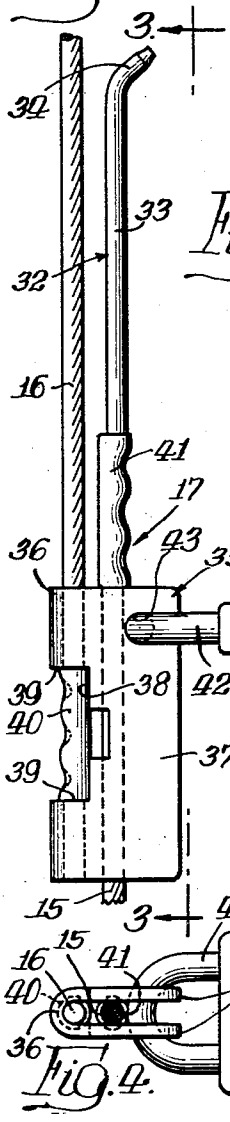


Fig. 2.

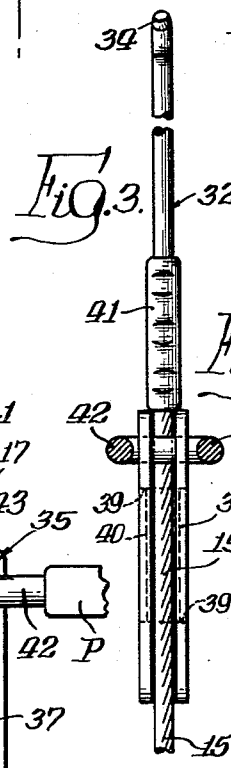


Fig. 3.

Fig. 4.

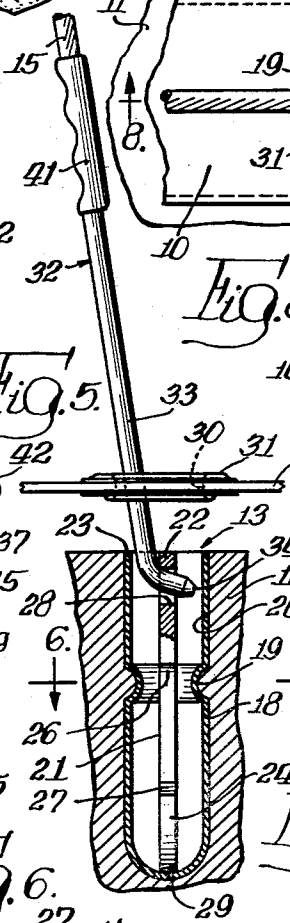


Fig. 5.

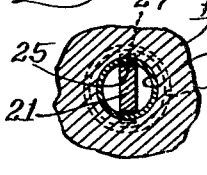


Fig. 6.

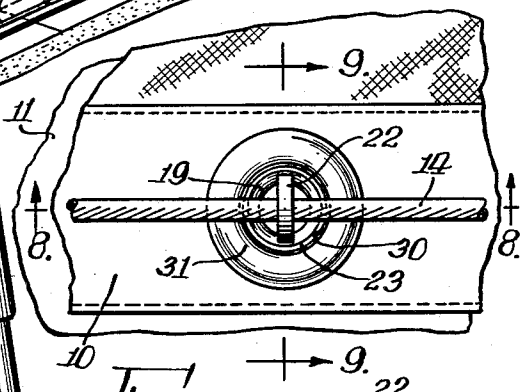
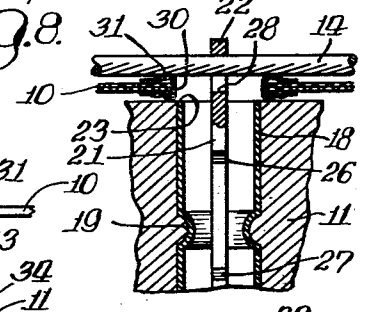


Fig. 8.



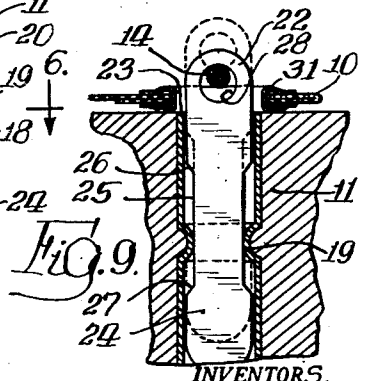


Fig. 9.

INVENTORS.
Leo M. Bartolucci,
John A. Rohrer,
By Hofgren, Brady, Wegner, Allen & Stellman Attys.

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POOL COVER SECURING MEANS

Leo M. Bartolucci and John A. Rohrer, Albuquerque, N. Mex., assignors to Bart Enterprises, Inc., a corporation of New Mexico

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This invention relates to pools and in particular to means for securing removably a cover across the open top of a pool.

During periods of non-use of pools such as swimming pools, for example during the winter months, it is desirable to close the open top of the pool by a suitable cover. One form of such pool closing cover comprises a flexible sheet having a plurality of openings spaced along the peripheral edges thereof. The cover is secured to the edge of the pool by means of an element extending from the pool edge upwardly through the cover opening, and an elongate member retained by the element and bridging the opening. An example of such an arrangement is shown in Leo. M. Bartolucci U.S. Patent No. 2,952,024, issued September 13, 1960. The present invention is concerned with an improved co-operative arrangement of such pool cover means providing facilitated installation. A principal feature of the invention is, therefore, the provision of a new and improved pool cover securing means.

Another feature of the invention is the provision of such securing means including improved means for threading a retaining element such as a cable through a securing device associated with the pool edge to secure the pool cover thereto.

A further feature of the invention is the provision of such securing means having a new and improved locking device secured to one end of the cable for releasable locking of the other end of the cable thereto.

Still another feature of the invention is the provision of such securing means wherein the locking device is arranged for facilitated installation in the field on a portion of the cable spaced from the end of the cable provided with a threading means whereby an accurate correspondence of the cable to the length of the periphery of the pool is obtained.

A still further feature of the invention is the provision of such securing means wherein the threading means is arranged for co-operative association with the securing device for facilitated movement of a connector member thereof from a recessed position within the pool edge to a position wherein the outer end of the connector member extends through the opening of the cover for insertion of the cable therethrough.

Yet another feature of the invention is the provision of a new and improved securing device arranged for facilitated installation in a pool edge.

Another feature of the invention is the provision of such a securing device including a connector positionable about its vertical axis for alignment with the retaining cable.

Another feature of the invention is the provision of a new and improved securing device including a tubular member arranged for retaining the connector selectively in a cover securing position and in a recessed position in the pool edge.

Other features and advantages of the invention will be apparent from the following description taken in connection with the accompanying drawing wherein:

FIG. 1 is a perspective view of a pool provided with a cover secured to the edge thereof by securing means embodying the invention;

FIG. 2 is a fragmentary, enlarged plan view illustrating the method of locking together the two ends of the cable;

FIG. 3 is a side elevation thereof;

FIG. 4 is an end elevation thereof;

FIG. 5 is a fragmentary enlarged view partially in elevation and partially in section illustrating the method of utilizing the threading element for extending the connector through the pool cover opening;

FIG. 6 is a horizontal section taken substantially along the line 6—6 of FIG. 5;

FIG. 7 is a fragmentary enlarged plan view of a portion of the cover showing the means for securing the cover portion to the pool edge;

FIG. 8 is a fragmentary vertical section taken substantially along the line 8—8 of FIG. 7; and

FIG. 9 is a fragmentary vertical section taken substantially along the line 9—9 of FIG. 7.

In the exemplary embodiment of the invention as disclosed in the drawing, a pool cover generally designated 10 is secured to the edge portion 11 of a swimming pool to extend across and close the open top 12 thereof. The cover 10 is peripherally secured at spaced points along pool edge 11 by a plurality of securing devices generally designated 13 co-operating with a flexible cable 14 having its opposite ends 15 and 16 releasably locked by a locking device generally designated 17. To limit access to the pool to authorized personnel only, the locking device 17 may include a lock P, herein comprising a conventioning padlock. Thus secured, the pool cover 10 is positively retained in place across the open top of the pool precluding collection of debris therein and injury to persons or animals accidentally falling thereinto.

At times of normal use of the pool, the cover is completely removed from the pool and the securing devices 13 are arranged to be disposed fully within the pool edge 11 completely eliminating obstructions at the pool periphery and allowing unimpeded normal use of the pool.

As best seen in FIGS. 5 through 9, each securing device 13 comprises a tubular member 18 secured by means of an annular constricted mid-portion 19 in a generally cylindrical recess 20 formed in pool edge 11 to open upwardly therethrough. A connector 21 herein comprising a flat plate is retained by means of constricted portion 19 in the tubular member with its upper end 22 disposed selectively above the upper outer end 23 of the tubular member or within the tubular member. For this purpose, the lower end 24 of the connector is made to be transversely larger than the inside diameter of annular portion 19 of the tubular member, while the width of the mid-portion 25 is made to be no greater than said diameter permitting axial movement of the connector limited at opposite extremes by abutment of a pair of co-operating shoulders 26 and 27 at the upper and lower end of said mid-portion 25, respectively, with said annular portion 19. The outer end 22 of the connector is provided with a transverse hole 28 having a diameter larger than the cross sectional diameter of the cable 14 for free passage of the cable therethrough. As shown in FIG. 9, the spacing of hole 28 from lower shoulder 27 is greater than the spacing of annular portion 19 below tubular member upper end 23 so that when the connector is in its upper portion with lower shoulder 27 abutting portion 19, the outer end 22 of the connector is disposed substantially above the tubular member upper end 23 to receive the cable 14 in hole 28.

Tubular member 18 may be formed of a ductile metal, such as aluminum, and as shown in FIG. 5 is preferably closed at its lower end 29, thereby precluding entry of material such as the cement of pool edge 11 when the tubular member is set in the pool edge during the formation of the pool. Similarly, the closed bottom end 29

precludes flow of grout or the like upwardly into the tubular member where the tubular member is inserted in the pool edge subsequent to the formation thereof. The constricted portion 19 of the tubular member may be formed by spinning. As the constricted portion 19 extends annularly 360°, the connector 21 may be positioned in any angular position relative to the vertical axis thereof within the tubular member. Thus, there is no need to position the tubular member accurately rotationally about its vertical axis in setting the tubular member in the pool edge as would be required were the connector retained in the tubular member in a fixed axial plane thereof.

In utilizing securing device 13 to secure the cover to the pool edge, the connector is extended through an opening 30 in the edge of the cover which may be reinforced by a suitable grommet 31. As the connector 21 is disposed, in the recessed position of FIG. 5, fully within the tubular member with its upper end 22 within the upper end 23 of the tubular member 18, it is necessary to provide some means for lifting the connector upwardly from within the tubular member to dispose it in the upper position of FIGS. 7 through 9. Herein, the cable end 15 is provided with a threading element generally designated 32 having an elongated shank portion 33 provided with a turned distal end 34 adapted to be passed downwardly through the upper end 23 of tubular member 18 to engage the connector upper end 22 in hole 28. The shank 33 has a length greater than the spacing of the annular portion 19 below tubular member upper end 23 less the spacing of the hole 28 downwardly from the upper end of the connector, permitting the shank to be extended through the cover opening 30 and into engagement with the connector in hole 28, as best seen in FIG. 5.

Turning now to FIGS. 2 through 4, the locking device 17 is shown to comprise a plate 35 folded at a mid-portion 36 to have its leg portions 37 spaced apart a distance comparable to the diameter of cable 14. The mid-portion 36 is provided with an elongate cutout 38 defining a pair of spaced shoulders 39 in each of plate portions 37. Cable end 16 is secured to the plate 35 by means of a deformable sleeve 40 having an outside diameter larger than the spacing between plate portions 37 and a length substantially equal to the spacing between shoulders 39. End 15 of cable 14 is secured in locking device 17 by means of an enlarged portion 41 of the threading element 32. The transverse extent of portion 41 is greater than the spacing between plate portions 37, as best seen in FIG. 3, and thus when lock P is arranged with its shackle 42 extending through a hole 43 in each of plate portions 37, the threading device is locked to the plate 35 thereby securing the cover 10 across the pool and precluding access thereto to all but persons provided with the key to lock P.

To install cover 10 across the pool top, the user arranges the cover with the edge thereof overlying the pool edge 11 and with the openings 30 therein aligned with the upper ends 23 of the tubular members 18. The threading element 32 is then manipulated as shown in FIG. 5, to pass through the opening 30 and have the turned end 34 thereof engage the connector end 22 in hole 28. The connector end 22 is then drawn upwardly through opening 29. The operator then may maintain the upper end of the connector in position with the hole 28 disposed above the pool cover 10 by means of the threading element 32, and then thread the element end 15 of the cable through the hole 28 to the arrangement shown in FIGS. 8 and 9. This operation is performed seriatim with each of the securing devices 13 around the edge of the pool until the one end 15 of the cable is brought to adjacent the other end 16 provided with the locking device 17. Cable end 15 is then moved into the space between plate portions 37, by a leftward movement as seen in FIG. 2, until the cable end 15 is disposed leftwardly of the opening 43 in the plate portions. The lock shackle 42 is then extended through the openings 43 and the lock manipulated to the locking arrangement, thereby securing the cable in extension through each of the securing device connectors spaced peripherally along the pool edge, as shown in FIG. 1.

When it is desired to remove the cover 10 from the pool, the lock P is removed from the locking device 17 permitting cable end 15 to be moved outwardly from between the plate portions 37. The cable end 15 and threading element 31 thereon are then withdrawn seriatim through each of the securing devices 13 until the cable is removed from association with all of the securing devices. As the cable is withdrawn from the securing devices, the connectors drop down into the tubular members to the retracted position shown in FIG. 5. Thus, when the cover is removed from across the pool, the securing devices 13 are automatically arranged to permit unimpeded use of the pool.

Where the pool cover is being installed for the first time across the top of the pool, the cable is provided with a length originally somewhat longer than that required. The plate 35 is provided disassociated from end 16 of the cable and is installed thereon at the pool site so that the cable will have a length accurately corresponding to the periphery of the pool edge. Thus, the initial threading of the cable through the plurality of securing devices is effected prior to the installation of the plate on the cable end 16. After the threading device 32 is passed through each of the connectors 24 and is disposed alongside the opposite end 16 of the cable, the plate 35 is secured in place on cable end 16 by passing the cable end 16 axially successively through the space between portions 37 at one end of the plate to the left of hole 43 as seen in FIG. 2, through the sleeve 40 extending axially between shoulders 39 in an undeformed tubular configuration, and through the space between the plate portions 37 at the opposite end of the plate to project outwardly therefrom. The projecting portion of cable end 16 is then pulled taut to pull the enlarged portion 41 of the threading element on the other end of the cable against the end of the plate portions 37, and the sleeve 40 is then deformed, as by punching, to secure it positively to the cable end 16 between shoulders 39. The distal portion of the cable end 16 projecting outwardly from the plate 35 is then cut off flush with the edge of the plate, completing the installation of the securing device on the cable end 16 with the cable length accurately corresponding to the peripheral dimension of the pool.

While we have shown and described one embodiment of our invention, it is to be understood that it is capable of many modifications. Changes, therefore, in the construction and arrangement may be made without departing from the spirit and scope of the invention as defined in the appended claims.

We claim:

1. Means for securing a pool cover having an edge portion provided with an opening to an edge of a pool, comprising: means defining an outwardly opening recess in the pool edge; a connector having an inner end, and an outer end with a transverse hole therethrough; means connecting the connector movably to the recess defining means for movement in the recess to an outermost position wherein the hole in the outer end is outward of the recess with the inner end remaining within the recess and to an innermost position wherein the hole is within the recess; a cable; a threading element fixed to one end of the cable for threading the cable through said connector hole, said threading element having a turned distal end insertable through the cover opening and into said recess to engage the connector in said hole and effect movement of the connector to said outermost position with said outer end of the connector extending through the

cover opening; and a locking device secured to the other end of the cable having means for selectively locking said one end of the cable to the other end subsequent to a threading of the cable through said connector hole to bridge the cover opening, said threading element including a transversely enlarged portion and said locking device comprising means defining a channel for receiving the cable and a lock selectively closing the open side of the channel to define a passage transversely smaller than said enlarged portion of the threading element to preclude withdrawal of the threading element therethrough.

2. The securing means of claim 1 wherein said enlarged portion comprises a sleeve fixedly crimped to said one end of the cable.

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