ABSTRACT

The guide engageable with the stretch of towing line between a towing bitt or winch and a tow is mounted at the stern bulwarks of a towboat. The guide includes a horizontal stern roller over which the towing line can run and one or more posts engageable laterally by the towing line. Such posts are forward of the stern roller, preferably include rollers rotatable about upright axes, and one or more of the posts includes hold-down means which may be a circumferential flange or a laterally projecting keeper arm. A towing line extending beneath such a keeper arm is received in a chafing channel which confines the line and is clamped by the keeper arm. Such chafing channel may extend sufficiently far aft to engage between the towing line and the stern roller and may be flexibly segmented to bend with switching of the towing line. A latch can hold a post elevationally with its keeper arm clamping a chafing channel through which a towing line extends.

20 Claims, 24 Drawing Figures
MARINE TOWING LINE GUIDE

The present invention relates to a type of guide particularly useful for controlling switching of a marine towing line at the location of the stern pulleys of a towboat.

A principal object of the invention is to provide reliable control and guiding of the towing line while minimizing wear on the cable, the stern roller and the components of the guide which would be expensive or difficult to replace.

It is also an object to be able to control the location of the towing line within close limits or within broad limits at the option of the towboat operator.

Another object is to be able to confine a towing line positively or to enable the towing line to be released under excessive loading conditions.

A further object is to provide a guide which can be utilized readily in different ways or which can be retracted quickly out of the way of the towing line at the option of the towboat operator.

particularly it is an object to provide a chafing channel which can receive a towing line and can be held securely in cable-guiding position, while minimizing wear of the towing cable and wear of other components of the guide by abrasion of the towing cable on them.

FIG. 1 is a top perspective of the stern portion of a towboat showing the installation of the towing guide in relation to other parts of the towboat.

FIG. 2 is a top perspective of one form of towing line guide and its mounting.

FIG. 3 is a top perspective of a towing line guide somewhat modified from the type shown in FIG. 2.

FIG. 4 is a transverse elevation of the towing line guide shown in FIG. 3.

FIG. 5 is a transverse section through the towing line guide of FIG. 2, parts being broken away.

FIG. 6 is a somewhat diagrammatic detail of latch mechanism of the guide shown in FIG. 5.

FIG. 7 is a longitudinal vertical section through a somewhat modified form of towing line guide, taken on line 7—7 of FIG. 8; and

FIG. 8 is a plan of a portion of such guide as indicated by line 8—8 in FIG. 7, with parts broken away.

FIG. 9 is a detail section taken on line 9—9 of FIG. 8.

FIG. 10 is an exploded top perspective detail of chafing channel construction, parts being broken away.

FIG. 11 is a plan of the towing line guide shown in FIGS. 7 and 8 incorporating a modified form of chafing channel construction.

FIG. 12 is an enlarged side elevation of such chafing channel construction.

FIG. 13 is a transverse vertical section through the chafing channel structure taken on line 13—13 of FIG. 12.

FIG. 14 is a top perspective of the chafing channel with some parts broken away and showing other parts in exploded relationship.

FIG. 15 is a top perspective of a further modified type of towing line guide.

FIG. 16 is a horizontal section through a portion of the towing line guide showing a detail plan of another towing line chafing channel structure.

FIG. 17 is a vertical section through such mechanism taken on line 17—17 of FIG. 16.

FIG. 18 is a vertical section through the chafing line structure on line 18—18 of FIG. 16.

FIG. 19 is a vertical transverse section taken on line 19—19 of FIG. 18, and

FIG. 20 is a vertical section on line 20—20 of FIG. 18.

FIG. 21 is a horizontal section through a portion of the towing line guide showing a detail plan of still a different type of chafing channel construction, and

FIG. 22 is a section taken on line 22—22 of FIG. 21.

FIG. 23 is a transverse section taken on line 23—23 of FIG. 22.

FIG. 24 is a top perspective of the towing line chafing channel shown in FIGS. 21, 22 and 23, with parts in exploded relationship.

On the afterdeck 1 of the towboat shown in FIG. 1 is the towing winch 2 which located a substantial distance forward of the stern pulleys. The towing line runs from the winch over the stern pulleys. The winch can be controlled from the console 7 mounted on the upper deck 5 of the towboat. The line guide 6 is mounted immediately forward of the stern pulleys, and components of such line guide can be manipulated by controls of a console 4 also mounted on the upper deck 5 adjacent to the winch-controlling console 7.

A typical type of towing line guide of the present invention is shown in FIG. 2. Such guide includes a mounting 8 having a top plate 9. A stern roller 10 extends athwartships along the aft edge of the mounting with the roller upper side substantially flush with the mounting top 9. Over such mounting top and stern roller can extend the towing cable. Lateral guideposts 11 and 12 are spaced transversely of the mounting 8 and can be projected upward above its upper surface 9 or retracted downward so that the upper end of either post or the upper ends of both posts can lie flush with such upper surface of the mounting.

In the modified guide structure shown in FIG. 3, the stern roller 10 and the lateral guideposts 11 and 12 can be the same as such components shown in FIG. 2, but this guide includes a safety bar 13 spanning across the upper sides of the lateral guideposts 11 and 12. As shown in FIG. 4, the opposite ends of such safety bar are carried by posts 14, the lower ends of which are set in holes 15 formed by tubes 15' at opposite ends of the mounting 8. These posts are anchored in holes 15 by crosspins 16 extending through the posts 14 and the opposite walls of the tubes 15' as shown in FIG. 4.

Between the top plate 9 and the mounting 8 and the opposite end portions of the transverse safety bar 13, rollers 17 encircle the posts 14 for rotation about upper axes. Thus the safety bar limits upward whipping of the towing line 3 between the posts 11 and 12 if they are both in their raised positions, or between the rollers 17 if the posts 11 and 12 are retracted downward. Moreover, the rollers 17 will limit the extent of lateral switching of the towing line possible when the lateral guideposts 11 and 12 are in their retracted positions. The safety bar 13 and lateral guide rollers 17 can be removed as a unit simply by pulling crosspins 16 and lifting the posts 14 out of the holes 15.

Details of the construction of the lateral guideposts 11 and 12 are shown in FIGS. 5, 6 and 7. Each post includes a core cylinder 18, the lower portion of which is encircled by a collar 19 fixed to such cylinder. A nonrotative cap 20 is secured to the upper end of each core cylinder 18 by tap bolts 21. Each post is movable elevationally by a hydraulic jack including the stationary cylinder 22 receiving the plunger 23 which can be pro-
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3. jected upwardly from its upper end to raise the post into the broken-line position shown at the left of FIG. 5 and into the solid-line position shown at the right of FIG. 5. The upper end of the plunger is connected to the core cylinder 18 by a wrist pin 24.

Encircling the core cylinder 18 between the collar 19 and the cap 20 is a roller shell 25 rotatable relative to the core cylinder and the cap on the sides sleeves 26 of self-lubricating bearing material. The lower end of the sleeve 25 should not be appreciably above the top 9 of the mounting 8 when the post is raised to its highest position. The post assembly is guided for such elevational movement by being slidably received in the cylindrical casing 27. The post assembly is held against turning bodily about an upright axis during such elevational movement by a slide 28 secured to the collar 19 and slidably received in a slot 29 in the casing 27 constituting ways, as shown at the right of FIG. 5.

In order to lock the post assembly in a predetennined elevationaly-adjusted position, such as shown at the left of FIG. 5, a latch plunger 30 is engaged with features of the casing 27, of collar 19 and of core cylinder 18, which apertures are aligned. Such latch plunger is connected to a yoke 31 by a pivot pin 32. Such yoke is mounted on the cylinder 33 of a hydraulic jack. The plunger 34 of such jack carries a yoke 35 connected to an anchoring lug 36 on the mounting 8 by a pivot pin 37.

Hydraulic liquid is supplied to and discharged from opposite ends of the cylinder 33 by flexible conduits 38 and 39, respectively, shown in FIG. 6. The conduit 38 connected to the end of cylinder 33 adjacent to the latch plunger is also connected by a conduit 40 to a valve 41 opened by reciprocation of a plunger 42 engageable with a stop 42. This valve is connected through a pressure relief valve 43 set to a predetermined pressure, a check valve 44 and a conduit 45 to the conduit 39 connected to the end of cylinder 33 remote from plunger 30.

The purpose of providing the plunger-operated valve 41, the relief valve 43 and the check valve 44 between the two hydraulic supply conduits 38 and 39 is to be able to obtain an indication as to when the latching plunger 30 has been moved fully into latching position in the registering apertures of casing 27 and the core cylinder 18 of the post. Hydraulic liquid is supplied under pressure to conduit 38 to move cylinder 33 to the left as seen in FIG. 6 relative to the plunger 34. The pressure required to effect such movement is quite small. If latch plunger 30 should encounter an obstruction so as to stop movement of cylinder 33 to the left prematurely, the pressure in line 38 would quickly build up to a maximum value. If, instead of plunger 30 having encountered an obstruction prematurely, the cylinder is moved sufficiently far to the left to seat the plunger 30 in the latching position, the switch plunger 42 will engage the abutment 42 to open the valve 41. Liquid can then flow freely from the conduit 38 through conduit 40 and valve 41 to the relief valve 43. In order to pass such a relief valve a pressure of only approximately 400 psi is required. Liquid can then flow past check valve 44 to discharge conduit 39 into the reservoir of the hydraulic system.

If a pressure gauge in communication with line 38 registers a low pressure, therefore, the operator will know that the latch plunger 30 is still being moved to the left as seen in FIGS. 5 and 6. If the pressure should rise abruptly to the order of 1500 psi, the operator will know that the latch plunger has encountered some obstruction prematurely and has not yet reached latching position. If the pressure should rise to approximately 400 psi or should rise to a higher pressure and then quickly drop back down to approximately 400 psi, the operator will know that the latch plunger has seated in latched condition. The check valve 44 will prevent hydraulic liquid flowing in the reverse direction past such valve to the pressure relief valve when hydraulic liquid under high pressure is supplied to conduit 39 for the purpose of moving cylinder 33 to the right to withdraw plunger 30 from latching position.

In the towing line guide, each of the posts 11 and 12 could provide simply side guide rollers for the towing line, either one or both of which could be elevated to the position shown at the right of FIGS. 2 and 5 or retracted so that the upper end of the post is flush with the upper surface 9 of the mounting 8. At least under some circumstances, however, it may alternatively be desirable actually to confine a towing line so as to prevent transverse switching of the towing line between the upright guide rollers 17 shown in FIGS. 3 and 4 or between the upright guideposts 11 and 12. For this purpose a Keeper 46 can be formed integral with one or both of the caps 20 of the posts.

The keeper shown in FIGS. 2, 5, 7, 8 and 9 is in the form of a cantilever arm projecting laterally from the cap 20 of one post toward the other post. From the free end of such arm, a toe 47 projects downwardly for a distance such that, when the lower end of such toe is adjacent to the upper surface 9 of the mounting 8, there will be ample clearance between the top 9 of the mounting and the bottom of the keeper arm 46 to accommodate the towing line, as shown in FIG. 9. An aperture 48 is provided in the top 9 of the mounting, through which the keeper arm can move downward when the post 12 is retracted so that the upper side of such keeper arm as well as the top of cap 20 can be positioned flush with the top 9 of the mounting when desired.

While the keeper 46 could function to restrict drastically, or even to prevent all sidewise switching of the towing line at the location of the post if properly proportioned, it is preferred that the keeper be proportioned so as to accommodate between the arm 46 and the top 9 of the mounting and between the post cap 20 and the toe 47 a chafing channel 49 in which the towing cable 3 is cradled, as shown in FIGS. 5, 7, 8 and 9. The towing cable need not fit snugly in the chafing channel as is shown in FIG. 8, but it is preferred that provision be made for attaching the chafing channel to a desired portion of the towing cable at least until the chafing channel has been positioned in the keeper aperture. In order to enable the chafing channel to be attached to and carried by the towing cable as the cable is paid out through the aperture formed by the post 12, keeper 46 and keeper toe 47, the hollow of the chafing channel is specially formed with a convergent dovetail section 50. A retained wedge 51, shown best in FIGS. 8, 9 and 10, has complemenar dovetail bifurcations 52 which can engage wedgingly with the dovetail section 50 of the chafing channel walls. The slot 53 between such bifurcations can yield to enable the wedge bifurcations to engage the chafing channel constriction 50 resiliently to effect a gripping fit.
The retainer wedge 51 can be driven into place by striking its end opposite the bifurcations 52. The wedge can be released from the chafing channel 49 by striking in the opposite direction knockout lug 54 projecting upward from the end of the wedge opposite the bifurcations 52. Movement of the chafing channel 49 into the aperture of the keeper 46 can be limited by engagement of a lug 55 projecting downward from the trailing end of the channel with the margin 56 of the top plate 9 of the mounting 8, as shown in FIG. 7. A lanyard 57 can be connected to such lug to tether the chafing channel.

When substantially the desired length of towing line has been paid out by the winch 2, paying out of the towing line can be interrupted momentarily while the chafing channel 49 is engaged beneath the cable and the retaining wedge 51 is driven into position attaching the chafing channel to the cable as indicated in FIGS. 8 and 9. A small additional length of towing line is then paid out so as to carry the chafing channel into the position shown in FIGS. 7 and 8 extending through the aperture of the keeper 46 with the lug 55 of the channel engaged with the margin 56 of the mounting 8 and the leading end of the chafing channel resting on the stern roller 10.

It will be noted in FIG. 8 that the facing surfaces of the cap 20 and the toe 47 beneath the keeper arm 46 and convex so that the chafing channel 49 can swing to a considerable extent in one direction or the other to accommodate limited switching of the towing line 3 rearward of the keeper. As such switching occurs movement of the line in the channel will be very limited, and the channel will slide smoothly on stern roller 10. Consequently, there will be negligible wear on the cable, and the chafing channel 49 can be made of material softer than the stern roller 10 so that any wear which is produced by such switching action of the towing line will be on the chafing channel itself. Also, the action of retaining wedge 51 holding the cable in the chafing channel will prevent appreciable chafing of the cable in the channel.

Moreover, the chafing channel positively prevents contact of the towing cable 3 with either the cap 20 or the toe 47 of the keeper, so that these parts cannot be worn by the cable nor can they wear the cable. Any wear which does result from engagement of the chafing channel 49 with either the cap 20 or the keeper toe 47, or both, will be suffered by the chafing channel because, again, the chafing channel can be made of material softer than the cap and keeper components. The chafing channel is of very little value as compared to components of the guide and to the towing cable and, consequently, can be replaced quite economically whenever desired.

In order to restrain towing line 3 from riding up and over the top of a post 11 without actually confining the line either by the keeper 46 described above or by the safety bar 13 shown in FIGS. 3 and 4, the post is provided with a cap which includes a circumferential or arcuate flange. Cap 20' of post 11 is shown in FIGS. 7 and 11 as constituting a circumferential flange projecting outwardly beyond the roller 25 a distance preferably at least slightly greater than the radius of the towing cable. While such a flange, whether in circumferential form or in arcuate form on the side of the cap adjacent to post 12, will not limit positively upward movement of the towing line, the line will engage such a flange as it tends to move upward beyond the roller 25 and arrest further upward movement of the towing line unless it is subjected to a substantially greater upward force than is required simply to slide the towing line up and down along the roller 25.

In FIGS. 11, 12, 13 and 14 a chafing channel of a construction somewhat different from that described in connection with FIGS. 7, 8, 9 and 10 is shown. In this instance the hollow of the chafing channel 49' has a constricted section 50' formed by one channel flange having a thickened undercut portion forming a projecting inwardly from only one side of the channel hollow, as shown best in FIGS. 13 and 14. A retaining wedge 51' tapers in thickness upwardly to provide an inclined wall 52' which matches the inclination of the channel wall in the restriction 50', as shown best in FIGS. 13. Such retaining wedge is driven into the hollow of the chafing channel 49' between the thickened flange portion and one side of the towing cable 3.

When the chafing channel 49' has been secured by the retaining wedge 51' to the towing cable 3, it can be carried by the towing cable into the aperture beneath the keeper arm 46 and above the top plate 9 of the mounting 8, as shown in FIGS. 11 and 12. As discussed in connection with the chafing channel shown in FIGS. 7, 8 and 9, movement of the chafing channel can be arrested by engagement of the downwardly projecting lug 55' with the margin 56 of the mounting top plate 9. A lanyard 57' can be attached to the lug 55' to tether the chafing channel.

In order to free the towing cable 3 from the chafing channel after the chafing channel has been positioned beneath the keeper 46 in the manner described, a lug 54' projecting upward from the trailing portion of the retaining wedge 51' is provided. The distance between the edge of mounting top plate margin 56 and the nearer side of keeper arm 46 will be somewhat less than the distance between the edge of lug 55' nearer the restriction 50' and the edge of retaining wedge lug 54' farther from lug 55'. Consequently, as the chafing channel is being carried into place beneath the keeper 46 the lug 54' will engage the edge of the keeper to arrest continued movement of the retaining wedge, while movement of the towing cable will continue to drag the chafing channel 49' along until its lug 55' engages the margin 56 of plate 9 thereby loosening the wedge. The wedge 51' can then be pulled out of the channel by grasping the lug 54' or inserting a pulling hook in a hole in such lug.

As the towing line 3 switches to one side, as indicated in broken lines in the lower portion of FIG. 11, it will swing chafing channel 49' with the keeper aperture in the manner indicated in broken lines in that figure, but the towing cable will not move appreciably with respect to the chafing channel. Consequently, there can be no appreciable wear of the towing cable effected by such switching action. Moreover, the wear on the stern roller 10 will be minimized because, as shown in FIG. 12, the towing cable is held out of contact with the roller by the interposition of the chafing channel between the roller and the cable. Only the smooth bottom of the chafing channel, as distinguished from the twisted surface of the towing cable, will engage the stern roller.

The guide in FIG. 15 has an alternative arrangement of posts. In this instance the post 11' is located centrally of the mounting 8' and its top 9'. This post is of the same construction as the post 11 shown in FIGS. 2
and 5, but can be somewhat smaller. The post 12 to the left of post 11 has a keeper 46, as described above. At the opposite side of post 11 is another post 12' spaced from post 11 about the same distance as the spacing between post 11 and post 12. The post 12' has a keeper 46' retractable downward through an aperture 48' in the top 9' of the mounting 8'. Except for the direction in which the keeper 46' projects from post 12', the remaining construction of such post and its installation is like the structure of the post 12 and its installation, the parts of one post installation being the mirror image of the corresponding parts in the other post installation.

A guide of the type shown in FIG. 15 can be used precisely like the guide described in connection with FIGS. 2 and 5. Alternatively, by retraction of post 11' a wider space can be afforded for switching of the towing line between posts 12 and 12'. A particular advantage of the guide of FIG. 15 is that it can guide two towing lines, one at each side of the central post 11. Moreover, each of such towing lines can be positively confined by the keeper 46 and by the keeper 46'.

The chafing channel 49 shown in FIGS. 7 and 8 and 49' shown in FIGS. 11 and 12 must swing back and forth as the towing line switches, which produces some deflection of the towing line forward of the guide as well as aft of the guide. The chafing channel shown in FIGS. 16 to 20, inclusive, is constructed so that the towing line 3 can swing back and forth without deflecting the stretch of towing cable between the towing winch and the guide. In this instance the chafing channel includes a trailing segment having a web 58 of a profile such as shown in FIG. 16, tapered toward the other segments 63, 64 and 65 of the channel, so that it will wedge in the flaring forward mouth of the aperture through the keeper. Engagement of such web with the keeper will prevent swinging of such channel section.

Flanges 59 and 60 project upward from the web 58, the flanges and the web portion between them forming a channel. As shown in FIG. 16, these flanges converge toward the other sections 63, 64 and 65 of the channel. The flange 60 is upwardly and inwardly inclined to receive a retaining wedge 61 between the flange and the towing cable 3 lying in the channel. Wedge 61 is tapered lengthwise and in thickness so that its side nearer flange 59 is parallel to such flange. A knockout lug 62 projecting upward from wedge 61 is engageable with the keeper arm 46 to release the wedge as the chafing channel is moved to the left into the position shown in FIGS. 16 and 18. Wedge 61, 62 is similar to wedge 74, 75 shown in FIGS. 23 and 24.

The chafing channel shown in FIGS. 16 to 20, inclusive, includes channel segments 63, 64 and 65 in addition to the channel segment 58, 59, 60 to be lodged in the keeper aperture. These several segments are strung together on parallel light cables 66. The opposite ends of these cables are prevented from sliding through the chafing channel segments by collars 67 swaged around the cable ends. The adjacent ends of the segments are of convex shape, and the stringing cables 66 are of sufficient length so that the segments can be swung relative to each other as shown in broken lines in FIG. 16 by switching of the towing line 3.

In order to enable the towing cable 3 to carry the chafing channel into the opening of the keeper 46 it is desirable to support not only the segments 58, 59, 60 of the chafing channel from the cable, but also at least one of the other segments. Such support can be effected by a strap 68 encircling a segment 64 or a segment 65 in a circumferential groove 69. Such strap will not bind the cable to a chafing channel segment or segments, but will simply confine the cable in the hollow of the segment channel so that at least one of the segments 64 and 65 can hang on the cable while it is being transported onto the top plate 9 of the mounting.

FIGS. 21 to 24, inclusive, illustrate a still further type of chafing channel. In this instance the chafing channel 70 includes a segment having a web 71 carrying upstanding flanges 72 and 73, corresponding to the web 58 and flanges 59 and 60 of the channel segment described in connection with FIGS. 16, 17 and 18. Such channel segment can be secured to the towing cable 3 by a retaining wedge 74 having a lug 75 which are similar to the retaining wedge 61 and its lug 62 also described in connection with FIGS. 16, 17 and 18.

Instead of having a plurality of additional chafing channel segments strung on cables as in the chafing channel described in connection with FIGS. 16, 17 and 18, the chafing channel shown in FIGS. 21 to 24 includes a second segment 76 having one end connected to the web 71 of the other segment by a pivot 77. Such additional segment has side flanges 78 which may be interrupted to form a plurality of sections as shown in FIGS. 21, 22 and 24 or which may be continuous. It is not necessary to make any provision for holding the segment 76, 78 on the cable, because the pivot 77 will prevent the segment 76, 78 from sagging relative to the segment 71, 72, 73. The chafing channel will therefore be held satisfactorily on the cable simply by the attaching action of the retaining wedge 74.

As shown in FIG. 21, the pivot 77 connecting the two segments of the chafing channel 70 should be located at the aft edge of the keeper aperture. As the cable 3 switches back and forth, therefore, it can swing the channel segment 76 relative to the web 71 of the other channel segment without appreciably moving the portion of towing cable passing through the segment engaged in the keeper aperture to the winch 2. Even when the stretch of towing cable aft of the keeper aperture is swung to one or the other of the extreme positions indicated by broken lines in FIG. 21, the position of the stretch of towing cable forward of the keeper aperture need not be changed.

In operation the posts 11 and 12 either are retracted into the mounting 8 so that the upper sides of their caps are flush with the top 9 of the mounting, or the posts are fully extended in preparation for initial paying out of the towing line 3 from the winch 2. The towing line is then paid out over the stern roller 10 until approximately the length of towing line desired to interconnect the tow and towboat during towing has been paid out. At that time if the posts 11 and 12 have not previously been raised, the towboat will be maneuvered so that the towing line passes between these posts, and they will then both be raised.

Towing may proceed in calm or sheltered waters with the towing line simply passing between the guideposts 11 and 12 in their fully raised position, with which arrangement the lateral displacement of the towing line across the deck of the towboat is limited to the space between the guideposts, despite yawing of the towboat relative to the tow. If towing occurs in open or rough water, it is desirable to confine the towing line more closely. Consequently, excessive athwartships switch-
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1. A line guide for a towing line extending over the stern of a towboat, comprising a mounting located at the stern of the towboat, an upright guidepost carried by said mounting and having an elongated upright guide surface engaged by movement transversely of its length of a stretch of towing line extending lengthwise of the towboat aforesaid from a location forward of said mounting toward the stern of the towboat, and keeper means carried solely by the upper portion of said guidepost and projecting in cantilever fashion therefrom transversely of the length of said guide surface for restricting movement of the towing line transversely of its length and transversely of said guide surface away from said guidepost.

2. The line guide defined in claim 1, in which the keeper means includes a cantilever arm projecting generally horizontally form the guidepost and having a cantilever toe projecting downward from the free end of said arm.

3. The line guide defined in claim 2, and means for effecting elevational adjustment of the cantilever arm relative to the mounting to dispose the cantilever arm selectively in an elevated position with the lower end of the toe spaced upwardly from the mounting a distance greater than the thickness of the line and a lowered position with the lower end of the toe low enough to prevent the line from passing between it and the mounting.

4. The line guide defined in claim 1, adjusting means for effecting elevational adjustment of the guidepost relative to the mounting, and latch means independent of said adjusting means for latching the guidepost in a predetermined elevationally adjusted position.

5. The line guide defined in claim 4, in which the latch means includes a plunger for connecting the mounting and the guidepost.

6. The line guide defined in claim 4, and indicating means for indicating when the latch means are in latching position.

7. The line guide defined in claim 1, and a second upright guidepost spaced transversely of the towboat stern from the guidepost carrying the keeper means.

8. The line guide defined in claim 7, and means for effecting elevational adjustment of the second guidepost independently of the first guidepost.

9. The line guide defined in claim 7, in which the second guidepost includes a cap having a cantilever projection projecting toward but spaced a substantial distance from the first guidepost.

10. A line guide for a towing line extending over the stern of a towboat, comprising a mounting located at the stern of the towboat, two lateral guideposts carried by said mounting in athwartships spaced relationship and engageable by a stretch of towing line extending therebetween, keeper means carried by one of said guideposts for engagement with the towing line to hold it below the top of said one guidepost when the line is engaged with said keeper means, and a safety bar having its length extending athwartships of the towboat and overlying said guideposts for engagement by the line upon its upward movement between the guideposts when the line is out of engagement with said keeper means.

11. A line guide for a towing line extending over the stern of a towboat comprising a mounting located at the stern of the towboat, an upright guidepost carried by said mounting and engageable by movement transversely of its length of a stretch of towing line extending lengthwise of the towboat aforesaid from a location forward of said mounting toward the stern of the towboat, keeper means for restricting movement of the towing line transversely of its length and transversely of said guidepost away from said guidepost, and securing means for attaching the chafing channel to the towing line for movement therewith relative to the mounting.

12. The line guide defined in claim 11, and securing means for attaching the chafing channel to the towing line for movement therewith relative to the mounting.

13. The line guide defined in claim 12, in which the securing means is wedge means having a knockout lug.
engageable with the keeper means when the chafing channel has reached a predetermined position relative to the keeper means for loosening the wedge means by movement of the towing line.

14. The line guide defined in claim 12, in which the chafing channel includes a plurality of relatively swingable segments.

15. The line guide defined in claim 14, and flexible connecting means stringing the chafing channel segments together.

16. The line guide defined in claim 14, and pivot means connecting adjacent chafing channel segments.

17. A line guide for a towing line extending over the stern of towboat comprising a mounting located at the stern of the towboat, an upright guidepost carried by said mounting and engageable by movement transversely of its length of a stretch of towing line extending lengthwise of the towboat aft from a location forward of said mounting toward the stern of the towboat, keeper means for restricting movement of the towing line transversely of its length and transversely of said guidepost away from said guidepost, a stern roller aft of said guidepost engageable by the towing line during paying out and reeling in of such line, and chafing means receiving a bight of the towing line confinable by said keeper means and of a length sufficient when confined by said keeper means to extend aft from said stern roller between the towing line and said stern roller.

18. A line guide for a towing line extending over the stern of a towboat comprising a mounting located at the stern of the towboat, an upright guidepost carried by said mounting and including a roller rotatable about an upright axis forming an upright guide surface engageable by movement transversely of its length of a stretch of towing line extending lengthwise of a towboat aft from a location forward of said mounting toward the stern of the towboat and a nonrotative cap carried by said guidepost above said roller and having a portion projecting laterally beyond the periphery of said roller forming laterally unobstructed shoulder means constituting abutment means engageable by the line during its upward movement alongside said guidepost for deterring upward movement of the line beyond said abutment means without preventing such upward movement of the line past said abutment means by application of an excessive upward force on the line transversely of its length.

19. The line guide defined in claim 18, in which the portion of the cap projecting beyond the periphery of the roller forms an arcuate flange.

20. The line guide defined in claim 19, in which the arcuate flange projects beyond the periphery of the roller a distance greater than the cross sectional radius of the towing line stretch but less than the cross sectional diameter of the towing line stretch.