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Hovey

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[54] **RETRACTABLE LADDER FOR PLEASURE BOATS**

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Related U.S. Application Data

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[52] **U.S. Cl.** **182/89**, 182/195

[51] **Int. Cl.** **E06c 5/06**

[58] **Field of Search** 182/195, 90, 208, 98, 89; 16/66

[56] **References Cited**

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[57] **ABSTRACT**

A boat ladder for pleasure boats to enable a user to easily get into or out of a boat when in the water and also get into and out of the boat when loaded on a transporting trailer, including a movable section and a stationary section supported from the boat hull, together with an interconnection with the movable section to move it from an extended position to a retracted position.

5 Claims, 3 Drawing Figures

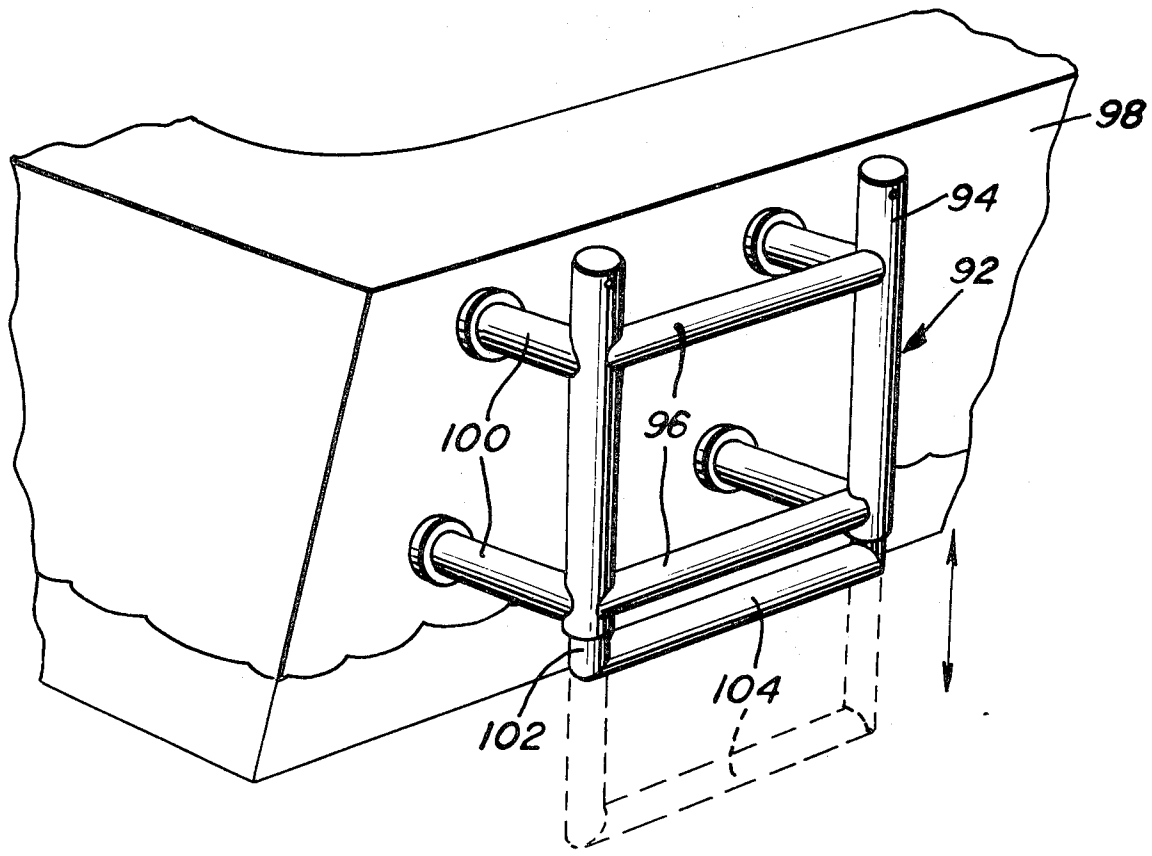


FIG. 1

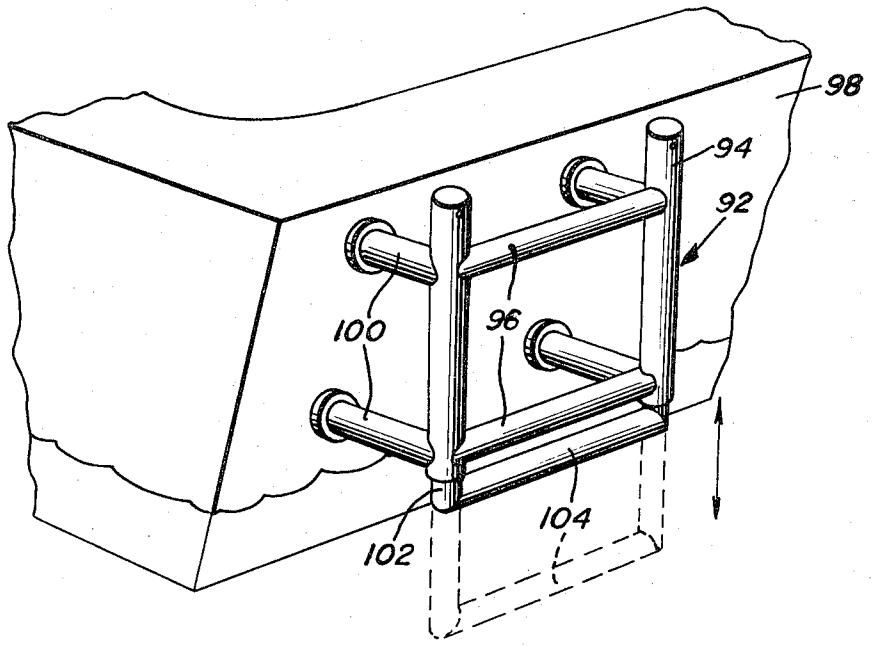


FIG. 2

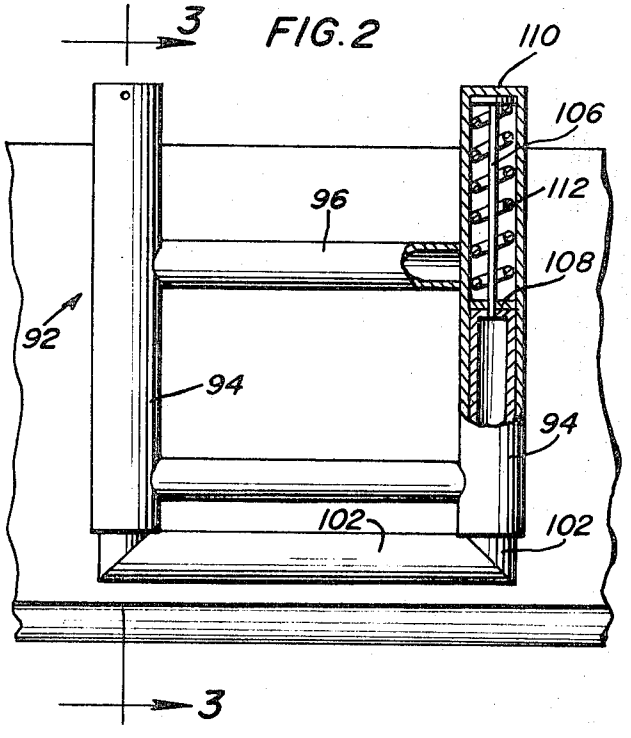
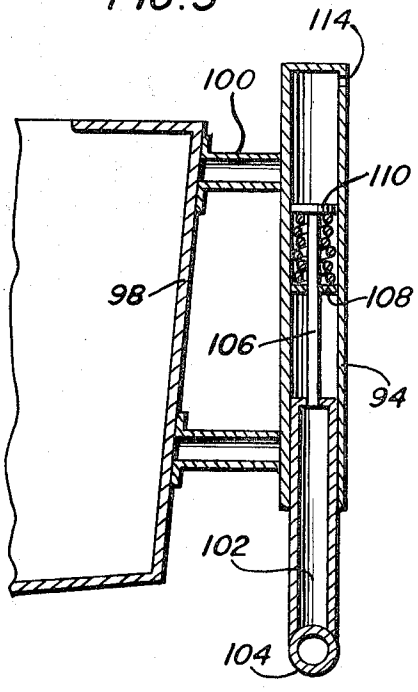


FIG. 3



RETRACTABLE LADDER FOR PLEASURE BOATS

CROSS-REFERENCE TO RELATED APPLICATION

This application is a division of Ser. No. 179,049, filed Sept. 9, 1971, now U.S. Pat. No. 3,774,720, issued Nov. 27, 1973.

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention generally relates to a boat ladder for pleasure boats and more particularly a boat ladder to facilitate access into the boat as well as egress therefrom whether the boat is in the water away from a dock or supported on a transporting trailer or other supporting structure with the ladder including a stationary section mounted on the boat hull and a movable section movable in relation to the stationary section and spring means connected with the movable section to bias it toward retracted position.

2. Description of the Prior Art

Pleasure boat users who wish to get into or out of a pleasure boat when the boat is in the water have always experienced considerable difficulty. When such boats are alongside of a dock, there is no particular problem. However, when the boat is in the water and away from the dock, it is quite difficult to ascend from the water into the boat or to get from the boat into the water in a safe and convenient manner. Also, when the boat is on a transporting trailer, it is quite difficult to get into the boat or exit from the boat. While some attempts have been made to overcome this problem by the use of ladders which usually are attached to the gunwale of the boat and which swing from a position interiorly of the boat to a position alongside of the hull, such devices require manual manipulation thereof by a person in the boat to pivot the ladder to an external position and such devices also occupy some of the space within the interior of the boat.

SUMMARY OF THE INVENTION

It is an object of the present invention to provide a permanently mounted extendable and retractable device utilized for ascending into a boat or descending out of a boat when the boat is in the water away from the pier or is loaded on a transporting trailer, thereby greatly facilitating the functional utility of a pleasure boat when used by water skiers, divers, swimmers, underwater workers, or others employing the pleasure boat and desiring to enter and exit from the boat.

Another object of the present invention is to provide a boat ladder for pleasure boats that may be installed at the stern, side or bow of the boat according to the desires of the manufacturer or owner.

Still another object of the invention is to provide a boat ladder which may be manually extended by the weight of the user and spring returned.

Still another important feature of the invention is to provide a boat ladder for pleasure boats in which the ladder includes a movable section which may be longitudinally extended or retracted.

Yet another important feature of the invention is to provide a boat ladder for pleasure boats in accordance with the preceding objects which is effective for providing a safe and dependable boat ladder, easily incorporated into pleasure boats or added to existing pleasure boats, and relatively inexpensive to manufacture, operate and maintain.

These together with other objects and advantages which will become subsequently apparent reside in the details of construction and operation as more fully hereinafter described and claimed, reference being had to the accompanying drawings forming a part hereof, wherein like numerals refer to like parts throughout.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of a portion of a pleasure boat hull with the boat ladder mounted thereon;

FIG. 2 is an elevational view with portions in section illustrating the structural details of the boat ladder; and

FIG. 3 is a vertical sectional view taken substantially upon a plane passing along section line 3—3 of FIG. 2 illustrating further structural details of the ladder.

DESCRIPTION OF EMBODIMENTS

Referring now specifically to the drawings, the boat ladder is generally designated by reference numeral **92** and includes a pair of stationary tubular members **94** interconnected by transverse bars, steps, or rungs **96** with the tubular members being connected to the boat hull **98** by brackets **100.** The movable section includes a pair of tubular members **102** that telescope into the tubular members **94** with the lower ends of the tubular members **102** being interconnected by a transverse bar, rung or step **104** which may be in the form of a tubular member. The tubular members **102** have an extending piston rod **106** connected thereto which extend upwardly through a stationary partition **108** in the tubular member **94** and terminates in a flange or piston **110** slidably movable within the tubular member **94.** A compression coil spring **112** is disposed between the flange **110** and the partition or abutment flange **108** to spring bias the bar or step **104** upwardly. Thus, when a sufficient force is applied to the movable section in a downward direction to overcome the springs **112** or other resilient or elastic material, such as occurs when a user steps on or otherwise pulls down on the step **104,** the movable section will descend into the water or beneath the boat. Whenever the downward force is removed, then the movable section will be automatically retracted by the springs or other resilient material. A dampening device, such as a small orifice, **114** may be provided adjacent the upper end of the tubular members to control flow of air and thus cushion the upward movement of the flange or piston **110** when moving upwardly thereby providing timed retraction of the movable section.

The mounting of the ladder may be at the stern, side or bow of the hull and various materials which are corrosion resistant and provided with adequate strength may be employed in constructing the ladder. The ladder basically is of the telescoping extending and retracting type and the movable section is out of the water during movement of the boat at normal speeds and disposed above the bottom of the boat so that it will not interfere with movement of the boat onto or off of a transporting trailer. The ladder may include a position locking device to releasably retain the movable section in either extended or retracted positions. The position locking device may be in the form of a spring loaded detent associated with the telescopic members. Standard attachment brackets may be provided, such as an anchor flange for securing the attaching brackets to the boat hull and the attaching brackets themselves may be telescopingly adjustable or adjustable in any

other manner to affix the boat ladder in substantially a vertical position.

The foregoing is considered as illustrative only of the principles of the invention. Further, since numerous modifications and changes will readily occur to those skilled in the art, it is not desired to limit the invention to the exact construction and operation shown and described, and accordingly all suitable modifications and equivalents may be resorted to, falling within the scope of the invention as claimed.

What is claimed as new is as follows:

1. A boat ladder combined with a pleasure boat to facilitate a user getting into or out of a pleasure boat when in the water away from a dock and when on a transporting trailer or the like comprising a stationary section rigid with respect to the boat hull, a movable section movably mounted with respect to the stationary section for movement between extended and retracted positions, each of said sections including at least one transverse member defining a step with the step on the movable section being moved to a lower position below the boat hull when the movable section is in its extended position, and means interconnecting the stationary section and movable section to move said movable section in at least one direction of movement, said movable section being reciprocally mounted with respect to the stationary section for substantially vertical movement between extended and retracted positions, said stationary section including a pair of substantially vertically disposed guide members telescopingly engaged with portions of the movable section, said means moving the movable section in one direction including a spring member interconnecting the movable section and stationary section enabling movement of the movable section to an extended position when the weight of a user is placed thereon, said spring member moving the movable section to its retracted position when weight is removed from the movable section, said vertically disposed stationary guide members being in the form of cylinders having a closed upper end, said movable section including pistons telescopically movable in said cylinders, a spring member engaged with each of said pistons for biasing the pistons upwardly, and means controlling the rate of upward movement of the pistons in the cylinders thereby controlling the rate of movement of the movable section toward retracted position when weight is removed from the step thereon.

2. The structure as defined in claim 1 wherein each cylinder includes an abutment above the lower end thereof, said spring members each being in the form of a coil spring having an upper end engaged with the piston and a lower end engaged with the abutment.

3. The structure as defined in claim 2 wherein each piston includes a depending rod, each rod having a tubular member on the lower end thereof telescopic with respect to the lower end portions of the cylinders, said tubular members extending below the cylinders and being interconnected rigidly by a member defining said step, said abutment being disposed above the lower end of the cylinders and being in the form of an annular flange rigid with the cylinder and receiving the piston rod therethrough, said abutment limiting downward movement of the pistons and maintaining the tubular members within the cylinders.

4. The structure as defined in claim 3 wherein said control means includes an orifice in the upper end of at least one of the cylinders to control flow rate of air from the cylinder.

5. A boat ladder combined with a pleasure boat to facilitate a user getting into or out of a pleasure boat when in the water away from a dock and when on a transporting trailer or the like comprising a stationary section, means rigidly mounting the stationary section on the boat hull at vertically spaced points, a movable section movably mounted with respect to the stationary section for movement between extended and retracted positions, said sections being substantially vertical when the boat hull is in normal floating position, each of said sections including at least one transverse member defining a step with the step on the movable section being moved vertically to a lower position below the boat hull when the movable section is in its extended position, the step on the stationary section cooperating with the step on the movable section to span the distance from the top edge of the boat hull to the water when fully extended, said section being out of the water when the movable section is fully retracted, and resilient means interconnecting the stationary section and movable section to move and resiliently retain said movable section in a retracted position, and control means for controlling the rate of movement of the movable section toward the retracted position, said stationary section including a pair of parallel tubular members each having an abutment spaced downwardly from the upper end and above the lower end, said movable section including a pair of rods extending upwardly in said tubular members above said abutments, said resilient means including a resilient member mounted on each rod with the lower end operatively associated with an abutment and the upper end operatively associated with the upper end of the rod to bias the rods upwardly thereby retracting the movable section, each of said rods having a piston on the upper end thereof closely received in the tubular member, each tubular member having a closed upper end, said control means including an orifice communicating with the interior of at least one of the tubular members above the piston to restrict air flow thereby controlling the rate of movement of the pistons in the tubular members and the rate of movement of the movable section, each of said rods having a lower end connected to a cylindrical member telescopically received in the lower end of a tubular member with the position of the abutment maintaining the cylindrical members within the lower ends of the tubular members, said transverse member forming the lower step interconnecting the lower ends of the cylindrical members.

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