

Feb. 7, 1961

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2,970,320

COMBINATION SWIMMING POOL COVER AND FLOOR

Filed Jan. 12, 1959

6 Sheets-Sheet 1

FIG. 7.

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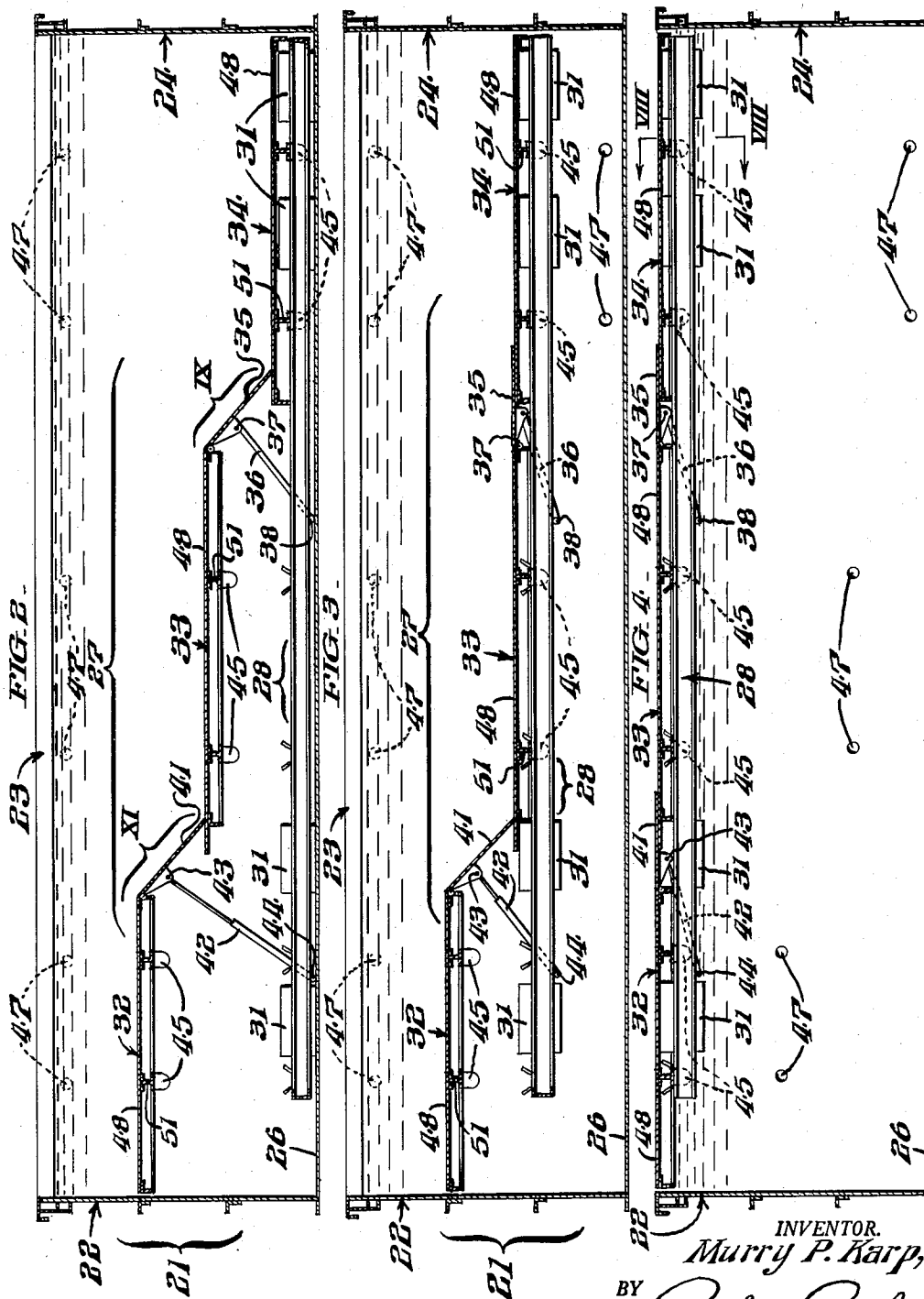
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6 Sheets-Sheet 2



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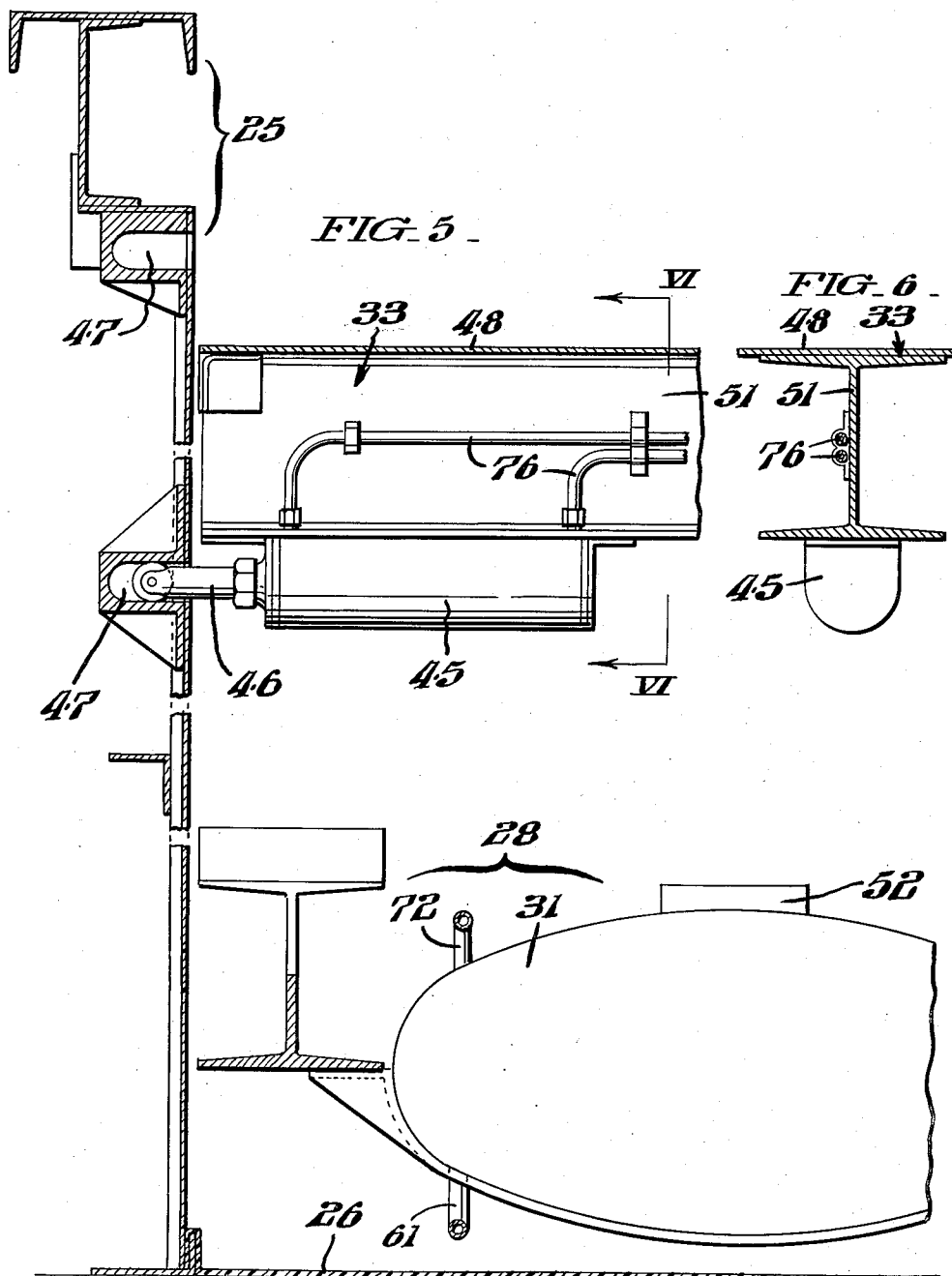
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COMBINATION SWIMMING POOL COVER AND FLOOR

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6 Sheets-Sheet 3



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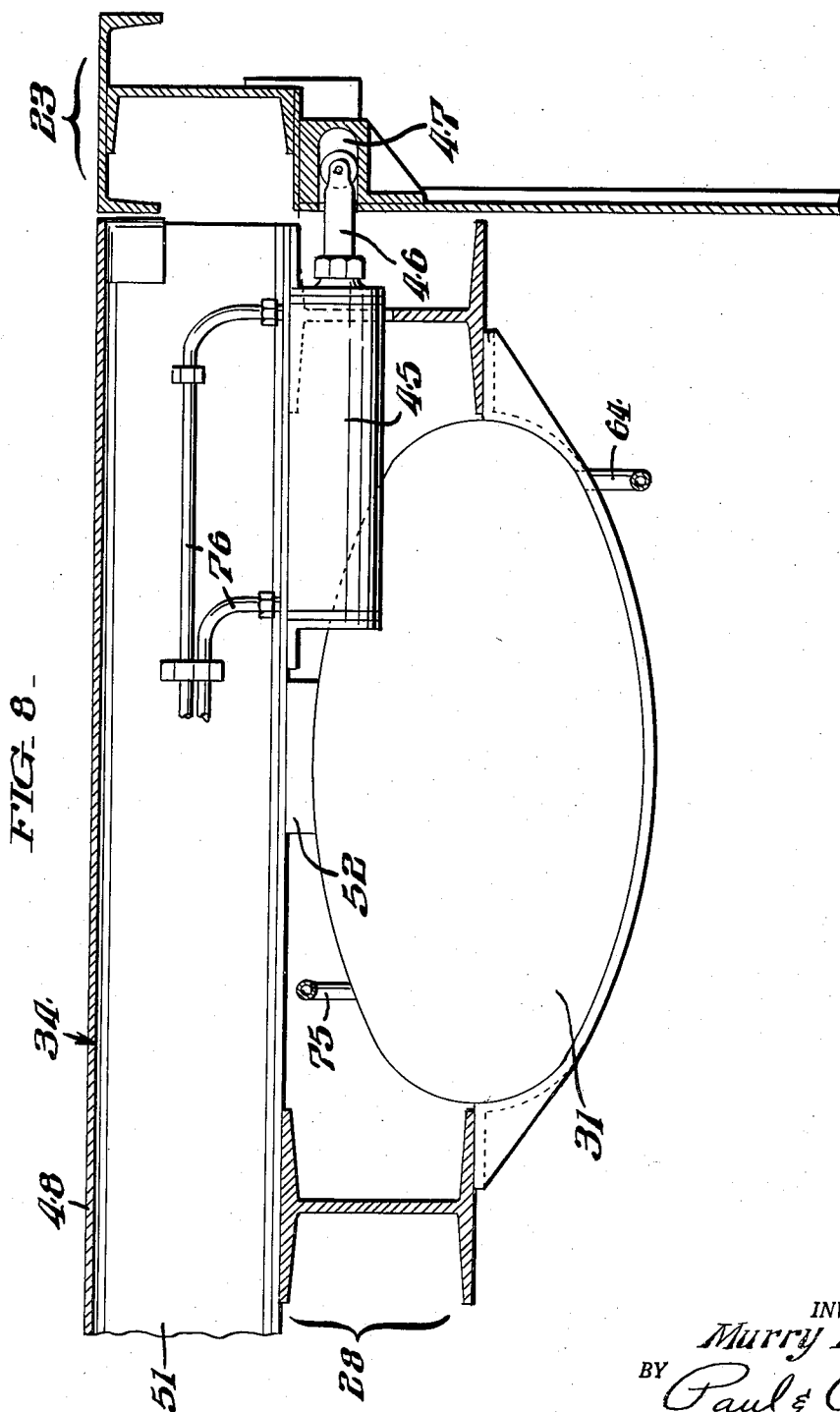
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COMBINATION SWIMMING POOL COVER AND FLOOR

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6 Sheets-Sheet 4



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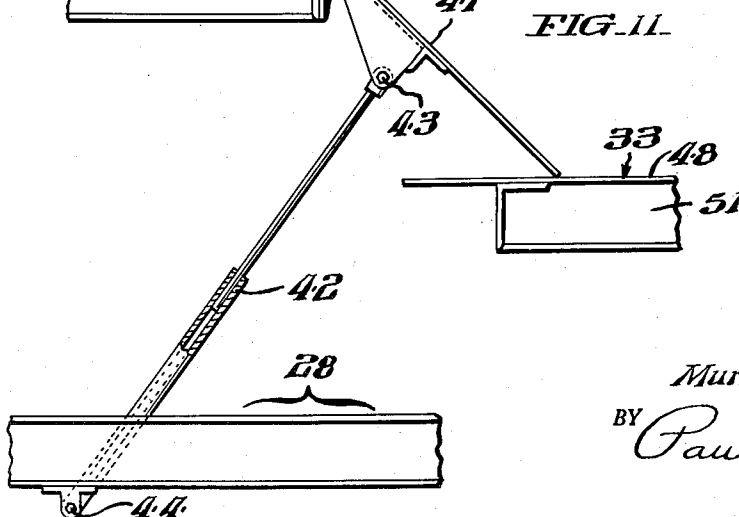
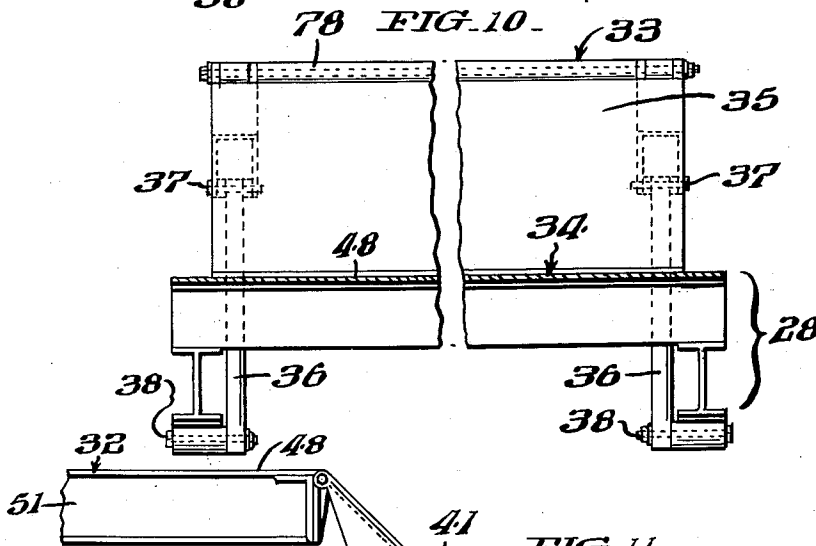
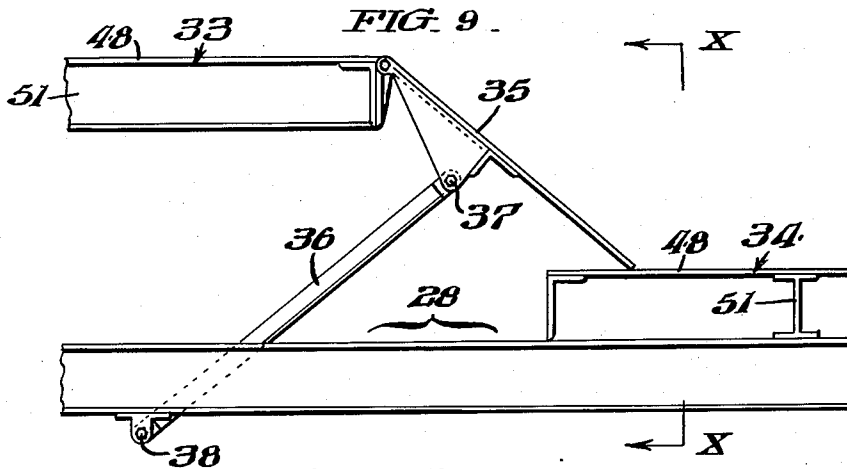
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COMBINATION SWIMMING POOL COVER AND FLOOR

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6 Sheets-Sheet 5



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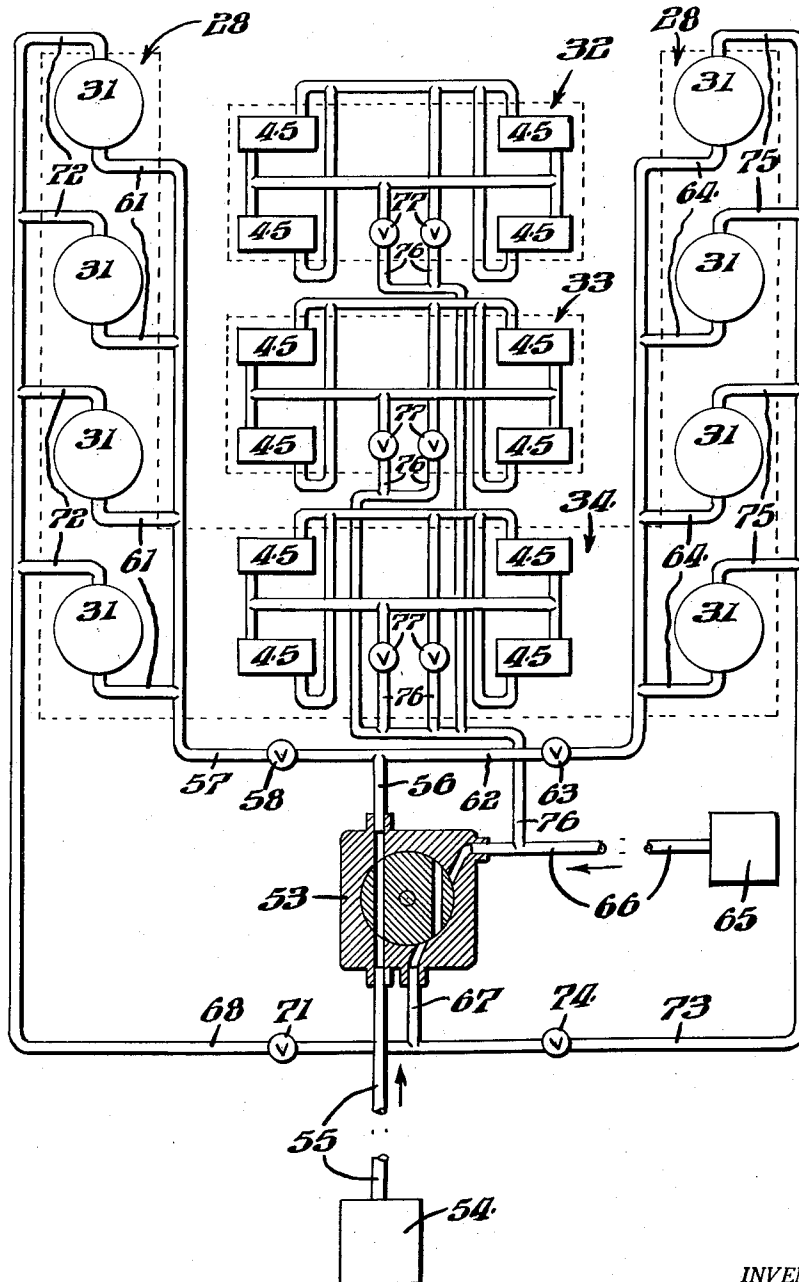
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COMBINATION SWIMMING POOL COVER AND FLOOR

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6 Sheets-Sheet 6

FIG. 12.



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COMBINATION SWIMMING POOL COVER AND FLOOR

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5 Claims. (Cl. 4—172)

This invention relates to swimming pools, and more particularly concerns a combination swimming pool cover and floor which is adjustable as to depth in the pool.

The conventional private swimming pool presents an element of danger to children who may wander by and fall into the pool. The pool also presents an invitation for trespassers to use the pool at night or when the owners are absent. Fences have been provided as protection but, besides being expensive, it is not always convenient to keep the fence gate locked. Even with the gate locked, fences can be climbed.

Pool covers have been provided, but they have proved unwieldy and troublesome in the amount of work required to put them in place and remove them when desired.

Conventional pools are fixed as to depth of water contained therein so that the deep end is unsafe for children and non-swimmers.

Accordingly, it is an object of this invention to provide a swimming pool which overcomes the hereinbefore mentioned disadvantages of the conventional pool.

It is another object of this invention to provide a swimming pool which is adjustable as to depth even though the amount of water in the pool remains constant.

It is another object of this invention to provide a swimming pool with automatic means for covering the pool, thereby protecting the pool from trespassers and from children, and eliminating the necessity for a fence.

It is another object to provide a swimming pool wherein the depth of the pool is adjusted by automatic means.

It is another object of this invention to provide a swimming pool wherein the depth of the pool may vary, being deeper at one spot than at another.

Other objects and advantages of this invention, including its simplicity and economy, as well as the ease with which it may be adapted to existing equipment will further become apparent hereinafter and in the drawings, in which:

Fig. 1 is a view in top plan of a swimming pool with a combination swimming pool cover and floor constructed in accordance with this invention;

Fig. 2 is a view in side elevation of the apparatus of Fig. 1, taken as indicated by the lines and arrows II—II which appear in Fig. 1;

Fig. 3 is a view in side elevation similar to Fig. 2 but with the apparatus positioned at a different depth in the pool;

Fig. 4 is a view in side elevation similar to the views

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in Figs. 2 and 3, but with the apparatus positioned at the top of the pool in order to serve as a cover;

Fig. 5 is a view in section and on an enlarged scale taken as indicated by the lines and arrows V—V which appear in Fig. 1;

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

Fig. 7 is a view in section taken as indicated by the lines and arrows VII—VII which appear in Fig. 1;

Fig. 8 is a view in section taken as indicated by the lines and arrows VIII—VIII which appear in Fig. 4;

Fig. 9 is an enlarged view of the portion of the apparatus indicated by the Roman numeral IX as shown in Fig. 2;

Fig. 10 is a view in section taken as indicated by the lines X—X as shown in Fig. 9;

Fig. 11 is an enlarged view of the portion of the apparatus indicated by the Roman numeral XI as shown in Fig. 2; and

Fig. 12 is a diagrammatic view of the control circuit of the apparatus.

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 21, having sides 22—25, a bottom 26, and a combination swimming pool cover and floor 27. Cover and floor 27 includes a platform 28, ballast tanks 31 for raising and lowering platform 28, and a floor which is made up of floor sections 32, 33, and 34. Floor section 34 is mounted on platform 28. Floor section 33 is connected to platform 28 by hinged flap 35 and flap operating rod 36. Rod 36 is pivotally connected to flap 35 by pin 37 and to platform 28 by pin 38. Floor section 32 is connected to platform 28 by hinged flap 41 and flap operating rod 42 which is telescopic and which is pivotally connected to hinged flap 41 at pin 43 and to platform 28 at pin 44.

Each of the floor sections 32—34 has air cylinders 45 mounted thereon, and the air cylinders are provided with retractable locking bolts 46 which are moved back and forth by the air in the cylinders 45. The sides of the pool have locking mortises 47 formed therein at various desired depths in the pool, and these locking mortises 47 are adapted to receive the bolts 46 to hold the floor sections in place at the desired depth in the pool.

Floor sections 32—34 include a floor plate 48 which is mounted on an H-beam support 51. Shock pads 52, made of resilient material such as rubber, are provided for ballast tanks 31. Sides 22—25 may be made of corrugated aluminum filled with mastic, and bottom 26 may be a plastic sheet or similar material capable of holding water. Bottom 28 need not have a great deal of structural strength since the swimmers are prevented from coming into contact with it by the floor sections 32—34.

Referring now more particularly to Fig. 12, there is shown diagrammatically the control circuit of the apparatus. A four-way control valve 53 controls the compressed air and the water to ballast tanks 31.

The water circuit to ballast tanks 31 includes a source

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of water 54, conduit 55, control valve 53, conduit 56, conduit 57 which branches to the left and includes a valve 58, and conduits 61. Branching to the right is conduit 62 which includes valve 63, and conduits 64 which terminates at the right hand ballast tanks 31.

The compressed air circuit to ballast tank 31 includes an air compressor 65, conduit 66, control valve 53, conduit 67, conduit 68 branching to the left and including valve 71, and conduits 72. Branching to the right from conduit 67 is a conduit 73 having a valve 74 and terminating in conduits 75.

The control circuit for the air cylinders 45 includes air compressor 65, conduit 66, and conduits 76 with their valves 77.

The conduits may be flexible tubing, or may be rigid, as desired. Platform 28 is preferably made of aluminum, but may be made of metal, wood, plastic, or a combination of materials as desired.

In operation, the locking bolts 46 are retracted and air or water is fed to the ballast tanks 31 to raise the platform 28 or lower it to the positions desired. Then the locking bolts are extended to engage with the locking mortises 47 to hold the floor sections 32-34 in place. If it is desired to position floor section 33 at a lower depth in the pool, the floor section 32 is left in place and the locking bolts 46 of the floor sections 33 and 34 are retracted. Then platform 28 is lowered by admitting water to the ballast tanks 31, and floor section 33 is locked at the desired depth in the same manner as was floor section 32. Similarly, if it is desired to position floor section 34 below floor section 33, the same operation is repeated. It is to be noted that when the floor sections 32-34 are positioned at different depths, there is no chance for a swimmer to catch his toe in the hinge between the floor section and its flap, since a tube 78 is provided at the hinge to provide a gap seal.

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 herein, 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.

Having thus described my invention, I claim:

1. In a swimming pool having sides and a bottom, a combination swimming pool cover and floor which is adjustable as to depth in the pool, said combination comprising a platform, a floor plate mounted on said platform, ballast tanks mounted on said platform for raising and lowering it, projections mounted on and extending from the side of said platform, means mounted on the sides of said pool for receiving said projections to position said platform at desired depths in the pool, a source of water, a source of compressed air, a system of conduits connecting the water and compressed air sources to said ballast tanks for raising and lowering said platform, and actuating means positioned in said system of conduits between said ballast tanks and said water and air sources for controlling immediate operation of said ballast tanks for raising and lowering said platform.

2. In a swimming pool having sides and a bottom, a combination swimming pool cover and floor which is adjustable as to depth in the pool, said combination comprising a platform, ballast tanks mounted on said platform for raising and lowering it, at least two floor sections positioned above said platform with the first of said floor sections being mounted on said platform, a flap hingedly connected to said second floor section and extending down to said first floor section when said second floor section is in raised position with respect to said first floor section, a flap operating rod hingedly connected be-

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tween said platform and said second floor section; projections mounted on and extending from the side of each of said floor sections, means mounted in the sides of said pool for receiving said projections to position said floor sections at desired depths in the pool, a source of water, a source of compressed air, a system of conduits connecting the water and compressed air sources to said ballast tanks for raising and lowering said platform, and means positioned in said system of conduits between said ballast tanks and said water and air sources for controlling the application of said water and air to said conduit system.

3. In a swimming pool having sides and a bottom, a combination swimming pool cover and floor which is adjustable as to depth in the pool, said combination comprising a platform, ballast tanks mounted on said platform for raising and lowering it, a first, second, and third floor section positioned above said platform with said first floor section being mounted on said platform, a flap hingedly connected to said second floor section and extending down to said first floor section when said second floor section is in raised position with respect to said first floor section, a flap operating rod hingedly connected between said platform and said second floor section, a flap hingedly connected to said third floor section and extending down to said second floor section when said third floor section is in raised position with respect to said second floor section, a flap operating rod hingedly connected between said platform and said third floor section, projections mounted on and extending from the side of each of said floor sections, means mounted in the sides of said pool for receiving said projections to position said floor sections at desired depths in the pool, a source of water, a source of compressed air, a system of conduits connecting the water and compressed air sources to said ballast tanks for raising and lowering said platform, and means positioned in said system of conduits between said ballast tanks and said water and air sources for controlling the application of said water and air to said conduit system.

4. In a swimming pool having sides and a bottom, a combination swimming pool cover and floor which is adjustable as to depth in the pool, said combination comprising a platform, a floor plate mounted on said platform, ballast tanks mounted on said platform for raising and lowering it, an air cylinder mounted on said platform, a retractable locking bolt connected to and operated by said air cylinder, the sides of the pool having locking mortises formed therein adapted to receive said bolt for holding said floor plate at a desired depth in the pool, a source of water, a source of compressed air, a first system of conduits connecting the water and compressed air sources to said ballast tanks for raising and lowering said platform to a desired depth so that said bolts are in register with said mortises, a second system of conduits connecting the compressed air source to said air cylinder for moving said locking bolt into and out of one of said locking mortises, and means positioned in said first system of conduits between said ballast tanks and said water and air sources for controlling the application of said water and air to said first conduit system.

5. In a swimming pool having sides and a bottom, a combination swimming pool cover and floor which is adjustable as to depth in the pool, said combination comprising a platform, ballast tanks mounted on said platform for raising and lowering it, a first, second, and third floor section positioned above said platform with said first floor section being mounted on said platform, a flap hingedly connected to said second floor section and extending down to said first floor section when said second floor section is in raised position with respect to said first floor section, a flap operating rod hingedly connected between said platform and said second floor section, a flap hingedly connected to said third floor section and extending down to said second floor section

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when said third floor section is in raised position with respect to said second floor section, a flap operating rod hingedly connected between said platform and said third floor platform, an air cylinder mounted on each of said floor sections, a retractable locking bolt connected to and operated by said air cylinder, the sides of the pool having locking mortises formed therein adapted to receive said bolt for holding the floor section to which it is connected in place at a desired depth in the pool, a source of water, a source of compressed air, a first system of conduits connecting the water and compressed air sources to said ballast tanks for raising and lowering said platform to a desired depth so that said bolts are in register with said mortises, a second system of conduits connecting the compressed air source to said air

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cylinder for moving said locking bolt into and out of said locking mortise, and means positioned in said first system of conduits between said ballast tanks and said water and air sources for controlling the application of said water and air to said first conduit system.

References Cited in the file of this patent

UNITED STATES PATENTS

1,060,106	Maillette et al. -----	Apr. 29, 1913
1,918,437	Torrance -----	July 18, 1933
2,010,831	Strite -----	Aug. 13, 1935
2,803,835	Summers -----	Aug. 27, 1957

FOREIGN PATENTS

817,778	France -----	May 31, 1937
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