

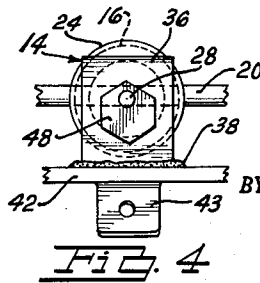
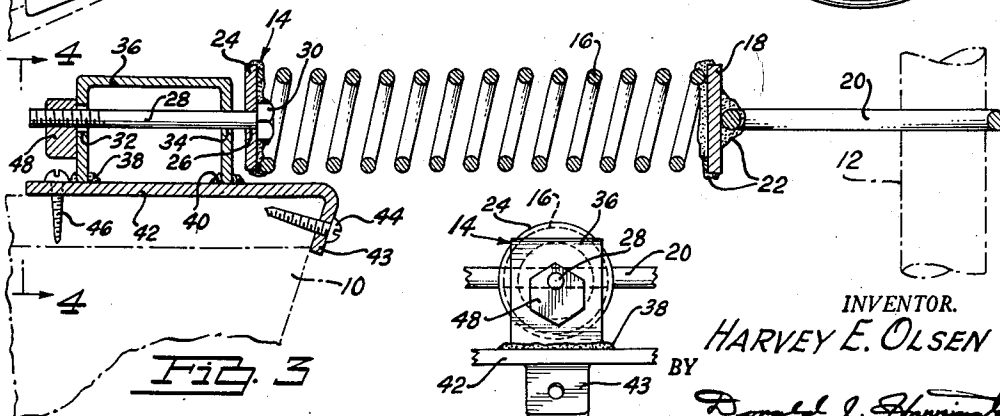
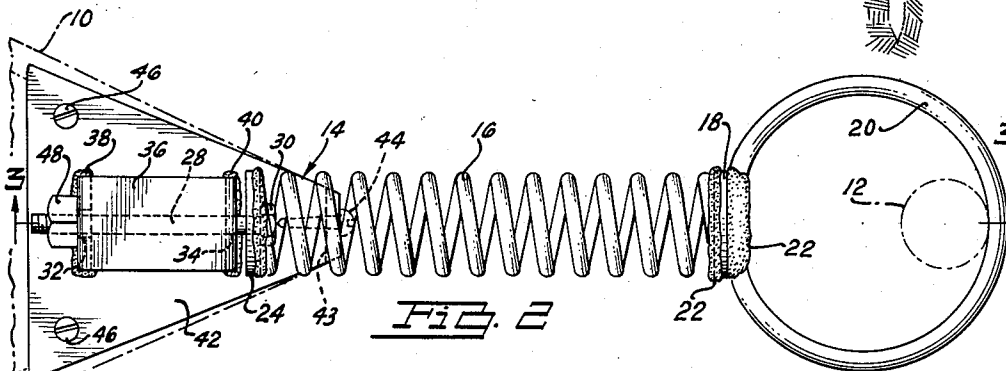
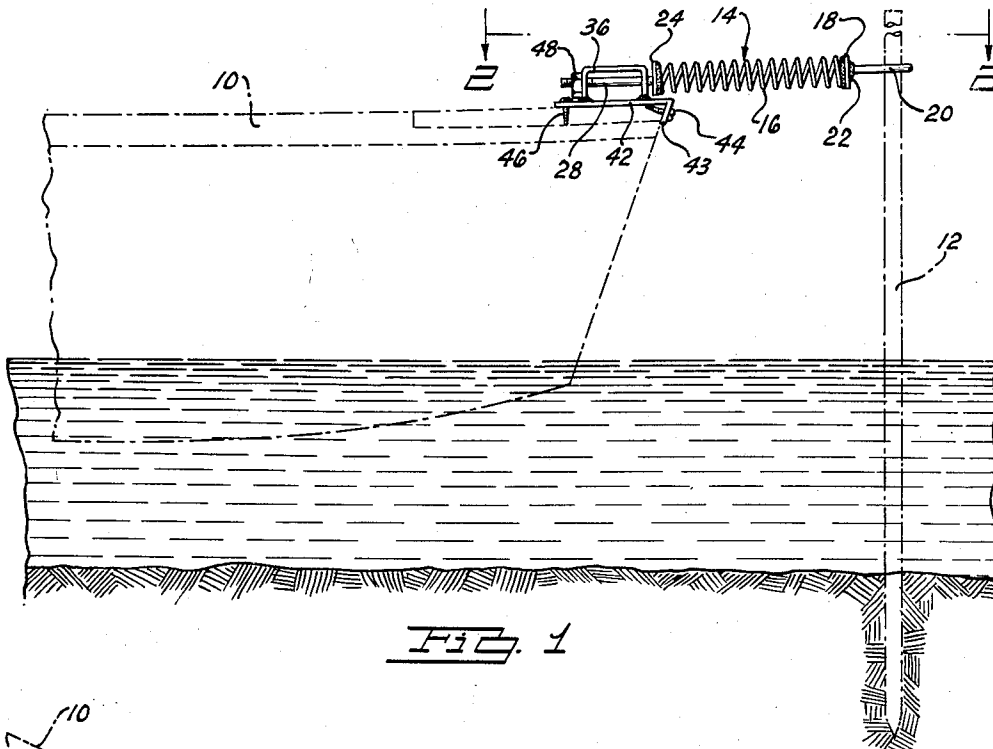
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MOORING MEANS FOR SMALL BOATS OR THE LIKE

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## MOORING MEANS FOR SMALL BOATS OR THE LIKE

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My invention relates generally to small nautical craft such as fishing boats, rowboats or various types of pleasure craft. More particularly, my invention relates to a new and improved boat mooring gear for mooring a small boat to a stationary structure such as an anchoring post extending from the bottom of a body of water.

According to a principal feature of my invention, provision is made for securing the boat fast to an anchoring structure by means of a unitary hitching assembly while accommodating a limited amount of restrained movement of the boat with respect to the anchoring structure.

I am aware of various types of anchoring devices of known construction for mooring watercraft to piers or docks, but such devices are usually comprised of a plurality of hitching elements of complex construction which offer considerable inconvenience during docking and launching operations. Further, the conventional anchoring devices are sometimes ineffective in preventing permanent damage to the craft and to the dock or pier during rough weather when the craft is anchored, especially if one of the several hitching elements becomes loosened or unattached. In addition, such devices present a hazard to adjacent boats when several boats are moored in a common slip.

It is an object of my present invention to provide a new and improved means for mooring small watercraft which obviates the need for using a permanent dock or pier and which is sufficiently flexible to accommodate the severe pitching and rolling movements which normally accompany storms and surface disturbances resulting from either natural or artificial causes.

It is a further object of my invention to provide an improved mooring means, as set forth above, which is further characterized by its simplified construction and which may be conveniently used with a minimum of difficulty with no hand tools being required in assembly or disassembly.

It is a further object of my invention to provide a boat mooring means of the type set forth above which is capable of accommodating vertical movement of the boat to compensate for variations in water depth due to swells or tides.

It is a further object of my invention to provide a means for mooring a boat to a stationary anchoring structure wherein provision is made for maintaining the boat in spaced relationship at all times with respect to the anchoring structure.

It is a further object of my invention to provide a boat mooring means which is essentially comprised of a single, integral structure and which may be conveniently stowed in the boat when not in use, portions of said structure being flexible to permit limited, restrained movement of the boat with respect to the anchoring structure.

Other objects and features of my invention will readily become apparent from the following description and from the accompanying drawings wherein:

Figure 1 is an assembly view showing the hitching

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mechanism of my instant invention applied to the bow of a row boat;

Figure 2 is a plan view of the hitching mechanism of Figure 1 as viewed along the section line 2—2 of Figure 1;

Figure 3 is a sectional view of the hitching mechanism taken along section line 3—3 of Figure 2; and

Figure 4 is an end view of the hitching mechanism viewed along section line 4—4 of Figure 3.

Referring first to Figure 1, numeral 10 is used to designate a row boat or other small surface craft, and numeral 12 is used to designate an anchoring post to which the boat 10 may be fastened by means of the hitching mechanism of my instant invention, the latter being designated by numeral 14. The anchor post 12 may be made of either wood or metal and it may be driven into the bed of a shallow portion of a lake or any other body of water, as indicated, with the upper portion thereof extending several feet above the surface of the water.

As best seen in Figures 2 and 3, the hitching mechanism 14 is comprised of a coil spring 16 which by preference may be about 8 or 10 inches in length. A disc or closure plate 18 is permanently secured to one end of the coil spring 16 and a circular ring 20 may in turn be permanently secured to the disc 18 as indicated. I prefer to attach the ring 20 to the disc 18 and to attach the disc 18 to the coil spring 16 by means of a welding operation, the weld metal being illustrated in the drawings by numeral 22.

Another disc 24 may be permanently secured to the other end of the spring 16 by welding or by any other suitable fabricating operation and it may be provided with a central opening 26 through which a threaded bolt 28 may be received. The head of the bolt 28 may be welded to the inner side of the disc 24 as indicated at 30. By preference the bolt 28 is substantially colinear with the axis of the spring 16 and it may extend through aligned openings 32 and 34 formed in a suitably shaped bracket 36. By preference the bracket 36 is channel-shaped to provide structural rigidity and one side of the channel is welded, as shown at 38 and 40, to a base plate 42. The plate 42 is preferably of a triangular shape as indicated in Figure 2 in order that it might correspond to the shape of the upper portion of the bow of the boat 10. The forward end of the plate 42 is bent in a downward direction as shown at 43 so that it overlies the end of the bow of the boat, and it is secured at this location to the bow by a screw 44 or by any other suitable fastening means. The rear portion of the base plate 42 is provided with a pair of spaced openings through which screws 46 are received. It is thus apparent that the base plate 42 and the integral bracket 36 form a semi-permanent part of the bow of the boat.

The threaded bolt 28 extends transversely through the bracket 36 and a nut 48 is threadably received thereon for securing the end of the spring 16 to the bow of the boat. As best seen in Figure 4, the nut 48 is formed with an eccentric threaded opening through which the bolt 28 is received with the major portion of the nut situated below the axis of the bolt 28. Such a construction obviates the need for providing conventional lock washers and it tends to prevent the nut 48 from becoming loosened while the boat is moored. The pitching and rolling motions of the boat will not result in rotation of the nut 48 with respect to the bolt 28.

The ring 20 is adapted to be placed over the end of the post 12 as indicated in Figures 1 and 2, and its diameter is substantially greater than the diameter of the post 12 to accommodate a vertical movement of the ring 20 along the post 12.

It is apparent from the above description that the bow of the boat is secured to the bolt 28 at two spaced locations and the axis of the bolt 28 and the spring 16

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will at all times tend to extend in a forward direction thereby keeping the boat 10 away from the anchoring post 12 regardless of the direction of the wind or the severity of the water surface disturbances. The boat 10 will normally tend to align itself in an upwind direction. There is, therefore, no possibility that the boat 10 will come in contact with the post 12 and it will be capable of moving upwards and downwards as the depth of the water changes without causing an undue strain on either the bow of the boat or the anchoring post. If the boat tends to "swing about" due to unbalanced side forces on the bow of the boat, the spring 14 will yield to a certain extent but will urge the boat back to its normal aligned position by reason of its inherent resiliency, the amount of resistance exerted by the spring 14 being proportional to the degree of misalignment of the boat.

Although the embodiment disclosed herein includes a ring 20 and a bolt 28 which are integrally secured to the opposite ends of the spring 16, I contemplate that these members may be comprised of a single piece with one end of the spring 16 being formed in a circular shape and with the other end extended in an axial direction. The number of coils in the spring section of the hitch may be varied to suit a particular design requirement and the diameter of the coils may be varied depending upon the spring rate which is most advantageous under any particular circumstances.

While I have particularly disclosed one preferred embodiment of my invention in accordance with the requirements of the patent statutes, I contemplate that variations thereto may be made without departing from the scope of my instant invention as defined by the following claims.

I claim:

1. A boat hitch for mooring a boat to a vertical anchoring post comprising a coil spring, a curved member integrally secured to one end of said coil spring and adapted to surround said anchor post, a threaded rod integrally secured to the other end of said coil spring with the axis thereof and the axis of said spring extending in a common direction, bracket structure for supporting said rod at spaced locations thereon, said bracket structure being adapted to be secured to a portion of said boat with the axis of said spring extending in a substantially horizontal direction, said hitch being capable of maintaining said boat in spaced relationship with respect to said anchoring post.

2. A boat hitch for mooring a boat to a vertical anchoring post comprising a curved member secured to one end of said coil spring, said curved member being adapted to surround said anchoring post in loose relationship therewith, a rod secured to the other end of said coil spring, and bracket means for supporting said rod at two spaced locations with the axis of said rod normally extending in the direction of said anchoring

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post in a substantially horizontal plane, bracket means being adapted to be secured to said boat and said spring means being adapted to resiliently resist deviations of the axis of said rod from its normal direction.

3. A boat hitch for mooring a boat to a vertical anchoring post comprising a coil spring, a curved member integrally formed on one end of said spring for loosely receiving said post, a threaded rod fixedly secured to the other end of said spring with the axis thereof normally extending in the direction of the axis of said spring when the latter is in an unstressed condition, and bracket structure joined to said rod with rod supporting portions thereof situated at spaced locations along said rod, said bracket structure being adapted to be secured to said boat and said spring resiliently resisting variations in the direction of the axis of said rod thereby preventing said boat from contacting said post.

4. A boat hitch for mooring a boat to a vertical anchoring post comprising a coil spring, a ring integrally formed on one end of said coil spring for loosely receiving said post, a rod integrally secured to the other end of said coil spring with the axis thereof substantially corresponding to the axis of said spring when the latter is in an unstressed condition, bracket structure, said bracket structure being adapted to be secured to the bow of said boat, said bracket structure including spaced anchoring members, aligned openings formed in said anchor members for receiving said rod and a nut threadably received on the end of said rod for removably securing the latter to said anchor members, said nut having an eccentric threaded opening to prevent accidental removal of the same after assembly of said hitch.

5. A boat hitch for mooring a boat to an anchoring structure comprising a coil spring, a ring integrally formed on one end of said spring, a threaded rod integrally secured to the other end of said spring and bracket structure including a base plate adapted to be bolted to said boat and spaced members connected to said base plate, said spaced members being formed with openings for receiving said rod therethrough and for supporting the latter at two spaced locations.

6. The structure as set forth in claim 5 wherein said bracket structure comprises an open channel section with the open end thereof integrally joined to said base plate, the sides of said channel section corresponding to the aforesaid spaced members.

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