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BOARDING LADDER

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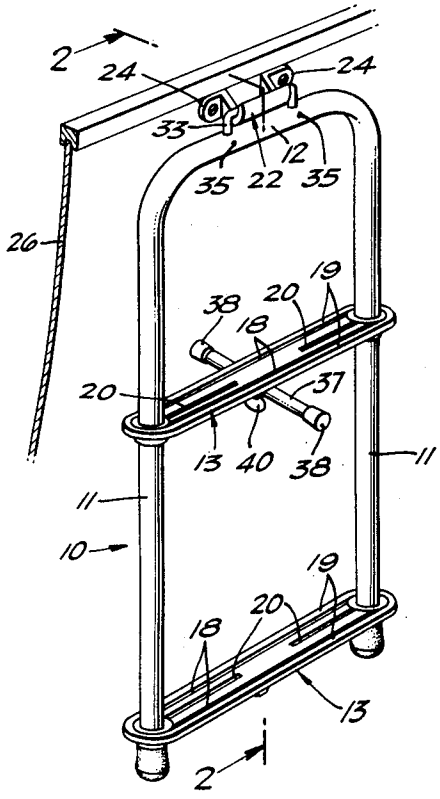


FIG. 1.

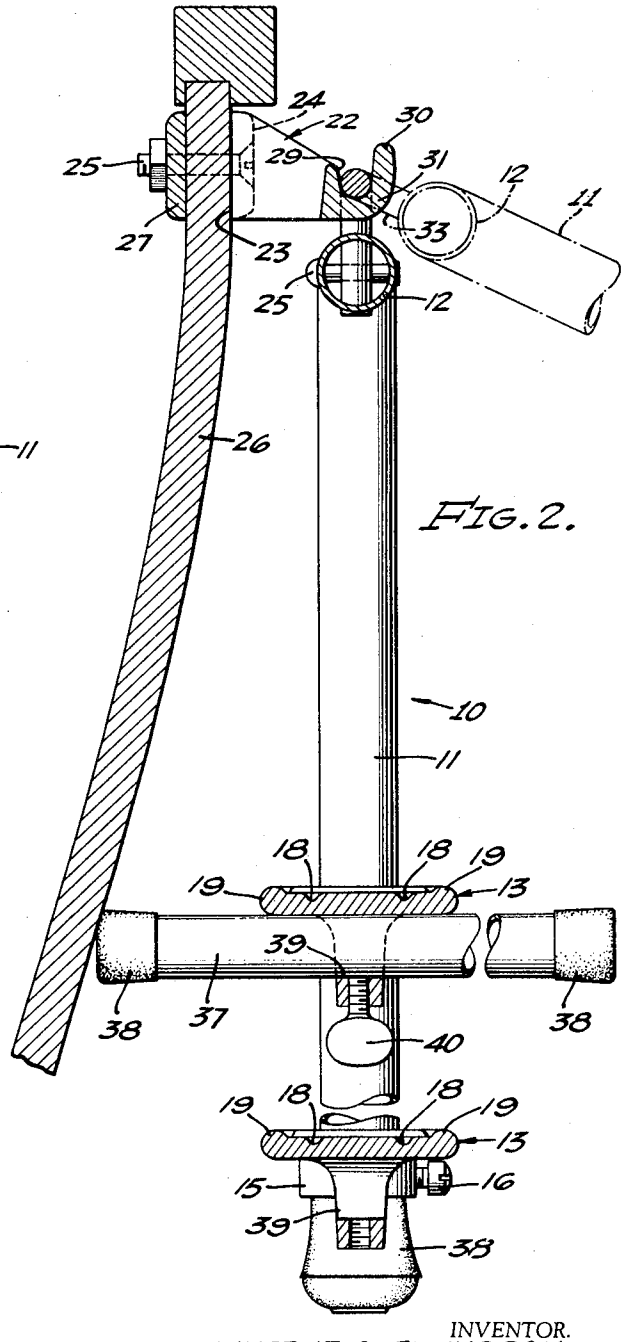
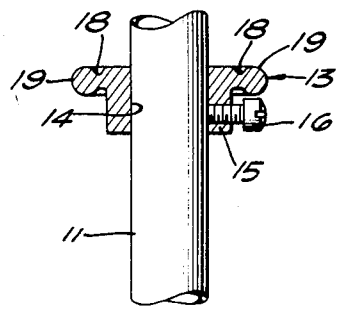


FIG. 2.

FIG. 3.



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BOARDING LADDER

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5 Claims. (Cl. 228—54)

This invention relates to ladders and more particularly to an improved boat boarding ladder adapted to be detachably supported from the free board of small boats or from the edge of swimming pools and the like.

Much difficulty is experienced by boating enthusiasts, sportsmen, swimmers, etc., in transferring between boats and the water conveniently and safely. It has been customary in the past to provide boarding ladders which could be secured to the outer side of the boat but these have been lacking in respects obviated by the present design. For example, it has been commonplace to provide a ladder with hooks engaging the gunwale of a boat but these were easily detached unintentionally and were subject to sliding along the gunwale. Also lacking in prior ladders has been satisfactory means for supporting the ladder spaced sufficiently outwardly of the freeboard and for preventing the ladder from being thrown against the side of the boat causing damage to the finish and possibly leaks in the boat wall.

The foregoing and other disadvantages of prior constructions are obviated by the present boarding ladder rigidly constructed from simple components and featuring novel means for suspending it pivotally outwardly of the freeboard. The supporting means features non-moving parts which are effective to lock the ladder in place on the supporting means and safeguarding the same against accidental detachment unless the ladder is deliberately swung upwardly away from the boat to an extent permitting disengagement of the ladder from its supporting hook. This avoids the need for clamping devices of any kind for locking the ladder in its operating position while permitting instant detachment of the ladder by the simple maneuver of pivoting it to a predetermined angle and then lifting it away from its supporting hook. Accordingly, the ladder may be placed in use or taken out of use in a matter of seconds, yet, while in use, is firmly locked assembled to the boat and may be used with full assurance that it cannot become detached even though the boat is rocked violently or pitches through a wide angle due to rough water or the action of persons using the boat.

Accordingly, it is a primary object of the present invention to provide a simple, rugged and improved ladder for use on boats and in swimming pools or the like by persons leaving or entering the water.

Another object of the invention is the provision of an improved boarding ladder having improved and foolproof means for locking the ladder in place from a support while permitting the same to be instantly detached without need for loosening clamps, locking devices or other security devices.

These and other more specific objects will appear upon reading the following specification and claims and upon considering in connection therewith the attached drawing to which they relate.

Referring now to the drawing in which a preferred embodiment of the invention is illustrated:

Figure 1 is a fragmentary view in perspective of a boarding ladder incorporating the features of the present invention;

Figure 2 is a transverse sectional view on an enlarged scale taken along line 2—2 on Figure 1; and

Figure 3 is a fragmentary view partly in section showing the manner of adjusting the cross rungs along the ladder frame.

Referring to Figures 1, 2 and 3, there is shown a boarding ladder designated generally **10** comprising an inverted U-shaped tubular main frame the legs **11** of which are interconnected by a straight bight portion **12**. Slidably arranged along legs **11** are a plurality of cross rungs **13** having bores **14** at their opposite ends slidably fitting legs **11**. These rungs include a flange **15** threadably seating a set screw **16** by which the rungs may be clamped in any desired position along the frame legs. The flat, broad rungs **13** are preferably provided with grooves **18** and ridges **19** or otherwise roughened to provide a non-slip foot grip. The rungs are also preferably slotted as indicated at **20** for drainage and further aid in avoiding slippage.

The ladder is arranged to be detachably suspended from one or more hook-like brackets **22** suitably formed by casting or otherwise. This bracket includes a flat, broad rear face **23** and mounting tabs **24** through which mounting bolts **25** may extend into the free board **26** of a boat, a pressure plate or broad washer **27** underlying the nuts on the inner face of the free board to avoid likelihood of injury to the boat or its finish. It will be appreciated that ladder suspension bracket **22** may be used in the pairs if desired but in practice it is found that a single broad bracket is adequate. Extending crosswise of the outer end of bracket **22** is a deep channel **29** opening upwardly and formed in part by a high outer lip **30**. The outer lower corner **31** of bracket **22** is rounded along a radius centered at the longitudinal axis of channel **29** for a reason which will be apparent presently.

Cooperating with channel **29** in supporting ladder **10** is a U-shaped clip **33** preferably formed of round metal stock and having short legs anchored in holes through the bight portion **12** of the ladder frame and anchored thereto as by rivets **35**. The bight portion of clip **33** has a length slightly greater than channel **29** and its legs project above the top of ladder portion **12** just sufficiently to permit free pivotal movement of the ladder when the clip is supported in channel **29**. As is made clear by Figure 2 when the ladder is suspended from channel **29** in the inclined position, indicated by dot-and-dash lines, it may be lifted bodily in a vertical direction without interference from the bracket or its lip **30**. However, detachment is positively prevented until and unless the ladder is first pivoted to a position in which lip **30** will pass between clip **33** and cross-piece **12** of the ladder frame. It will therefore be understood that assembly of the ladder into channel **29** or disassembly of the ladder therefrom can be accomplished only by first holding the ladder in substantially the position shown by dot-and-dash line in Figure 2 or at some higher elevation. When so held the ladder may be lifted bodily vertically past lip **30**.

Means for holding the ladder against swinging movement into the free board of the boat comprises a tubular strut **37** which can be inserted through the bores **39** transversely of the underside of each rung **13** and provided at either end with removable resilient caps **38**. The strut can be locked in any adjusted position by means of a thumb screw **40** having its inner end bearing against the wall of the strut. Preferably the strut is so adjusted as to hold the ladder pivoted slightly away from

a vertical plane through channel 29 so that gravity is effective normally to hold the ladder biased lightly against the side wall of the boat. It will therefore be evident that the ladder is rigidly supported in readiness for use and that the weight of a person clinging to or supported by the ladder does not cause it to swing against the boat; rather, the added weight causes it to rest with somewhat greater firmness against the side of the boat.

The mode of use of the described ladder will be quite apparent from the foregoing description of its components. Except when desired for use, the ladder may be carried within the boat leaving only bracket 22 projecting inconspicuously from the upper edge of the boat gunwale or from its transom. When it is desired to use the ladder, it is merely necessary to hold ladder nearly horizontal with the U-shaped clip 33 aligned with channel 29 as the ladder is dropped until the clip seats in channel 29 after which the ladder is allowed to swing downwardly against the free board. Should it be desirable at any time to remove the ladder, this is accomplished expeditiously simply by swinging the ladder upwardly to an inclined position and then lifting it bodily into the boat.

Although the ladder has been described for use on boats, it will be appreciated that it is equally useful mounted against the side wall of swimming pools or elsewhere. For example, it might be used in the home to provide access to high shelves and cabinets, the described supporting bracket 22 being installed along the edge of a ledge, table top or the like and the ladder being used in the same manner as set forth above.

While the particular boarding ladder herein shown and disclosed in detail is fully capable of attaining the objects and providing the advantages hereinbefore stated, it is to be understood that it is merely illustrative of the presently preferred embodiments of the invention and that no limitations are intended to the details of construction or design herein shown other than as defined in the appended claims.

I claim:

1. A boat boarding ladder for use on small boats comprising an inverted U-shaped tubular frame having rung means extending between and secured to the legs of said frame, means for pivotally supporting said ladder from the bight portion of said U-shaped frame, said supporting means including a bracket adapted to be anchored to the free board of a boat and having an upwardly opening deep groove therein for detachably supporting said ladder from the bight portion of said tubular frame, a wide U-shaped member secured to the bight portion of said ladder and having a straight bight portion parallel to and closely spaced from the bight portion of the ladder frame, said bracket having a lip projecting upwardly and disengageable from the bight portion of said wide U-shaped member only when the ladder is swung outwardly from the boat through a predetermined angle generally normal to the side of said lip.

2. A boat boarding ladder for suspension from the free board of a boat, said ladder having a tubular main frame including a tubular cross-piece at its top and cross-rungs therebelow, a supporting bracket for pivotally suspending said ladder from a boat free board and adapted to be rigidly secured thereto, said bracket having a wide open-topped channel across its outer end including a high upturned lip, and loop means carried by said tubular cross-piece engageable in said channel while the ladder is held pivoted widely away from the boat and cooperating with said cross-piece in locking the ladder assembled within said channel when the ladder hangs suspended from said supporting bracket.

3. A boat boarding ladder as defined in claim 2 including strut means, and means for clamping said strut to the under side of one of said ladder rungs with its inner end resting against the boat to hold said ladder against swinging movement into the boat and its rungs spaced sufficiently therefrom to provide adequate foot room for persons using the ladder.

4. A boat boarding ladder as defined in claim 3 including soft rubber protectors mounted on the ends of said strut.

5. A boat boarding ladder as defined in claim 2 characterized in that said frame is tubular and said rungs are wide and flat, said rungs being adjustable along said frame and secured in adjusted position therealong by clamping means.

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