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Wild

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[54] **MOORING BAR FOR BOATS**

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[21] Appl. No.: **261,257**

[52] **U.S. Cl.** **114/230**, 114/219, 267/140

[51] **Int. Cl.** **B63b 21/00**

[58] **Field of Search** ..... 114/230, 235 A, 219; 115/6.1; 293/71 R, 88; 267/140

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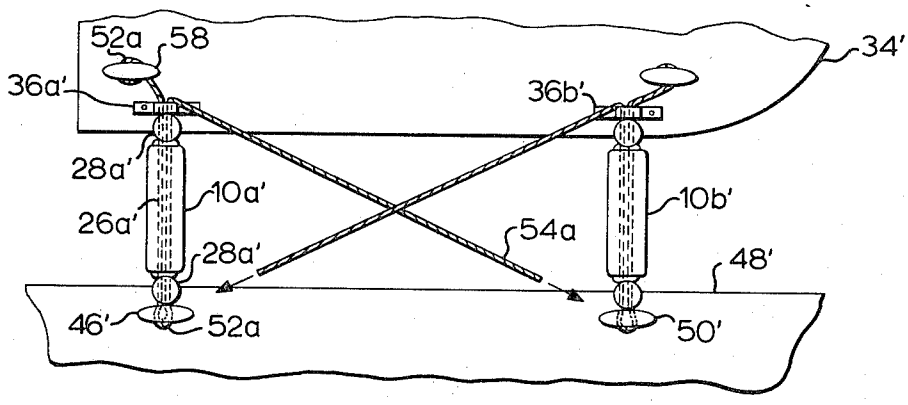
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Assistant Examiner—Edward R. Kazenske
Attorney, Agent, or Firm—Rogers, Bereskin & Parr

[57] **ABSTRACT**

A mooring bar for boats, having an elongated central tube, and a ball at each end seated on a plastic cap inserted into the tube. A single or double run of rope passes through the tube, caps and balls, and the ends of the rope are used to tie a boat to a mooring point. The mooring bar thus forms a stiff pivot arm, having a ball joint at each end, between the boat and mooring point. A buoyant plastic foam sleeve wraps the central tube to protect it and to allow use of the mooring bar as a bumper.

10 Claims, 10 Drawing Figures



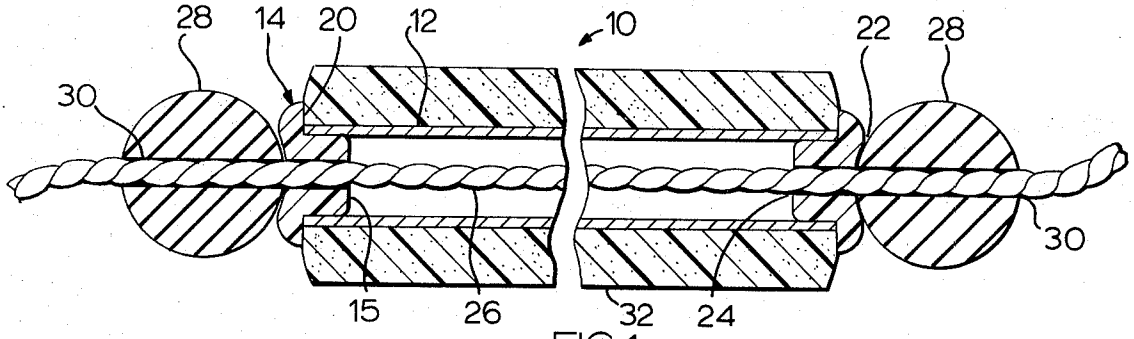


FIG. 1

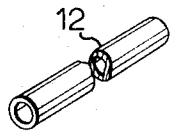


FIG. 2

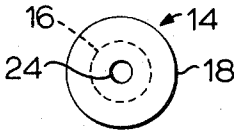


FIG. 3

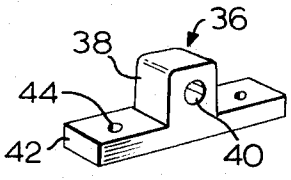


FIG. 5

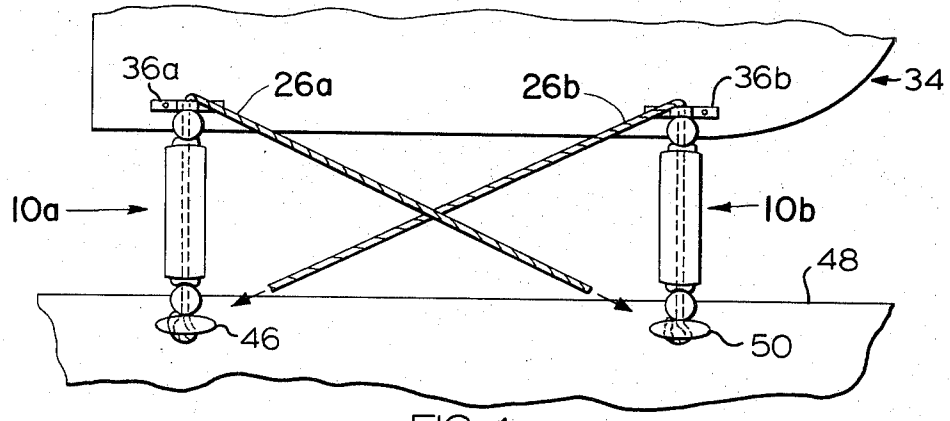


FIG. 4

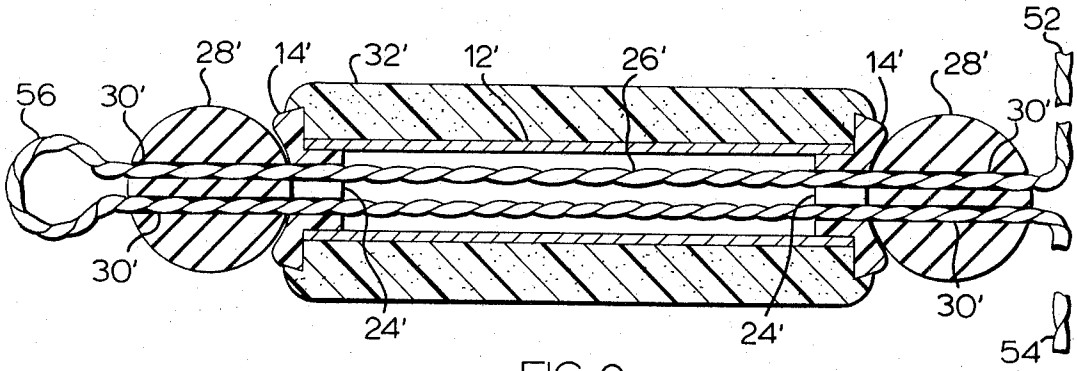


FIG. 6

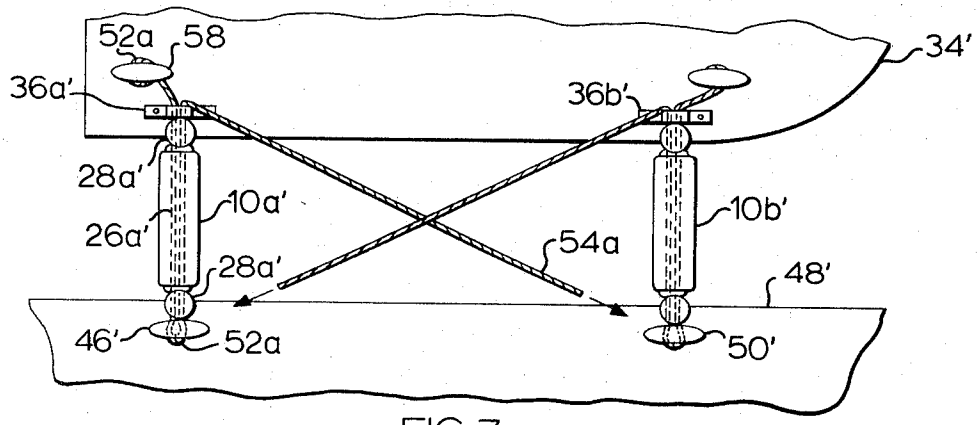


FIG. 7

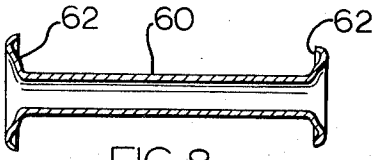


FIG. 8

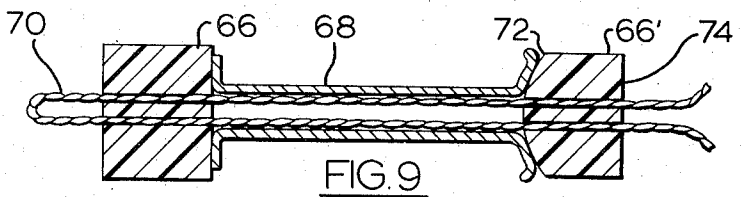


FIG. 9

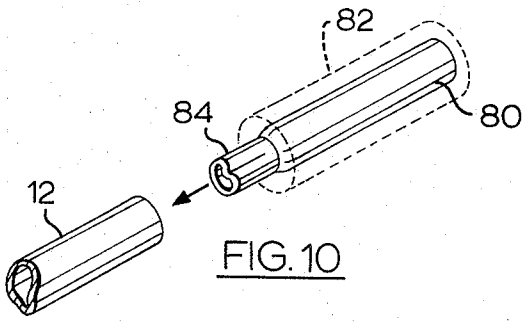


FIG. 10

MOORING BAR FOR BOATS

This invention relates to a mooring bar for boats.

It is often necessary to tie up a boat to a dock or to another boat, and when the water is rough or when there is a wind, the boat tends to move about relative to the object to which it is moored. Under such conditions, the boat may rub against or hit the object to which it is moored, damaging the boat, and in addition the uncontrolled movements tend to fray and snap the mooring ropes.

Accordingly, it is an object of the invention to provide a mooring bar which will allow a boat to float freely up and down within the length of the mooring bar but which will, when suitably used (usually in pairs), prevent the boat from moving back and forth and in and out in relation to the object to which the boat is moored. This helps prevent damage to the boat and allows users to board the boat in greater safety (particularly since rolling of the boat is controlled). The mooring bar of the invention will also reduce the likelihood of the mooring ropes being snapped.

Further objects and advantages of the invention will appear from the following description, taken together with the accompanying drawings, in which:

FIG. **1** is a sectional view of a mooring bar according to the invention;

FIG. **2** is a perspective view of a central member of the mooring bar of FIG. **1**;

FIG. **3** is a plan view of a cap of the FIG. **1** mooring bar;

FIG. **4** is a plan view illustrating an application of the FIG. **1** mooring bar;

FIG. **5** is a perspective view of a tie-down fitting for use with the FIG. **1** mooring bar;

FIG. **6** is a perspective view of a modification of the FIG. **1** mooring bar;

FIG. **7** is a plan view showing an application of the FIG. **6** mooring bar;

FIG. **8** is a sectional view of a modified central member for a mooring bar of the invention;

FIG. **9** is a sectional view of another embodiment of the invention; and

FIG. **10** is a perspective view showing an extender tube for the FIG. **1** or FIG. **6** mooring bar.

Reference is first made to FIG. **1**, which shows a mooring bar according to the invention and generally indicated at **10**. The mooring bar **10** includes an elongated stiff central member **12**, which as shown in FIG. **2** may simply be a tubular member having straight ends (and typically made of aluminum or tough plastic pipe). The length of the central member may vary, depending on the length desired for the mooring bar, but it will typically range in length between about **10** and **24** inches.

A pair of caps **14** are located one in each end of the central tube **12**. The caps **14**, also shown in FIG. **3**, are typically made of plastic and include a cylindrical base **16** which plugs snugly into the central tube **12**, and an enlarged diameter face **18** which overlies the end of the tube **12** and has a rear shoulder **20** which abuts against the end of the tube **12**. The front surface of the cap **14** is concave as indicated at **22**. A passage **24** extends axially through each cap **14** to accommodate a mooring rope **26**.

Two spherical balls **28** are provided, one for each end of the mooring bar **10**. Each ball **28** is preferably

formed of resilient tough material such as rubber and has a cylindrical passage **30** therethrough to accommodate the mooring rope **26**. Preferably the rope **26** runs relatively freely through each passage **30**.

The mooring bar is completed by a sleeve **32** of protective, resilient buoyant material which encircles the central tube **12**. The sleeve **32** is typically cylindrical in shape and formed from plastic foam, with an axial hole drilled or formed at its centre to accommodate the central tube **12**.

The use of the mooring bar **10** will next be explained, with reference to FIG. **4** which illustrates (not to scale) a typical mooring situation. FIG. **4** shows a boat **34** having rope tie-up fittings of the kind shown at **36** in FIG. **5**. The tie-up fitting **36** is simply an enlarged upside down T-shaped member having a wide stem **38** with a rope passage **40** therethrough. The crossbar **42** of the T contains apertures **44** by which the fitting may be screwed to the deck of the boat **34**. In FIG. **4**, the boat **34** is shown as having two tie-up fittings **36***a*, **36***b* identical to fitting **36** of FIG. **5**. FIG. **4** also shows two mooring bars **10***a*, **10***b*, each identical to mooring bar **10** of FIG. **1**, and reference characters with an "*a*" or "*b*" indicate parts for mooring bars **10***a*, **10***b* corresponding to those of mooring bar **10**.

The mooring bar **10***a* is connected as follows. One end of its rope **26***a* is tied around a cleat **46** on the dock **48**, and mooring bar **10***a* is then slid along its rope **26***a* until one of its balls **28***a* snugly seats against the cleat **46**. The other end of rope **26***a* is inserted through the passage in fitting **36***a* and pulled until the other ball **28***a* is brought snugly against the fitting **36***a*. The free end of rope **26***a* is then brought back to another cleat **50** on the dock and is tied to cleat **50**. Similarly, one end of rope **26***b* of mooring bar **10***b* is tied around cleat **50**; mooring bar **10***b* is positioned snugly between cleat **50** and fitting **36***b*, and the free end of rope **26***b*, after having been passed through the passage in cleat fitting **36***b*, is brought down to and tied around cleat **46** on the dock.

With this arrangement, either end of boat **34** is relatively free to move up and down about its associated mooring bar. The mooring bars will act as stiff pivto arms which hold the boat off the dock, and at the same time the balls at the ends of the mooring bars act as hinges or ball joints allowing each mooring bar to pivot about either of its ends without bending its central tube. Since the balls are not fastened to the central tube, they can move along the rope slightly as each mooring bar is forced up and down, so that hinges or joints formed by the balls are in effect free-floating. In addition, since the balls are resilient, they impart flexibility and resiliency to the mooring bar.

The outer buoyant sleeve **32** is not essential to the mooring bar, but is much preferred for several reasons.

Firstly, it provides buoyancy so that if the mooring bar falls in the water, it will float and not be lost. Secondly, the resilient sleeve **32** allows the mooring bar to perform double service as a bumper (which would be used when the boat owner does not wish to tie up his boat but simply wishes to hang bumpers down the sides of his boat to protect the boat against contact with a dock, canal lock, or other wall). Thirdly, the resilient sleeve **32** ensures that the mooring bar will not cause damage when it is thrown onto the deck of a boat or stored in a boat, and it also protects the central tube **12** from damage. For this purpose the sleeve **32** will usu-

ally be relatively thick, e.g. about one inch thick for a one inch diameter aluminum tube.

Reference is next made to FIG. 6, which shows a mooring bar identical to that of FIGS. 1 to 4 except that a double rope is used instead of a single rope. Primed reference numerals are used in FIG. 6 to indicate parts corresponding to those of FIGS. 1 to 4. As shown in FIG. 6, the passages 24' in the caps 14' are large enough to accommodate two runs of the rope 26', and the balls 28' each include two spaced cylindrical passages 30' instead of a single such passage. The rope 26' has a pair of free ends 52, 54, and the rope runs from one such free end 52, through one ball 28', through one cap 14', through the central tube 12', through the other cap 14' and other ball 28', to a loop 56, and then extends back through the balls 28', caps 14' and central tube 12' to its other free end 54.

The manner in which the double rope mooring bar of FIG. 6 is used is shown in FIG. 7. FIG. 7 shows two mooring bars 10*a*', 10*b*' each identical to mooring bar 10', and again reference numerals with an "*a*" or a "*b*" added are used to differentiate between the parts of mooring bars 10*a*', 10*b*'.

The use of the mooring bars of FIG. 7 is the same as that shown for the mooring bars of FIG. 4, except for the following differences. Firstly, the loop 52*a* of mooring bar 10*a* is placed over cleat 46, and one or both free ends of the rope 26*a*' are then pulled to draw the rope 26*a*' through the mooring bar 10*a*', to tighten the loop 52*a* around the cleat 46'. This pulls one of the balls 28*a*' tightly against the cleat 46'.

Next, one of the free ends 52*a* of rope 26*a*' is inserted through one of the holes in tie-down fitting 36*a*' (which now is provided with two rope holes instead of one) and then tied to a cleat 58 on the boat 34'. The other free end 54*a* of the rope 26*a*' is inserted through the other hole in fitting 36*a*' (or one hole large enough for two ropes can be used) and is then tied to the other cleat 50'. The same procedure is followed for mooring bar 10*b*'.

The double rope mooring bar shown in FIGS. 6 and 7 is preferred over that shown in FIGS. 1 to 4 because the availability of a rope loop at one end allows simple connection to a cleat, and the availability of two rope ends at the other end of the mooring bar allows one rope end to be tied to a cleat on the boat and the other rope end to be brought back to a cleat on the dock in a very simple manner. In addition, the mooring bar can more conveniently be used as a bumper; since if it is hung from the boat by its rope ends 52, 54, the ball 24' at the other end of the mooring bar cannot fall off the mooring bar because of the presence of loop 56, and therefore no retaining means (such as a knot in the rope) are needed to hold such ball 24' in position.

Although it is preferred that the balls 28' each include two separate passages 30', they can if desired contain only a single passage large enough to accommodate snugly two flights of the rope 26'. In addition, although the caps 14' have been shown as including a single passage 24', they can if desired contain two discrete passages aligned with the passages 30' in the balls 28'.

The concave surface 22 in the face of each cap 14 is not essential but is preferred since it locates the balls 28 at the ends of the central tube 12, and facilitates limited rolling of the balls as the bar moves during its mooring function.

It will be appreciated that the caps 14 need not be discrete members, but could instead be formed by flaring the ends of the central tube. This is shown in FIG. 8, where a central tube 60 is shown having flared ends 62 which form seats for the balls (not shown). However, if the resilient buoyant sleeve 32 is to be used, it is easier to apply the sleeve when the central tube 12 has straight ends. Indeed, in that case the mooring bar can be sold inexpensively as a kit of parts (central tube 12, caps 14, balls 28, rope 26, and sleeve 32) which can easily be assembled by the buyer. Since all of the parts are readily available commercially and are inexpensive (in a typical mooring bar of the invention ordinary hard rubber balls were used, drilled to provide the rope passages), the cost of the mooring bar can be made very low.

Although the balls 28 have been shown as spherical, other forms could be used. For example, cubes of resilient material could be used, as indicated at 66 in FIG. 9 (which also shows a co-operating central tube 68 and rope 70). Since the cube 66, being unconnected to the central tube 68, is able to move along the rope 70, it still provides the function of a ball joint, except that it deforms as it is rotated relative to the central tubing. This form allows more positive abutment against a cleat is some instances. If desired, as shown for member 66' of FIG. 9, one end 72 of the member 66' (which seats on the tube 68) can be rounded to improve the ball joint action, and the other end 74 can be left flat (alternatively end 74 can be rounded convexly but the portion of the member 66' between them can be left of square or other cross-section). The important feature is that in all cases, the balls 28 or the members 66, which may be termed joint members, are in all cases loosely connected to the central tubing by their ropes and are not otherwise rigidly connected to the central tubing, so that a ball-joint type of action can occur at each end of the mooring bar.

In some cases it may be desirable to extend the mooring bar to a greater length, e.g. several feet, for a special mooring situation. The mooring bars 10, 10' of FIGS. 1 and 6, which have separate caps 14, 14', lend themselves well to this requirement. As shown in FIG. 10, a separate extension tube 80 is provided, which may if desired be prefitted with its own plastic foam sleeve, shown in dotted lines at 82. The extension tube 80 has a swedged end 84 which fits telescopically into either end of the central tube 12 or 12' to lock the tubes together. In use, one of the caps 14 or 14' and its corresponding ball are removed. The rope or ropes 26, 26' are then strung through the extension tube 80, and the end 84 of tube 80 is then pushed into the tube 12 or 12'. The removed cap and ball are then reconnected to complete the extended mooring bar. (If the extension bar 80 is of plastic, it will have a reduced diameter end instead of a swedged end, to plug tightly into the central tube 12 or 12'.)

What I claim is:

1. A mooring bar for mounting between a boat and a dock, said mooring bar comprising:

a. a central stiff elongaged member formed of a length of cylindrical tubing having a passage therein for a rope, and having first and second straight ends;

b. a pair of discrete joint members, one for each of said ends of said central member, each joint mem-

ber being of resilient material and having a passage therethrough for said rope,

c. first and second caps at said first and second ends respectively of said central member, said caps having a cylindrical end of a diameter to plug snugly into said tubing and an enlarged faced portion connected to said cylindrical end and having a concave surface for receiving said first and second joint members, said caps having a passage therethrough aligned with said passages of said central member and of said joint members to permit said rope to pass through all of said passages;

d. each joint member having a rounded surface adapted to seat on a said concave surface of said cap; one end of said rope extending through said central member and through said joint members so that said one end can be connected to a boat and the other end of said rope can be connected to a dock.

2. A mooring bar according to claim **1** including a layer of resilient, buoyant material covering said central member, so that said mooring bar will float and so that said mooring bar may be used as a bumper.

3. A mooring bar according to claim **1** wherein each joint member has a second rounded surface opposed to said first mentioned rounded surface, said passage of each joint member extending between the rounded surfaces thereof, said second rounded surface facilitating limited rotation of each joint member against an object to which said mooring bar is secured.

4. A mooring bar according to claim **1** wherein each joint member has substantially the shape of a sphere.

5. A mooring bar according to claim **1** wherein all of said passages are large enough to accommodate two runs of said rope.

6. A mooring bar according to claim **1** where each joint member has substantially the shape of a sphere, all of said passages being large enough to accommodate two runs of said rope, and a layer of resilient, buoyant material covering said central member, so that said mooring bar will float and so that said mooring bar may be used as a bumper.

7. A mooring bar for mounting between a boat and another object, said mooring bar comprising:

a. a rope;

b. a central stiff elongated member having a passage therein of size sufficient to accommodate two runs of said rope and having a pair of ends;

c. a pair of caps, one at each end of said central member and connected thereto, each cap having an exterior concave seat therein;

d. a pair of balls, one ball at each end of said central member, each ball having passage means therein to accommodate two runs of said rope;

e. said two runs of said rope passing through said central elongated member, both said caps and both said balls, and projecting beyond each of said balls, so that said balls may move along said runs of said rope into engagement with said concave seats, said seats facilitating limited rotation of said balls;

f. the two runs of said rope projecting from said mooring bar through one of said balls being joined together to form a loop, the two runs of said rope extending from the other of said

balls terminating in two free ends; so that said loop can be secured to a cleat and one of said ends of said rope can be secured to a boat to be moored and the other of said ends of said rope can be secured to the object to which said boat is to be moored.

8. A mooring bar according to claim **7** wherein said central elongated member is an aluminum tube, said caps are formed of plastic, said balls are rubber balls, and further including a resilient buoyant plastic foam sleeve covering said central member to protect said central member and to provide buoyancy for said mooring bar.

9. A mooring bar according to claim **1** including an extension member adapted to plug snugly into one end of said central member and having an end adapted to receive one of said caps, so that said extension member can be used to extend the length of said mooring bar.

10. A mooring bar for mounting between a boat and another object said mooring bar comprising:

a. a rope;

b. a central stiff elongated member having a passage therein of size sufficient to accommodate two runs of said rope and having a pair of ends;

c. means connected to each end of said central member and connected thereto and providing an exterior concave seat at each end of said central member;

d. a pair of balls, one ball at each end of said central member, each ball having passage means therein to accommodate two runs of said rope;

e. said two runs of said rope passing through said central elongated member, both said concave seats and both said balls, and projecting beyond each of said balls, so that said balls may move along said runs of said rope into engagement with said concave seats, said seats facilitating limited rotation of said balls;

f. the two runs of said rope projecting from said mooring bar through one of said balls being joined together to form a loop, the two runs of said rope extending from the other of said balls terminating in two free ends;

so that said loop can be secured to a cleat and one of said ends of said rope can be secured to a boat to be moored and the other of said ends of said rope can be secured to the object to which said boat is to be moored.

* * * * *