May 4, 1943.

J. P. FOX

2,318,213

ROPE SNUBBER

Filed May 22, 1942

Fig. 1.

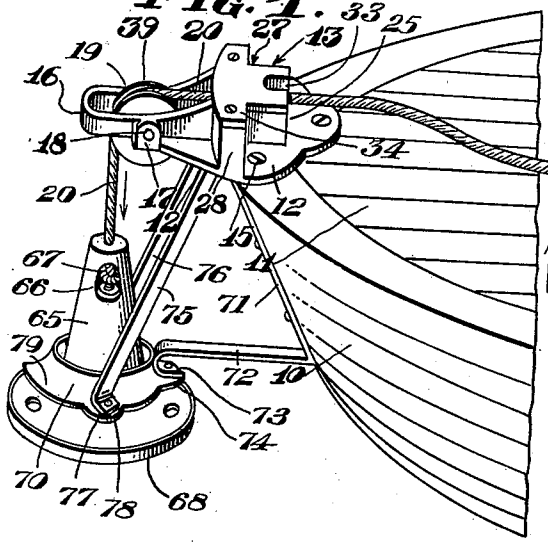


Fig. 2.

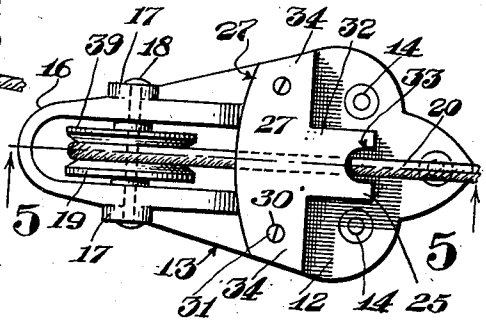


Fig. 3.

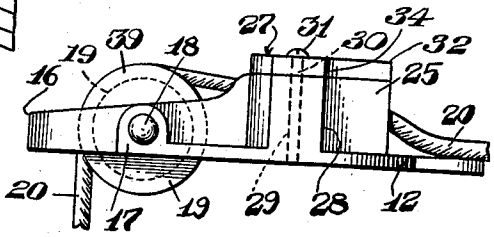


Fig. 4.

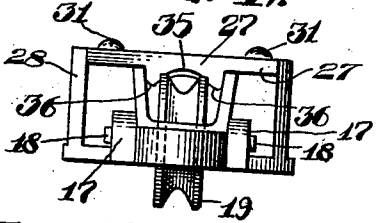


Fig. 5.

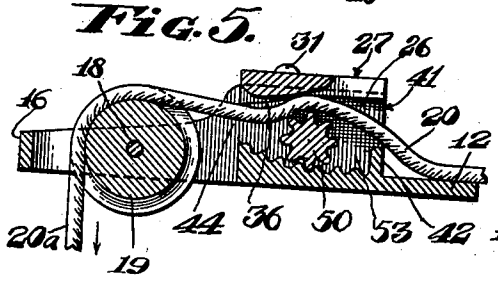


Fig. 6.

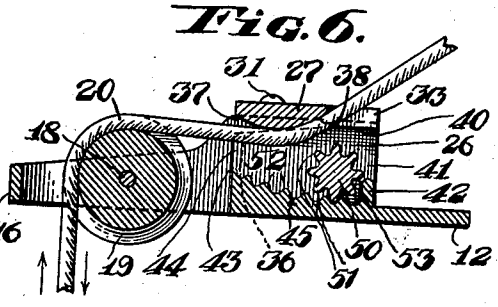
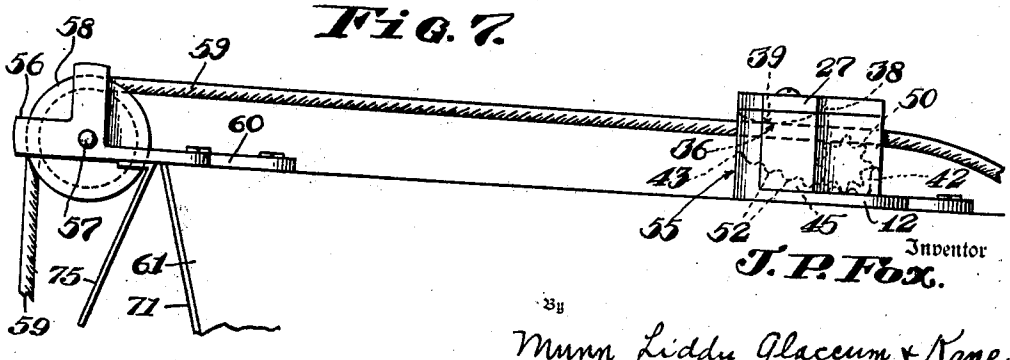


Fig. 7.



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ROPE SNUBBER

Joseph P. Fox, St. Cloud, Minn.

Application May 22, 1942, Serial No. 444,127

1 Claim. (Cl. 24—136)

This invention relates to a rope snubber.

An object of the invention is the provision of a device which will readily grip a rope or cable and hold the same in position, but which will permit ready release of the rope when desired.

Another object of the invention is the provision of a device for clamping a rope against slippage in which a clamping element is movable over a toothed inclined plane for frictionally holding a cable or rope against a fixed part in such a manner that the cable will be held against movement in one direction, but capable of being movable in the other direction whereby the clamping element will be inoperatively positioned so that the cable or rope may be moved freely through the device in either direction when desired.

A further object of the invention is the provision of a device for automatically retaining a rope against movement, said device being particularly adapted for retaining a cable or rope attached to an anchor against sliding movement after the anchor has been fixed in position for holding the boat, said device being so constructed that in one position of the rope said rope may be moved freely in opposite directions through the device while in another position the rope will be automatically clamped in place.

This invention will be best understood from a consideration of the following detailed description, in view of the accompanying drawing forming a part of the specification; nevertheless, it is to be understood that the invention is not confined to the disclosure, being susceptible of such changes and modifications as define no material departure from the salient features of the invention as expressed in the appended claim.

In the drawing:

Figure 1 is a view in perspective of the end of a boat showing the rope snubber clamped in position.

Figure 2 is a plan view of the snubber shown in Figure 1.

Figure 3 is a side view of the same.

Figure 4 is an end view of the snubber.

Figure 5 is a vertical longitudinal section taken along the line 5—5 of Figure 2 showing the rope clamped against movement.

Figure 6 is a vertical longitudinal section similar to the section shown in Figure 5 showing the clamping device in an inoperative position to permit free movement of the rope in opposite directions.

Figure 7 is a longitudinal vertical view of a modified form of the snubber attached to a boat.

Referring more particularly to the drawing, 10 designates a boat having a deck portion 11 to which is attached a base portion 12 of a snubber generally designated by the numeral 13.

The base portion has a flat under face with a plurality of perforations 14 which are adapted to receive screws or bolts 15 for attaching the base plate to the deck 11. The base plate is so constructed that it will extend outwardly beyond the end of the boat and this extension is in the form of a yoke 16 having reinforced portions 17 to provide bearings for a shaft 18 carrying a pulley 19 over which a rope or cable 20 is trained.

Formed integrally with the base plate and rising therefrom is a housing generally designated by the numeral 25 which has an elongated chamber 26 therein closed at its top by a cover plate 27. Pillars 28 are formed integrally with the base plate and also with the housing 25 and these pillars extend laterally from the side walls of the housing and are provided with threaded passages 29 which are in alinement with passages 30 in the cover plate 27 to receive bolts or screws 31 whereby the cover plate is secured rigidly to the housing.

The cover plate has a central body portion 32 having a notch 33 at one end through which the rope 20 is adapted to be moved for a purpose which will be presently explained. The cover plate is also provided with wings 34 in which the passages 30 are formed and these wings extend over the top of the upper ends of the pillars 28.

The under face of the cover plate is provided with a shallow channel 35 which is formed by ribs 36 depending from the under face at opposite sides of the channel. This channel at its forward end, as shown at 37, curves upwardly and is adjacent the pulley 19. The opposite end of the channel curves upwardly and merges into the notch 33 as shown at 38. The central portion of the channel as shown at 39 is shallow and is almost in the same plane with the outer edges of the ribs 36 at these points. These ribs continue rearwardly as shown at 40 along the side edges of the slot 33 and terminate above an opening 41 in the rear wall of the housing which is confined between the side walls of the housing and a lip 42 which is upstanding from the base member 12 and integrally formed therewith.

The bottom of the chamber 26, as shown more particularly in Figs. 5 and 6, is curved upwardly from the lip 42 to a point indicated by the numeral 43 adjacent a front opening 44 in the housing. This front opening is confined between the side walls of the housing and the highest point

43 of the curved bottom 45 of the housing and the inner end of the top or closure 27. It will be noted that the rope or cable 20 passes through the opening 44 thence through the housing and passes out through the opening 41 at the rear of the housing and over the upper edge of the lip 42.

A clamping roller 50 is provided with teeth 51 which are adapted to mesh with teeth 52 formed on the curved surface 45 at the bottom of the chamber 26.

This roller will normally lie in that portion of the chamber 26 which is indicated by the numeral 53 and the chamber at this point is of sufficient height so that the upper portion of the roller is spaced from the under face of the top 27 sufficiently to permit the rope or cable 20 to be drawn through the chamber 26 without coming in contact with the roller. When the roller 50 is shown in the position in Fig. 5 it has approached the narrow portion of the chamber 26 so that the roller will jam the cable against the shallow portion 39 of the groove 35 when a strain is exerted on the cable in the direction indicated by the arrow in Fig. 5. When the roller is in the position shown in Fig. 6, however, the cable may be moved in either direction as indicated by the arrows in said figure.

A modified form of the snubber is shown in Fig. 7 in which the snubber per se, indicated by the numeral 55, is separated from the yoke 56 which is provided with bearings for an axle 57 of a pulley 58 upon which a cable 59 is trained. The yoke is formed integrally with the base member 60 which is secured to the deck of a boat 61.

Since the identical elements are found in the snubber 55 in exactly the same arrangement as is illustrated in Figs. 1 to 6, inclusive, no further description need be given of these elements and, therefore, the same reference numerals have been applied to the dotted line showing of these various elements in Fig. 7.

The upper end of the anchor 65 is tapered and provided with a transverse passage 66 which is large enough to receive a knot 67 formed on the outer end of the rope 20 for connecting the rope to the anchor.

The anchor has an expanded bottom 68 which engages the lower end of an annular guide 70 after the cable has drawn the tapered portion of the anchor through said guide.

A bracket has one arm 71 secured to the bow of the boat 10 while another arm 72 extending forwardly has a curved lip 73 secured to a projection 74 on the guide 70.

A pair of arms 75 and 76 have their upper ends rigidly secured to the underface of the base portion 12 of the snubber 13. The outer end of arm 75 has an angular portion 77 secured to a lip 78 extending from a flanged portion 79 of the guide 70. The outer end of the arm 76 has a connection (not shown) with the flanged portion 79 of the guide which is similar to the connection 77 of the arm 75. However, the connections of the arms 75 and 76 are at diametrically opposite points on the guide.

While the guide 70 is shown in a position in Fig. 1 as holding the anchor in substantially a vertical position, the guide may be located at an acute angle to such position so that the anchor will be retained at a similar angle and when released will be projected outwardly from the boat.

The operation of my device is as follows: Referring to Fig. 6 it will be seen that when the free end of the rope 20 is held upwardly and is located within the slot 33 in the cover plate 27 said rope will not come in contact with the roller 50 and the rope may be moved in either direction particularly when a strain is exerted on the rope by a force or weight such as the anchor 65 and in the direction indicated by the arrow in Fig. 1. Thus, it will be seen that when the rope is in the position as shown in Fig. 6 it may be moved freely through the housing.

On the other hand, when it is desired to anchor the rope and retain it from further movement after the end 20*a* of the rope has been secured to a wharf or to the anchor 65 it is only necessary to lower the free end of the rope downwardly towards the upper edge of the lip 42 whence said rope will come in contact with the toothed roller 50. When the rope is allowed to slide through the hand of the operator said rope being in frictional contact with the teeth of the roller will cause the roller to move towards the opening 44 in the housing 13. Since the roller rides upwardly on the toothed curved surface 45 of the bottom of the chamber 26 it will reach the point illustrated in Fig. 5 so that the roller will jam the rope or cable against the shallow portion 39 of the groove 35 and clamp said rope against further movement. The greater the pull on the end of the rope 20*a* and in the direction indicated by the arrow in Fig. 5 the greater the frictional resistance will be against the slippage of the rope and the rope will be held more firmly against movement.

When it is desired to release the rope it is only necessary to raise the free end of the rope as shown in Fig. 6 and pull outwardly on the rope whence the roller 50 will be freed and it will roll by gravity back to the enlarged portion 53 of the chamber 26 and will remain inactive because it no longer contacts the rope.

I claim:

A rope snubber comprising a housing including a top and a base plate, said base plate having a forward extension, the forward extension being in the form of a loop, a pulley rotatably mounted in the loop for supporting a rope, said housing being open at its opposite ends to receive said rope therethrough, the base plate within the housing having an inclined portion provided with transverse teeth, a roller in the housing having longitudinal teeth meshing with the transverse teeth, the inner wall of the top of the housing having a cam cooperating with the upper end of the inclined portion to provide a restricted passage for the rope adjacent the forward end of the base plate, said roller adapted to be drawn upwardly over the inclined portion when tension is exerted on that portion of the rope which is supported by the pulley so that the rope will be wedged between the toothed roller and the cam.

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