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SMALL BOAT RESTRAINERS

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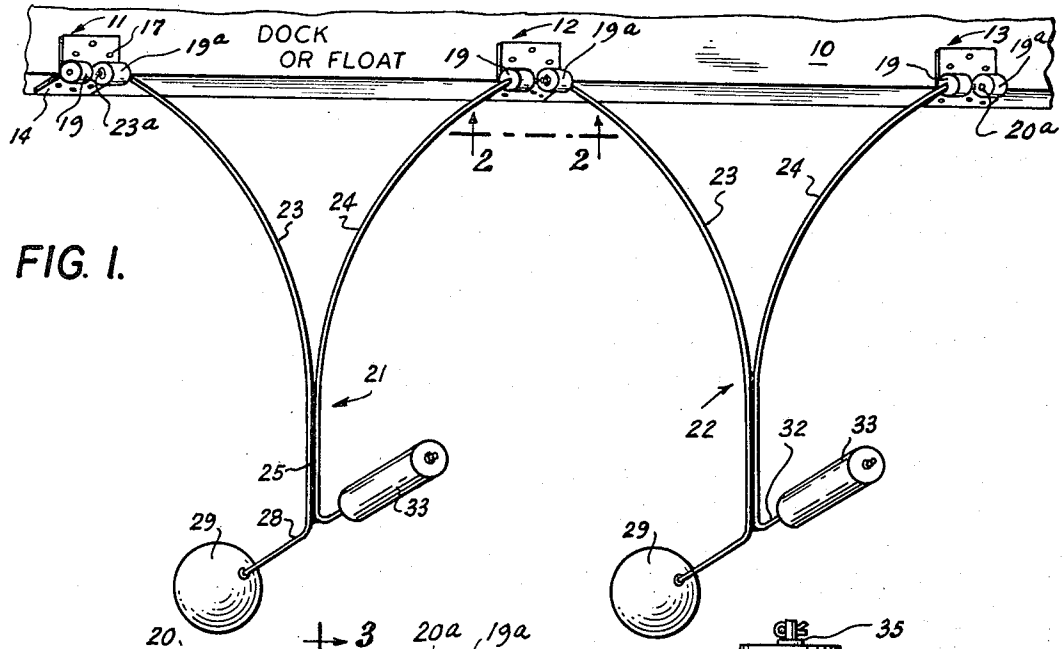


FIG. 1.

FIG. 2.

FIG. 3.

FIG. 5.

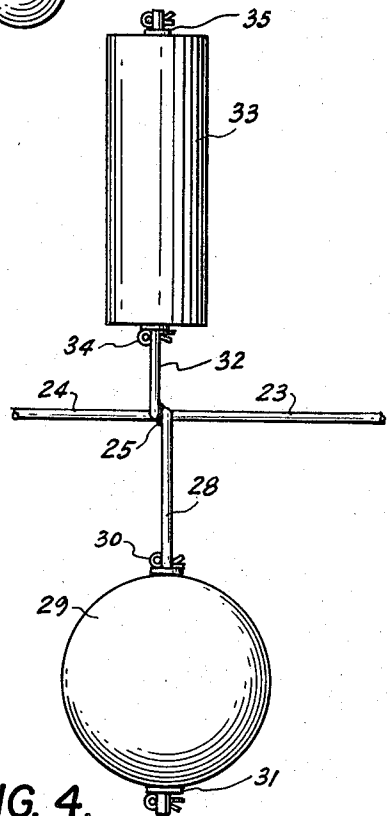


FIG. 4.

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SMALL BOAT RESTRAINERS

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6 Claims. (Cl. 114—230)

ABSTRACT OF THE DISCLOSURE

Means for restraining small boats tied to a dock from sidewise movement in the form, for each boat, of two opposed curved arms which together define a bow-shaped enclosure in which the bow of the boat is confined, each such two arms constituting one arm of two mutually adjacent wishbone-shaped members pivoted at one end to the dock and having at their outer or common end a downwardly extending float to float the member and upwardly extending fender means to engage the side of the boat.

This application is a continuation of application No. 519,603, filed Jan. 10, 1966, and now abandoned.

Summary of the invention

A plurality of members each composed of two diverging curved arms joined at one end thus simulating the shape of a wishbone, are positioned side by side in substantially a horizontal plane, with the free ends of the said arms pivoted to the dock. The curvature of the said arms is such that the two mutually adjacent arms of two mutually adjacent members complement each other to provide a bow-shaped enclosure in which the bow of a tied up boat is confined. The outer or common junction end of each member has a downward extension provided with a float for supporting the member above water and with an upwardly extending portion or extension provided with cushioned or resilient rollers adapted to be engaged by the sides of the boat. Two such members are required for a single boat, and for each additional boat to be docked one additional such member is required.

Referring briefly to the accompanying drawing,

FIG. 1 is a perspective view illustrating an embodiment of the invention as applied to the restraining of a single boat tied to a dock, float or other landing.

FIG. 2 is an enlarged fragmentary front elevational view, with parts broken away and partly in section, taken along the line 2—2 of FIG. 1.

FIG. 3 is a sectional view taken on the line 3—3 of FIG. 2, with the dock omitted.

FIG. 4 is an enlarged front elevational view of either of the two wishbone-shaped members shown in FIG. 1, with parts broken away.

FIG. 5 is a schematic top plan view illustrating how the invention may be applied to any number of boats in excess of one.

Referring in detail to the drawings, the numeral **10** designates a dock, floating platform or other boat landing to which small boats are adapted to be tied. A plurality of identical mounting devices, plates or brackets of which only three are shown at **11**, **12**, **13** in FIG. 1, are secured to the dock spaced equidistantly from each other. The mounting devices are shown, by way of example, as right angle brackets engaging the top and front surfaces of the dock, with the wings **14** and **15** thereof provided with holes **16** receptive of screws **17** or the like, for attaching the brackets to the dock.

Shown on the horizontal wing **15** of each bracket and secured thereto, as by welding **18**, are a pair of spaced supports **19**, **19***a*. Although both these supports are identical, they have been given different reference numerals for

the purpose of clarifying the invention. As is seen, the support **19** is at the left of the support **19***a*. Each pair of such supports have mutually aligned cylindrical passages or bores **20**, **20***a*, respectively, whose axes are parallel with the front edge of the dock.

Two identical wishbone-shaped members **21** and **22** are shown in FIG. 1 and, as will become apparent below, that number is required for accommodation of one boat. To accommodate a second boat, a third identical wishbone-shaped member would be required, and it will be made apparent that the number of such members required is one more than the number of boats to be accommodated.

Each wishbone-shaped member **21**, **22** is shown composed of two divergently curved cylindrical rods, or arms, **23**, **24**, joined together, as by welding **25**, at their outer end portions, and the joined ends of the arms may be deemed the outer end of the member, that is, the end remote from the dock. Preferably the arms **23**, **24** have straight portions extending forward toward the dock for a distance from their outer ends, as shown in FIG. 1, and it is along these straight portions that they are welded together.

At their inner ends, or free ends, the arms **23**, **24** of each member **21**, **22** are deformed into aligned spindles **23***a*, **24***a*, respectively. As is shown in FIGS. 1, 2 and 3, the arm **23** of the member **21** has its spindle **23***a* registering in the bore **20***a* of the support **19***a* of the bracket **11**, while the spindle **24***a* of the arm **24** of the same member **21** registers in the bore **20** of the support **19** of the bracket **12**. Also, the spindle **23***a* of the arm **23** of the member **22** registers in the bore **20***a* of the support **19***a* of the bracket **12**, while the spindle **24***a* of the arm **24** of the member **22** registers in the bore **20** of the support **19** of the bracket **13**. The spindles in FIG. 2 as well as those which are visible in FIG. 1 are shown projecting through their respective bores and beyond.

To retain the spindles in their respective bores, cotter pins **26** are shown passed through diametrical holes through the projecting ends of the spindles, with the interposition of washers **27**.

At the outer end of each wishbone-shaped member **21**, **22**, the arm **23** thereof has a downward extension **28** at right angles to the common plane of the two arms **23**, **24** thereof. A float **29**, shown as a sphere having an axial passage therethrough, is mounted on the extension **28** in a position spaced below the member with the said extension passing through the said axial passage. Suitable cotter pins **30** and washers **31** are shown confining the float on the extension.

Additionally, at the outer end of each member **21**, **22**, the arm **24** thereof has an upward extension **32** at right angles to the common plane of the two arms **23**, **24**, thereof. Secured to this extension is a fender **33** which is shown as a cylindrical roller rotatably mounted on the extension. Again, suitable cotter pins **34** and washers **35** confine the fender on the extension. Obviously, the float **29** maintains the member above the surface of the water while the fender **33** extends upward above the plane of the two arms thereof.

The curvature of all of the arms **23**, **24** of the members **21**, **22** is such that, with the members mounted side by side substantially in a common horizontal plane as illustrated in FIG. 1, the two mutually adjacent arms **24**, **23** of the two mutually adjacent members **21**, **22**, respectively, simulate the outline of the bow of a boat.

With a docked boat positioned with its bow between the arms **24**, **23** whose spindles register in the supports **19**, **19***a* of the bracket **12**, it is obvious that the sides of the boat adjacent the bow, can engage only the two fenders **33** shown in FIG. 1. Hence, movement of the water or wind which causes the boat to swing sidewise will swing the boat against one or the other of the fenders

without doing any damage to the boat. When two or more boats are thus docked side by side in the manner illustrated schematically in FIG. 5, they are restrained within the confines of such two fenders and cannot contact or scrape against each other. There is, of course, a degree of resiliency inherent in the arms 23, 24 which permits a corresponding degree of yielding and absorbing sidewise pressure against the fenders. Moreover, since the members 21, 22 are pivotally mounted in the supports 19, 19*a* of the mounting brackets, they are free to move up and down with the docked boat in harmony with the rising or falling of the water level. No means has been shown for tying a boat to the dock, but it is of course to be understood that such means are present in the usual manner.

It is obvious that by adding a fourth mounting bracket similar to those shown at 11, 12 and 13 on either side of those shown in FIG. 1 and spaced at the same distances as the spacing between the said three brackets, and likewise adding another wishbone-shaped member identical to those shown, a second boat can be accommodated at the dock. It is further obvious that for each additional boat to be accommodated one additional bracket together with one additional wishbone-shaped member is supplied, as illustrated in FIG. 5.

All the parts of the instant devices except for the fenders and possibly excepting the floats, are preferably made of a suitable corrosion resisting metal such as stainless steel, the members 21, 22 being preferably in the form of resilient rods. As to the floats, they are constructed of a suitable material having a tough exterior to resist abrasive action when used in salt water. The fenders are also constructed of a tough resilient material to withstand constant chafing or rubbing action such as may be brought to bear upon them.

To accommodate small craft which do not have the same beam measurement, finders of different diameters may be provided so that all the docked boats are constrained to a position substantially at right angles to the edge of the dock or other landing.

As the fenders are provided with or in the form of rollers, when a small boat is approaching its berth at an incorrect angle it may first strike one fender and the rotatable action of the fender will parry the boat to a more correct angle for entry for a safe landing. The fenders, being above water and in plain sight, may bear different colors or numbers after the fashion of a code, so that each berth is readily indentifiable by its code color or number. Thus its identity will be quickly spotted by the skipper so that he may make a timely maneuver and thus lessen the chance of a collision.

It is to be noted that each bow-shaped berth such as the single one shown in FIG. 1 forward of the bracket 12 is provided with a three-point stress set-up on each side thereof, or, more specifically, each member 21, 22 is so provided. Such three points for each member consist in the welded outer end of the member and the supports of the two mutually adjacent brackets in which the arms of the member are pivoted. Hence the member will flex a minimum distance upon impact of a boat or pressure exerted by the boat, with a minimum strain at any one point. Thus a steady holding restraining force is provided, capable of withstanding severe pressures in lateral directions due to wind, wave or current.

Since each wishbone-shaped member is vertically pivotable, it may be raised and swung on to the deck for servicing, or it may readily be removed from the mounting brackets for prolonged storage, in an obvious manner.

In the schematic showing in FIG. 5, a mounting bracket 11*a* is shown positioned at the left of the bracket 11, and an added mounting bracket 13*a* is shown positioned at the right of the bracket 13, thus providing two additional berths for boats 36 and 37 in addition to the boat 38 shown positioned in front of the bracket 12.

What is claimed and desired to be secured by Letters Patent is as follows:

1. In combination with a dock, a plurality of wishbone-shaped members positioned in side by side relationship substantially in a horizontal plane and extending outward from the dock, each of said members consisting of two curved arms of mutually identical degrees of curvature, said arms being rigidly joined together at one end thereof and diverging from said one end thereof, the joined ends of said two arms constituting the outer end of the member, means partly on said dock and partly on the other ends of said two arms of each of said members for pivotally securing the members to the dock in said side by side relationship, the curvature of all of said arms being such that the two mutually adjacent arms of two mutually adjacent members define an outline substantially complementary to the outline of the bow of a small boat, each of said members having on said outer end thereof float means for positioning said two arms thereof above the surface of the water and fender means extending upward above said horizontal plane.

2. A combination according to claim 1, said float means comprising a downward extension on said outer end of the member and a float mounted on said downward extension.

3. A combination according to claim 1, said fender means comprising an upward extension on said outer end of the member and a fender mounted on said upward extension.

4. A combination according to claim 3, said fender comprising a roller having an axial passage therethrough, said roller being rotatably mounted on said upward extension, and means for retaining the roller on said upward extension.

5. A combination according to claim 1, said means partly on said dock comprising equidistantly spaced mounting plates secured to the dock, each of said mounting plates having two spaced supports thereon provided with mutually aligned bores, the bores of all of said supports having a common axis parallel with the edge of the dock, said means on said other ends of said arms comprising mutually aligned spindles, one of said two spindles of each member registering in a first support of the two supports on one mounting plate and the other of said two spindles thereof registering in a second support of the two supports on the next adjacent mounting plate, said first and second supports being those which are directly opposite each other, and means for retaining said spindles in their respective supports.

6. A combination according to claim 5, said spindles on each of said two arms of each of said members extending in opposite directions.

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