March 10, 1970 T. F. CAREY 3,499,174

RETRACTABLE SWIMMING POOL COVER

Filed Dec. 18, 1967 6 Sheets-Sheet 1

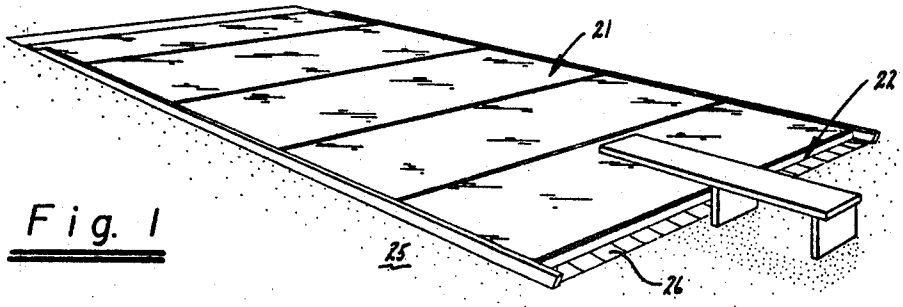


Fig. 1

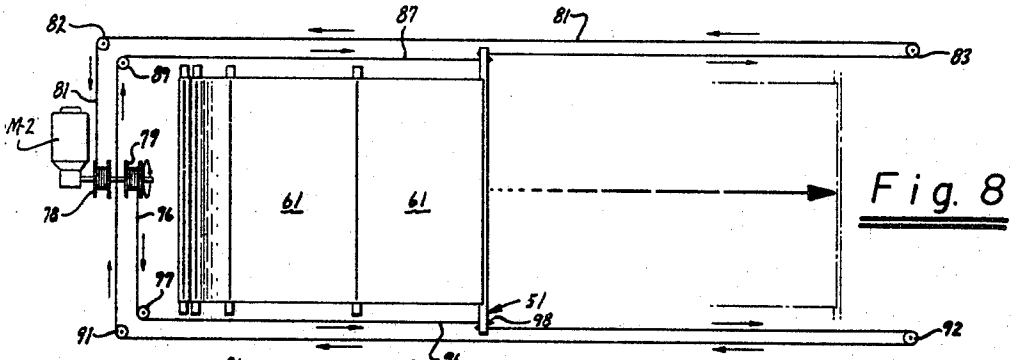


Fig. 8

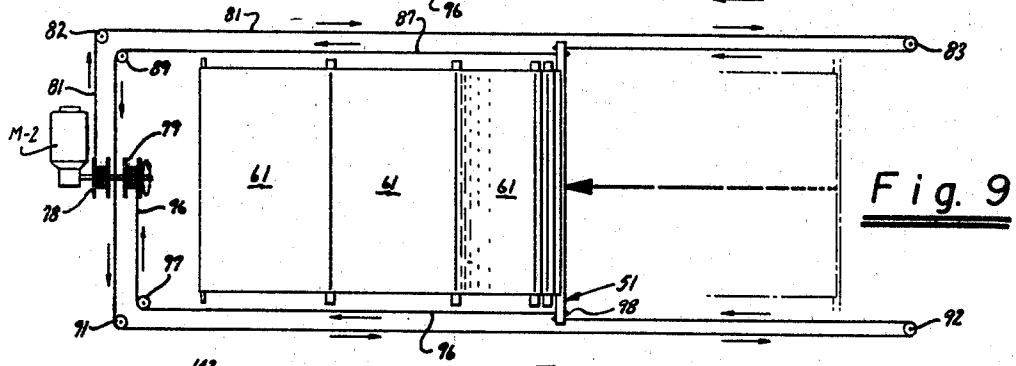


Fig. 9

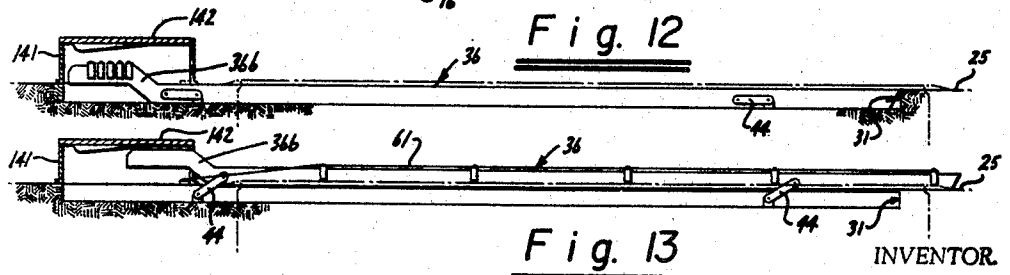


Fig. 12

Fig. 13

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RETRACTABLE SWIMMING POOL COVER

Filed Dec. 18, 1967 6 Sheets-Sheet 2

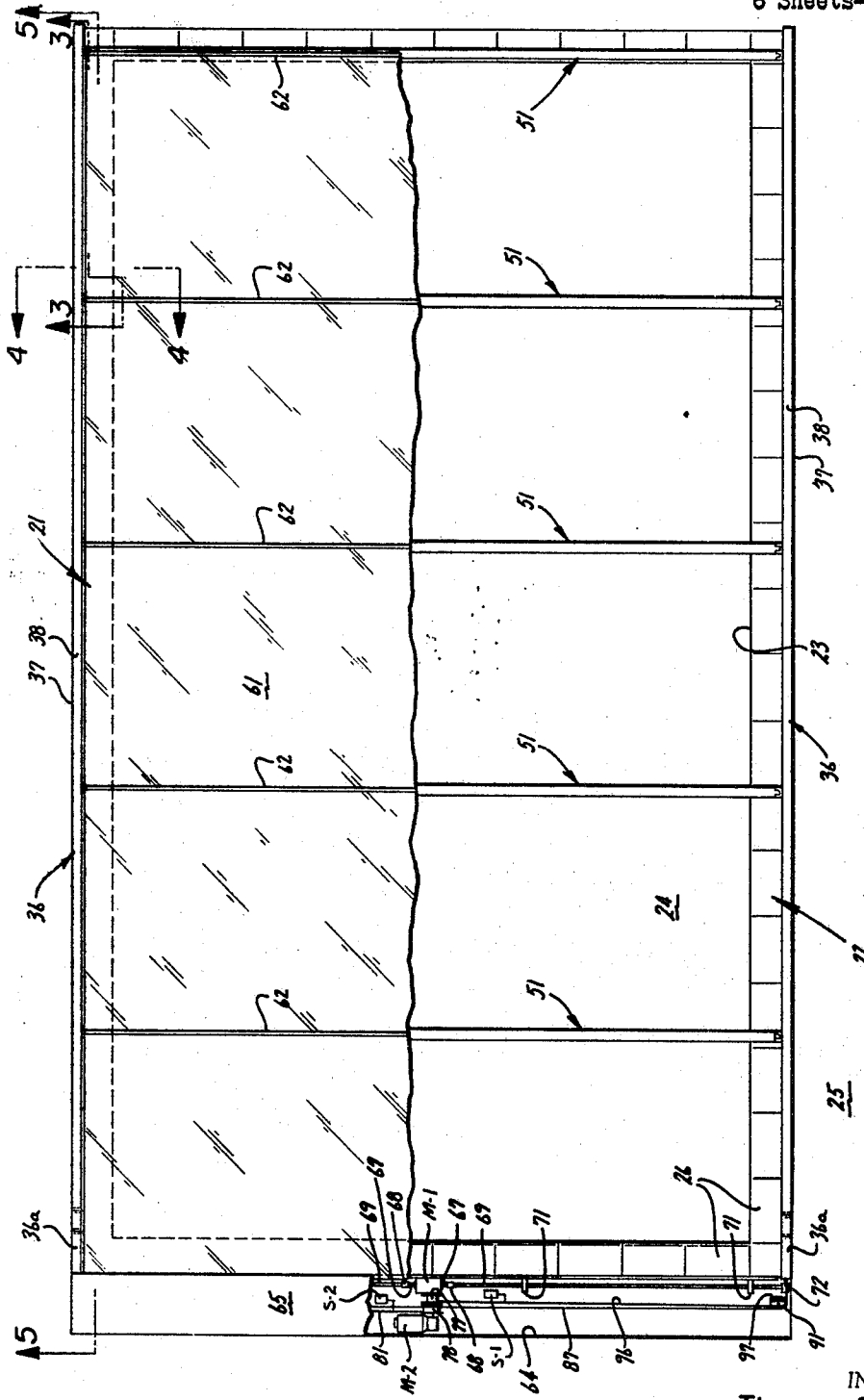


Fig. 2

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RETRACTABLE SWIMMING POOL COVER

Filed Dec. 18, 1967 6 Sheets-Sheet 3

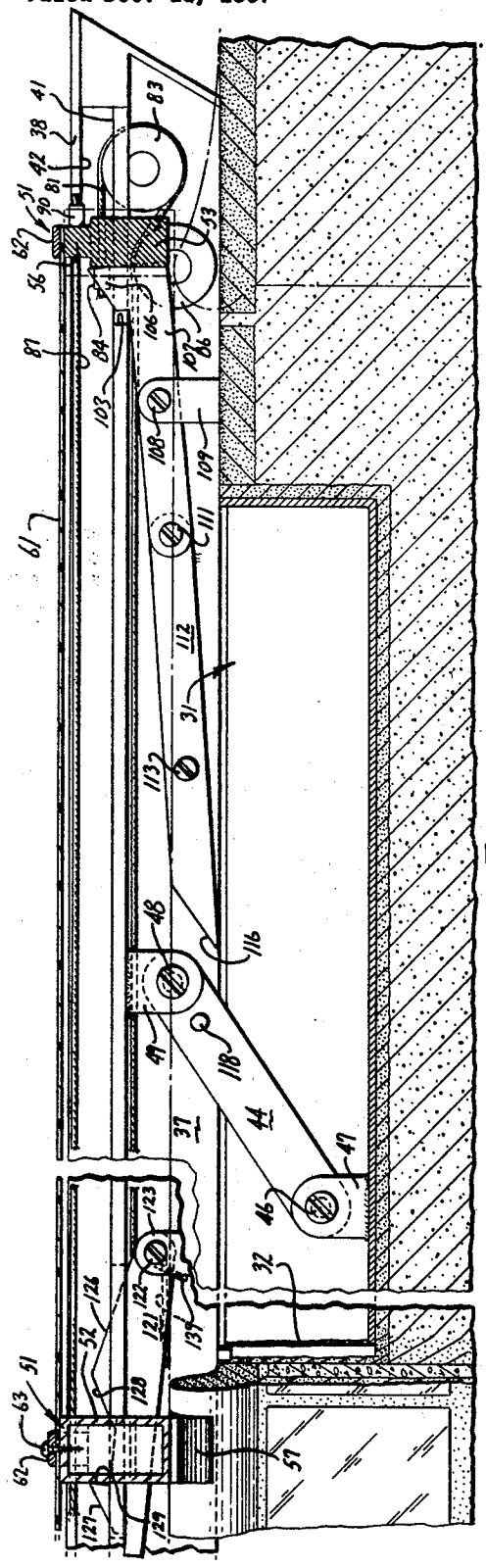


Fig. 3

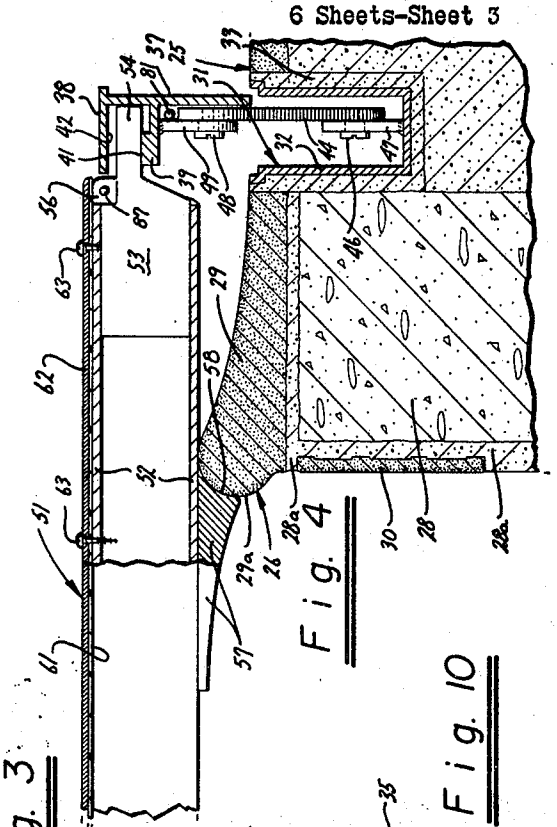


Fig. 4

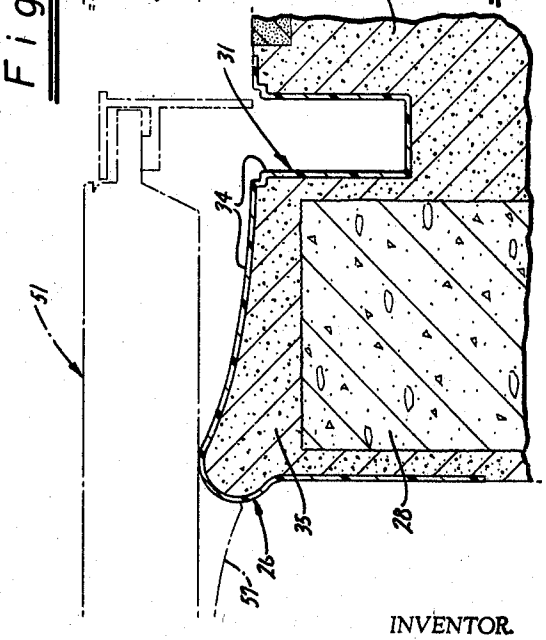


Fig. 10

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RETRACTABLE SWIMMING POOL COVER

Filed Dec. 18, 1967 6 Sheets-Sheet 4

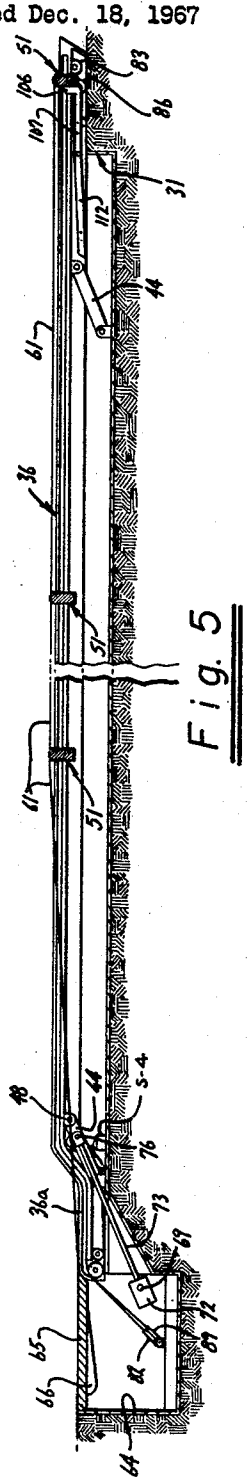


Fig. 5

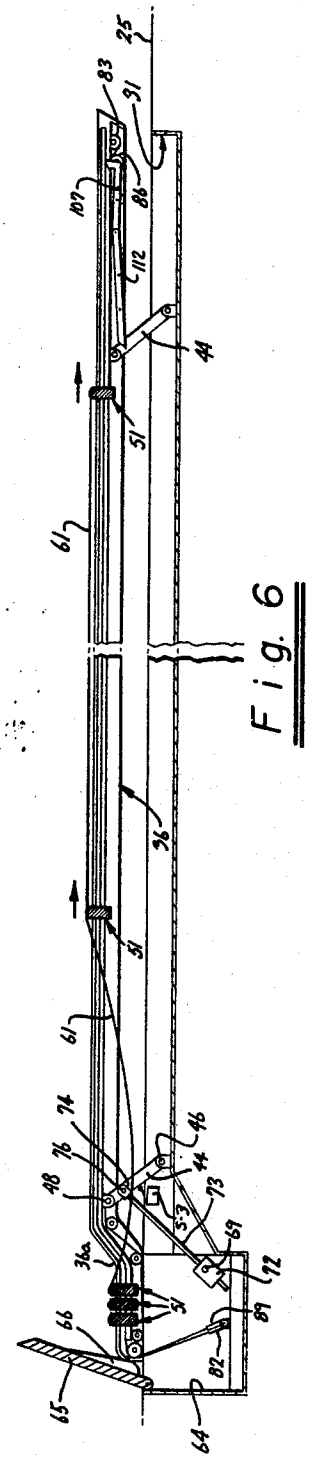


Fig. 6

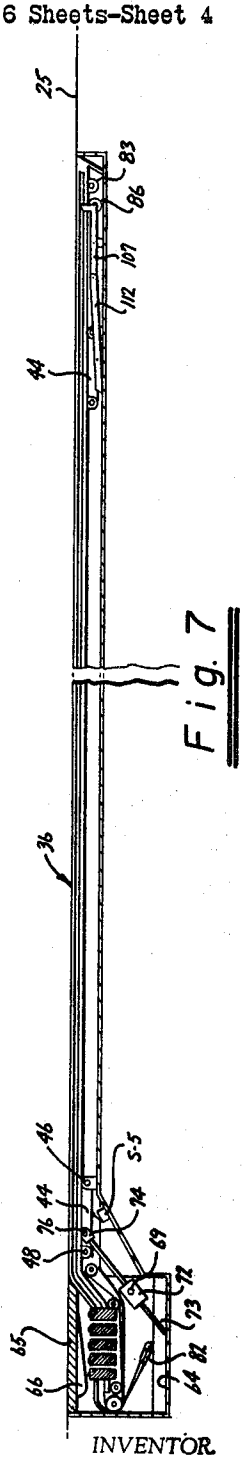


Fig. 7

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RETRACTABLE SWIMMING POOL COVER

Filed Dec. 18, 1967 6 Sheets-Sheet 5

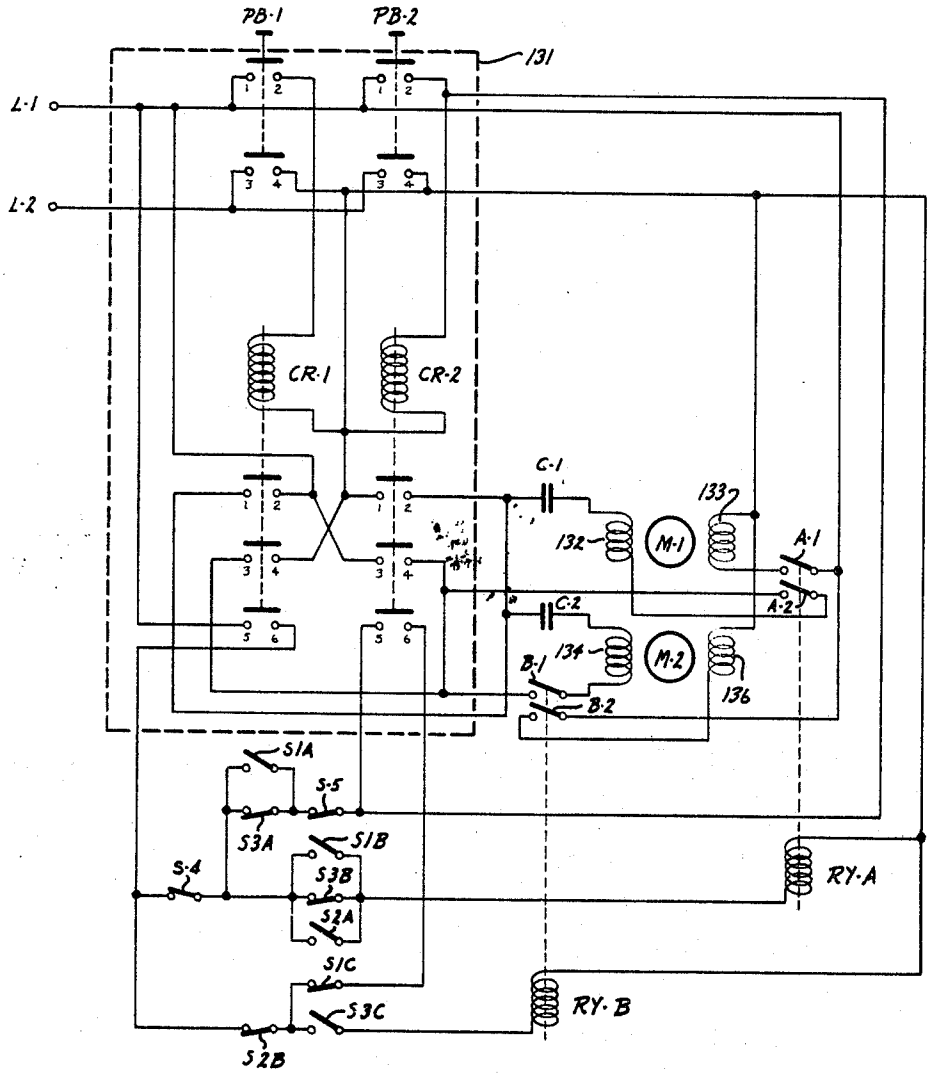


Fig. 11

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RETRACTABLE SWIMMING POOL COVER

Filed Dec. 18, 1967 6 Sheets-Sheet 6

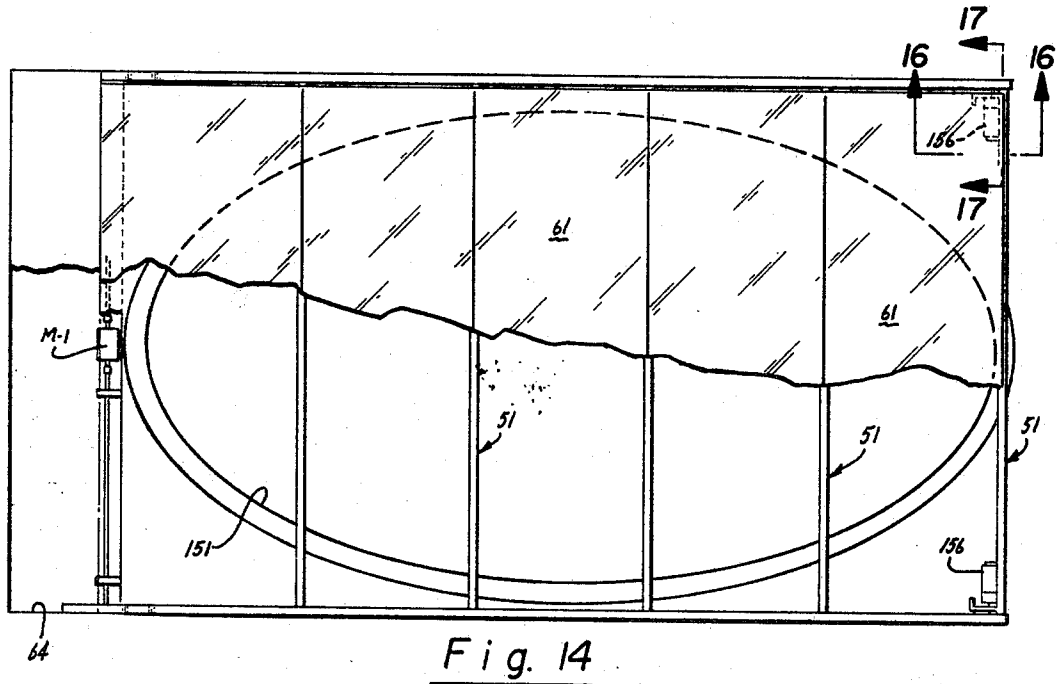


Fig. 14

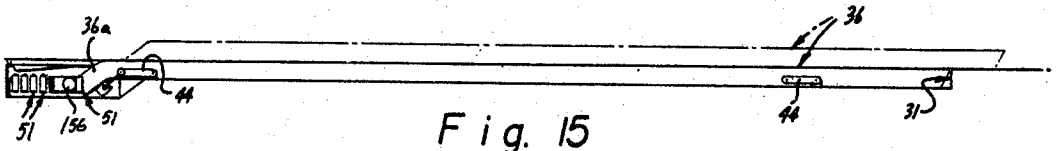


Fig. 15

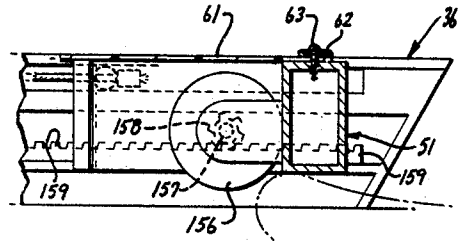


Fig. 16

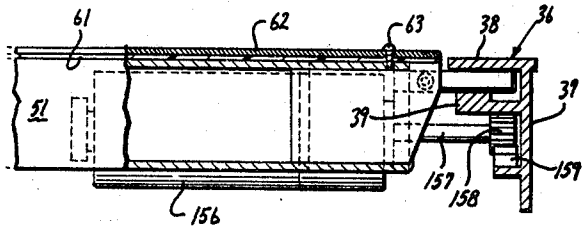


Fig. 17

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United States Patent Office 3,499,174 Patented Mar. 10, 1970

3,499,174

RETRACTABLE SWIMMING POOL COVER

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Filed Dec. 18, 1967, Ser. No. 691,339
Int. Cl. E04h 3/19
U.S. Cl. 4—172.14 16 Claims

ABSTRACT OF THE DISCLOSURE

A swimming pool cover movable between pool-covered and pool-uncovered position and having side rails which are recessed and out of view when the pool is uncovered.

BACKGROUND OF THE INVENTION

Swimming pool covers of many types have heretofore been provided. Each type of pool cover has been subject to a number of objections. For example, the floating type of pool cover must be generally hand hauled into place and must be anchored around a pool. Pockets develop which accumulate debris, rain water and the like. Since such pool covers are difficult to put in place, they are more often off than on. They have also been subject to freezing, cracking, abrasion and the like. Other types of pool covers have been objectionable because they are unsightly when the pool is uncovered. There is, therefore, a need for a new and improved swimming pool cover.

SUMMARY OF THE INVENTION AND OBJECTS

The swimming pool cover comprises a pair of side rails for mounting on opposite sides of the pool for movement between raised and lowered positions. A plurality of battens extend transversely of the rail and are provided with means at their ends to permit the battens to travel in the rails. A flexible covering is carried by the battens. Means is provided for extending and retracting the covering with the battens secured thereto and means for automatically lowering the rails after the cover has been retracted.

In general, it is an object of the present invention to provide a pool cover which, when the pool is uncovered, is out of view.

Another object of the invention is to provide a pool cover of the above character which can be readily operated between open and closed positions.

Another object of the invention is to provide a pool cover of the above character which is substantially automatic.

Additional objects and features of the invention will appear from the following description in which the preferred embodiment is set forth in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGURE 1 is a perspective view of a pool which has a pool cover incorporating the present invention and showing the pool cover covering the pool.

FIGURE 2 is an enlarged plan view of the pool cover shown in FIGURE 1 with certain portions broken away.

FIGURE 3 is a cross-sectional view taken along the line 3—3 of FIGURE 2.

FIGURE 4 is a cross-sectional view taken along the line 4—4 of FIGURE 2.

FIGURE 5 is a cross-sectional view of the pool cover shown in FIGURE 1 showing the pool cover in a position covering the pool.

FIGURE 6 is a cross-sectional view similar to FIGURE 5 but showing the pool being covered.

FIGURE 7 is a cross-sectional view showing the pool completely uncovered.

FIGURE 8 is a schematic illustration showing the manner in which a pool is covered.

FIGURE 9 is also a schematic illustration showing the manner in which the pool is uncovered.

FIGURE 10 is a cross-sectional view showing an alternative construction for the coping and the gutter for the side rails of the pool cover.

FIGURE 11 is a circuit diagram for the pool cover.

FIGURE 12 is a cross-sectional view of another embodiment of the invention showing the position of the pool cover when the pool is uncovered.

FIGURE 13 is a cross-sectional view of the pool cover shown in FIGURE 9 but with the pool cover in a closed or pool covering position.

FIGURE 14 is a top plan view of an alternative embodiment of a pool cover incorporating the present invention with certain portions broken away showing the manner in which the pool cover can be utilized with pools other than rectangular type pools.

FIGURE 15 is a side elevational view of the pool cover shown in FIGURE 14 taken along the line 15—15 of FIGURE 14.

FIGURE 16 is a cross-sectional view of an alternative rack and pinion arrangement which can be utilized for advancing and retracting the pool cover and is taken along the line 16—16 of FIGURE 14.

FIGURE 17 is a view taken along the line 17—17 of the FIGURE 14.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The pool cover **21** shown in FIGURES 1–10 of the drawings is shown covering a rectangular shaped pool **22**. The pool **22** is constructed in a conventional manner and has a large hole **23** for receiving water **24**. The pool is provided with a concrete deck **25** and is bordered on its sides by a coping **26**. The coping **26** can be formed from title or can be constructed in a special manner as shown in FIGURE 10. As shown therein, the foundation **27** for the pool is provided with a bond beam **28** which is adapted to receive the coping **26**. The coping **26** is formed of a suitable material such as tile parts **29** and **30** bonded to the beam **28** by grout **28***a*. The part **29** is provided with a forward rounded portion **29***a*. An elongate recess, trough or gutter **31** extending parallel to the side of the pool is formed by tile **32** which is U-shaped in cross-section and bonded to the beam **28** and the deck **25** by grout **33**. The coping **26** is formed so that one trough **31** is provided on each of the two longer sides of the pool. An alternative construction is shown in FIGURE 10 in which the coping **26** and the trough **31** is formed integral from a fiberglass layer **34** bonded to the beam **28** by concrete **35**.

The pool cover **21** consists of a pair of spaced parallel rails. As can be seen from FIGURE 4, each of the rails in cross-section is provided with a vertical side plate **37**, an integral top plate **38** and an integral bottom plate **39** which is substantially parallel to the top plate **38**. The bottom plate is provided a wear surface **41**. An elongate slot **42** is provided between the top plate **38** and the bottom plate **39** for the purpose hereinafter described.

Means is provided for mounting the rails **36** for movement between raised and lowered positions in the recesses **31** provided in the coping **26**. This means consists of a plurality of links **44** provided for each of the rails which are pivotally mounted on their lower ends by pins **46** carried by ears **47** mounted in the recesses **31** upon the coping **26**. The upper extremities of the links **44** are pivotally mounted by pins **48** upon ears **49** secured to the bottom sides of the rails **36**.

A plurality of battens **51** extend transversely of the rails and are slidably mounted in the rails. Each of the

battens consists of a member 52 of suitable material such as aluminum which in cross-section is in the form of a hollow rectangle. The members 52 are slightly longer than the width of the pool and all except the leading or first batten are crowned in the center so that they slope downwardly in an outward direction on their top surface toward the outer extremeties. Mountings 53 of a suitable material such as solid aluminum are mounted in the ends of each of the members 52 by suitable means such as a press fit. Each of the mountings is provided with a relatively narrow extension 54 which extends generally longitudinally of the member 52 into the slot 42 provided in the associated rail. Each of the members is also provided with an upwardly extending ear 56 positioned adjacent to the adjacent rail 36. A shoe 57 is mounted on each end of the member 52 and is secured to the member. The shoe 57 is provided with a curved surface 58 which is adapted to cooperate with the rounded portion 29*a* of the part 29 so that the battens are guided laterally by the coping 26 as the battens are advanced and retracted as hereinafter described. In addition, the shoes 57 act as blocks when the pool cover is stationary which wedge against the coping 26 to add to the strength of the pool spanning battens 51.

A sheet-like covering 61 is of a suitable material such as a fabric impregnated with a plastic. The fabric, by way of example, could be nylon. The sheet-like covering 61 is secured to the battens 51 by suitable means such as strips 62 and screws 63. The covering 61 is secured to the battens so that the battens are spaced apart at predetermined intervals. The covering 61 is also mounted on the battens so that the covering 61 covers the entire pool 22 both longitudinally and laterally. A well 64 is provided at one end of the pool for receiving the pool cover when it is not in use. The well 64 is provided with a hinged cover 65 which has a cam surface 66 on its bottom side. The rails are provided with down-turned end portions 36*a* which are disposed in the well 64.

Means is provided for raising and lowering the rails 36 into and out of the side recesses 31 and consists of a motor M1 which is mounted in the well 64. The motor M1 can be identified as a rail-actuating motor and is provided with two output shafts 67 which are coupled by couplings 68 to shafts 69 extending laterally of the pool and mounted in pillow blocks 71 provided within the well 64. The shafts 69 extend into linear actuators 72 of a conventional type. As is well known to those skilled in the art, such actuators are provided with a rotating nut (not shown) which is driven by the shaft 69 and advances or retracts a rod 73 which is threaded into the nut. The rod 73 is connected to the rearmost link 44 by a U-shaped coupling 74 which is threaded onto the rod 73 and is pivotally connected to the link 44 by a pin 76. The motor M1 is reversible and, as can be seen from FIGURES 5, 6 and 7 as hereinafter described, the rails 36 can be moved between a position within the recesses 31 when the pool is uncovered to a raised position out of the recesses 31 in which the pool is covered.

Means is provided for extending and retracting the pool cover when it is out of the well 64 and consists of a gear head motor M2 also mounted within the well 64 and which drives a pair of drums 78 and 79. The drum 78 carries a cable 81 of a suitable material such as nylon cord which is reeved over pulleys 82 and 83 and has an end secured to the extension 54 of the leading batten 51 by a clamp 84 (FIGURE 9). An additional pulley 86 is provided for guiding the cable 81 as can be seen from FIGURE 3. Another cord or cable 87 is secured to the ear 56 by a clamp 90 (FIGURE 3) and extends to the rear from the leading batten 51 and passes over a pulley 89 and then extends between the two drums 78 and 79 and over a pulley 91 and over a pulley 92 rearwardly to the leading batten on the opposite side on which it was originally connected and is secured to the extension 54 by a clamp 93. The other drum 79 is also provided with a cable 96 which passes over a pulley 97 and is secured to the rear side of the leading batten 51 by a clamp 98.

In order to make the span between the battens relatively large and also to prevent the covering 61 from drooping downwardly too far when the battens are gathered together when the cover is open, means is provided for placing additional folds in the covering 61 between the battens when the cover is opened up and consists of at least one cable 101 between each pair of battens extending transversely of the cover and sewn to the cover. The cable 101 can be formed of any suitable material such as nylon cord. The cable 101 is provided with grommets 102 on opposite ends which are mounted on the cables 81 and 96 and slide on the cables.

Means is provided for locking or retaining the pool cover in a relatively taut pool covering position and consists of a foot 106 mounted on each end of the extreme edge of the pool and adapted to engage the leading batten 51 through a slot 103 provided in the associated rail 36 as shown in FIGURE 3. The foot 106 is carried by an arm 107 pivotally mounted at a point intermediate its ends upon a pin 108 carried by an ear 109 affixed to the associated rail 36. The arm 107 is pivotally connected by a pin 111 to another arm 112 pivotally mounted on a pin 113 affixed on one of the rails. The rear extremity of the arm 112 is provided with an inclined cam surface 116 which is adapted to be engaged by a pin 118 carried by the foremost link 44.

Supplemental means is provided for engaging the battens 51 other than the leading batten 51 so that the force required for holding the cover taut is uniformly distributed over the length of the pool cover. This means consists of cam members 121 pivotally mounted by screws 122 upon ears 123 mounted upon the rails 36. Each of the cam members 121 is provided with inclined cam surfaces 126, 127 and 128. Each cam member 121 is also provided with a latching surface 129 adapted to retain a batten 51 as hereinafter described. Means is provided for yieldably urging each of the cam members upwardly and consists of a spring 139 having one end engaging the ear 123 and the other end engaging the cam member 121.

The swimming pool cover includes control circuitry which is shown in FIGURE 10. The control circuity is connected to terminals L1 and L2 which are connected to a suitable source of supply such as 110 volts, 60 cycle, single phase A-C. The control circuitry also includes a control panel 131 which has push buttons PB1 and PB2 mounted therein. A pair of reversing contactors CR1 and CR2 are mounted within the control panel and are mechanically interlocked so that only one can operate at a time. The control circuity also includes a pair of relays, the windings of which are identified as relay RY–A and RY–B, respectively. Associated with these relays are contacts A and B, with the contact A being operated by the relay RY–A and the contact B being operated by the relay RY–B. The circuitry also includes a plurality of limit switches S1, S2, S3, S4 and S5 which are provided with contacts as shown in FIGURE 10. The limit switches are operated in a manner hereinafter described. The motors M1 and M2 are shown with the motor M1 having a starting winding 132 and a main or running winding 133, and the motor M2 having a starting winding 134 and a main or running winding 136. As can be seen from FIGURE 10, a starting capacitor C1 is connected in series with the starting winding 132 and a capacitor C2 is connected in series with the starting winding 134.

Operation of the swimming pool cover may now be briefly described as follows. Let it be assumed that the swimming pool is covered as shown in FIGURE 1 and that it is desired to uncover the pool. To uncover the pool, the push button BP2 is operated and held in an engaged position. This causes energization of the reversing contactor CR2 from line L1 through contacts 1 and

2 of PB2 through the winding of the reversing contactor CR2 through contacts 3 and 4 of PB2 to line L2. Relay RY–A is operated next. This relay is operated by completing a circuit from line L1 through contacts, 1 and 2 of PB2 through normally closed switch 55, through normally closed contacts S3–A of limit switch S3, through normally closed contacts S3–B of limit switch S3, through the winding of relay RY–A, through contacts 3 and 4 of PB2 to the line L2. Energization of relay A closes its contacts A1 and A2. Closing of the contacts A1 applies energy to the starting winding of the motor M1 from line L1 through contacts 3 and 4 of the reversing controller CR2, through contacts A1 of relay RY–A, through the winding 132, through the capacitor C1, contacts 1 and 2 of the reversing contactor CR2, through contacts 3 and 4 of pushbutton PB2 to line L2. Energy is supplied to the starting winding 132 which starts operation of the motor M1. Energy is also supplied to the main winding 133 of the motor M1 from the line L1 through contacts A2 of the relay RY–B, through contacts 3 and 4 of PB2 to line L2. Operation of the motor M1 causes rotation of shaft 67 to cause operation of the linear actuators 72 to cause pivotal movement of the links 44 to thereby raise the rails 36 out of recesses 31 and to cause the rails 36 to engage the cam surfaces 66 to open the door 65. This operation continues until the limit switch S3 is operated by the rearmost link 44 when the rearmost link is in a substantially vertical position. Just prior to operation of limit switch S3, the pins 118 carried by the forward links 44 strike the cam surfaces 116 on the arm 112 and cause the foot 106 to be moved downwardly to clear the leading batten 51 to permit it to be retracted relative to the rails 36.

Operation of the limit switch S3 deenergizes relay A by opening of the contacts S3–B of limit switch S3. At the same time, relay RY–B is energized through the contacts S3–C which are closed by operation of the limit switch to supply power from line L1 through contacts 1 and 2 of PB2 through contacts 5 and 6 of the reversing contactor CR2 through contacts S1–C of limit switch S1, contacts S3–C of limit switch S3, through the winding of relay RY–B, through contacts 3 and 4 of PB2 to line L2. Energization of relay B closes its contacts B1 and B2 to cause energization of the motor M2 in generally the same manner as the motor M1 is energized. Operation of the motor M2 causes rotation of both drums 78 and 79 which causes the cables 81 and 96 carried thereby to be retracted to withdraw the battens 51 and the cover 61 carried by the battens. As can be seen particularly from FIGURE 9, this is accomplished by the cable or cord 96 which is carried by the drum 79 which pulls on the lower part of the forward or leading batten 51. This pull is transmitted through the other cable 87 over the pulleys 92, 91 and 99 to the rear of the other side of the batten so that both ends of the leading batten are retracted simultaneously. This causes gathering of the cover 61 and to cause it to fold up.

As the leading batten is retracted, it strikes the cam surfaces 126 of the cam members 121 to depress the cam members 121 to release the next batten 51. The two battens are then retracted and release the next batten in the same manner. In this way, all of the other battens are gathered and brought to the end of the pool to uncover the pool.

As soon as the pool is completely uncovered, limit switch S1 is operated by a knot or collar (not shown) on the nylon cord 96 which engages the operating lever of the switch S1 as shown in FIGURE 2. As soon as switch S1 is operated, relay RY–B is deenergized and relay RY–A is energized. Relay RY–A is energized from line L1 through contacts 1 and 2 of PB2, through the contacts of switch S5, the contracts S1–A of switch S1, the contacts of S1–B of limit switch S1, the coil of relay RY–A, contacts 3 and 4 of PB2 to line L2. Motor M1 is re-started in the manner hereinbefore described and runs in the same direction as it ran previously. M1 operates until S5 is operated by the rearmost link 44 (see FIGURE 7. Operation of limit switch S5 opens contact S5 to deenergize relay RY–A to stop the motor M1. This latter operation of the motor M1 causes the rails 36 to be completely retracted within the recesses 31. At the same time, the lowering of the rails permits the cover 65 to move to a closed position as shown in FIGURE 7. Thus with the construction shown, the pool cover is completely hidden from view and does not obstruct the beauty of the pool. The pool cover is completely recessed within the side recesses 31 and within the well 64.

When it is desired to close the pool, the pushbutton PB1 is operated which causes energization of the reversing contactor CR1 and provides power to the motors M1 and M2 so that when the relays RY–A and RY–B are operated to close the power to the windings, the motors will run in the opposite direction. Thus, initially, the motor M1 is started by energization of the relay RY–A from line L1 through contacts 5 and 6 of CR1 through switch S4, switch S3–B, the winding of relay RY–A, contacts 3 and 4 of PB2 to line L2. Motor M1 is operated until rails are again moved out of the recesses or troughs 31 and are positioned above the pool. S3 is again operated. Operation of limit switch S3 deenergizes relay RY–A and energizes relay RY–B. Relay RY–B is established from line L1 through contacts S2–B and limit switch S2, contacts S3–C of limit switch S3, the winding of relay RY–B through contacts 3 and 4 of pushbutton PB1 to line Y2.

Energization of relay RY–B closes the switches B1 and B2 to operate the motor M2, however in the reverse direction to that hereinbefore described. Cable 81 is pulled in and wrapped onto the cable drum 78 to cause the forward or leading battern 51 to be pulled out of the well 64 and to cause it to pull the covering 61 which causes each of the battens to be progressively moved out of the well 64 and to move along the rails to cover the pool. As the battens 51 are advanced, they sequentially strike cam surfaces 127 and 128 to depress the cam members to permit the battens 51 to pass over the same. This action continues until the switch S2 is operated. S2 is operated by a knot or collar (not shown) carried by the cord 81 which is positioned so that the motor M2 is deenergized when the covering 61 has been advanced sufficiently to cover the entire pool. Just prior to operation of switch S2, the leading batten advances over the foot 106, and as soon as the leading batten clears the foot 106, they automatically are raised by force of gravity through the slots 103 to latch the leading batten in its forwardmost position. At approximately the same time, the following battens 51 move over the cam surfaces 127 of the cam members 121 so that the cam members 121 can snap upwardly and by their surfaces 129 latch the battens 51 in their forwardmost positions to thereby evenly distribute the forces over the covering 61 for maintaining the covering 61 taut.

Operation of the switch S2 causes deenergization of the relay RY–B by opening its contacts S2–B. Relay RY–A is then energized by the closing of contacts S2–A to establish a circuit through S4. This causes the motor M2 to continue operating in the reverse direction to lower the rails 36 until they engage the side surfaces of the pool and also until the leading batten engages the surface in front of the pool. Downward movement continues until the limit switch S4 is operated (see FIGURE 5). Operation of S4 opens its contacts S4 which deenergizes relay RY–A. The pool cover is now in place and is in a position so that it can be uncovered in the manner hereinbefore described.

From the foregoing operation, it can be seen that the covering of the pool is substantially automatic and it is only necessary to operate the pushbutton PB1 and PB2 to accomplish this. For safety reasons, the circuit has been

designed so that the pushbuttons PB1 and PB2 must be held in during operation. If the pushbutton is released, the motor energized at the time will stop immediately and will not continue operation until the pushbutton is again operated. The construction of the pool cover is such that when the pool is covered, the rails have been lowered sufficiently so the extremities of the battens rest upon the sides of the pool and that the front or leading batten is also resting upon the concrete surface or deck **25** surrounding the pool. Thus, it can be seen that a relatively tight enclosure is provided for covering the pool which is also very rigid. The battens are crowned as hereinbefore described so that water and other debris collecting on the cover will have a tendency to run off at the sides. The shoes **57** on the battens engage the coping **26** to prevent lateral movement of the pool cover.

During operation of the pool cover, the travelling movement of the battens within the rails is concealed within the rails so that there is very little likelihood of other objects becoming entangled in the battens during the covering and uncovering of the pool.

Another embodiment of the pool cover is shown in FIGURES 12 and 13. This embodiment is provided in the event that it is not desired to provide a deep well at one end of the pool for storing the battens. As shown in FIGURES 12 and 13, in place of the well **64**, a raised compartment **141** having a door **142** can be provided. The rails **36** are provided with an upturned portion **36***b* rather than a downturned portion as in the embodiment hereinbefore described so that the battens move upwardly as they are gathered within the compartment **141** rather than moving downwardly into the portions **36***a* and into well **64** of the embodiment hereinbefore described. The operation of this embodiment of the pool cover is substantially identical to that hereinbefore described.

FIGURE 14 shows another embodiment of the pool cover and, in addition, shows the manner in which it can be utilized for covering a pool which is other than rectangular in shape. Thus, in FIGURE 14, there has been provided a pool **151** which is oval shaped. The general arrangement of the pool cover is very similar to the pool cover hereinbefore described with the exception that the means for advancing and retracting the battens has been changed. Thus, as shown in FIGURES 16 and 17, the leading batten **51** has a pair of motors **156** mounted on opposite ends thereof which are provided with output shafts **157** having pinions **158** mounted thereon. The pinions engage racks **159** extending longitudinally of the rails **36**. If desired, the racks **159** can be provided in sections which can be readily mounted within the rails **36**. The racks extend longitudinally of the rails the entire length of the rails. In all other respects, the operation of the pool cover is substantially identical to that hereinbefore described. The leading batten is advanced and retracted and either pulls the following battens or pushes the battens which are behind.

It is apparent from the foregoing that there has been provided a new and improved pool cover which has many advantages. Because of ease of operation, the pool owner will be able to keep the pool covered when it is not in use. This will retain heat and, in addition, will make it possible to keep the pool cleaner and also will help to preserve the chlorine in the pool. The pool cover is also a type which can be adapted to various types of pools. It is particularly advantageous in that when it is not in use it is completely out of sight and does not detract from the appearance of the pool.

I claim:

1. In a swimming pool cover for use in covering a swimming pool having a deck formed around the pool, a pair of side rails disposed on opposite sides of the pool, means for mounting the side rails for movement between raised and lowered positions with respect to the deck of the pool, a plurality of battens extending transversely of the pool and having their ends slidably mounted in the rails, a flexible covering carried by the battens and secured to the battens, means for advancing and retracting the battens and the covering carried thereby longitudinally of the pool, and means for moving the rails into a lowered position so that the battens rest upon the pool deck.

2. A swimming pool cover as in claim **1** together with means forming recesses disposed on opposite sides of the pool and wherein said rails are mounted in said recesses for movement between the lowered position within said recesses and a raised position out of said recesses.

3. A swimming pool cover as in claim **1** wherein said means for mounting said rails for movement between raised and lowered positions includes a plurality of links pivotally connected to said rails and to said deck, and means for causing pivoting of said links to cause raising and lowering of said rails.

4. A swimming pool cover as in claim **1** together with a compartment mounted at one end of the pool and wherein said rails extend into said compartment whereby when said pool is uncovered and said battens have been gathered together, they are disposed in said compartment.

5. A swimming pool cover as in claim **4** wherein said compartment is disposed below the surface of the deck.

6. A swimming pool cover as in claim **4** wherein said compartment is provided with a cover movable between open and closed positions and whereby said rails carry means adapted to move said cover to an open position as said rails are raised.

7. A swimming pool cover as in claim **1** wherein said means for advancing and retracting the battens includes a pair of motor-driven winches and cables carried by said winches and connected to the leading batten.

8. A swimming pool cover as in claim **1** wherein said means for advancing and retracting the battens includes rack means extending longitudinally of the pool on opposite sides thereof and a motor-driven pinion carried by the leading batten and engaging said racks.

9. A swimming pool cover as in claim **1** wherein said means for raising and lowering the swimming pool cover includes a linear actuator of the rotating nut type, a shaft extending into the rotating nut and means for rotating the shaft.

10. A swimming pool cover as in claim **1** wherein said means for advancing and retracting the battens and the covering carried thereby includes a motor and a pair of winches connected to said motor and driven by said motor and cables mounted on said winches and connected to said battens.

11. A swimming pool cover as in claim **1** together with means carried by the rails for retaining said pool cover in a taut condition after the pool has been covered.

12. A swimming pool cover as in claim **11** wherein said means for retaining said pool cover includes means for latching each of said battens in a predetermined position.

13. In a swimming pool cover for use in covering a swimming pool surrounded by a deck, means mounted in the deck providing a pair of recesses on opposite sides of the pool extending longitudinally of the pool, a pair of spaced rails, means mounting said rails in said recesses for movement between a position in said recesses and in a position out of said recesses, a plurality of battens extending transversely of the pool, means mounted on the ends of the batten and carried by the rails causing movement of the battens longitudinally of the rails, a covering secured to the battens and carried by the battens, a receptacle at one end of the pool for storing the battens when the pool is uncovered, said rails extending into said receptacle, means for raising the rails and the battens carried thereby when it is desired to move the battens out of the receptacle, means for advancing the battens out of the receptacle and advancing them longitudinally of the rails, means for automatically stopping the advance of

the battens when the leading batten has reached a predetermined position, and means automatically operated for lowering the rails so that the battens rest on the deck surrounding the pool.

14. A swimming pool cover as in claim **13** together with means carried by the rails for latching the swimming pool cover in a pool covered position with the covering in a relatively taut condition.

15. A swimming pool cover as in claim **14** together with means for automatically releasing the means for latching when the pool is uncovered.

16. A swimming pool cover as in claim **13** wherein said means for advancing and retracting the battens includes a rack mounted in a fixed position carried by the rails, a pinion mounted on the battens and a motor carried by the battens and driving the pinion for advancing and retracting the battens.

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