May 2, 1944. M. C. TERRY 2,347,718

MOORING DEVICE

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Fig. 1.

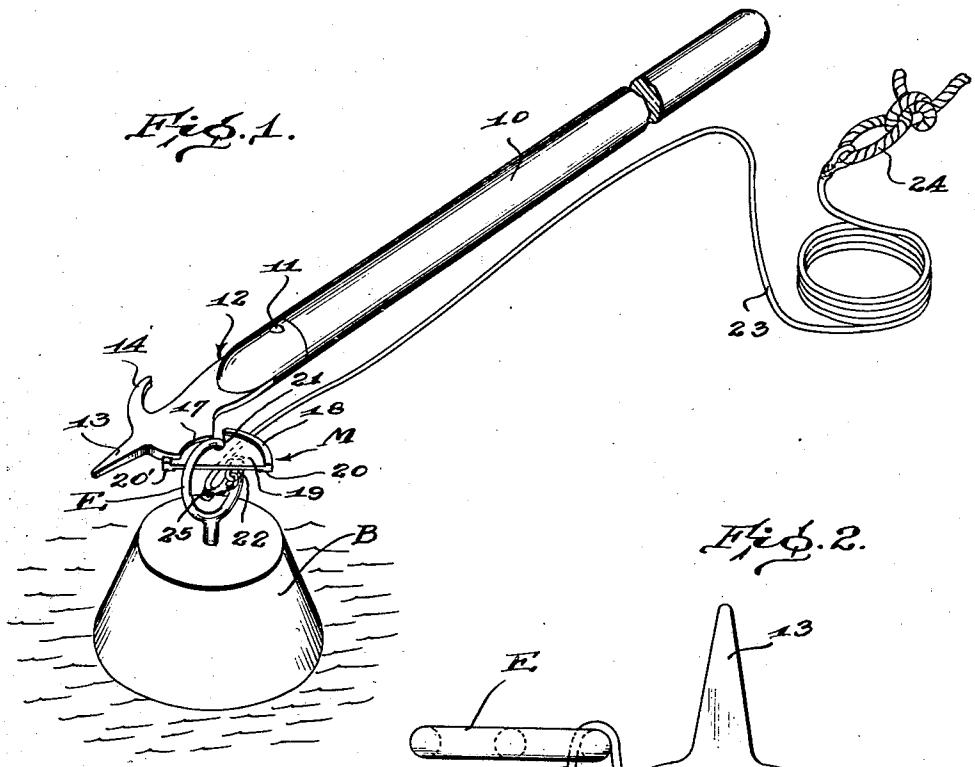


Fig. 2.

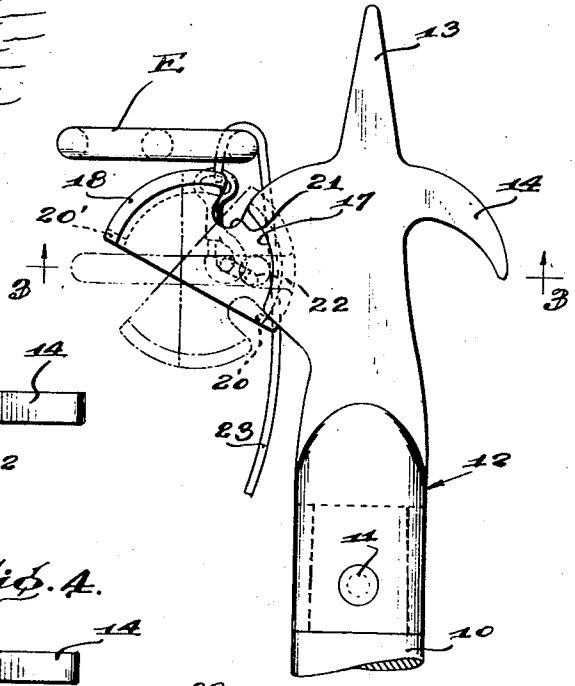


Fig. 3.

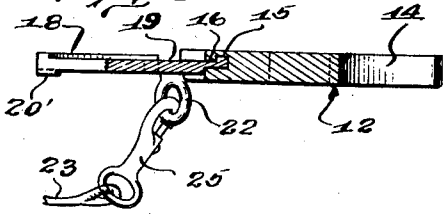


Fig. 4.

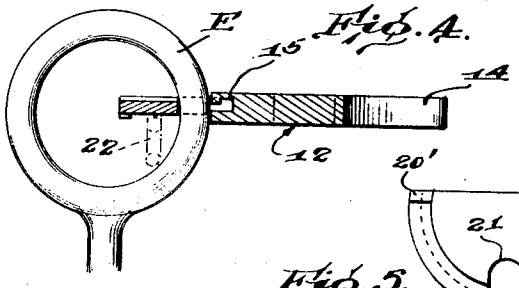
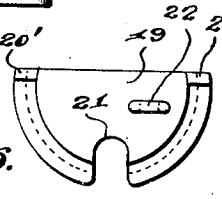


Fig. 5.



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Fig. 6.

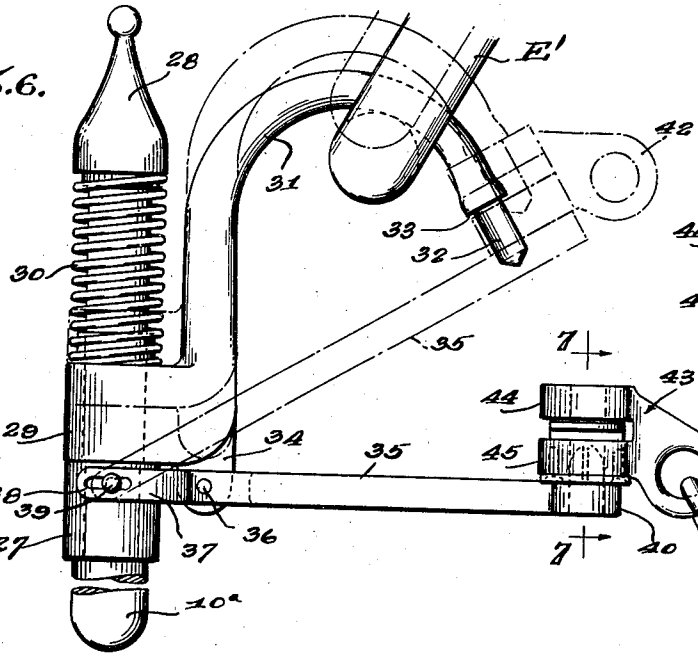
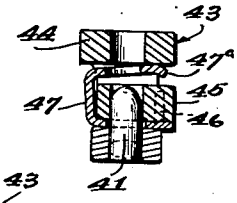


Fig. 7.



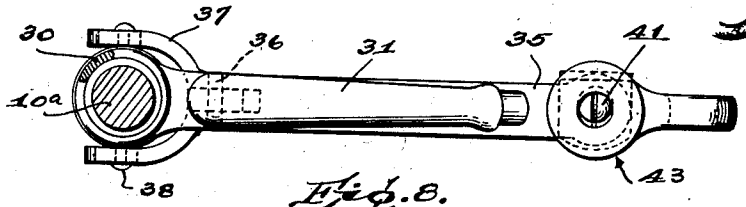


Fig. 8.

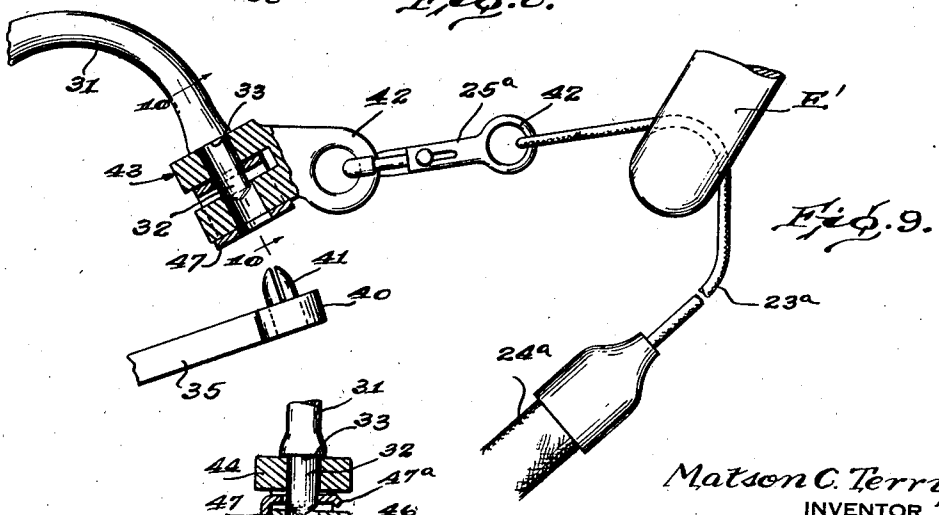


Fig. 9.

Fig. 10.

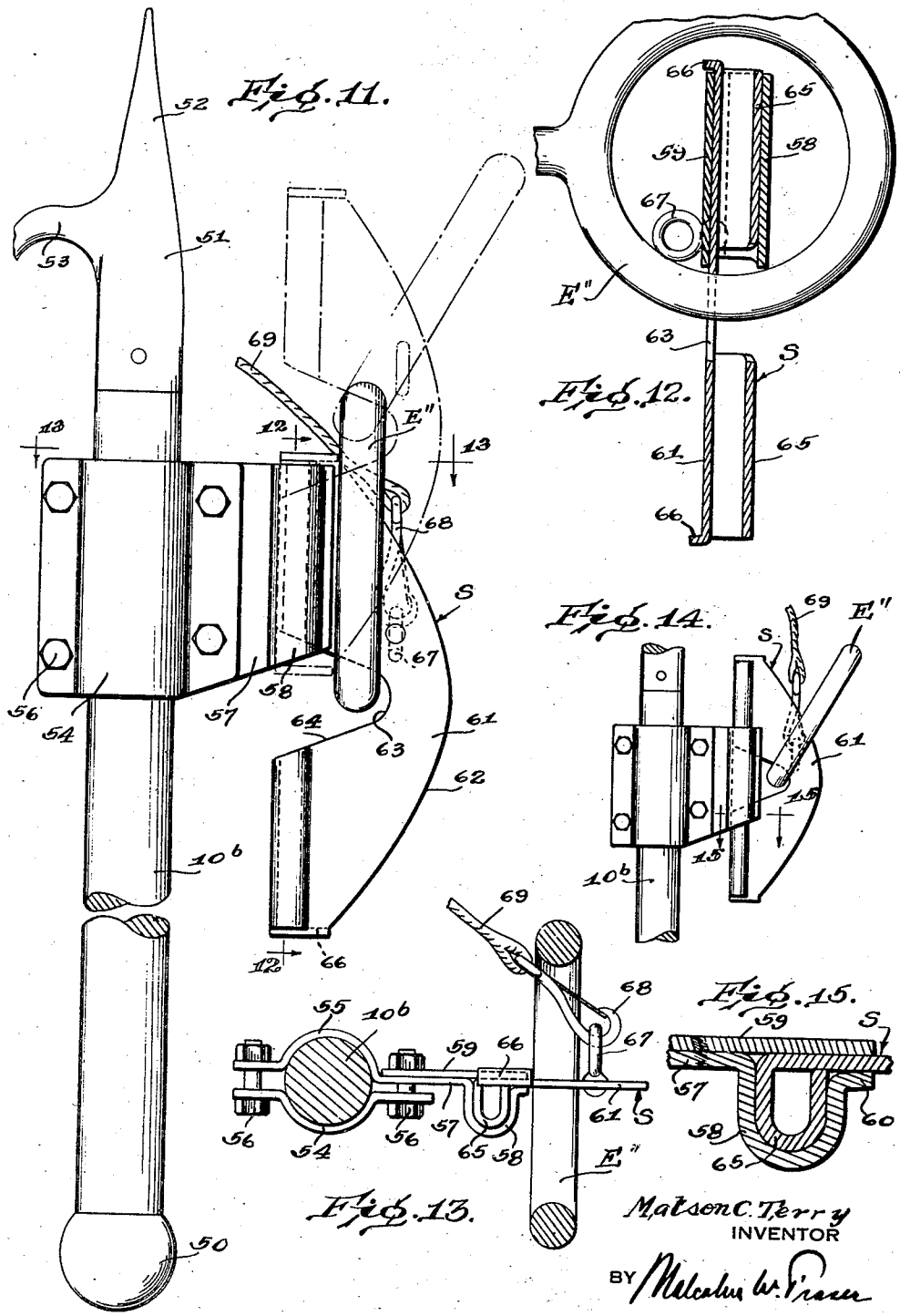
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MOORING DEVICE

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Patented May 2, 1944 2,347,718

UNITED STATES PATENT OFFICE

2,347,718

MOORING DEVICE

Matson C. Terry, Toledo, Ohio

Application August 8, 1941, Serial No. 405,954

18 Claims. (Cl. 114—230)

This invention relates to mooring devices, such, for example, as are used in mooring boats to buoys where it is usually necessary for a person on the boat, by means of a boat hook, to engage the eye of the buoy and thereafter thread the rope or hawser through the eye for mooring the boat.

Heretofore, considerable difficulty has been experienced in mooring boats to buoys, docks and the like, particularly in connection with a relatively large boat because of the difficulty of bringing the boat into the desired position and in maintaining it there while hooking the eye of the buoy with the usual boat hook and thereafter threading the hawser through the eye. This is not only particularly troublesome when the craft is in motion, but oftentimes it is impossible to manually thread the rope through the eye, as the buoy is inaccessible due to the height of the deck of the boat from the water. Furthermore, when mooring a boat during a stiff wind or storm, the mooring operation must be completed in the shortest possible time before the boat has been blown away from the buoy.

An object of this invention is to produce a simple and efficient device by which the hawser or a leader rope attached to the hawser may be quickly and conveniently threaded automatically through the buoy eye or the like thereby enabling mooring to be accomplished quickly and easily without the difficulty ordinarily experienced in that operation.

Other objects and advantages will hereinafter appear and for purposes of illustration but not of limitation, embodiments of the invention are shown by way of illustration on the accompanying drawings in which

Figure 1 is a perspective view of a mooring device in accordance with this invention showing it applied to the eye of a buoy preparatory to the threading of the hawser rope through the buoy eye;

Figure 2 is an enlarged side elevation of the mooring device showing the hawser rope after it has been passed through the buoy eye, the shiftable part being shown by dotted lines in its initial position assumed prior to threading of the rope through the eye;

Figure 3 is a transverse sectional view substantially on the line 3—3 of Figure 2;

Figure 4 is a transverse sectional view similar to Figure 3 with the eye of the buoy engaged in the notch of the shiftable part of the mooring device;

Figure 5 is a bottom plan view of the shiftable part of the mooring device;

Figure 6 is a side elevation of an alternate form of mooring device;

Figure 7 is a vertical sectional elevation on the line 7—7 of Figure 6;

Figure 8 is an end view partly in section of the device shown in Figure 6;

Figure 9 is a fragmentary side elevation partly in section showing the position of the parts after the hawser rope has been threaded through the buoy eye;

Figure 10 is a vertical sectional view substantially on the line 10—10 of Figure 9;

Figure 11 is a side elevation of another alternate form of mooring device;

Figure 12 is an enlarged longitudinal sectional view substantially on the line 12—12 of Figure 11;

Figure 13 is a transverse sectional view substantially on the line 13—13 of Figure 11;

Figure 14 is a fragmentary view showing the shiftable member or shuttle in an intermediate position, this figure being on a reduced scale; and

Figure 15 is an enlarged transverse sectional view on the line 15—15 of Figure 14.

The illustrated embodiment of the invention shown in Figures 1 to 5 comprises an elongate handle shaft 10 to which is suitably fixed, as by rivets 11, a fitting generally indicated at 12. The fitting 12, which is of metal, is formed with a spear head 13 at the extreme outer end and on one side of the head is a hook 14. On the opposite side of the head is a mooring or automatic hawser attaching device, generally indicated at M.

It will be observed that the main portion of the fitting 12 is flattened and on the side edge thereof opposite to the hook 14, is an arcuate open ended groove 15 which, as indicated in Figure 3, is rectangular in cross section with a reduced neck portion 16 terminating in an arcuate surface 17 of substantially the same curvature as that of the groove 15. Fitting the groove 15 is an arcuate rib 18 which in this instance is semi-circular and is integral with a plate 19, a portion of which is reduced in thickness and fits the reduced neck portion 16. It will be apparent that the shiftable member or shuttle comprises the plate 19 with the raised rib 18 and this is shiftable relatively to the head 12 by a rocking motion. Integral with the plate 19 and depending therefrom is a pair of lugs 20 and 20' which form stops and are disposed at opposite ends of the plate so as to limit the shifting or rock-

ing movement of the plate 19 from one extreme position to the other.

Formed substantially centrally of the plate 19 is a slot 21 which extends inwardly away from the free edge thereof a sufficient distance so that when the opposite sides of the mouth of the slot are engaged in the groove 15, a substantial portion of the slot is shiftable. Fixed to the underside of the plate 19 and intermediate the stop 20 and the notch 21 is an eye 22 to which a relatively light leader rope 23 suitably connected to the hawser 24 may be attached through the medium of a snap fastener 25.

B represents a buoy which is provided with a mooring eye E. In practice the plate 19 is disposed in the position indicated on Figure 1 with the stop 20' abutting against the outer end of the groove 15 and in this position it will be apparent that the slot 21 is open on the inner side of the arcuate surface 17. The leader rope 23 is then attached to the eye 22 whereupon the eye E of the buoy is engaged in the slot 21. Thereafter, by pulling inwardly or to the right of Figure 1 on the handle shaft 10, it will be manifest that the plate 19 is rocked in a counterclockwise direction (Figure 1) until the stop 20 engages the opposite end of the groove 15 so that the parts then are in the position shown by the full lines on Figure 2 with the slot 21 disposed on the opposite side of the arcuate surface 17 thereby releasing the buoy eye E from the slot 21. During such shifting movement, the end of the rope 23 will have been moved through the eye E so that by pulling inwardly on the handle shaft 10, the rope 23, and finally the hawser 24, will be drawn through the eye E. Obviously this operation can be carried out almost instantaneously so that it is merely necessary for the operator to engage the eye E of the buoy in the notch 21, then exert a pull on the handle shaft 10 so that the rope will be quickly threaded through the eye. It will be quite evident from the above description that mooring of a craft can be very simply and easily accomplished without the difficulty and trouble ordinarily experienced and within a much shorter period of time.

In the form of the invention shown on Figures 6 to 10, the handle shaft 10*a* has a collar 27 mounted adjacent its outer end portion. Secured to the outer end of the handle shaft 10*a* is a spear head 28 and slidable between the collar 27 and the head 28 is a sleeve 29. Interposed between the sleeve 29 and the head 28 is a coil spring 30 which normally urges the sleeve 29 against the collar 27. Integral with the sleeve 29 is a hook 31 and rigid with the outer end of the hook 31 is a reduced cylindrical extension 32, the shoulder 33 being formed at the inner end of the extension 32. Depending from the sleeve 29 adjacent the collar 27 is a flange 34 to which an arm 35 is pivoted by a pin 36. A yoke 37 on the inner end of the arm 35 straddles the sleeve 27 and is formed with longitudinally elongate slots 38 into which project pins 39. It will thus be apparent that movement of the sleeve 29 toward the head 28 will cause the arm 35 to rock in a counterclockwise direction (Figure 6), thereby to swing the outer end of the arm 35 toward the reduced cylindrical extension 32. The outer end of the arm 35 is enlarged as indicated at 40 and projecting upwardly from the enlarged end 40 is an expansible contractible nose 41, the outer end of which has a relatively blunt point and a longitudinal slot.

The relatively light leader rope 23*a*, which is fixed to the hawser 24*a* has a snap hook 25*a* at its free end. The fastener 25*a* is attached to an eye 42 which forms a part of a member 43. The member 43 has an upper sleeve 44 and a lower sleeve 45 which is spaced from the upper sleeve but has its opening in alignment therewith. Fixed by rivets 46 to the underside of the sleeve 45 is a U-shaped latch member 47 of spring metal. In the lower arm of the latch member 47 is an opening in registry with the opening in the sleeve 45. The upper arm 47*a* of the latch member 47 is disposed between the sleeves 44 and 45 and has a central opening. Normally the arm 47*a* is diagonally disposed within the space between the two sleeves so that the opening in the arm is not in registry with the openings in the two sleeves.

As indicated in Figure 7 the member 43 is initially mounted on the nose 41, the opening in the sleeve 45 being of slightly less diameter than the diameter of the nose 41 so that the latter is compressed when the member 43 is mounted thereon. Thus it will be apparent that the member 43 is releasably held by frictional contact to the nose 41. In this position of the parts, the sleeve 44 and the arm 47*a* of the latch is disposed above the outer end of the nose 41.

In operation the parts are initially in the position indicated by the full lines on Figure 6 and, when it is desired to thread the rope 23*a* through the eye E', the hook 31 is brought into engagement with the mooring eye E', and then by a longitudinal pull on the handle shaft 10*a*, the coil spring 30 is compressed by movement of the sleeve 29 toward the head 28', thereby rocking the arm 35 in a direction toward the hook 31 until the opening in the sleeve 44 slips over the cylindrical extension 32 and flexes the latch arm 27*a*. The edge of the opening in the arm 27*a* cramps against the outerside of the extension 32 with sufficient force so that by slightly moving the handle shaft 10*a* in a forwardly direction, the coil spring 30 will return the sleeve 29 to its normal position and rock the arm 35 away from the hook 31. The member 43 will be held in engagement with the extension 32 because of the greater cramping force of the latch arm 47*a* against the extension 32 as compared to the frictional contact between the sleeve 45 and the nose 41. Thus by unhooking the hook 31 from the mooring eye E', it will be manifest that the leader rope 23*a* and subsequently the hawser 24*a* can be readily drawn therethrough.

The member 43 can then be manually disengaged from the extension 32 and replaced upon the nose 41 so as to condition the device for subsequent use, the fastener 25*a* of course being disengaged from the eye 42. It will be evident that this operation of threading the rope through the mooring eye requires only the natural operation of hooking into the mooring eye and threading of the rope through the eye is an automatic one, so that mooring of the craft can be quite readily and conveniently accomplished.

In the form of the invention illustrated on Figures 11 to 15, an elongate handle shaft 10*b* has at its outer end a knob 50 and at its inner end is secured a fitting 51 having the usual spear head 52 and a lateral hook 53. Spaced rearwardly a short distance from the fitting 51 is the rope threading device which, in this instance, has a pair of clamping plates 54 and 55 embracing the handle shaft 10*b* and secured in place by bolt and nut assemblies 56. The clamping plate 55 has

an extension 57 which terminates in an elongate curved guide 58 substantially U-shaped in cross section.

Abutting against the upper side of the extension 57 is a plate 59 which, as indicated in Figure 15, is spot welded to the extension 57 and is apertured to receive clamping bolts. The plate 59 extends over and covers the open end of the curved guide 58. The free end of the extension 57 is bent outwardly into a position substantially parallel with the plate 59 as indicated at 60, to provide an elongate guide slot to receive and guide the movement of a shiftable member or shuttle S.

The shuttle S comprises a flat plate 61, the outer edge 62 of which is curved to facilitate detaching the shuttle from the mooring eye, as will hereinafter appear. Intermediate the upper and lower ends of the plate 61 is a notch 63 the side walls 65 of which flare outwardly in a generally V form. The apex portion of the notch 63 extends inwardly from the free edge of the guide to accommodate a mooring eye, as will be evident from the foregoing description. The edges of the plate 62 on opposite sides of the notch 63 are bent upon themselves to provide guide portions 65 substantially U-shaped in cross section, as indicated in Figure 15. In this manner it will be apparent that the guide portions 65 are disposed on opposite sides of the notch 63 and these guide portions are slidably engageable within the curved guide 58. It will be manifest that the length of the curved guide 58 is greater than the distance between the sides of the notch 63 at its widest dimension. The sliding movement of the shuttle S with respect to the curved guide 58 is limited by upturned flanges or ears 66 formed at opposite ends of the plate 61 and providing stops engageable with the opposite edges of the plate 59. Fixed to the plate 61 adjacent the upper side of the notch 63 is an eye 67 into which a snap fastener 68 carrying the hawser lead rope 69 is adapted to be engaged.

In operation it will be understood that the shuttle S is normally in the position indicated in Figure 11 and the hawser rope 69 is attached to the eye 67 by the fastener 68. Thereupon the buoy eye E'' is engaged within the notch 63. Then by pulling downwardly on the handle shaft 10b, the shuttle S is shifted relative to the handle shaft so that instead of the upper guide portion 65 engaging in the curved guide 58, the lower guide portion 65 will engage in the curved guide portion and the notch 63 will have been shifted to the upper end of the guide portion 58 substantially as indicated by the broken lines on Figure 11. By further pulling on the handle shaft 10b, the buoy eye E'' is cammed out of the shuttle due to the inclination of the side wall 65, and the lead rope 69 will then have been threaded through the mooring eye E''. By detaching or unhooking the shuttle from the mooring eye, the lead rope can be pulled through the eye. It will be evident that this structure bears particular resemblance to that shown on Figures 1 to 5 of the drawings except that the shuttle slides through a rectilinear path instead of through a curvilinear path.

It is to be understood that numerous changes in details of construction, arrangement and operation may be effected without departing from the spirit of the invention especially as defined in the appended claims.

What I claim is:

1. A mooring device of the character described, including a handle, a member carried by the handle and movable relative to the latter and of a size to be passed through a mooring ring, and means for connecting a hawser to said movable member, the arrangement of the elements and relative movement therebetween being such that when the handle is engaged with the ring and a pull is exerted thereon the movable member and thereby the hawser will be passed through the said ring and continued movement of the handle in the same direction will position the handle so that same is released from said ring while the hawser remains threaded through said ring.

2. A device for connecting a hawser to a mooring ring, including a handle, a movable shuttle connected to said handle and of a size to be engaged with and to be passed through the mooring ring and means for connecting a hawser to said shuttle, said parts being related so that the shuttle and hawser will be drawn through the ring in response to a pull upon the ring by the handle and a continued movement of the handle away from said ring in the same direction.

3. A mooring device comprising a handle, hawser leader rope threading means on said handle and of a size adapted to pass the rope through a mooring ring, said means including a mounting member on said handle having an arcuate edge portion, a sector member having curvilinear movement along said edge portion and being provided with an outwardly facing notch of a width and depth greater than the diameter of the solid portion of the ring so as to receive a part of the latter therein, stop means for limiting the movement of the sector member in opposite directions and so arranged that the mouth of the notch is open and free of the arcuate edge portion of the mounting means at the extreme limits of movement of the sector member, and a hawser rope fastener on said sector member adjacent to said notch.

4. A mooring device comprising a handle, hawser leader rope threading means on said handle of a size adapted to pass the rope through a mooring ring, said means including a mounting on said handle having an exposed edge portion, a member having sliding movement along said edge portion, stops for limiting the movement of said member in opposite directions, a mooring ring receiving notch in said member with the mouth thereof facing said edge portion and the inner end spaced inwardly from said edge portion to an extent greater than the diameter of the solid portion of the ring, and so arranged that the mouth thereof is open and free of said edge portion at the extreme limits of movement of said member, and a hawser rope fastener on said member adjacent said notch.

5. A mooring device comprising a handle, hawser leader rope threading means on said handle of a size adapted to pass the rope through a mooring ring, said means including a mounting on said handle having an exposed edge portion formed to provide an arcuate guide, a semicircular sector member engaging said guide for curvilinear rocking movements therein, said sector member being approximately twice the size of said exposed edge portion, means for limiting the movement of said sector member, a mooring ring receiving notch in said member with the mouth thereof facing said exposed edge portion and having its inner end spaced from said edge portion a distance greater than the distance of the solid portion of the ring, and said notch being so positioned that the mouth thereof is open and free of said exposed edge portion at the extreme limits of movement of said member,

and a hawser rope fastener on said member adjacent said notch.

6. A mooring device comprising a handle, hawser leading rope threading means movably mounted on said handle and of a size to be passed completely through a mooring ring, said means including a member formed to be engaged and disengaged with and from the mooring ring and shiftable rectilinearly from one of said positions to the other by a continued pulling movement of the handle in a single direction, and a hawser rope fastener movable with said member for passing the rope through the ring.

7. A mooring device comprising a handle shaft, rope threading means on said handle shaft for passing a rope through a mooring ring, said means including a mounting on said handle shaft, an elongate guide on said mounting, a shuttle having rectilinear sliding movements along said guide and of a size to be passed through said ring, said shuttle having a U-shaped notch opening in a direction toward said guide and of a depth greater than the diameter of the solid portion of the ring, and so arranged as to be movable to either side of said guide, and means on said shuttle adjacent said notch to which a rope may be attached.

8. A mooring device comprising a handle shaft, rope threading means on said handle shaft for passing a rope through a mooring ring, said means including a mounting on said handle shaft, an elongate guide on said mounting, a shuttle having rectilinear sliding movements along said guide of a size to be passed through said ring, stops for limiting the sliding movement of said shuttle in opposite directions, said shuttle having a U-shaped notch opening in a direction towards said guide and of a depth greater than the diameter of the solid portion of the ring and so arranged so as to be movable to either side of said guide, and means on said shuttle adjacent said notch to which a rope may be attached.

9. A mooring device comprising a handle shaft, rope threading means on said handle shaft for passing a rope through a mooring ring, said means including a mounting on said handle shaft, an elongate guide on said mounting, a shuttle having rectilinear sliding movements along said guide and of a size to be passed through said ring, stops for limiting the sliding movement of said shuttle in opposite directions, said shuttle having a U-shaped notch opening in a direction toward said guide and of a depth greater than the diameter of the solid portion of the ring, and so arranged as to be movable to either side of said guide, the outer side of said shuttle being arcuate to facilitate release from a mooring ring after the rope has been threaded through the source, and means on said shuttle adjacent said notch to which a rope may be attached.

10. A mooring device for connecting a hawser to a mooring ring including a handle, means carried by the handle for relative movement therewith and formed and of a size so as to be engaged with the ring and to be movable relative to and completely through the latter, and means for connecting the hawser to said movable means, said parts being related so that the hawser attached to the movable means will be drawn through the ring with the movable means and the latter released from the ring by engagement of said means with the ring and relative movement between the means and handle in response to a movement of the handle in a single direction.

11. A device for connecting a flexible member to a support comprising a handle, means mounted on said handle for movement about a support, said means including an element formed to be engaged with and disengaged from the support and shiftable rectilinearly on said handle from one of said positions to the other by a continued pulling movement of the handle in a single direction, and a flexible member connected to said means for movement with the latter about a support.

12. A device for connecting a flexible member to a support including a handle, means carried by the handle for relative movement therewith and formed to be engaged with and to be movable about a support, and means for connecting a flexible member to said movable means, said parts being related so that the flexible member attached to the movable means will be drawn about the support together with the movable means and the latter released from the support by engagement of said movable means with the support and relative movement between the movable means and handle in response to a movement of the handle in a single direction.

13. A mooring device for connecting a hawser to a mooring ring, including a handle, reciprocatory means carried by the handle for movement relative to the latter, said reciprocatory means being formed for engagement with the ring and of a size to be moved completely through the latter, and means for connecting the hawser to said reciprocatory means, said parts being so related that the reciprocatory means and the hawser attached thereto will be drawn through the ring and the reciprocatory means released from the ring in response to engagement of said reciprocatory means with the latter upon movement of the handle in a single direction.

14. A mooring device for connecting a hawser to a mooring ring, including a handle, rotatable means carried by the handle for movement relative to the latter, said rotatable means being formed for engagement with the ring and of a size to be moved completely through the latter, and means for connecting the hawser to said rotatable means, said parts being so related that the rotatable means and the hawser attached thereto will be drawn through the ring and the rotatable means released from the ring in response to engagement of said rotatable means with the latter upon movement of the handle in a single direction.

15. A mooring device for connecting a hawser to a mooring ring, including a handle, slidable means carried by the handle for movement relative to the latter, said slidable means being formed for engagement with the ring and of a size to be moved completely through the latter, and means for connecting the hawser to said slidable means, said parts being so related that the slidable means and the hawser attached thereto will be drawn through the ring and the slidable means released from the ring in response to engagement of said slidable means with the latter upon movement of the handle in a single direction.

16. A mooring device for connecting a hawser to a mooring ring, including a handle, means carried by the handle for movement relative to the latter, said means being formed for engagement with the ring and of a size to be moved completely through the latter, and means for

connecting a hawser to said movable means, said parts being so related that the movable means and the hawser attached thereto will be engaged with and drawn through the ring and the movable means released from the ring in response to a continuous pull upon the handle in a single direction.

17. A mooring device comprising a handle, hawser leader rope threading means on said handle of a size to be passed and to draw the rope through a mooring ring, said means including a member formed to be in engaged and disengaged positions with respect to the mooring ring and shiftable on said handle from one of said positions to the other and drawn completely through the ring by a continued pulling movement of the handle in a single direction, and a hawser leader rope fastener movable with said member for passing the rope through the ring.

18. A device for passing a flexible member about an object including a handle, means mounted on said handle for movement about the object, said means including a member formed to be in positions in engagement with and disengagement from the object and shiftable from one of said positions to the other and from one side of the object to the other by a continued pulling movement of the handle in a single direction, and means for connecting said flexible member to the first-named means so as to be movable therewith for passing the flexible member about the object.

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