Jan. 2, 1951 L. P. FRIEDER ET AL 2,536,682

SEA ANCHOR APPARATUS

Filed Feb. 25, 1948 3 Sheets-Sheet 1

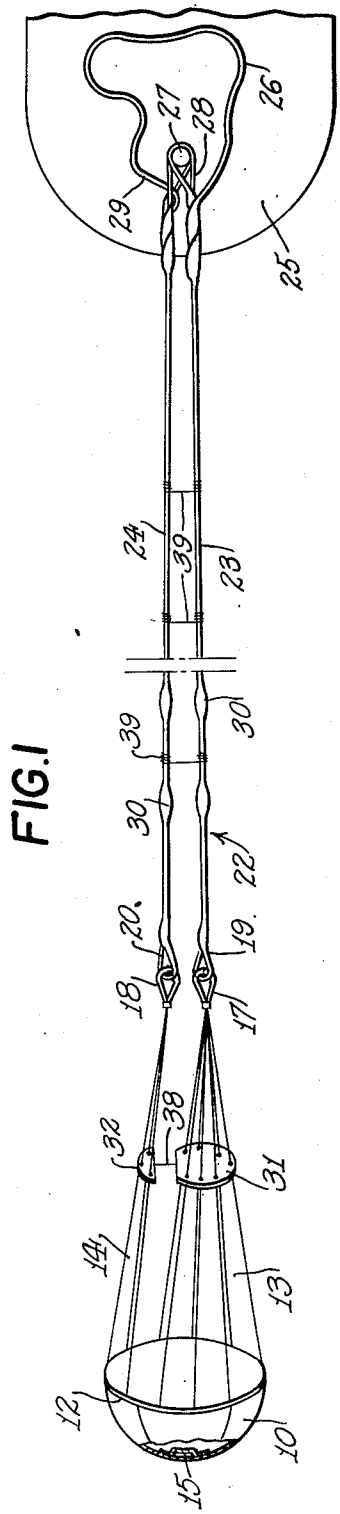


FIG. 1

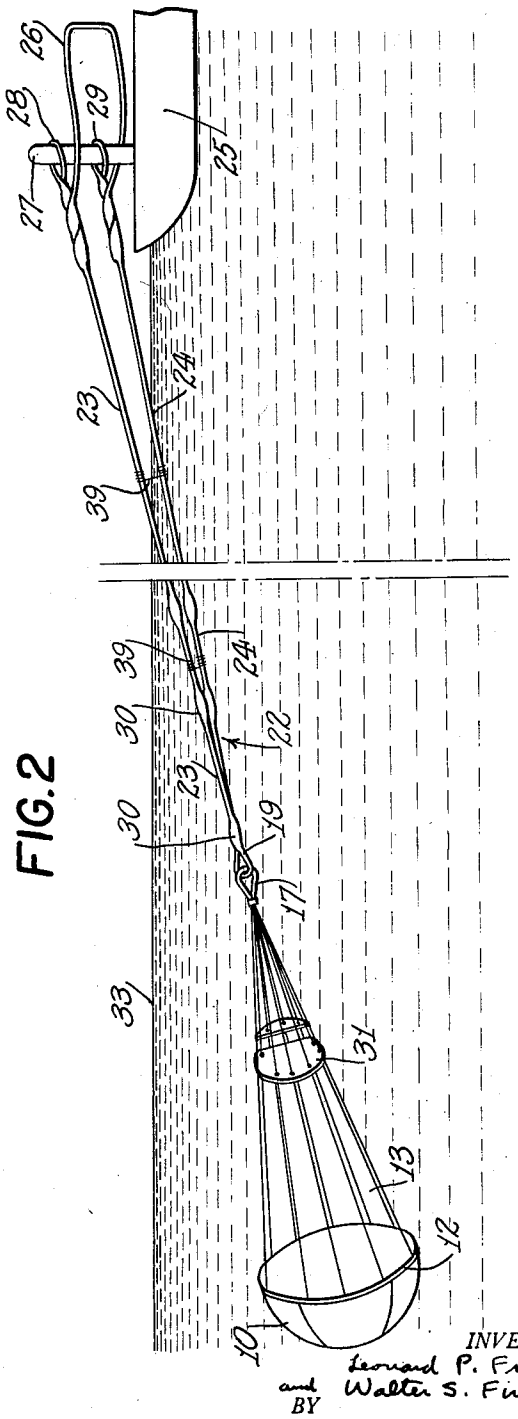


FIG. 2

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SEA ANCHOR APPARATUS

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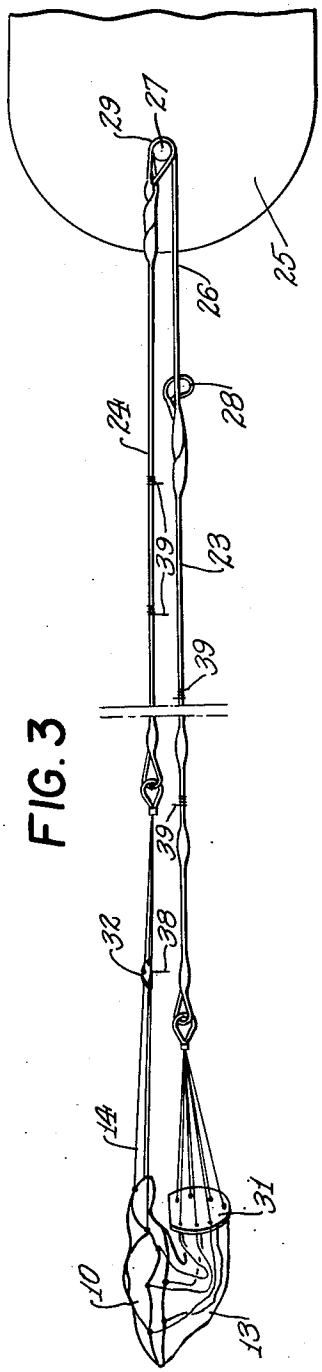


FIG. 3

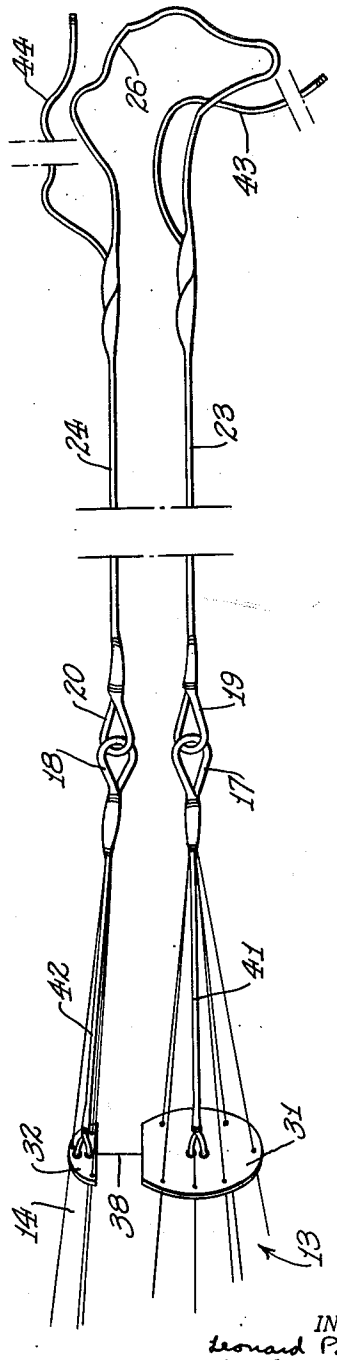


FIG. 4

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SEA ANCHOR APPARATUS

Filed Feb. 25, 1948 3 Sheets-Sheet 3

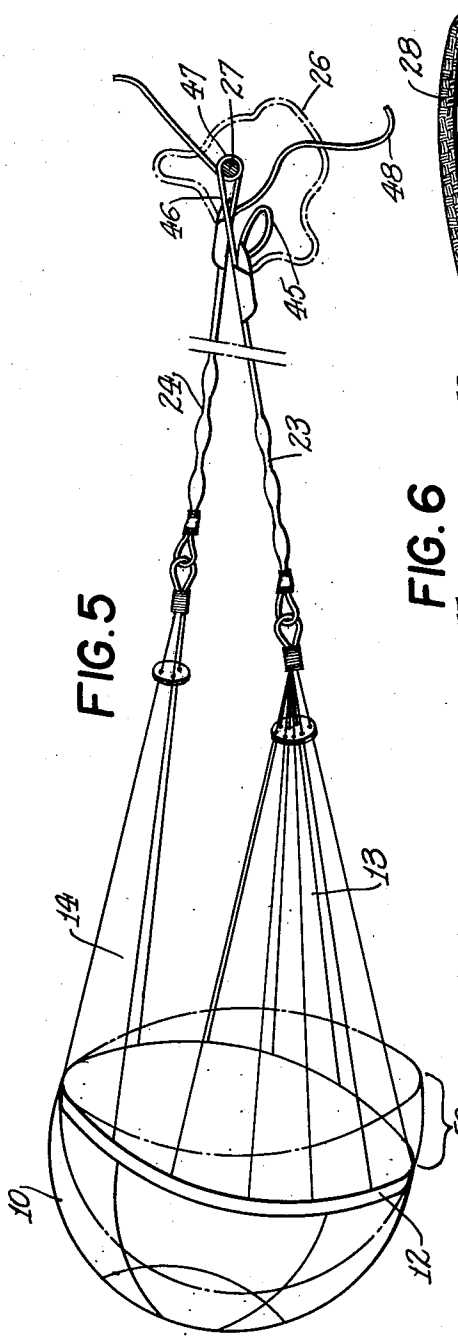


FIG. 5

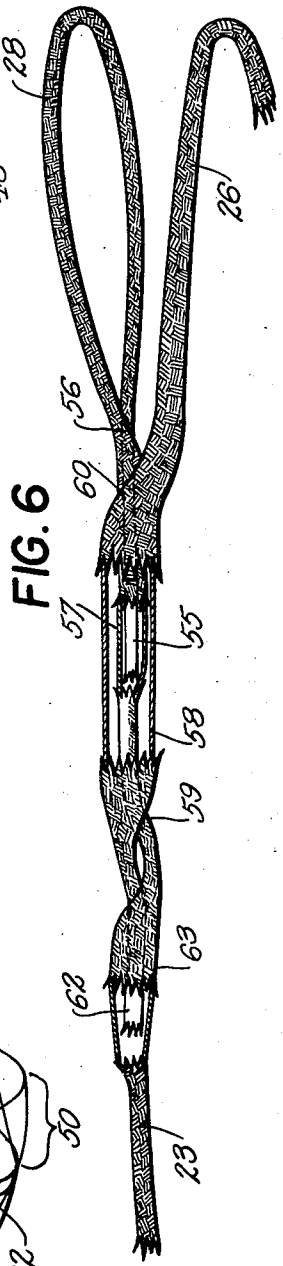


FIG. 6

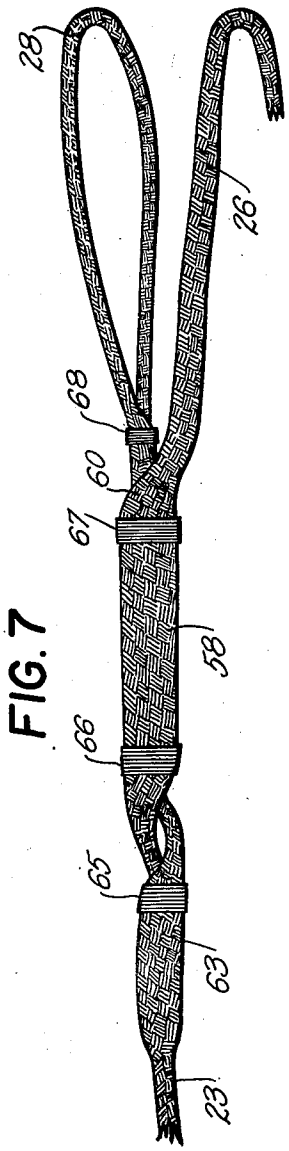


FIG. 7

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SEA ANCHOR APPARATUS

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Application February 25, 1948, Serial No. 10,594

13 Claims. (Cl. 114—209)

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This invention relates to sea anchors and more particularly to the provision of improved gear for such apparatus, i. e. comprising a line arrangement which may be conveniently described as a painter and which serves to secure the anchor to the vessel for the desired retarding function. Although structures of the sort herein disclosed are applicable to a variety of uses and to embodiment with anchors of various types, the improved painter is of special utility in combination with a sea anchor having a parachute-like canopy, preferably a sea anchor of the character disclosed in our copending patent application Serial No. 633,357, filed December 7, 1945.

Although sea anchors have long been used for various purposes, especially to stabilize or hold a ship under abnormal conditions of sea and weather or under other distress conditions, a special problem has usualy been involved in disabling the anchor, i. e. when it becomes no longer desirable to keep the latter in dragging relation to the vessel. Common experience reveals, for instance even in relatively small boats powered by motor or sail, that once a sea anchor is payed out and has extended itself, it is practically impossible to haul in the anchor, e. g. by manual pull. Under such circumstances release of the anchor can only be achieved upon completely disabling its connection, as by cutting the painter line; and of course under such circumstances the anchor itself is almost invariably lost and must later be replaced as a part of the ship's equipment. Furthermore, with sea anchors of types commonly used heretofore the only available function has been to provide a drag in a single direction, for example directly astern of the ship, and thus it has not been possible to make any effective change in the heading or course of the vessel while the anchor was in play.

Accordingly, an important object of the present invention is to make provision, in apparatus of the character described and by means including a novel painter arrangement, whereby a sea anchor may be released or rendered inoperative at a desired time and yet may remain connected to the ship in such condition that it can be hauled aboard for re-use. A further object is to provide new and improved sea anchor apparatus that is effectively secured to the vessel for the intended retarding function and that can be disabled at will without loss of any equipment and particularly without exertion of any extraordinary manual or other force.

Another specific object of the invention is to provide apparatus of the character stated, including a painter arrangement for sea anchors, such that capsize of the anchor canopy can be achieved at a desired time by the agency of the dragging force itself, i. e. so that the anchor remains stable as long as it is needed, but acts to spill itself upon a simple releasing operation.

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Further objects are to provide equipment of the character described wherein more accurate and positive connection of the sea anchor is achieved, permitting it to extend automatically and precisely in a desired relation to the vessel and to the heading of the latter; and to provide such apparatus wherein the position or attitude of the anchor may be adjusted, preferably with the aid or agency of the dragging force, so as to achieve a steering effect for the vessel.

Other objects are: the provision of improved structure for sea anchor painters, specifically in the attachment of loops or other connections to the lines, and more generally in the arrangement of the painter, as by subordinate loops or the like, for ready attachment to a vessel; and the provision, in such lines and accompanying anchor securing means, of structure normally cooperating to maintain the anchor and the several lines in proper position without fouling, such structure being readily and automatically disabled when it is desired to alter the normal position, as for release of the anchor. Another and primary object of the invention is to afford a remarkably simple painter arrangement, in combination with a cooperative and highly efficient sea anchor, whereby the latter may be relieved of its strain, or subjected to a partial spill or a change in direction of drag, without applying any appreciable force.

To these and other ends, including such as will become apparent or are incidental to the use of structures of the character disclosed, certain presently preferred embodiments of the invention are set forth by way of example in the following description and the accompanying drawings, which will therefore serve to illustrate the several features and principles of improvement.

Referring to the drawings:

Fig. 1 is a somewhat diagrammatic plan view showing a sea anchor secured to a vessel in accordance with means embodying the invention;

Fig. 2 is a similarly diagrammatic elevation of the apparatus depicted in Fig. 1;

Fig. 3 is a view corresponding to Fig. 1, but illustrating the general arrangement of parts when the sea anchor has been released, i. e. intentially disabled;

Fig. 4 is a fragmentary detail view of portions

of the painter, illustrating further features and also a somewhat modified structure of securing means;

Fig. 5 is a purely diagrammatic plan view somewhat like Fig. 1, but illustrating certain further features, including the operation of the anchor to provide a steering effect;

Fig. 6 is an enlarged view of a portion of a painter embodying the present invention, with certain layers or parts cut away to illustrate the novel splicing arrangement; and

Fig. 7 is a view of the painter section shown in Fig. 6, but without any portion cut away and with the structure in a preferred, completed form.

It will be understood that generally speaking, a sea anchor has heretofore comprised a canopy or sail arranged with a plurality of short connecting lines to be secured at the end of a long single line which in turn is fastened to the vessel, the whole assembly being intended to be submerged so that, for example as the vessel is driven by the wind, the anchor deploys and in its stretched condition provides a large surface area under the water, in a position to exert a large drag on the ship. The extensible anchor element itself is made of canvas or other flexible fabric of appropriately rugged nature, and in practical effect a sea anchor of proper size and arrangement will produce a snubbing effect sufficient to retard the drift of the vessel under the influence of the wind velocity, i. e., to reduce the wind-driven translation of the vessel very materially. Sea anchors have numerous uses, not only in conditions of distress but also otherwise when it is desired to retard a boat or ship without constant maneuvering or without use of the normal motive power of the given vessel, it being understood that the term "vessel" is used herein to indicate any of a wide variety of kinds and sizes of boats, ships, rafts or other objects with which a sea anchor can be employed.

While the invention is applicable to different types of anchors per se, the drawings are intended to represent, by way of example, the presently preferred structure of our aforesaid application Serial No. 633,357, with which the improved painter arrangement cooperates to achieve certain specific as well as general advantages. Referring, then, to Fig. 1 the anchor itself comprises a fabric canopy **10** having a truly hemispherical shape, e. g. made of sections so cut, proportioned and sewn together that the structure assumes and retains substantially exactly the configuration of a hemisphere, when the device is deployed in use. The canopy **10** has a suitable hem **12** to which are secured, at regularly spaced localities, a multiplicity of shroud lines here divided into two groups **13**, **14**, for reasons more fully described below. The shroud lines are adapted for attachment to a painter or load line structure so that the canopy may bloom in proper fashion under the water, with its axis in a more or less horizontal position or at least at a considerable angle to the vertical.

In further accordance with the preferred structure of the cited copending application, the canopy may carry a weight **15** at its apex, and appropriate floating or buoyant sections may be provided in other parts of the complete assembly, for example in the painter, as also described below; these features cooperate to provide a rapid and effective deployment of the anchor when it is originally payed out, and also to maintain the deployed anchor in optimum, submerged, holding relation. A sea anchor comprising a hemispherical canopy arranged as described has been found to be remarkably efficient, affording a maximum drag or retarding action for its size and weight, and having a remarkable stability, e. g. against forces which might tend to capsize or disable anchors of other types.

In accordance with the present invention, the shroud lines of the anchor are divided into a plurality of groups, preferably two very unequal groups, and a plural painter arrangement is provided, i. e. comprising lines extending separately between the shroud groups and the vessel, each having a substantial load-carrying function. For instance in Fig. 1 a large majority of the shroud lines are clustered in one group **13** and the remaining few in another group **14**, and at their respective apexes the groups have eyes or loops **17**, **18**, to which are linked a pair of loops **19**, **20** of a dual painter arrangement generally designated **22**.

A notably satisfactory construction for the dual painter is in effect a single line arranged in an elongated U-shape providing a pair of painter elements or lines **23**, **24** terminating respectively in the loops **19**, **20**. For securing the painter to a vessel **25**, e. g. at the bow or stern depending upon the direction in which it is desired to have the anchor exert its retarding effect, means are attached to the lines **23**, **24**, at some distance from the apex of their common return bend **26**, for example a corresponding pair of loops **28**, **29** which can be disposed around an appropriate post **27** or the like on the ship. While expediency may warrant the use of other means in some circumstances, or indeed permit the individual line or lines to be simply hitched (as by equipment on the vessel) so that at a later time one line can be slacked off relative to the other, the described loops, e. g. at localities near the return bend **26** and equally distant from the canopy **10** of the anchor, are of peculiar advantage, as will be apparent below. Their attachment or splicing to the lines is preferably of an integral character, as also explained in detail below.

As indicated, the assembly may include buoyant members, preferably at localities found to cooperate in maintaining optimum conditions. For instance each painter line **23**, **24** may include a plurality of spaced buoyant elements **30** (and others not shown), and buoyant disks **31**, **32** may be respectively associated with the groups of shroud lines near the apex of each, to keep the shrouds spaced in proper relation and to afford a lifting force for the desired positioning effect of the anchor. It may be noted, in passing, that in the drawings dimensional fidelity has been somewhat disregarded for clarity of illustration, and that the actual size, length, spacing or other characteristics of the several parts should be selected to suit the circumstances of use, as will become readily apparent to those skilled in the art.

For use of the anchor the loops **28**, **29** are passed over the post **27** with the loop **28**, that is attached to the greater shroud cluster **13**, uppermost, and the bend portion **26** is allowed to lie slack, although preferably passed around the post as shown. The anchor **10** is then payed out, and promptly becomes inflated, so to speak, assuming its desired submerged position (beneath the wa-

ter surface 33) to exert the intended strong drag on the ship as shown in Figs. 1 and 2. If at a later time it is desired to discontinue use of the anchor, all that is necessary is to remove the uppermost loop 28, as by pushing it upward until it falls away from the post 27, or in extreme emergency simply by cutting it away. The line 23 is thus released, and likewise the retaining force on the shroud lines 13, so that the anchor canopy promptly capsizes, with the aid of the pressure of the water on the major part of the canopy to which the lines 13 are connected, the other part of the canopy being still pulled by the lines 14 and 24. The apparatus thus automatically assumes the condition represented in Fig. 3, with its dragging force on the vessel effectively extinguished. Thereupon the equipment may be retrieved without effort, i. e. merely by hauling in the painter in such manner as not to permit any redeployment of the canopy.

To effectuate a complete capsize of the canopy and thus full release of the anchor when one loop 29 is secured and the other allowed to run out from the vessel in the manner described above, the length of the return bend portion 26 in the painter line between the loop connections should be at least about equal to the deployed diameter of the canopy, and may indeed advantageously be somewhat longer. By permitting the bend to lie loosely around the post 27 or other securing means, as shown in Figs. 1 and 2, an additional precaution is obtained against loss of the anchor should the loops fail because of chafing over a long time or should the second loop 29 be freed in some way after the first one has been disabled.

It will now be observed that in the operation above described, the entire force necessary to capsize or deflate the anchor is in effect furnished by the drag of the anchor itself, and yet in its operative and secured relation as actually shown in Figs. 1 and 2, the anchor is positively connected and held in the proper position, in accordance with the predetermined location of the loops 28, 29 on the painter lines, and without requiring any particular care or judgment on the part of attendant personnel.

To keep the shroud clusters of the canopy in proper relation and to avoid impairment of the fully developed disposition of the canopy 10 by reason of any tendency of the painter elements to move apart transversely, a light line 38, for instance a light cotton cord, is tied between the disks 31, 32. Such connection forms a weak or impermanent link which is adequate for the purpose just described; yet upon release of either line of the painter relative to the other, the drag force of the anchor (in bringing about its own partial or complete spill) positively moves the shroud clusters longitudinally relative to each other, and the strain on the line 38 at the inception of such motion will break the line 38, so that there is no interference with completion of the relative movement for release or other desired purpose. Likewise, to prevent fouling or entanglement with other parts of the anchor or of the vessel, especially during launching of the anchor, the two lines 23, 24 may be lightly tied together in spaced relation by suitable threads 39, 39. When stress is applied longitudinally of the painter elements relative to each other, the impermanent links constituted by the threads 39 immediately break and permit the desired change of condition of the canopy 10. It will be understood that by reason of the impermanent and

readily severable character of the links 38, 39 the painter assembly between the anchor and the vessel may be accurately characterized as comprising plural lines extending separately and free from each other throughout the stated distance.

For greater reliability of operation, especially where the shroud lines are simply threaded through holes in the float disks 31, 32 so that the latter might slide longitudinally of the lines, a pair of snubber lanyards 41, 42 are respectively connected between the disks and their attaching loops 17, 18, as shown in Fig. 4. The lanyards limit the movement of the disks from the apex of the shroud lines, and thus serve as retainers to prevent the shortening of the shrouds angularly with respect to the hem of the canopy, i. e. to keep them from being drawn in toward the axis of the latter.

Whereas for some purposes, as in the case of small anchors, a useful structure may be obtained with the shroud groups 13, 14 containing equal numbers of shroud lines, a specific and preferred feature of the invention is to have a substantial inequality between the numbers of shroud lines in the two clusters. For instance as shown in Figs. 1 to 4 the group 13 contains seven lines, while the other group 14 embodies the remaining three. Advantageously the painter line which is to remain secured to the vessel when the other line is cast off or otherwise disabled, should not be attached to the canopy by more than two to four shrouds, and it is ordinarily preferable that the other line connect with at least about three fourths or so of the total number of shroud lines, for instance in the relation illustrated or indeed with more than three-fourths of the entire number. With this construction a very large area of the canopy is freed by the simple operation of disabling the line 23, and not only does the anchor capsize promptly, in effect spilling substantially its whole surface as shown in Fig. 3, but also since very little of the canopy remains in distended relation, the manual or other operation of drawing the anchor and its gear inboard is accomplished easily and with a minimum of effort. If desired to avoid confusion, the line 23 which is to be cast off for the described release of the anchor may be appropriately identified as by color or other marking (not shown), e. g. at or adjacent the loop 28.

An alternative means for attaching the painter structure to the vessel is shown in Fig. 4, and comprises branch lines 43, 44 respectively spliced to the painter lines 23, 24 instead of the loops in Figs. 1 to 3. The branches 43, 44 may be secured to a cleat or pair of cleats, e. g. close to the splices, and for release of the anchor, the branch line 43 is very readily cast off, an easier operation (than to remove a loop) when only a cleat or like device is available for fastening. The return bend 26 may, of course, serve its same safety function and also serve to retain the released cluster of shroud lines in their slackened condition, all as described above.

A further feature of the invention resides in its provision for accomplishing a steering operation, or other change in heading or attitude of the vessel, more specifically, with adjustment or control of the amount and direction of spill of the canopy, i. e. a partial spill, whereby the anchor can be made to yaw in a selected direction. Such effect is accomplished, in principle, by changing the relative lengths of the painter lines, preferably for example by selectively slacking off one line or the other to a predetermined small extent,

It will be appreciated that letting out either line requires no substantial effort.

For instance when using gear of the sort illustrated in Fig. 4, one of the branch lines 43, 44 may be simply slacked off to a slight extent, and then re-secured. The resulting condition is shown in the diagrammatic plan view of Fig. 5 (somewhat distorted for illustrative emphasis), where the painter lines are provided both with fastening loops 45, 46, and with supplemental branch splices 47, 48. Specifically with this construction, by snubbing the line 47 around the post 27 (or an adjacent cleat, not shown) at the time of original attachment or later, it is then possible to release the loop 45 and permit one side of the canopy to fall back, relative to the other, to the short extent designated 50. The result is a small, partial spill of the canopy and in consequence of the angular difference between the new axis of the canopy and the direction of the painter lines, a turning moment is created, tending to change the heading of the vessel, e. g. in a direction opposite to the painter lead whose length was affected.

By the same token, such turning moment may be interrupted by restoring the original squared-off position of the anchor, i. e. by slacking off the other painter line 24 or otherwise re-establishing equal lengths for the lines. Thus the other line can be let out to the required extent by releasing the loop 46—cutting it if necessary—and re-securing the line by means of the branch 48.

If a turning moment in the opposite direction is wanted, the line 24 can be correspondingly or further payed out, either directly by slacking off on the branch 48, or by releasing the loop 46 in the manner just described if it has not already been disabled. With instrumentalities of this sort, the anchor can be employed to furnish a drag steering, so to speak, in situations where the vessel has lost its rudder or a propeller. Not only may the heading of the vessel be changed, but the turning tendency of the unbalanced anchor may in some circumstances be employed to counteract an opposite and undesired effect, e. g. due to natural conditions, or to peculiar damage of the ship, or the like.

It will be understood that the steering operation may be achieved in other ways, e. g. by other arrangements for adjusting the relative disposition of the painter elements. Thus in the case of large vessels and sea anchors of corresponding magnitude, the branch lines 43, 44 are apt to be too cumbersome for simple manual handling, but the described operations can be performed very satisfactorily by winches or other suitable tackle or gear which the ship may carry for hauling in or slacking off a loaded line.

Figs. 6 and 7 illustrate a particularly advantageous manner in which connecting elements such as the loops 28 and 29 may be spliced to the painter body with the latter continuing in effect as a single line, e. g. around the bend 26, although it will nevertheless be understood that other splices or attachments may be employed while still realizing the general advantages of the improved painter. In the structures of Figs. 6 and 7, the line or cord of which the painter and its loops is fashioned conveniently comprises a tubular, braided line of nylon or other suitable material. Nylon line of this character is extraordinarily strong and durable, and resistant to the influences which tend to deteriorate other cordage at sea. It may also be noted that the splicing structure described below avoids the use of knots or hitches, which are apt to constitute points of weakness.

As will be apparent from Fig. 6 the line portion 23 and the return bend 26 are in actuality separate lengths of cord, the loop 28 being fashioned at the extremity of the line portion 23. More specifically the loop 28 may first be completed by forming the necessary bight and then disposing the end 55 of the line telescopically within the standing part of the line 23, the end 55 being conveniently inserted between temporarily separated strands of the braided tubular fabric as at 56 and pushed into the interior of the standing part, in a direction away from the bight, or more preferably drawn several inches within the portion 57 by the aid of a suitable instrument which can in turn be withdrawn through another temporary separation in the tubular housing. Thereupon the now loop-ended line 23 may be drawn telescopically into, through and out of a portion 58 of the return line 26, the strands of the tubular fabric of the latter being parted for such purpose at 59, 60. To complete the splice in a firm and secure relation an outer or extreme portion 62 of the return line 26 is then inserted and drawn into a portion 63 of the main painter line 23, such portion 63 lying on the other side of the portion 57 from the loop 28. It will be understood that the described telescopic relationships may be achieved by carrying out the operations in other sequences, but in any event the ultimate relation of the several sections or portions of line to each other is peculiarly snug and secure, and exertion of force lengthwise of any continuing line serves only to tighten the telescoping parts against each other, particularly by virtue of the braided nature of the cord. While arrangements of other dimensional values may be employed, depending upon the conditions of service, it has been found that for many purposes each telescopic overlap will be eminently satisfactory if it has a length of eight to twelve inches.

Fig. 7 shows the completed splices in external view, but with the widths and diameters of the line portions somewhat exaggerated. Preferably each terminal region of a telescoped connection, i. e. each junction of the splice, is moused to prevent fraying or accidental separation in service. Thus as shown in Fig. 7, mousing may be provided at the localities 65, 66, 67 and 68, i. e. binding each outer tubular fabric around the locality where another portion of tubular cord enters the outer member.

Conveniently other loops and connections of the painter assembly may be secured by similar splices. For example, the loops 19 and 20 may be fashioned in an identical manner to the arrangement of the loop 28 at the end of the line 23, with suitable external mousing; and it will of course be understood that the construction of the loop 29 is conveniently the same as that shown in Figs. 6 and 7 for the loop 28, and likewise the arrangement of the branch lines 43 and 44 relative to the main painter lines and the return bend 26 in Fig. 4. Splices of this character have been found peculiarly rugged, and yet compact and highly flexible, so that they are adapted for easy handling under all conditions of service.

It will now be seen that the present invention provides improvement in sea anchor equipment in a number of respects, and in particular, affords a novel arrangement of painter or like gear whereby the anchor is not only effectively secured in its desired, retarding condition, but may be

released or upset, so as to spill its drag resistance, at any desired time and without actual loss of the anchor body. Furthermore, provision is made for realization of an effective steering operation with a sea anchor, especially of the described type, and thus the function and utility of such devices are correspondingly extended. Finally, the novel painter construction is relatively simple and inexpensive, easy to manufacture and yet capable of long and reliable service.

It is to be understood that the invention is not limited to the specific embodiments herein shown and described, but may be carried out in other forms without departure from its spirit as defined by the following claims.

We claim:

1. In combination with a sea anchor comprising a hemispherical canopy made of flexible material and having a flexible hem edge and having a multiplicity of shroud lines attached to said hem edge at spaced localities around said hem edge, painter means for securing said anchor to a vessel at a desired distance therefrom, comprising a plurality of lines respectively connected to separate, greatly unequal pluralities of said shroud lines and adapted to extend separately to the vessel and to be there fastened to maintain the anchor in extended, operative condition at said distance.

2. In combination, a sea anchor having a canopy of flexible material and having a flexible hem edge, two groups of shroud lines connected to said hem edge at respectively different regions, said regions respectively including localities laterally spaced by the diameter of said hem edge, and painter means for the anchor, comprising a line which is disposed in U-shape and thereby constitutes a pair of line elements, said line elements being connected at their remote ends respectively to said groups of shroud lines of the sea anchor and being thereby connected to said anchor at said laterally spaced localities, for support by each of said line elements of a substantial portion of the load of said anchor, and a pair of connecting means respectively attached to said line elements at points which are remote from the aforesaid ends and which are separated from each other, around the bend of the U, by a distance at least as great as the lateral spacing between the aforesaid connecting localities of the sea anchor.

3. In combination a sea anchor having a canopy of flexible material and having a flexible hem edge, and painter means for the anchor, comprising a line which is disposed in U-shape and thereby constitutes a pair of line elements, said line elements at their remote ends respectively having means respectively connecting said line elements to the hem edge of the sea anchor at laterally spaced localities, and a pair of loops respectively attached to said line elements at points near the bend of the U, separated by a distance at least as great as the lateral spacing between the connecting localities of the sea anchor.

4. In combination with a parachute-type sea anchor having a canopy of flexible material and having a flexible hem edge and having a multiplicity of shroud lines connected to said hem edge at spaced localities around said edge, painter means comprising a pair of lines adapted to extend separately to a vessel to which the anchor is to be secured, each of said painter lines being connected to a corresponding plurality of shroud lines, one of said painter lines being connected to a substantially greater number of shroud lines than the other.

5. In combination with a sea anchor having a hemispherical canopy of flexible material and having a flexible hem edge and a multiplicity of shroud lines connected to said hem edge at spaced localities around said edge, painter means comprising a pair of lines adapted to extend separately for securing the anchor, one of said painter lines being connected to not more than about one fourth of the shroud lines and the other painter line being connected to not less than about three fourths of the shroud lines.

6. In combination with a sea anchor having a hemispherical canopy of flexible material with a flexible hem edge and having a multiplicity of shroud lines therefor, divided into two greatly unequal clusters each having a separate apex, painter means comprising a pair of lines respectively fastened to the clusters of shroud lines and adapted to extend separately to a locality remote from the anchor, and means attached to the lines at said locality for securing the lines to a vessel to hold the canopy in extended position with its axis approximately parallel to the lines.

7. The combination of claim 6 wherein said last-mentioned means comprises a pair of loops respectively attached to the lines at equal distances from the canopy, and wherein the painter means includes a line connecting the aforesaid lines between the localities of attachment of the loops and having an extent at least as great as the width of the canopy.

8. The combination of claim 6 wherein said last-mentioned means comprises a pair of branch lines respectively attached to the first-mentioned lines at equal distances from the canopy, and wherein the painter means includes a line connecting the first-mentioned lines between the localities of attachment of the branch lines and having an extent at least as great as the width of the canopy.

9. A painter for a sea anchor, comprising a pair of lines adapted for connection to the anchor at one end of each and having a corresponding pair of loops at the other end of the lines, said lines having a line connection at their said other end between the localities of attachment of the loops to constitute the lines of a continuous U-shaped element, both of said lines and said line connection comprising tubular cords, each loop comprising a bight in its line and having the end of the bight telescopically and rearwardly disposed within a portion of the standing part of such line through an opening in said standing part, said last-mentioned portion of each line passing telescopically within a portion of the line connection through substantially spaced apertures in the latter, and each end of the line connection being telescopically and rearwardly disposed in the adjacent line through an opening in the latter on the other side of said spaced apertures from the loop.

10. In a painter or the like in combination, a line of braided tubular cord having a loop at its extremity, the end of line being telescopically disposed within a portion of the standing part of said line, and a second line of braided tubular cord, the aforesaid portion of the first line passing telescopically within a portion of the second line spaced from the end of the second line, and the end portion of the second line being telescopically disposed within another portion of the first line on the other side of the first-

mentioned portion from the loop, whereby said lines are spliced together with each other and with the end and standing part of the loop, to constitute in effect a continuous knot-free line having an integrally attached loop, and in each of said telescopic dispositions each passage of the inner, telescoped line section through the wall of the cord which is the outer, enveloping line section, being constituted by passage of the inner section between separated, unbroken strands of said wall, all of the strands of such wall remaining intact at each locality of such wall passage.

11. The apparatus of claim 4 which includes means extending from one plurality of shroud lines to the other and including a readily separable connecting element, for impermanently tying said shroud line groups to each other, in spaced relation, at localities near their connections to the painter lines, said connecting element being separable in response to displacement of one painter line lengthwise relative to the other, to permit mutual separation of the shroud line groups when one of the painter lines is released from attachment to the vessel.

12. The apparatus of claim 11 wherein the connecting element comprises a light line extending between the shroud line groups and adapted to break under the force of drag of the anchor portion which is connected to the released painter line.

13. The apparatus of claim 4 which includes a plurality of light lines extending from one painter line to the other at spaced localities along the painter lines, said light lines impermanently

holding said painter lines in spaced, proximate relation to each other, and said light lines being adapted to break under the force of drag of the anchor exerted upon one painter line relative to the other when the first painter line is released from attachment to the vessel.

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