

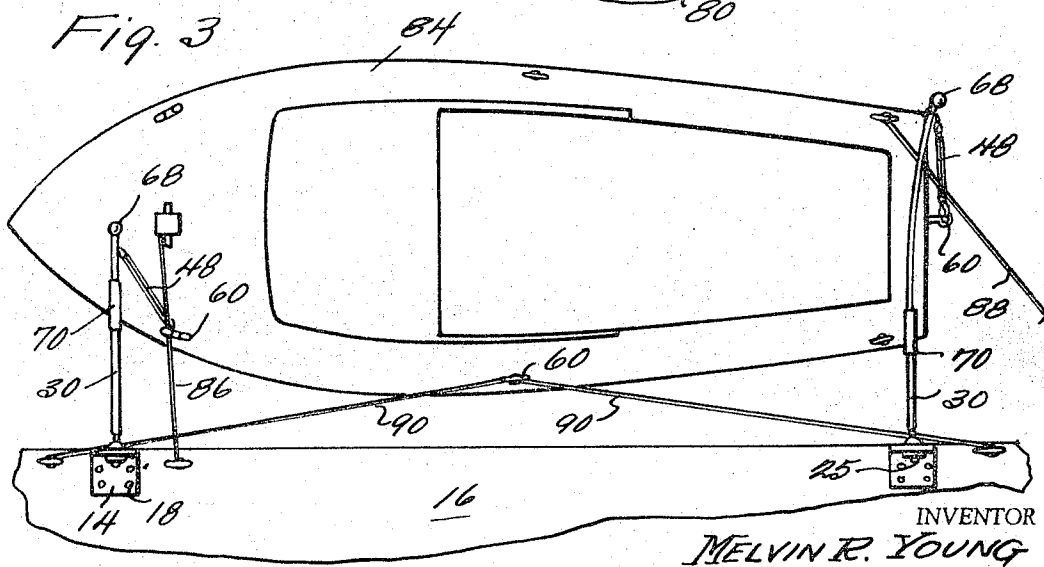
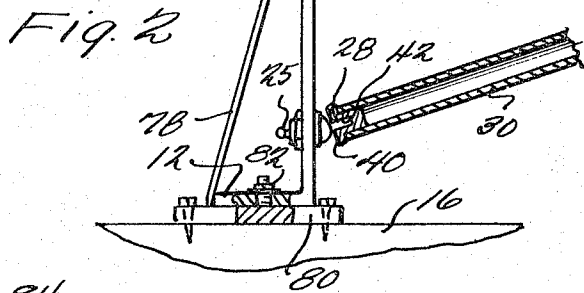
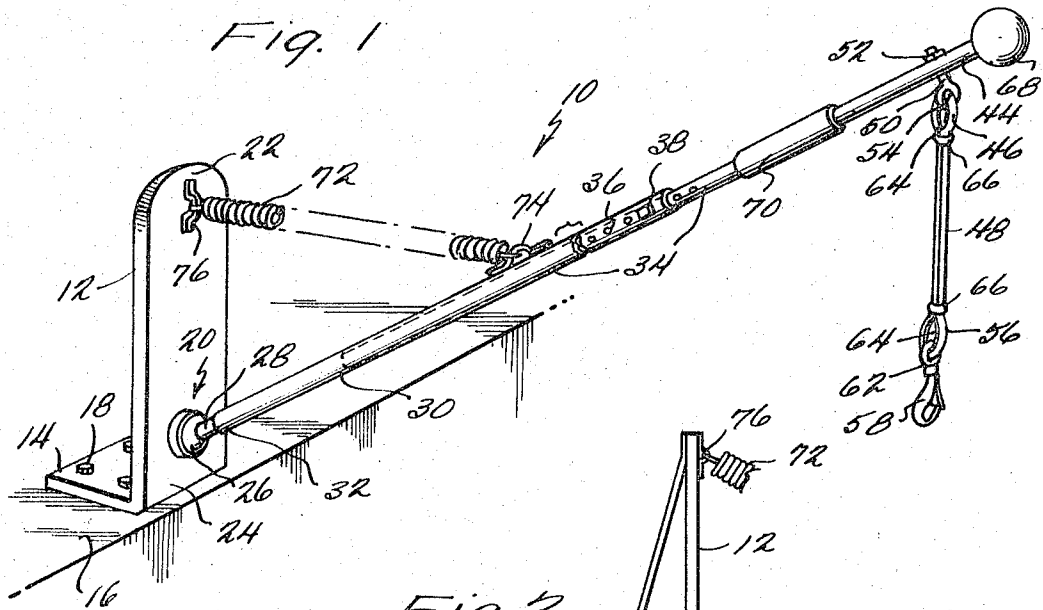
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3,307,514

BOAT MOORING DEVICE

Filed Oct. 1, 1965



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**BOAT MOORING DEVICE**

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This invention relates to a mooring device and more particularly to a device for mooring boats and the like to a dock, sea wall, pier, etc.

All docked boats are subject to wave action, storms, and wind. Furthermore, docked boats in bays, estuaries, or other areas associated with the sea are subject to tides. Undulations caused by these and other disturbing conditions are apt to result in damage to the boat by contact against the dock unless a means is provided to maintain the boat and dock in a spaced relationship. Consequently, it is a primary object of this invention to provide a mooring means which holds boats of 55 feet in length or less away from the dock under extreme conditions as well as normal conditions. Many previous mooring devices fail to appreciate the wide variations in weather and tides around the country nor do these devices accommodate large boats.

Obviously, consideration must be given to the practicality of various mooring devices in determining the competitiveness and utility of any given mooring device. It is thus an object of this invention to provide a mooring device which is practical, simple in construction, inexpensive, easy to use, and efficient in operation. Furthermore, it is an object of this invention to provide a mooring device which can be easily installed without preparing special sockets or otherwise modifying existing docking structures.

A further object of this invention is to provide a mooring device which is strong enough to hold the boat away from the dock and yet flexible enough to permit normal movements of the boat due to waves, tides, wind, etc.

Still another object of this invention is to provide a mooring device which, in its installation, can be adjusted to properly fit the size of boat and conditions to which it is subjected.

A further object of this invention is to provide means associated with the mooring device to prevent the mooring device itself from damaging the boat.

Broadly, the objects of this invention are accomplished by providing a boat mooring device including: an upstanding plate member having a base adapted to be secured to the dock; a boom having one end seated on the stud means of the ball joint means and extending outwardly from the upstanding member; a ball joint means secured to the upstanding member intermediate its two ends, the ball joint means having a stud means extending therefrom in a direction away from the upstanding member; tethering means secured adjacent the free end of the boom and adapted to be attached to the boat; and tension spring means secured at one end to the upper end portion of the upstanding plate member and secured at the other end to the boom intermediate its two ends for supporting the boom. The boom can be telescoped to provide adjustability for boat size, and contact between the boom and boat can be prevented by resilient protective members secured to the boom.

These and other objects of this invention are more clearly depicted in the following detailed description having specific reference to the attached drawings in which the embodiments of the invention are shown, not to limit the scope of the invention in any respect but so that the principles thereof might be more clearly demonstrated.

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FIGURE 1 is a fragmentary perspective view of the boat mooring device mounted on a dock or the like;

FIGURE 2 is a fragmentary side elevational view, partly in section, showing details of the mooring device and modifications which can be utilized therewith; and

FIGURE 3 is a plan view of the boat mooring device shown in operative relation with the boat and a fragmentary portion of the dock.

Referring now to the drawings, there is shown in FIGURES 1 through 3 a mooring device 10 embodying the principles of the invention. The mooring device 10 comprises an upstanding plate member 12, preferably of aluminum so that rust will not be a problem, having a base 14 adapted to be secured to a dock, pier, sea wall or the like 16. As illustrated, the upstanding plate member 12 and base 14 are L-shaped in configuration with the short leg comprising the base and being secured to the dock by a plurality of anchor bolts 18. Obviously, these members could be designed with many variations for attaching the upstanding member to the dock or piling supporting the dock. The upstanding member 12 is preferably supported in a vertical position. It may be necessary to insert spacers, not shown, underneath the base of the upstanding plate member so as to achieve this vertical position or any other desired position for the upstanding plate.

A ball joint means 20 is secured to the upstanding member intermediate its two ends 22 and 24. The ball joint means comprises a lubrication fitting 25 and a common, permanently lubricated ball joint 26 which permits full universal action of a stud 28 secured to the ball joint and extending outwardly therefrom in a direction away from the upstanding member. The position of the ball joint in relation to the two ends of the upstanding member may vary depending on the elevation of the dock or sea wall relative to the boat or fastening thereon.

A boom or out-rigger rod 30, preferably formed of galvanized iron or aluminum pipe, is provided and has one end 32 seated on the stud 28 of the ball joint means so that it extends outwardly from the upstanding member. The size and length of the boom will again depend upon the size of the boat being moored to the dock. As illustrated, the boom 30 preferably comprises at least a pair of telescoping pipes 34 so that it can be adjusted to the right length depending on the size of the boat and the turbulent conditions to which the boat will be subjected. It will be seen that this telescoping feature enables the boom to be lengthened or shortened as desired. A plurality of holes 36 through which a pin 38 is inserted are shown provided in the boom for retaining the telescoping sections at the right length. It may be desirable to let the owner of the mooring device drill a hole through the telescoping sections of the boom for the pin when the proper length of the boom has been determined for his particular use. Obviously, however, the boom could comprise a single pipe cut to the desired size. If the stud 28 is sufficiently large, the boom can be seated directly thereon. It may be desirable to taper the stud so as to facilitate the seating of the boom. Likewise, if the size of the boom and stud vary, a plug 40, such as shown in FIGURE 2, having a tapered recess 42, could be placed within the boom so that the boom could be seated on the stud.

Preferably the outer or free end 44 of the boom has one end 46 of a tethering means 48 operatively attached thereto. As illustrated, an eye-bolt 50 extends through the boom adjacent its outer end 44 and is secured therein by means of a nut 52. One end 46 of the tethering means 48 is secured through the eye 54 of the eye-bolt 50 while the other end 56 of the tethering means is adapted to be

secured to the boat. For accomplishing this latter purpose, it may be desirable to provide a simple snap hook 58 or the like which will facilitate the attachment of the tethering means to a cleat, eye-bolt, or other fastening device 60 on the boat, as shown in FIGURE 3.

The tethering means 48 is preferably made out of rubber, plastic, or other elastic material and is commonly known as a shock cord. One common cord comprises a plurality of rubber strands enclosed in an elastic flexible fiber casing. The size (i.e., diameter) of the shock cord will obviously affect its tensile strength. The size of the shock cord will vary depending on the size of the boat and the conditions to which it will be subjected. Obviously, the use of shock cords of varying sizes assures that the boat will be held off from the dock or sea wall. Likewise, the shock cord provides flexible but positive control of the boat so that it can move normally in relation to tide and wave action.

The shock cord could have a vulcanized loop on each end for facilitating various attachments. As illustrated, however, the shock cord is threaded through the eye 54 of the eye-bolt 50 and the eye 62 of the snap hook 58, and the ends of the shock cord are secured to form a loop. A thimble 64 may be inserted through each eye for protecting the shock cord. Each thimble and shock cord are held in an associated relation by means of a collar 66. Obviously, many modifications in the manner of attaching the shock cord to the boom and snap hook may be used within the scope of the invention. For instance a threaded eye-cap could be secured to the free end 44 of the boom.

One advantage of attaching the shock cord at a slightly disposed position from the end of the boom is the fact that a resilient ball 68, such as one of sponge rubber, or other cushioning means could be inserted on the free end of the boom without interfering with the shock cord to prevent the boat from hitting the end 44 of the boom due to some unnatural sudden movement. Likewise a resilient sleeve or moulding 70, such as one made from rubber, could be mounted on the boom after it has been extended to its desired length to protect the boat if the boom and boat came into contact.

A tension spring 72 extends between the upper end 22 of the upstanding member and the intermediate portion of the boom. The spring 72 is attached to the boom by means of a clip 74 or the like. A similar clip 76 could also be used for attaching the other end of the spring to the upper end 22 of the upstanding member, although it will be appreciated that the spring could in fact be fastened through a hole in the upper end of the upstanding plate member. The spring 72 primarily carries the weight of the boom, but it also positions the boom so as to keep it off the boat. Furthermore, the position of the clips and spring will control the horizontal positioning of the boom or deviations of the free end of the boom from a horizontal position.

As illustrated in FIGURE 2, it may also be desirable to include brace members 78 extending between the upstanding member 12 and its base 14. These brace members 78 obviously could take many different configurations. It may also be desirable to mount the base 14 of the upstanding member on a fixed anchor plate 80 which is bolted to the sea wall or dock. The base could then be swivelly mounted to the anchor plate 80, as by a stud and nut arrangement 82, so as to allow the upstanding member and boom to swing about the axis of the swivel mounting.

It will be appreciated that the mooring device described above does not attempt to position the boat but rather holds the boat away from the dock while allowing normal movements of the boat due to tides, waves, etc. FIGURE 3 shows a typical tie-up arrangement utilizing the mooring device described above. The normal manner in which a boat 84 is tied up at a dock or sea wall 16

is to use a bow line 86 and a stern line 88 to prevent the boat from moving away from the dock or sea wall. A spring line 90, either a single line as shown or a double line, prevents the boat from having longitudinal movement. It will be seen that the mooring device operates to hold the boat away from the dock. While the spring lines prevent forward and backward movement of the boat, there is naturally a small amount of such movement. The universal action permitted by the ball joint will accommodate such movement along with the up and down movement caused by surging water, and the rise and fall resulting from tides. Furthermore, the ball joint permits such universal action without running the risk of getting stuck in a socket or the like, such as used on other mooring devices. When the spring lines are removed, the universal action of the ball joints will permit the boat to be swung into the dock. When the shock cord and snap hook are unfastened from the cleat or other fastening device 60, the boom can be removed from the stud and laid on the dock so that it will not protrude over the water. It will be appreciated that there is no necessity of having the boom rigidly attached to the stud by means of a pin or the like inasmuch as the pull on the boom is in a direction towards the stud. A pull in this direction results from tension created by spring 72 and from the fact that the boom extends beyond the fastening device 60 on the boat with the shock cord extending from the end of the boom to the fastening device in a direction towards the dock. The bow and stern lines would prevent the boat moving from the dock and pulling the boom in that direction. Likewise, the spring means 72 aids in retaining the boom in its seated position. It will be appreciated that the boom could be securely fastened to the stud and that the proposed swivel mount could be used to pivot the boom and upstanding member to a position such that the boom lies along the edge of the dock.

It will be seen that the objects of the invention have been fully accomplished by the invention described above. While the preferred forms of the invention have been illustrated in the drawings and discussed above, it should be adequately clear that considerable modification may be made thereto without departing from the principles of the invention. Therefore, the foregoing should be considered in an illustrative sense rather than a limiting sense, and accordingly the extent of this invention should be limited only by the spirit and scope of the claims appended hereto.

I claim:

1. A mooring device adapted to moor a boat to a dock or the like comprising:
  - an upstanding plate member having a base adapted to be secured to the dock;
  - a ball joint means secured to the upstanding member intermediate its two ends, the ball joint means having a stud means extending therefrom in a direction away from the upstanding member;
  - a boom having one end seated on the stud means of the ball joint means and extending outwardly from the upstanding member;
  - tethering means secured adjacent the free end of the boom and adapted to be attached to the boat; and
  - tension spring means secured at one end to the upper end portion of the upstanding plate member and secured at the other end to the boom intermediate its two ends for supporting the boom.
2. The mooring device defined in claim 1 wherein the tethering means is elastic to absorb shock.
3. The mooring device defined in claim 2 wherein the tethering means comprises a rubber shock cord.
4. The mooring device defined in claim 1 wherein the boom comprises a plurality of tubular telescoping sections, the sections adapted to be extended and secured at a proper length for the particular sized boat.

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5. The mooring device defined in claim 1 wherein the upstanding plate member and base comprises an L-shaped plate member, the short leg of which is adapted to be attached to the docking installation.

6. The mooring device defined in claim 5 additionally comprising reinforcing means attached at opposite ends to the free ends of the L-shaped member.

7. The mooring device defined in claim 1 wherein the base member extends substantially perpendicularly to the upstanding plate member and including an anchor plate adapted to be secured to the docking installation and to which the base member is securely attached.

8. The mooring device defined in claim 1 wherein the stud means is tapered so as to facilitate the seating of the stud means.

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9. The mooring device defined in claim 1 additionally comprising a resilient ball mounted on the free end of the boom so as to prevent possible damage to the boat.

10. The mooring device defined in claim 1 additionally comprising resilient sleeves mounted on the boom adapted to prevent the boom from damaging the boat.

11. The mooring device defined in claim 1 additionally comprising a plug positioned in the end of the boom adjacent the stud and having a recess for receiving the stud.

No references cited.

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