March 10, 1964 R. E. RANK ETAL 3,123,834

SWIMMING POOL AND SAFETY PLATFORM

Filed June 28, 1961 4 Sheets-Sheet 1

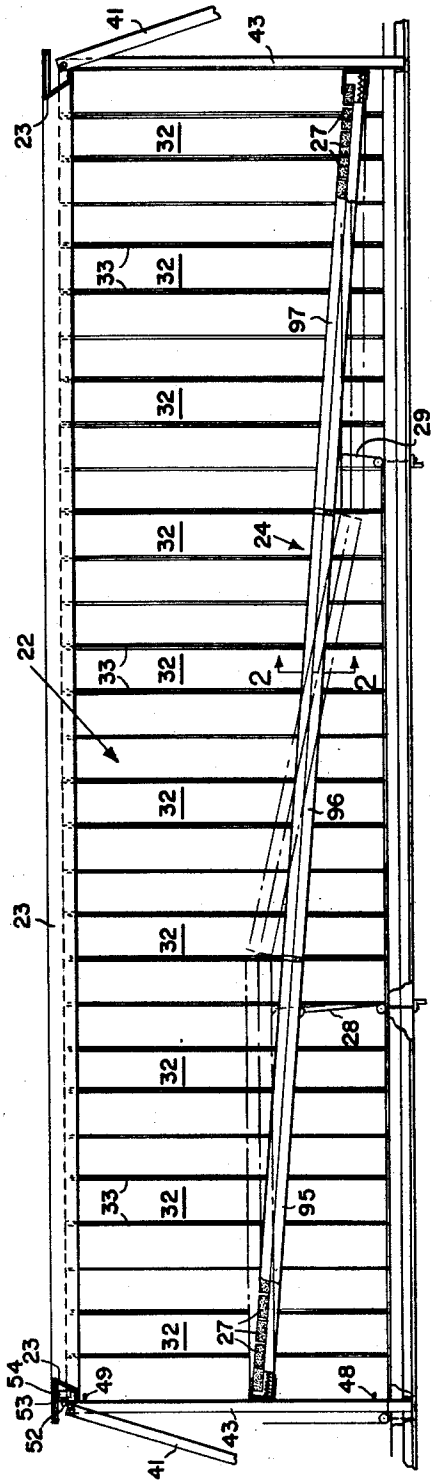


FIG. 1.

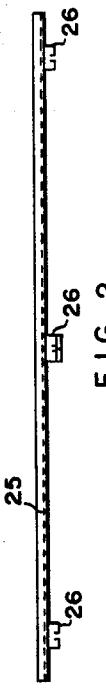


FIG. 2.

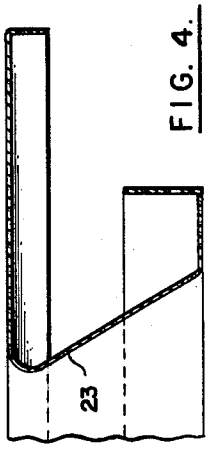


FIG. 4.

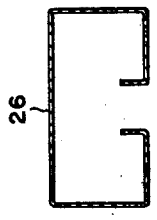


FIG. 3.

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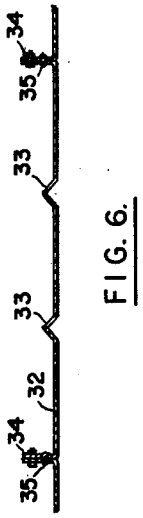


FIG. 6.

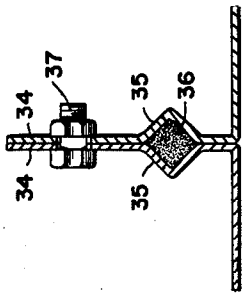


FIG. 7.

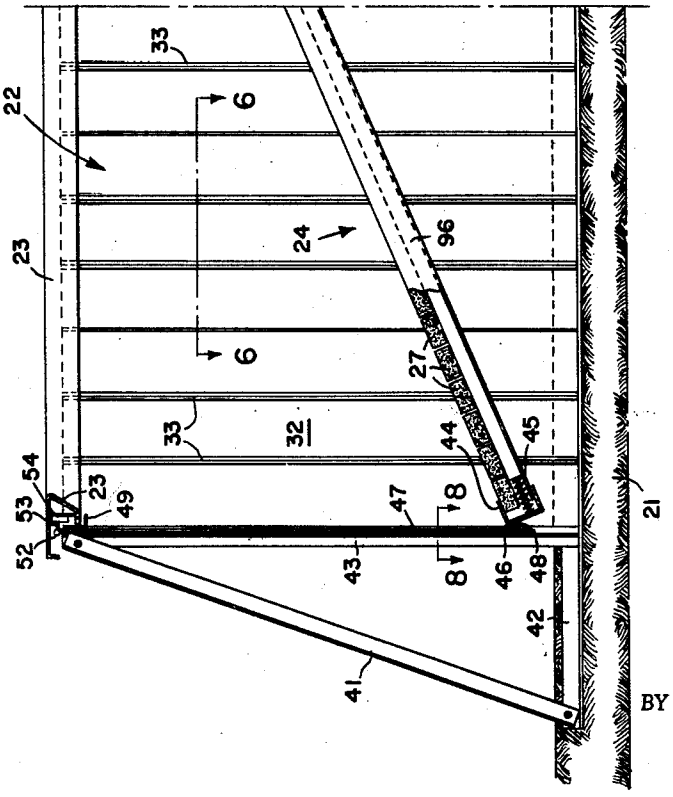


FIG. 5.

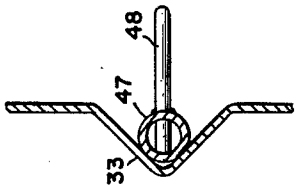


FIG. 8.

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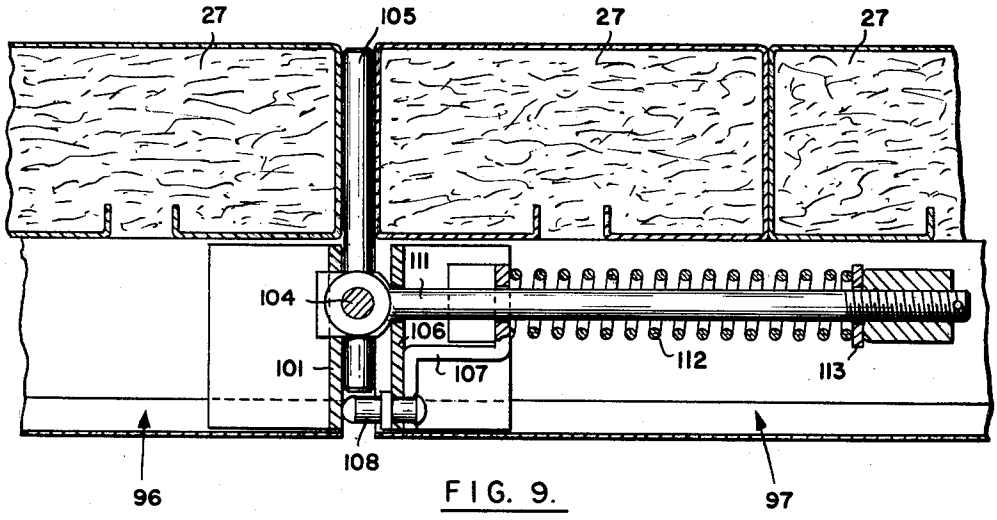


FIG. 9.

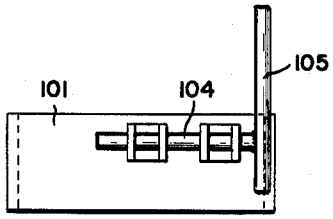


FIG. 10.

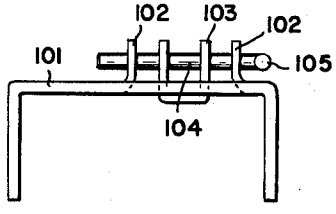


FIG. 11.

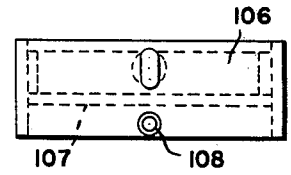


FIG. 12.

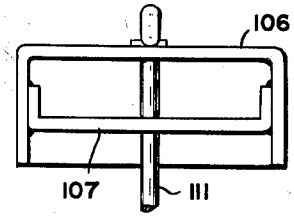


FIG. 13.

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SWIMMING POOL AND SAFETY PLATFORM

Filed June 28, 1961 4 Sheets-Sheet 4

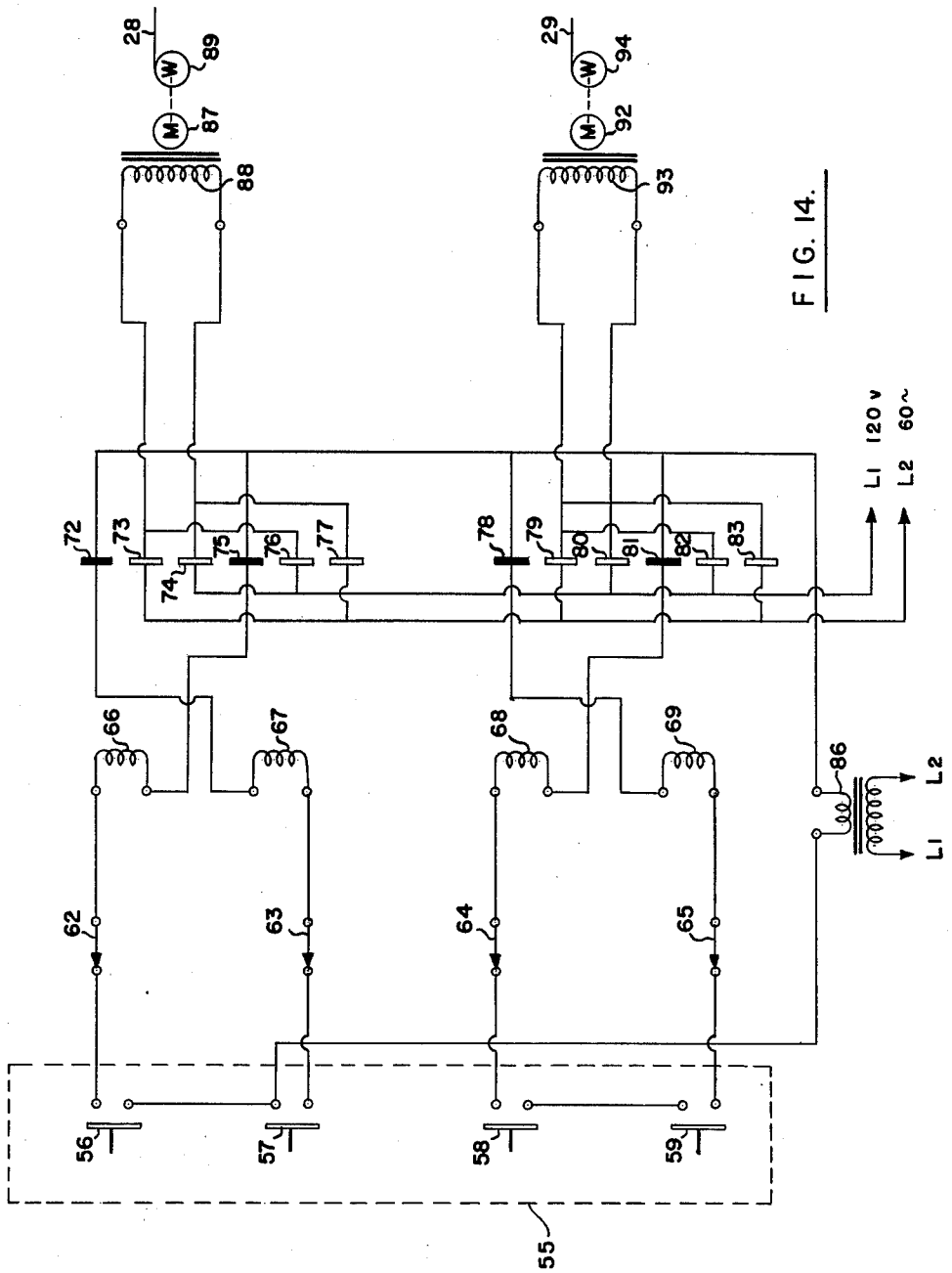


FIG. 14.

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United States Patent Office 3,123,834 Patented Mar. 10, 1964

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SWIMMING POOL AND SAFETY PLATFORM

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Filed June 28, 1961, Ser. No. 120,337
7 Claims. (Cl. 4—172)

This invention relates to improvements in a swimming pool and safety platform therefor, and more particularly concerns a swimming pool safety platform which is buoyant and rises to the surface of the water in the pool to form a safety cover and is pulled downwardly against the buoyant force to assume a desired position, and a swimming pool which is provided with sides formed of flanged panels having an improved, resilient, watertight seam.

It has long been a problem to provide swimming pools with protection against accidental drownings, especially of children. Fences around pools have been heretofore proposed, and in some localities are required by law. However, fences may always be climbed, and fence gates are not always locked.

Another problem arises because the seams of the side panels of a swimming pool are subjected to a great deal of stress and to large variations in the amount of stress. The weather plays a part in this stress variation, as does the condition of the ground in which the swimming pool is built; whether the ground is sandy or rocky, whether it is wet or dry, whether it is frozen or not, and so on. Another factor which influences the stress on the sides of the swimming pool is whether or not the pool is filled with water. When filled, the water exerts an outward pressure against the side of the pool to counteract the inward pressure of the ground in which the pool is built. But pools are usually drained in the wintertime and have no water in them to exert such outward pressure.

Therefore, it has been a different problem to provide a watertight seam between side panels of swimming pools, which seam is resilient rather than brittle so as to "breathe" with the variations and stresses to which it is subjected.

Accordingly, it is an object of this invention to provide a swimming pool and safety platform therefor which overcomes the problems and disadvantages of the prior art.

It is another object of this invention to provide a safety platform in a swimming pool which may be set to any desired depth.

It is another object to provide a safety platform which is adapted to nest against the bottom of the pool coping to completely cover the pool and prevent access to the water.

It is another object to provide a safety platform which automatically rises to the surface of the pool should there be a failure in the mechanism which sets it to a desired dpeth.

It is another object to provide a swimming pool having side panels with watertight seams that are resilient and non-brittle.

Other objects and advantages of this invention, including its simplicity and economy, will further become apparent hereinafter and in the drawings, in which:

FIG. 1 is a view in elevation and partly in section of a swimming pool and safety platform constructed in accordance with this invention;

FIG. 2 is a view in section taken as indicated by the lines and arrows 2—2 which appear in FIG. 1 and shows a platform slat which is an element of this invention;

FIG. 3 is a view in vertical section of the platform slat of FIG. 2;

FIG. 4 is an enlarged view in section of the coping of the swimming pool;

FIG. 5 is a partial view on an enlarged scale of the swimming pool of FIG. 1;

FIG. 6 is a view in section taken as indicated by the lines and arrows 6—6 which appear in FIG. 5;

FIG. 7 is a view on an enlarged scale of one of the side panel seams shown in FIG. 6;

FIG. 8 is a view in section taken as indicated by the lines and arrows 8—8 which appear in FIG. 5;

FIG. 9 is a view of the hinged connection between platform sections;

FIG. 10 is a view in elevation of the end of the platform section which appears on the left in FIG. 9;

FIG. 11 is a view in bottom plan of FIG. 10;

FIG. 12 is a view in elevation of the end of the platform section which appears at the right in FIG. 9;

FIG. 13 is a view in bottom plan of FIG. 12; and

FIG. 14 is a diagrammatic view of the electrical circuit which controls the mechanism of the invention.

Although specific terms are used in the following description for clarity, these terms are intended to refer only to the structure shown in the drawings and are not intended to define or limit the scope of the invention.

Turning now to the specific embodiment of the invention selected for illustration in the drawings, there is shown a swimming pool having a bottom **21** and sides **22**, a metal coping 23 positioned around the pool and extending inwardly from the sides 22, a safety platform 24 having a series of parallel hollow slats 25 connected together by runners 26, an insert 27 made of a buoyant material such as expanded polystyrene positioned in the hollow channel of slats 25, and means including cables 28, 29 connected to safety platform 24 for moving it against the buoyant force toward the bottom **21** of the swimming pool and holding it in any desired position.

The sides 22 of the swimming pool are formed of a series of plates or metal side panels 32 which are provided with flutes 33 for strength and have flanges 34 extending therefrom.

As is shown on an enlarged scale in FIG. 7, flanges 34 are provided with recesses or grooves 35 which form a calking chamber 36 when adjacent flanges 34 are placed in abutment. Adjacent flanges 34 are fastened together by bolts and nuts 37 and chamber 36 is filled with any suitable calking material, such as a plastic base calking compound.

Structural frame members **41–43** support the outside of swimming pool sides 22.

The method of building the swimming pool of the present invention comprises the steps of making an excavation, erecting a frame (frame members 41–43), erecting a series of the flanged side panels 32 extending upwardly from frame member 42 to form the sides 22 of the pool, fastening adjacent flanges 34 together as by bolting or riveting to form a seam, pouring concrete pool bottom 21, filling calking chamber 36 with calking material by inserting a probe into the chamber 36 from the top so that the nose of the probe is in proximity to the bottom of chamber 36, and extruding the calking material from the probe into the bottom of chamber 36 and continuing upwardly to fill chamber 36 (and also on the corners of the pool, between grooves 35 and corner upright support member 43), thereby avoiding the creating of air holes so as to form resilient watertight joints.

Referring now more particularly to FIG. 5, each end of safety platform 24 is provided with an extendible member 44 which is urged outwardly by a spring 45 to contact the sides 22 of the swimming pool at all times, even when safety platform 24 is not horizontal but is canted at an angle to the horizontal. Extendible member 44 may be provided with a nose 46 made of Teflon or other plastic material having good anti-friction, bearing properties, if desired.

Referring now more particularly to FIGS. 5 and 8, positioned in one of the flutes 33 adjacent each extendible member 44 is a rod 47, preferably made of tubular aluminum, having mounted thereon a lower trip 48 and upper trip 49, and being connected through clevis 52 to an actuating arm 53 of a double pole, single throw, snap switch 54. It will be noted that switch 54 is mounted within coping 23 so as to be out of the way and out of the water.

Switch 54 acts as a safety device in that safety platform 24 actuates lower trip 48 to shut off the drive motor when safety platform 24 has reached its lowermost position, thereby protecting cables 28, 29 against undue strain. Similarly, safety platform actuates upper trip 49 to shut off the drive motor to protect cables 28, 29 by preventing them from unreeling too much when safety platform 24 has reached its uppermost position nesting against the bottom of coping 23.

Referring now to the electrical circuit of FIG. 14, there is shown a control box 55 having push buttons 56–59, which may be positioned at a remote location away from the pool and inaccessible to trespassers, limit switches 62, 63 for one end of the pool, and limit switches 64, 65 for the other end of the pool.

Limit switch 62 is normally closed and is opened when one end of safety platform 24 rises to its uppermost position in contact with coping 23. Similarly, safety switch 64 is actuated to open the circuit when the other end of safety platform 24 rises to its uppermost position beneath and in contact with coping 23. Referring back to FIG. 5, for example, limit switch 62 is opened by switch 54 when upper trip 49 is actuated by safety platform 24.

When lower trip 48 is actuated by safety platform 24, switch 54 operates to open limit switch 63 and thereby open the circuit. Similarly, when the other end of safety platform 24 reaches its lowermost position, it opens bottom limit switch 65 to open the electrical circuit.

Also shown in the electrical circuit of FIG. 14 are transformer coils 66–69, contacts 72–83, 6-volt transformer 86 (the 120 volt 60 cycle line voltage is reduced in the control circuit to 6 volts to avoid the danger of electrical shock, especially in proximity to water), line voltage electrical conductors L1 and L2, motor 87 with its winding 88 and winch 89, and motor 92 with its winding 93 and winch 94.

Winch 89 is connected to cable 28 and winch 94 is connected to cable 29. It is, of course, to be realized that cable 28 is two cables, one positioned on each side of safety platform 24 in order to more evenly distribute the pulling force on the platform, and cable 29 is two cables for the same reason.

Motors 87 and 92 are reversible, and the control circuit sends current through one direction or the other of windings 88 and 93.

In operation, pushing the up-button 56 activates transformer coil 66 to open contact 72 (thus opening the circuit to transformer 67 to prevent short circuiting) and close contacts 73—74 to send current over line conductors L1—L2 through winding 88 to turn motor 87 in the proper direction so as to cause winch 89 to unreel cable 28 which permits safety platform 24 to rise because of its buoyancy.

Similarly, pushing the down-button 57 opens contact 75 (which opens the circuit to transformer 66 to prevent short circuiting) and closes contacts 76—77 to send line current through winding 88 in the opposite direction to cause motor 87 to rotate in the opposite direction and cause winch 89 to reel in cable 28 to lower safety platform 24.

In a similar manner, the up-button 58 and the down-button 59 control the motor 92, winch 94 and cable 29.

Safety platform 24 is shown in FIG. 1 as made up of three platform sections 95–97, which are hingedly joined together by the hinge mechanism illustrated in FIGS. 9–13.

The hinge mechanism includes a bracket 101 having tabs 102 and a clevis 103 extending therefrom and provided with holes through which a bolt 104 having a handle 105 is adapted to slide. Mounted on the end of the adjacent platform section 97 are brackets 106, 107 on which are mounted a pivot pin 108 and an eye bolt 111. A spring 112 is mounted between bracket 107 and a stop 113. When the far end of platform section 97 is lowered, the end of platform section 97 adjacent to platform section 96 pivots about pivot pin 108 and compresses the spring 112.

This hinge mechanism not only aids in positioning platform sections 95–97 at different depths in the pool to provide, for example, a shallow end for children and a deep end for adults, but also simplifies the servicing of the pool and the platform. To service platform 24 or the platform sections, or clean the bottom of the pool, the platform sections are disconnected by pulling handle 105 to withdraw bolt 104 and release eye bolt 111. The platform sections are floating on top of the water and they may be easily placed one on top of the other. Then the water in the pool may be lowered to three feet or any other desired depth and wooden horses, or any other support, may be placed beneath the platform sections. Then the remainder of the water is drained from the pool, the floating ends of the platform sections are lowered to the bottom of the pool and the other ends are supported on the supporting wooden horses. Safety platform 24 may then be worked on very freely. One also can work on the bottom of the pool or the sides of the pool, for example, to clean off any slurry or slime that may have accumulated.

In operation, safety platform 24 may be lowered by actuating the motors 87 and 92 to pull the buoyant safety platform 24 downwardly to any desired depth, or may be raised in the water by paying out cables 28, 29. Limit switches 62 and 64 cut off the motors when saftey platform 24 has reached its uppermost position beneath the coping 23, and limit switches 63 and 65 cut off the motors when safety platform 24 has reached its lowermost position.

It is to be understood that the form of the invention herewith shown and described is to be taken as a preferred embodiment. Various changes may be made in the shape, size and arrangement of parts. For example, equivalent elements may be substituted for those illustrated and described, parts may be reversed, and certain features of the invention may be utilized independently of the use of other features, all without departing from the spirit or scope of the invention as defined in the subjoined claims.

The claimed invention:

1. A swimming pool comprising a bottom and sides, a coping extending inwardly from the sides of the pool, a floatable safety platform which can rise to the surface of said pool, means connected to said safety platform exerting a buoyant force thereon in water relative to said pool so that it nests against the bottom of said coping in a substantially horizontal position, and means connected to said safety platform and extending downwardly therefrom for moving it downwardly against said buoyant force and holding it in a desired position.

2. A swimming pool comprising a concrete bottom, a series of metal flanged side panels extending upwardly from said bottom to form the sides of the pool, adjacent flanges being bolted together to form a seam, said adjacent flanges being oppositely grooved to form a calking chamber therebetween, a calking material filling said calking chamber, a coping extending inwardly from the sides of the pool, a floatable safety platform in said pool which can rise to the surface of the pool comprising at least two platform sections having a series of parallel hollow slats connected together by runners, means hingedly joining adjacent edges of said platform sections together, buoyant material contained within said slats for making the platform floatable in the water so that it nests against the bot-

tom of said coping, an extendible member mounted on the end of said platform and spring-urged outwardly to contact the side of said swimming pool, a cable connected between said platform and the bottom of the pool, and means for retracting the cable to pull the platform down in the water of the pool and for releasing the cable to permit the buoyant platform to rise in the water to the surface of the pool.

3. In a swimming pool, a safety platform, buoyant means connected to said safety platform exerting a buoyant force thereon to raise the platform to the top of the pool to a substantially horizontal position, and means connected to said safety platform and extending downwardly therefrom for moving it downwardly against said buoyant force and holding it in a desired position.

4. In a swimming pool, a safety platform, buoyant means connected to said safety platform exerting a buoyant force thereon to raise the platform to the top of the pool, and means connected to said safety platform and extending downwardly therefrom for pulling said safety platform against said buoyant force toward the bottom of said swimming pool and holding said platform in a desired position.

5. In a swimming pool, a safety platform comprising at least two platform sections having a series of parallel hollow slats connected together by runners, means hingedly joining adjacent edges of said platform sections together, buoyant material contained within said slats for making the platform floatable, an extendible member mounted on the end of said platform and spring-urged outwardly to contact the side of said swimming pool, a cable connected between said platform and the bottom of the pool, and means for retracting the cable to pull the platform down in the water of the pool and for releasing the cable to permit the buoyant platform to rise in the water.

6. A swimming pool comprising a bottom, a series of flanged side panels extending upwardly from said bottom

to form the sides of the pool, adjacent flanges being fastened together to form a seam, said adjacent flanges being oppositely grooved to form a calking chamber therebetween, and a calking material completely filling said calking chamber.

7. A swimming pool comprising a bottom and sides, a coping extending inwardly from the sides of the pool, a floatable safety platform which can rise to the surface of said pool, buoyant means connected to said safety platform exerting a buoyant force thereon in water relative to said pool so that it nests against the bottom of said coping in a substantially horizontal position, electrical power means connected to said safety platform and extending downwardly therefrom for moving it downwardly against said buoyant force and holding it in a desired position, and limit means including a rod-like member, having an upper and lower trip, positioned in said pool and connected to an electrical switch for cutting off electrical power when said safety platform has reached its uppermost and lowermost limits of travel.

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