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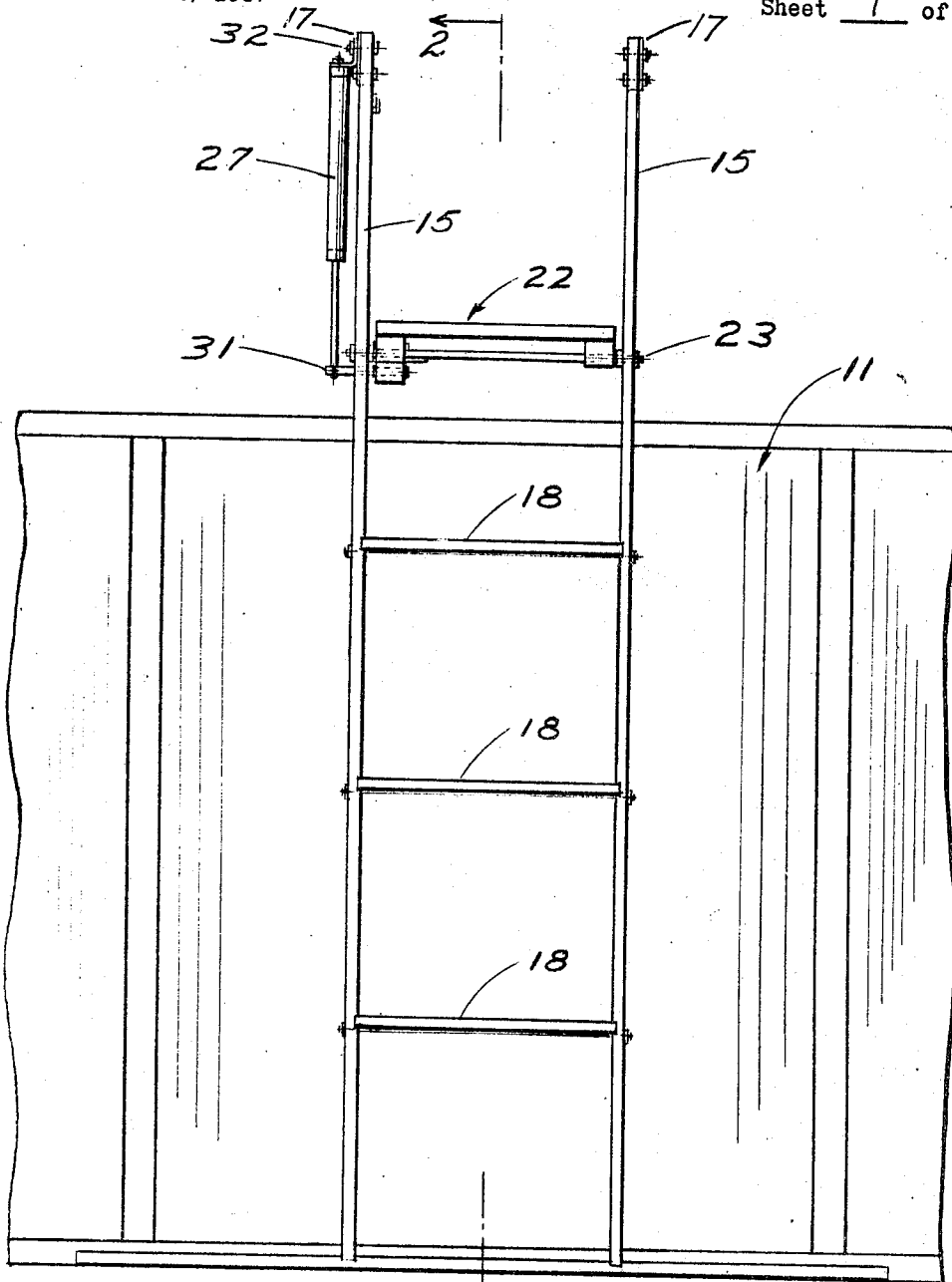
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3,447,638

AUTOMATIC SAFETY LADDER

Filed Oct. 19, 1967

Sheet 1 of 2



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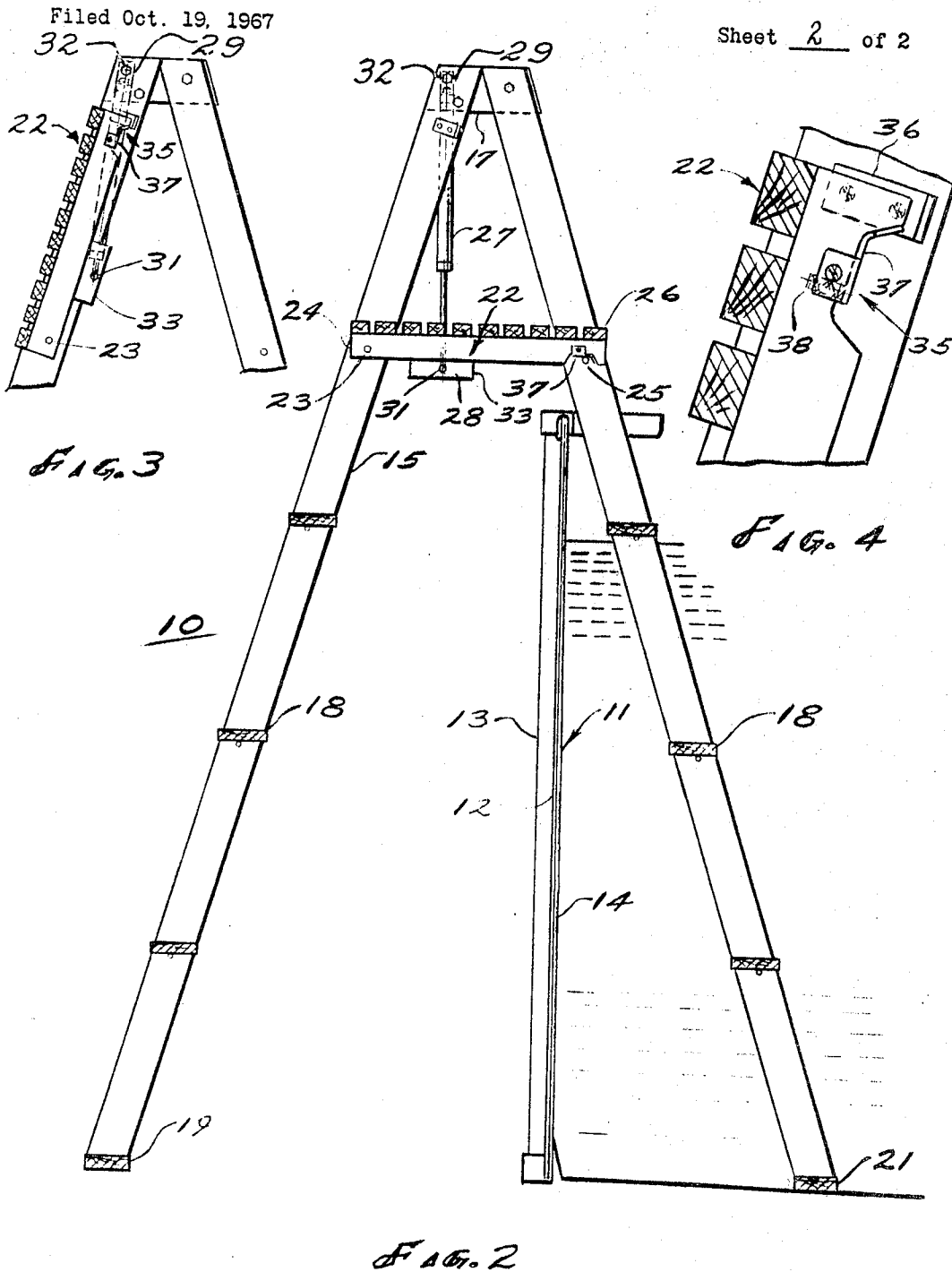
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AUTOMATIC SAFETY LADDER

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7 Claims

ABSTRACT OF THE DISCLOSURE

A safety ladder for an aboveground swimming pool wherein a tilting platform is automatically restored to an inaccessible position after use and automatically latched to prevent access to the pool.

The present invention relates to a ladder and more particularly to an automatic safety ladder for use in a pool or tank.

Aboveground swimming pools have become a very popular means of swimming. Access to the pool is generally accomplished by a step-type ladder bridging the circumferential wall of the pool. In the past, the ladder was removed from the pool to prevent access to the pool by small children. However, through human error it is known that ladders have been left in place and have provided a ready access for small children and resulted in tragedy by drowning.

Prior art attempts include simple safety devices, such as a plywood shield mounted across all the steps of the ladder, while other attempts have been very complex devices such as a safety ladder with pivot steps, all of which assume an inoperative position when weight on the first step has been removed therefrom. These prior art safety ladders have many disadvantages, for example, the light plywood shield may be removed by children on in the case of the pivot steps, a group of children may stand on one of the ladder steps causing the steps to be in an operative position, and thus cause the catastrophe mentioned hereinbefore. Other disadvantages are that the devices are relatively complex with many moving parts and joints in which foreign objects such as garden tools and plastic floats, any one of which may jam and render the ladder unsafe.

Accordingly, it is an object of the present invention to provide a new and relatively simple technique to effect an automatic safety ladder.

It is another object of the present invention to provide an automatic safety ladder in which children cannot accidentally fall into a pool.

It is still another object of the present invention to provide a safety ladder by which ready access can be made to an above ground swimming pool and yet prevent accidental access to the pool for small children.

It is a further object of the present invention to provide a stable platform for diving into a pool and yet automatically inhibit access to the pool unless unlatched and weighted consecutively.

It is yet a further object of the present invention to provide a safety ladder wherein safety occurs automatically after each use.

Briefly described, a safety ladder embodying the invention includes a plurality of steps leading to the platform which is hinge-mounted and yieldingly urged to a substantially vertical or inaccessible position to prevent access from a safe area to a pool or other area. A locking means at the far end of the platform locks the platform in the inaccessible position so that the platform must first be unlocked and then weighted to provide access to the pool. The platform automatically assumes the inaccessible

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position and is automatically locked when unweighted to prevent access to the pool.

The invention itself, both as to its organization and method of operation, as well as additional objects and advantages thereof, will become more readily apparent from a reading of the following description in connection with the accompanying drawings in which:

FIG. 1 illustrates in front elevation a safety ladder constructed in accordance with the invention;

FIG. 2 represents a side elevation taken on line 2—2 of FIG. 1 showing a platform in the accessible position;

FIG. 3 is a fragmentary view similar to FIG. 2 showing the tilting platform in an inaccessible position; and

FIG. 4 is an enlarged fragmentary view showing in detail portions of tilting platform and locking means for the tilting platform.

Referring to the drawings, a preferred embodiment of the invention is shown in an automatic safety ladder 10. The safety ladder 10 is shown straddling an aboveground swimming pool 11 of the type having a metal side wall 12 supported by a vertical support members 12 and a plastic liner 14. It should be understood that the safety ladder 10 of the present invention may be used in other types of aboveground swimming pools such as redwood frame swimming pools.

The safety ladder 10 includes a pair of inclined front and rear longitudinal support members 15 and 16 respectively, forming A frames straddling the swimming pool 11. The inclined front and rear support members 15, 16 are held in a desired angular relationship by a pair of end pieces 17 and fixed steps 18 disposed therebetween. The ladder 10 is stabilized by outboard front and rear extension members 19 and 21 fixed to the front and rear support members 15 and 16, respectively, in a manner well known to those skilled in the art.

In accordance with the invention, the safety ladder 10 includes a moveable tilting platform 22 disposed between the front pair of longitudinal support members 15. The platform is pivotally supported on a pivot rod 23 at one end 24 of the platform 22. The platform is pivoted between an accessible position (FIGS. 1 and 2) and an inaccessible position (FIGS. 3 and 4). The platform provides access from one area to another area, namely the swimming pool. In the accessible position, the tilting platform 22 is in a horizontal position and supported at an end 26 by another rod 25 fixed between the pair of rear support members 16. In the inaccessible or safe position, the platform 22 is in a position substantially parallel to the pair of front support members 15. In other words, the platform is substantially vertical when it is inaccessible.

The tilting platform 22 is urged in the inaccessible position by a means such as a door closure or actuator 27, which provides a force for moving the platform to the inaccessible or safe position and delaying or retarding the return of the platform to the inaccessible position. The actuator 27 is connected between the platform 22 at 28 and one of the front support members 15 and end piece 17 at 29 by pivot bolts 31 and 32 respectively. Pivot bolt 31 is mounted on a block 33 which is fixed to the bottom side of the platform 22 so that the platform 22 has a force acting to rotate the platform at all times. Thus the force must always be overcome to lower the diving platform to the accessible position.

Also in accordance with the invention, the safety ladder 10 includes a safety locking means 35 for locking the diving platform 22 in the inaccessible or safe position. The locking means 35 includes a stop 36 fixed to one of the front support members 15 and a moveable safety pawl 37 which is spring biased such that it is cammed under the stop 36 when the platform is actuated to the inaccessible position. The pawl 37 is spring biased by

a spring 38 (FIG. 4). The safety latching means 35 is disposed at the end 26 of the platform 22 so as to be hidden and out of reach of children. The actuator 27 and the latching means 35 are each capable of keeping the platform in the inaccessible or safe position and therefore provide a double safe automatic safety ladder.

In the operation of the safety ladder 10, the platform 22 is normally and automatically latched in the inaccessible or safe position (FIGS. 3 and 4). In this position, the platform 22 is disposed substantially parallel to the front pair of support 15 so that a barrier is present to persons attempting to enter the pool 11. In order to enter the pool, the safety pawl 37 must be pushed toward the pool 11 at the same time diving platform 22 is pushed toward the pool 11 into the horizontal or accessible position so that the platform 22 provides a diving surface. Once the platform 22 is unweighted, the platform is automatically returned slowly to the safe or inaccessible position by the actuator and locked into the safe position by the locking means 35.

While there has been described what is at present considered to be a preferred embodiment of the invention, it will be obvious to those skilled in the art the various changes and modifications which may be made therein without departing from the invention, and it is aimed in the appended claims to cover all such changes and modifications as fall within the true spirit and scope of the invention.

What is claimed is:

1. In an automatic safety ladder, the combination comprising:

(a) a tilting platform disposed between first and second areas for transversing therebetween when in a substantially horizontal position,

(b) tilting means connected to said platform for yieldingly tilting said platform to a substantially vertical position when unweighted to prohibit access from one of said areas to other of said areas, and

(c) locking means responsive to the tilting of said

platform for locking said platform in said substantially vertical position.

2. The invention defined in claim 1 wherein said tilting means include means for delaying the return of said platform to said substantially vertical position.

3. The invention defined in claim 1 wherein said tilting means includes a door closure mechanism for applying a biasing force on said platform to automatically assure return of said platform to said substantially vertical position at a relatively slow rate of return.

4. The invention defined in claim 1 further including a first plurality of steps disposed in said first area in cooperative relationship with said platform for ingress and egress thereto.

5. The invention defined in claim 1 further including a frame having spaced longitudinal opposed members, a first plurality of spaced steps disposed between said longitudinal members in cooperative relationship with said platform for ingress and egress thereto.

6. The invention defined in claim 5 wherein said platform has a proximal end disposed adjacent to said steps and a distal end remote from said steps and said locking means being disposed at said distal end.

7. The invention defined in claim 6 wherein said platform has a length between said proximal end and distal end greater than the spacing between said steps.

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U.S. Cl. X.R.