June 8, 1971 W. H. BAKER 3,582,999

MOVABLE DIVIDER FOR SWIMMING POOLS

Filed Sept. 15, 1969 3 Sheets-Sheet 1

FIG. 1

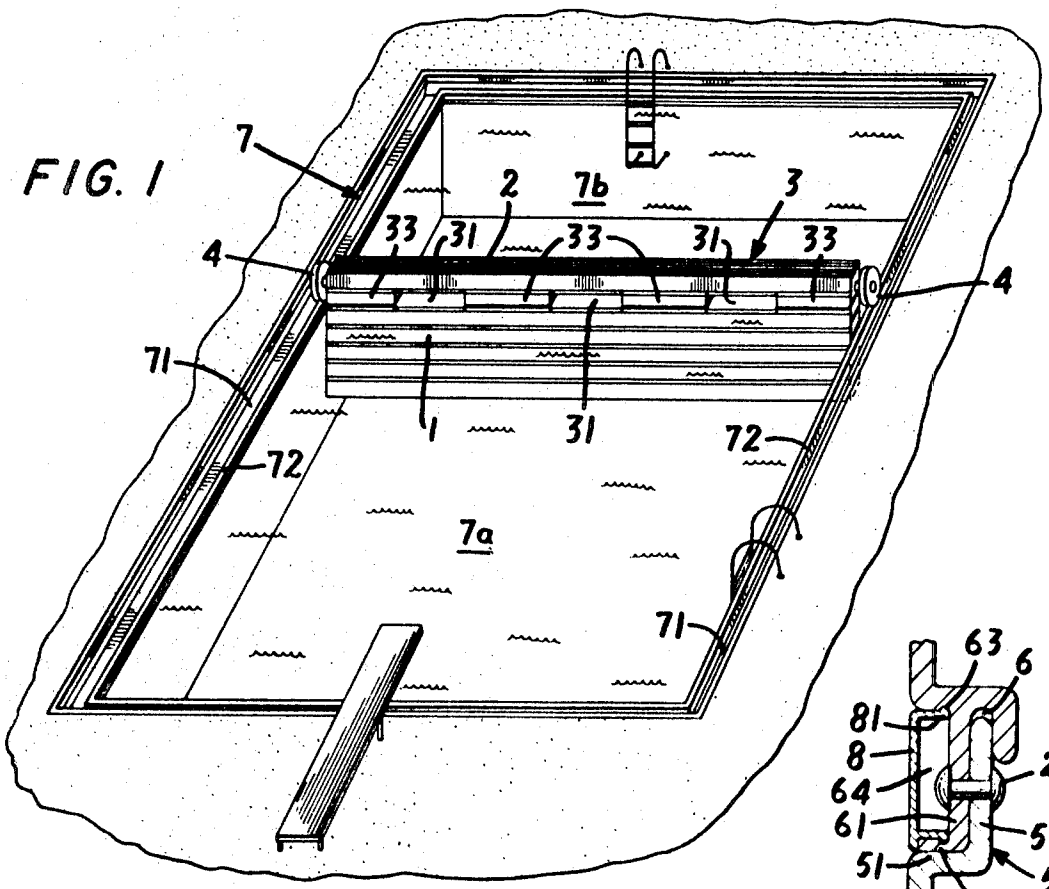


FIG. 5

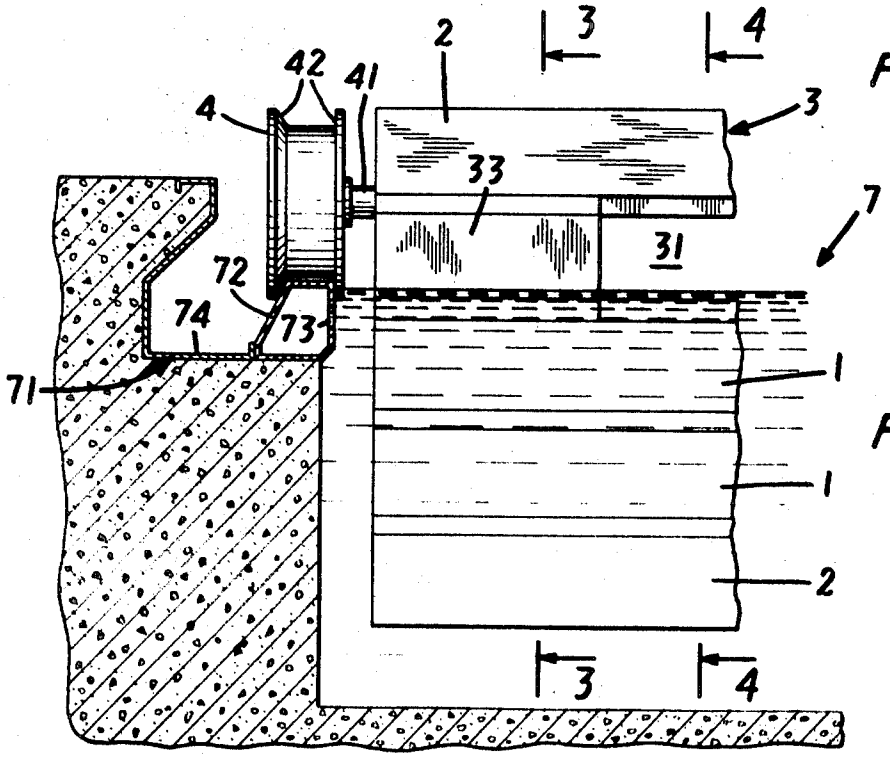


FIG. 2

June 8, 1971 W. H. BAKER 3,582,999

MOVABLE DIVIDER FOR SWIMMING POOLS

Filed Sept. 15, 1969 3 Sheets-Sheet 2

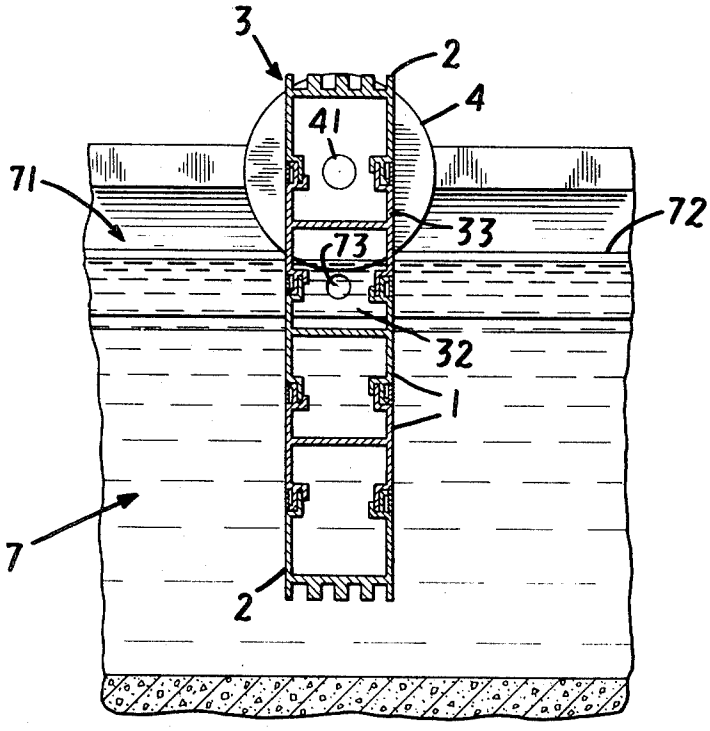


FIG. 3

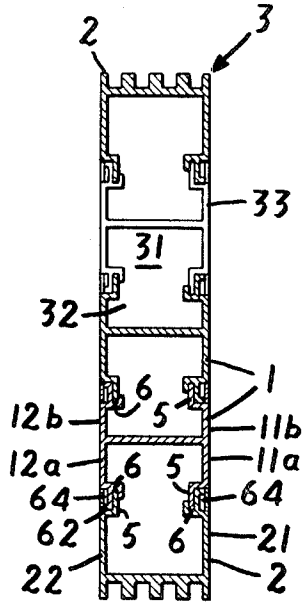


FIG. 4

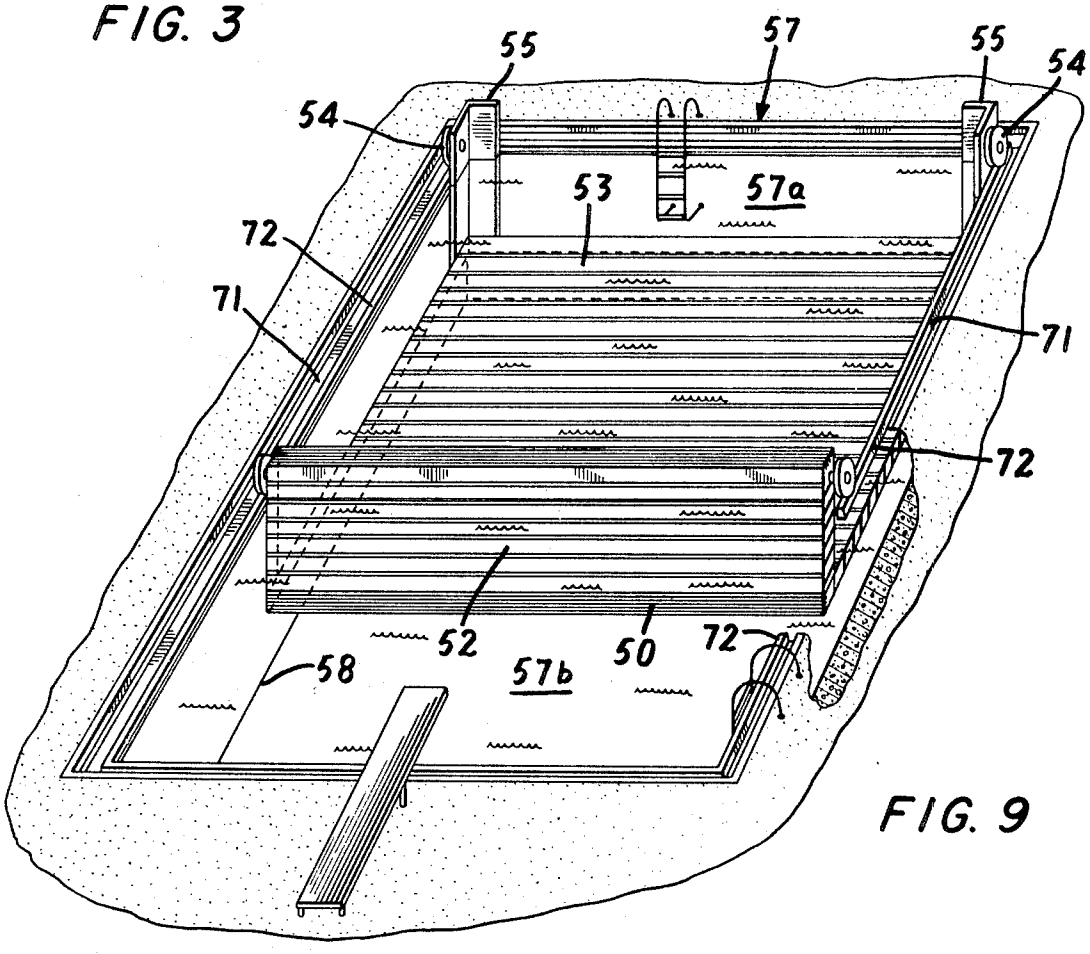


FIG. 9

June 8, 1971 W. H. BAKER 3,582,999

MOVABLE DIVIDER FOR SWIMMING POOLS

Filed Sept. 15, 1969 3 Sheets-Sheet 3

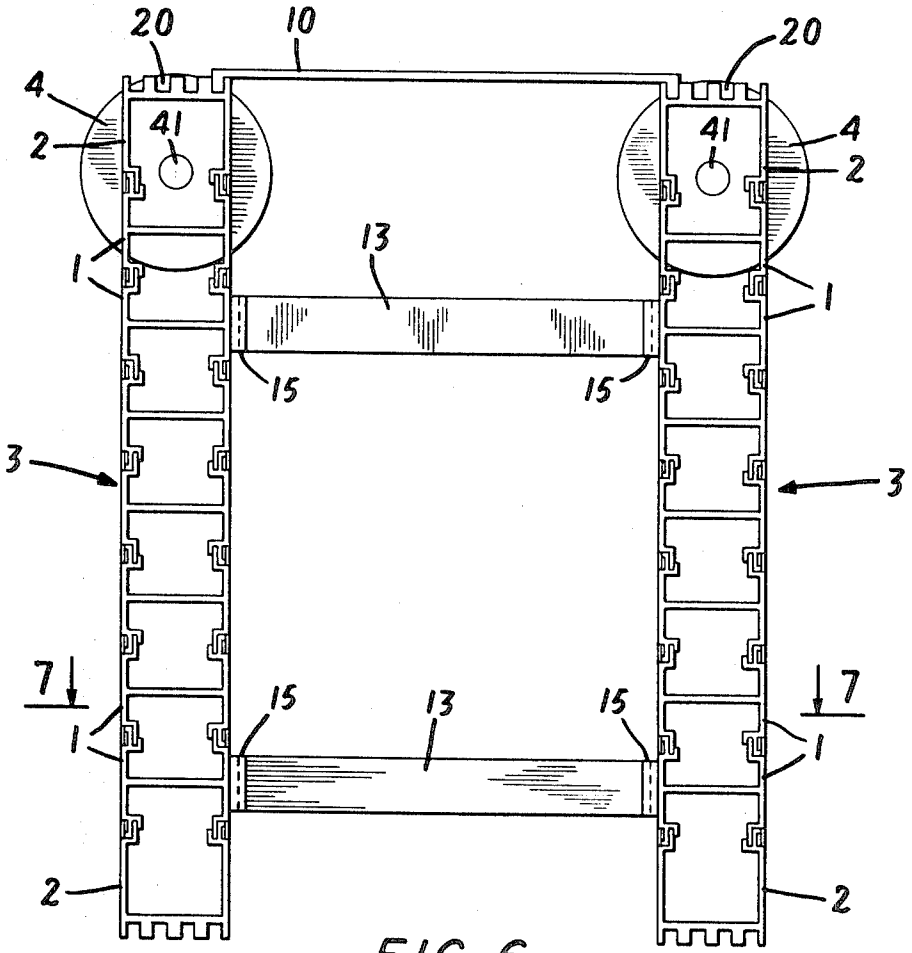


FIG. 6

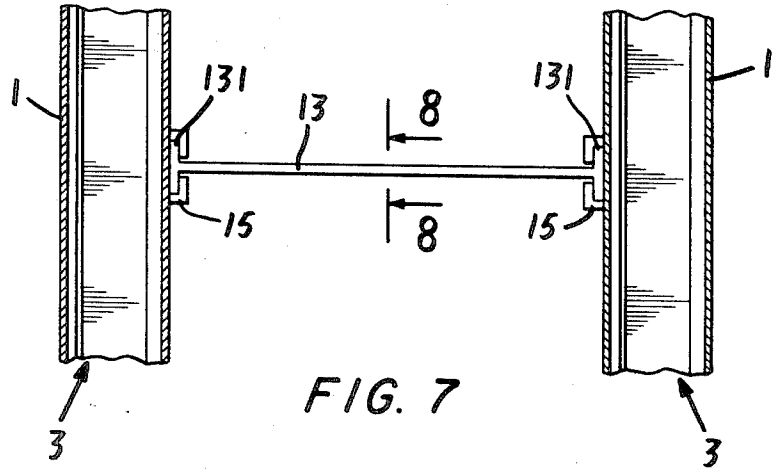


FIG. 7

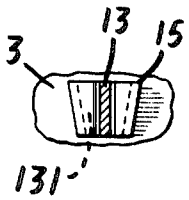


FIG. 8

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3,582,999

MOVABLE DIVIDER FOR SWIMMING POOLS

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Int. Cl. E04h 3/16, 3/18
U.S. Cl. 4—172.11 24 Claims

ABSTRACT OF THE DISCLOSURE

A movable divider for swimming pools formed from an interlocking composite beam structure or other suitable construction is provided to divide a swimming pool into zones of variable size and/or depth. The divider is equipped with wheels which ride upon an upstanding rail along the edge of the swimming pool.

Movable walls or dividers are particularly useful for dividing a swimming pool into different teaching areas of variable size and/or depth. Movable dividers are also useful for shortening the length of a pool, in order to provide a standard length for competition swimming, or for reducing the depth by installing a second bottom above the bottom of the pool.

Movable dividers for swimming pools have been employed in the past, but have been unsatisfactory in several respects. Mobility is achieved by providing wheels which ride in a groove along the edge of the pool. This construction creates problems. On outdoor pools, sand, leaves, twigs and other debris can obstruct the grooves, and even detrack the wheels. In addition, if one side of the divider is pushed more than the other, the wheels can bind against sides of the groove, thus hindering or preventing movement. This is particularly a problem when the wheels are formed of a high friction non-skid material, such as rubber. Increasing the width of the groove or rounding the inside corners to alleviate the possibility of binding decreases the guidance for the wheels and increases the probability that they will detrack. Furthermore, the wheels and support structure of the divider often are positioned relatively far beyond the edge of the pool, and can be somewhat hazardous to anyone walking near the edge of the pool.

The grooves required have to be specially built into the tile or concrete edging of the pool, and are an extra, with consequent added cost of construction. They are expensive to add to an existing pool. The movable dividers in use have been constructed from stiffened sheet metal, which while relatively strong and lightweight, have to be individually fabricated for each pool. This adds to their cost, also.

In accordance with the present invention, a movable track-mounted divider for swimming pools is provided which runs smoothly without binding, which is not readily subject to derailment, and which can be utilized in gutter-equipped pools without any alteration of the gutter. In addition, as a special feature, the dividers of the invention can be constructed from low cost mass-produced units of standardized sizes.

The movable swimming pool divider of the present invention comprises a barrier of any desired height and length, disposed vertically, horizontally, or at an angle therebetween within a swimming pool to divide it into a plurality of sections of variable size and/or depth, having at least one flanged wheel rotatably mounted to at least one end of the divider, and adapted to travel along an upstanding matching rail disposed along the edge of the pool, to change the relative size and/or depth of the areas defined by the barrier. The barrier can extend completely or partially across the pool in any direction,

at any angle, and can extend from above, at, or below the water level, to any desired depth.

The swimming pool of the invention comprises a movable divider as described and a peripheral upstanding track or rail on which the wheels of the divider travel in movement of the divider from one part of the pool to another.

In a particularly preferred embodiment, the rail or track is the water conduit of the pool water supply system, which is upstanding due to the overflow gutter beside the conduit on the outside thereof. The conduit top is continuously washed clean by the overflow from the pool, and is water-lubricated as well, and thus serves excellently as the track.

Preferred embodiments of the movable divider are shown in the drawings, in which:

FIG. 1 is a perspective view of a swimming pool having a movable wall divider of the invention therein;

FIG. 2 is a cross-sectional view of one end of the movable divider of FIG. 1;

FIG. 3 is a cross-sectional view of the movable divider of FIG. 2, taken along the lines **3**, **3** of FIG. 2, and looking in the direction of the arrows;

FIG. 4 is another cross-sectional view of the movable divider of FIG. 2, taken along the lines **4**, **4** of FIG. 2, and looking in the direction of the arrows;

FIG. 5 is a cross-sectional detailed view of the interlocking connections between beams of FIG. 4;

FIG. 6 is a cross-sectional view of a double movable divider of the invention;

FIG. 7 is a top view of the connecting bars utilized to secure the walls of the double movable divider of FIG. 6; and

FIG. 8 is a cross-sectional view of the connecting bar taken along the lines **8**, **8** in FIG. 7, and looking in the direction of the arrows.

FIG. 9 is a perspective view of a swimming pool having a movable bottom divider of the invention, associated with a wall divider (which can be omitted).

The construction of the divider will now be more particularly described.

The divider in the preferred embodiment comprises a barrier, and a frame supporting the barrier, and one or more wheels adapted to travel on the track or rail. Both ends of the divider can move along the pool, or in the case of circular pools the divider can be radially disposed and pivotally mounted so that it moves in an arc along a circular segment.

The wheels have peripheral flanges at either one or both edges. The flanges engage and align the wheels on the rail, and prevent the wheels from leaving the rail during movement. In this manner, the wheels ride along the rail as do railroad wheels, and have little tendency to bind, even when the divider is subject to a non-uniform moving force. The diameter of the flanges should be large enough to prevent derailment if the wheel is raised slightly from the riding surface due to a buildup of dirt. Such a buildup is unlikely, however, since the wheels of this type tend to dislodge small objects which are resting or adhering to the rails, and since the rails are raised, they then fall off. When the movable divider is utilized in contoured pools having curved sides, it is preferable that the flanges be provided only on the the inside edges of the wheels. This prevents binding and excessive outward axial force on the wheels on the curves. To further decrease the possibility of binding, the wheels are preferably formed of a relatively hard, low friction metallic material, such as steel, chromium plated steel, stainless steel, aluminum and anodized aluminum. Hard plastic and rubber materials can also be utilized, but are usually less desirable due to their lower strength.

The wheels can be mounted on stub axles supported by a plate or other support structure on the end of the divider. It is also possible to have a single axle extending from one end of the divider to the other, on which wheels at both ends of the divider are mounted. The wheels may be either rotatably mounted to a stationary axle, or rigidly mounted to a rotatable axle. In either case, bearings are utilized between the moving and fixed components, to minimize the frictional forces and reduce the force required to move the divider along the track.

The rails can be mounted to the coping on the sides of the pool and should be positioned as close to the edge as possible. In this manner, the wheels do not extend substantially beyond the edge, and thus reduce the hazard to one swimming, walking or standing near the edge. If the edge of the pool is not provided with an overflow gutter, the rails can also be suspended or cantilevered above the water within the pool adjacent the edge, by means of brackets which are secured to the coping and/or the inside wall of the pool. The wheels in this case remain wholly within confines of the pool, and present no obstruction to persons on the outside, but they also reduce the inside size of the pool, and are an obstruction to swimmers, so this construction is less preferred.

The upstanding surface of the rails upon which the wheels ride can be flat, concave, or convex in cross-section. The upstanding feature prevents the natural collection of debris and small objects on the track, and also ensures smooth rolling of the divider from one portion of the pool to another. In addition, the rails are preferably formed of a hard metallic material, for less friction and long wear. Metals such as steel, hardened aluminum, chromium plated steel, brass, bronze, galvanized iron, and stainless steel are suitable.

The rails can be solid bars, or hollow conduits, or pipe, sufficiently strong to support the weight of the divider without deforming under the load. Structural shaped rails, such as I-beams and channel beams, can also be utilized. Preferably, an upstanding edge or lip of a swimming pool gutter system can be utilized as a rail, and if this be done, gutter-equipped pools can be fitted with the movable divider without the additional installation and cost of a rail system.

As stated, the peripheral lip or conduit of a swimming pool gutter is an excellent rail or track. Such gutters are utilized in water circulating and filtering systems to receive dirty water from the pool, and in many cases include a covered conduit beside the pool to deliver clean filtered water to the pool. The best types of gutter systems often comprise a closed conduit for feeding clean water directly into the pool, and the closed top of this conduit forms a spillway for passage of dirty water by overflow into a gutter on the other side of the feed conduit. The lip or conduit of the gutter at the poolside is upstanding and serves as the rail or track for the movable bulkhead of the invention. Such gutters are usually of metal, such as stainless steel, and serve as the track without any modification whatsoever. A gutter system of this type is shown in U.S. Pat. No. 2,932,397 to Ogden, and this system is preferred.

The barrier constitutes the wall or floor separating one portion of the pool from another. It may be made of a sheet of metal, plastic, or other strong and weather-resistant material. The barrier can have one or several layers of sheets; the sheets if used in layers can be juxtaposed and fastened together, or spaced in an H configuration, for greater strength and resistance to distortion, while retaining a low weight and easy mobility. Such barriers are inexpensively fabricated, but must be made to the size of the portion of the pool to be divided out.

A more versatile type of barrier can be made up of a number of standardized modular units, which can be fitted together in any number required to make up a barrier of the desired dimensions. Such modular units

can have any dimensions, and any matching and mating ends, and many types are known.

In the preferred embodiment, the barrier modular units are side-to-side interlocking double-walled beam units. Each beam unit comprises an H- or I-beam section having four side walls, each wall extending outwardly from the crosspiece of the H- or I-beam. The end of each side wall is shaped to mate with an end of the corresponding side wall of the next H- or I-beam section. At the end modular beam unit of each assembly, outer channel or U-beam sections having one U-shaped side wall can be provided, to close off the open ends of the composite H- or I-beam structure. The two ends of the U-wall of the channel or U-beam sections are shaped to mate with two walls of the corresponding end of the terminal H- or I-beam units.

Each modular beam unit is provided with two types of mating end shapes. One type is referred to herein as the L-type, because the side wall of the beam terminates in a recessed single flange having an L-shaped cross-section. The other type is referred to herein as the J-type, because the side wall of the beam terminates in a recessed double flange having a J-shaped cross-section, the J-shape defining a groove between the flanges, into which the single L-shaped flange of an adjacent beam fits snugly and rigidly. These members can mate in a press fit, if desired, for greater rigidity, but this is not essential, since the adjacent beam units can be attached together by any conventional securing means. In the composite beam structure, the single L-flange and one of the walls of the double J-flange of adjacent beam units abut throughout their length to form a continuous connection, which is firmly secured by means of rivets or bolts to prevent separation under the stresses created by the force of the water in the pool. Externally of the composite the J-shaped flange also defines with the outer side of the beam units a channel into which accessory equipment can be fitted. The abutting double J-flange wall is preferably formed with an end turned to match the recess of the single flange wall, for better rigidity in interlocking.

Preferably, two side walls of each H- or I-beam section have mating ends of the L-type, and two side walls have mating ends of the J-type. Likewise, the channel or U-beam section has an L-type mating end, on one side, while the other side has a J-type mating end. The two mating ends on each side of the H-or I-beam sections are preferably of the same type, either L or J.

The long legs of the recessed L-shaped flanges are parallel to the sides of the beam units, and extend over the entire length of the beam unit. Similarly, the corresponding recessed J-type ends are also parallel to the sides of the beam, and extend over the entire length of the beam. The curved base portion of the J-end is designed to mate with the edge of the L-end. The openings in the grooves are formed slightly smaller than the thickness of the mating flange so that the grooves will secure the flange in a relatively tight and rigid connection. This allows the assembly of several interlocking beams of the composite and holds them against separation and structural collapse prior to and after bolting or riveting. In addition, to provide further strength, the end of the long leg of each J-shaped groove, which is the outermost edge of the flange, is formed into a tax extending outwardly at right angles. When a beam is assembled to an adjacent beam, the L-shaped ends will engage and interlock the J-shaped grooves, and be securely held thereby, and the tabs will abut the base portion of the L-shaped ends to properly control the extent of interlocking. This ensures uniform strength of each interlocking connection. It also ensures constant spacing between each beam, thereby allowing accurate layout and predrilling of rivet and bolt holes in advance, without the need for measurement upon the installation of each beam. The abutment of the tabs and the base portion of the L-shaped ends provides a relatively large bearing surface between adjacent beams,

which results in the inreceased strength and rigidity of the composite beam structure. Furthermore, the abutment of the flange walls themselves along the entire length of two edges of each mating beam substantially prevents angular movement of one beam with respect to an adjacent beam, thus reducing the bending stresses that might be placed upon a rivet or bolt. Since compressive loads are supported primarily by the abutment of the mating interlocking connections, the shear stress placed upon the rivets or bolts and the bearing stress placed upon beams at the location of the rivet or bolt holes are extremely low. Therefore, relatively few rivets or bolts are required to firmly and sufficiently, secure adjacent beams. These factors facilitate rapid assembly of the movable divider and reduce the cost of construction.

The tabs at the ends of the J-shaped grooves also complete the formation of channels which run perpendicularly to the J-shaped grooves and have openings flush with the outer surface of the flanges. The inside corners of the channels can be provided with shallow grooves which run along the entire length of the beam. Inserts having corresponding lips can be installed therein, and held securely, so that accessory equipment, such as a ladder, can be mounted to either side of the movable divider. The inserts can be made to snap into the grooves of the channels, or merely slide in from one end of a beam. In either case, accessory equipment attached to the inserts or themselves formed to engage the channels may be assembled to and disassembled from the movable divider without the need for extensive tooling, and without the danger of damaging either the beam structure or the accessory equipment. Since every J-shaped groove has a channel, and each channel extends over the entire length of the beam unit, it is possible to easily mount additional members in any convenient location on either side of the divider.

Because the beam units are held together in a tight and rigid fit, the double walled composite beam structure can be assembled quite easily, and supplemental fasteners such as rivets or bolts are needed only to hold the interlocking beams securely together. The interlocking L-shaped ends and J-shaped grooves, which secure each beam to an adjacent beam along two edges, provide excellent strength and rigidity.

It is important to note that the economics of construction are greatly enhanced by the fact that, except for the length, all H- or I-beam sections are exactly alike. Similarly, all channel or U-beam sections are exactly alike. Each H- or I-beam unit has two L-type and two J-type interlocking connections, and thus each can be fitted to an adjacent unit, regardless of which side the J- or L-type fittings are on. Mass production manufacturing and inventory techniques can, therefore, be applied, and the cost of manufacture and storage kept to a minimum.

Although it is preferred that the movable divider be constructed from the interlocking double-walled composite beam structure described above, in order to provide a strong, lightweight low cost wall, the movable divider can also be constructed in any suitable manner capable of withstanding the stresses created by the water. The wall of the movable divider can be constructed by utilizing conventional structural beams such as H- or I-beams or channels, covered by a sheet material of metal or plastic, riveted or otherwise connected to the structural framework. This construction, while suitable for the movable divider, is more expensive to construct and difficult to disassemble or remove from the pool if its use is no longer desired. The double-walled interlocking composite beam structure is, therefore, the preferred construction.

A plurality of openings can be provided through a vertically disposed movable divider at the water level, through which water may pass from one section of the pool to another. These openings can be of any shape and size, such as rectangular slots. In the case of a modular unit barrier, they can be formed simply by removing segments of one unit. These serve the function of preventing reflection of waves from the divider, and thus they have a wave-damping action. The passage of turbulent water through a relatively small opening also dissipates much of its energy, and thereby reduces its turbulence. Therefore, splashing or disrupting the water on one side of the movable divider will have little effect upon the surface condition of the water on the other side of the movable divider, so that one section of the pool may be used for diving, while another section is used for swimming. In this manner, the water also has access to the interior of the divider. By connecting the movable divider to the water-circulation system of the pool, the openings and the hollow interior of the double walled beams can also perform the function of a gutter to assist in the circulation of the water in the pool and the cleaning of the surface. Connecting the divider to the water circulation system can be accomplished by piping directly from the water circulation feed system to the movable divider or by connecting the bottom of the divider to the line leading from the overflow gutter system to the water purification system, by means of flexible pipe, which can be stored on a self-winding reel, and is permanently fixed to the water feed or water withdrawal conduit at one end, the other end being attached to the movable divider.

For competition purposes, two or more dividers can be tied together in a spaced apart relation, to form a wider more stable end wall. Each individual divider is constructed as described above, and in addition has a plurality of connecting brackets mounted thereto. A plurality of removable connecting bars which engage the connecting brackets are used to hold the individual dividers in the spaced-apart relation. A removable cover extending across the entire width or a portion of the pool can also be provided, to close the gap between the divider and add rigidity to the two walls. This also enables the movable divider to be utilized as a starting or judging platform, or a bridge extending across the pool. When the movable dividers are not in use, the connecting bars and the removable cover can be disassembled from the walls and the two walls can be stored close together at one end of the pool, preferably at the deep end beneath a diving board. Similarly, only one of the dividers need be utilized merely to separate areas within the pool for non-competition activities. The divider not in use can be stored without wasting usable space.

The movable divider of this invention can also be used to decrease the depth of the pool in any desired section. This is accomplished by supporting the divider from supports movably mounted on the track, which hold it in a horizontal or oblique position above the bottom of the pool, thereby reducing the depth of the pool in the portion above the divider. The divider can be moved to any position along the pool, to decrease the depth there. A vertical divider or wall bulkhead can be connected thereto and be movable therewith, to separate the section of lower depth from the remainder of the pool, if desired.

Since the barrier portion of the movable divider is used while submerged in water, and the frame portions are also wet most of the time, they should be constructed of a non-corrodible material. Metals such as anodized aluminum and stainless steel provide the necessary strength and corrosion resistance and can be utilized. Anodized aluminum is preferred, since it costs considerably less than stainless steel, is easier to fabricate, and is of lighter weight. Non-metallic materials including plastics, such as nylon, polystyrene, phenol-formaldehyde, ureaformaldehyde, polytetrafluoroethylene, and glass also have the requisite corrosion-resistant properties, and can also be utilized.

For economic safety and reliability reasons it is usually preferable that the movable divider be adapted for manual movement. The movement of the wheels along the rails and a lightweight construction facilitate manual move-

ment, which is accomplished simply by pushing or pulling the movable end or ends of the divider. Ropes or straps can be attached to the movable ends, to further simplify this operation. In addition, openings in the barrier permit the flow of water through the barrier and thus reduce resistance to its movement.

The movable divider can also be moved along the pool by means of a motorized drive mechanism. This can be accomplished by utilizing a hermetically sealed electric motor mounted on or in the divider, in operative connection with the wheels. The electric current for the motor can be provided by means of a sealed cable, which is stored on a self-winding reel and does not restrict the movement of the divider.

The drive mechanism can also be in the form of a motorized pulley system. The pulleys and the connecting cables can be enclosed in the gutter structure, and thus be out of the way. In addition, the drive motor and the power lines are disposed at one end of the pool and are not in contact with the water.

The swimming pool **7** shown in FIG. 1 is equipped with a movable wall divider **3**. The movable divider **3** as shown in FIG. 4 is made up of a series of side-to-side interlockingly modular double walled sections or beam units, comprising inner sections **1** in the form of H-beams and outer sections **2** in the form of channel beams. The H-beam sections **1** have two L-shaped ends **5** running along the edges of the flanges **11***a* and **11***b*. The ends **5** are parallel to the flanges **11***a* and **11***b* and extend over the entire length of the beam. J-shaped grooves **6** extend along the edges of flanges **12***a* and **12***b* at the other side of the H-beam. The grooves **6** are also parallel to the flanges and extend over the entire length of the beam.

The interlocking J-type connection of the end **5** and the groove **6** is best seen in FIG. 5. The edges of the long sides **61** of the recessed J-shaped grooves **6** have tabs **62** extending outwardly at right angles. The tabs **62** form outside channels **64** which run parallel to the J-shaped grooves **6** and have openings which are flush with the outer surface of the flanges **12***a* and **12***b*. As shown in FIG. 4 by inverting one H-beam section with respect to the adjacent H-beam section, the L-shaped end **5** of one section will interlock with the J-shaped groove **6** of the adjacent section, in a tight and rigid fit, and the tab **62** of the long leg **61** of the J-shaped groove **6** will abut the base portion **51** of the mating L-shaped end **5**.

Similarly, the outer channel beams **2** have an L-shaped end **5** running along the edge of flange **22** and a J-shaped groove **6** running along the edge of flange **21** to engage the J-shaped groove and the L-shaped lip of the adjacent H-beam section **1**. In this manner, each beam unit is attached to the adjacent beam unit along two edges.

The openings in the J-shaped grooves **6** are formed slightly smaller than the thickness of the mating L-shaped end **5**, to firmly engage the end, and ensure that adjacent beams are securely held together prior to riveting. In addition, the abutment of the tabs **62** against the base portion **51** of the L-shaped end provides both a large bearing surface for increased strength and a stop to properly set the spacing between adjacent H-beams. The legs **61** of the J-shaped groove **6** and the legs **52** of the L-shaped flange also abut along their entire length, thereby preventing the angular sideways movement of one beam with respect to an adjacent beam. The beams are tightly secured in their interlocking position by rivets **25** which fasten through the abutting legs **61** and **52**.

The inside corners of the channels **64** formed by the tabs **62** are provided with shallow grooves **63**, which run along the entire length of the beams. Inserts **8** having corresponding lips **81** can be installed therein and held securely so that accessory equipment, such as a ladder, might be attached to either side of the composite beam structure. The inserts can be simply snapped into the grooves **63** in a press fit, or slidably installed from the ends of the divider.

A pair of wheels **4**, rotatably mounted to the upper portion of the divider **3** engage the sides and top face of the upstanding water feed conduit **72** of the pool gutter system **71**. Thus, the conduit **72** performs the function of a rail upon which the wheels **4** can ride. At the same time, conduit **72** has a plurality of openings **73** through which fresh water is fed to the pool. A gutter **74** carries pool water overflowing across the top or the conduit **72** to the water purification system (not shown). The movable divider **3** extends across the entire width of the pool **7** from above the surface of the water to a position adjacent the pool bottom to divide the pool into variable sized areas **7***a* and **7***b*.

The H-beam section of the wall located at the water level has four segments **33** with open spaces **31** therebetween. The channel beam **2** which closes off the top of the divider **3** and the H-beam section **1** enclose the upper and lower portions of the spaces **31**, thereby forming three rectangular slots extending through the divider. The openings **31** tend to quell any waves generated in one portion of the pool, while the divider **3** maintains essentially calm water in the other portion of the pool. Therefore, while divers are creating turbulent water in area **7***a*, swimmers in area **7***b* will be undisturbed. The openings **31** also allow the divider to function as an additional gutter system to aid in cleaning the surface of the water. Water in the pool **7** may enter the divider via the openings **31**, and be recirculated by a direct flexible piping connection from the bottom of the divider through the pool pumping and filtration system (not shown). The troughs **32** in the beams **1** adjacent the openings **31** (as shown in FIGS. 3 and 4) act as a gutter to circulate the water.

As shown in FIG. 2 the wheels **4** are formed with a pair of circumferential flanges **42** which align them upon and embrace the edges of the feed conduit **72** of the gutter system **71**. The wheel **4** is fixedly mounted to shaft **41** which extends through the upper portion of the divider **3** and is rotatably mounted therein. The use of the flanged wheel and upstanding rail arrangement and the lightweight construction of the composite beam structure allow the divider to be moved within the pool with a minimum amount of effort.

In FIG. 6, a pair of movable dividers **3** are tied together in a spaced-apart relationship by connecting bars **13**. The double wall movable divider provides a more rigid structure, which may be utilized to divide the pool or shorten the pool for competition purposes. The end channel beam **2** has grooves **20** formed in the top and running along the entire length. A cover plate **10** engages the grooves **20**, thereby closing the gap between the two dividers and adding rigidity to the structure. The wheels **4** are rotatably mounted to each wall to engage the feed conduit of the gutter system, and allow free movement of the double wall divider with the pool.

Each connecting bar **13** is formed with a double flange **131** at each end. The flanges **131** engage connecting brackets **15** which are attached to the inside wall of each divider. Both the connecting bracket **15** and the flanges **131** are tapered so that the flange **131** cannot slip through the connecting bracket **15**. This means of securing the two dividers together in a spaced apart relationship is shown in FIGS. 7 and 8. It should be noted that both the cover plate **10** and the connecting bars **13** can be readily removed from the double wall divider, so that the two walls may be pushed together at one end of the pool for storage when their use is not desired. By collapsing the two dividers against each other in this manner, only a small amount of space within the pool is taken up when the dividers are stored.

The swimming pool **57** shown in FIG. 9 is equipped with a movable bottom divider **53**. The movable divider **53** comprises a horizontal divider constructed of interlocking double-walled H-beams similar to those shown

in FIG. 1 and described above, supported from a twin frame structure **55** at one end and a vertical wall divider **52** at the other end. Wheels **54** rotatably mounted to the frame **55** and the wall **52** engage the sides and top face of the raised water feed conduit **72** of the pool gutter system **71**. Thus, the conduit **72** performs the function of a track upon which the wheels **54** can ride. The movable divider **53** extends across the entire width of the pool **57** at a level ⅓ of the depth up from the pool bottom **58**. The vertical wall **52** extends all the way across the pool, and is attached to one end **50** of the bottom divider **53**, thus dividing the pool into areas **57***a* and **57***b* of ⅔ and full depth, respectively. If desired, the bottom divider can be at an oblique angle to the pool bottom **58**, so as to reduce depth variably, say from ⅔ to ⅓ of the normal depth, or any other depth range desired. The use of the wheel and track arrangement and the lightweight construction of the composite beam structure allow the bottom divider **53** to be moved within the pool with a minimum amount of effort.

Having regard to the foregoing disclosure, the following is claimed as the inventiive and patentable embodiments thereof.

1. A movable track-mountable divider extending at least partially across the bottom of a swimming pool for separating the swimming pool into two or more zones of variable size and/or depth, comprising a barrier extending at least partially across the bottom of the pool from one side towards another side; at least one flanged wheel rotatably mounted to at least one movable end of the barrier, adapted to run along an upstanding rail disposed along the edge of the pool to facilitate the movement of the barrier along at least one periphery of the pool to change the relative size and/or depth of the zones defined by the barrier.

2. A movable divider in accordance with claim **1**, in which the wheel is formed with a peripheral flange at both edges of the bearing surface.

3. A movable divider in accordance with claim **1**, in which the wheel is formed with a single peripheral flange at one edge of the bearing surface.

4. A movable divider in accordance with claim **1**, in which the barrier extends all the way across the pool, and the divider is provided with two wheels, one each to run along each of opposite sides of the pool.

5. A movable divider in accordance with claim **1**, in which the barrier extends from the bottom of the pool to at least normal water level.

6. A movable divider in accordance with claim **1**, in which the barrier extends from the bottom of the pool to a height below normal water level.

7. A movable divider in accordance with claim **1**, in which the barrier extends approximately vertically.

8. A movable divider in accordance with claim **1**, in which the barrier extends across the bottom of the pool to a manner to define a zone of lesser depth.

9. A movable divider in accordance with claim **8**, in which the barrier extends approximately horizontally.

10. A movable divider in accordance with claim **8**, in which the barrier extends approximately obliquely.

11. A movable divider in accordance with claim **1**, in which the barrier has a plurality of openings located at the water level, through which water may pass from one area of the pool to another, said openings having a wave quelling effect to maintain calm water on one side of the wall and to damp turbulence on the other side of the wall.

12. A movable divider in accordance with claim **1**, in which the barrier is made up of composite of interlocking modular structural units.

13. A movable divider in accordance with claim **12** in which the barrier is a composite beam structure of side-to-side interlocking double-walled modular beam units, comprising a plurality of H- or I-beam sections, each section having four side walls which individually extend outwardly from the crosspiece of the H- or I, the ends of each side wall being shaped to mate with the corresponding ends of an adjacent beam section; and outer channel or U-beam sections having a U-shaped wall, whose ends are shaped to mate with the corresponding ends of an adjacent H- or I-beam section, to close off the ends of the composite beam structure.

14. A movable divider for dividing a swimming pool into two or more zones of variable size and/or depth, comprising a pair of equal size barriers extending across the pool from one side to another and held in a parallel spaced-apart relationship; a plurality of connecting brackets mounted on the inner side of both walls; and a plurality of removable connecting bars having flanges at each end to engage the connecting brackets and secure the walls in a parallel spaced-apart relationship; said pair of barriers being movable along at least one periphery of the pool to change the relative size of the areas defined by the barriers.

15. A movable divider for swimming pools in accordance with claim **14**, in which parallel grooves extending along the entire length of each barrier are formed on the top portion of each barrier; and a top cover plate having a downwardly turned flange running along two edges engages the groove, and thereby closes the gap between the two barriers.

16. A movable divider in accordance with claim **14**, having at least one flanged wheel is rotatably mounted to at least one end of each barrier; and an upstanding rail is disposed along the edge of the pool to serve as a track upon which the flanged wheel rides, to facilitate the movement of the barrier along at least one periphery of the pool to change the relative size and/or depth of the areas defined by the barrier.

17. A movable divider in accordance with claim **14**, in which each barrier is a composite beam structure of side-to-side interlocking double-walled modular beam units, comprising a plurality of H- or I-beam sections, each section having four side walls which individually extend outwardly from the cross-piece of the H- or I, the ends of each side wall being shaped to mate with the corresponding ends of an adjacent beam section; and outer channel or U-beam sections having a U-shaped wall, whose ends are shaped to mate with the corresponding ends of an adjacent H- or I-beam section, to close off the ends of the composite beam structure.

18. A divider for separating a swimming pool into two or more zones of variable size and/or depth, comprising a barrier extending at least partially across the pool from one side towards another side, and movable along at least one periphery of the pool to change the relative size and/or depth of the areas defined by the barrier, said barrier being made up of a composite of interlocking modular structural units.

19. A divider in accordance with claim **18**, in which the barrier is a composite beam structure of side-to-side interlocking double-walled modular beam units, comprising a plurality of H- or I-beam sections, each section having four side walls which individually extend outwardly from the crosspiece of the H- or I, the ends of each side wall being shaped to mate with the corresponding ends of an adjacent beam section; and outer channel or U-beam sections having a U shaped wall, whose ends are shaped to mate with the corresponding ends of an adjacent H- or I-beam section, to close off the ends of the composite beam structure.

20. A swimming pool comprising a movable divider according to claim **1**, and an upstanding rail along at least one peripheral edge of the pool serving as the track on which the divider rides.

21. A swimming pool in according with claim **20**, in which the upstanding rail is the feed conduit for a swimming pool gutter system.

22. A swimming pool in accordance with claim **21**, in which the feed conduit is enclosed, the top portion serves as the rail, one side wall thereof abuts the periphery of the pool, and has openings for feed of fresh water to the pool, and the opposite side wall serves as one wall of a gutter to carry water overflowing from the pool across the top of the feed conduit.

23. A swimming pool comprising a movable divider according to claim **14**, and an upstanding rail along at least one peripheral edge of the pool serving as the track on which the divider rides.

24. A swimming pool comprising a movable divider according to claim **18**, and an upstanding rail along at least one peripheral edge of the pool serving as the track on which the divider rides.

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52—238