

(No Model.)

2 Sheets—Sheet 1.

H. SCHOENING.

SEA ANCHOR OR DROGUE.

No. 346,689.

Patented Aug. 3, 1886.

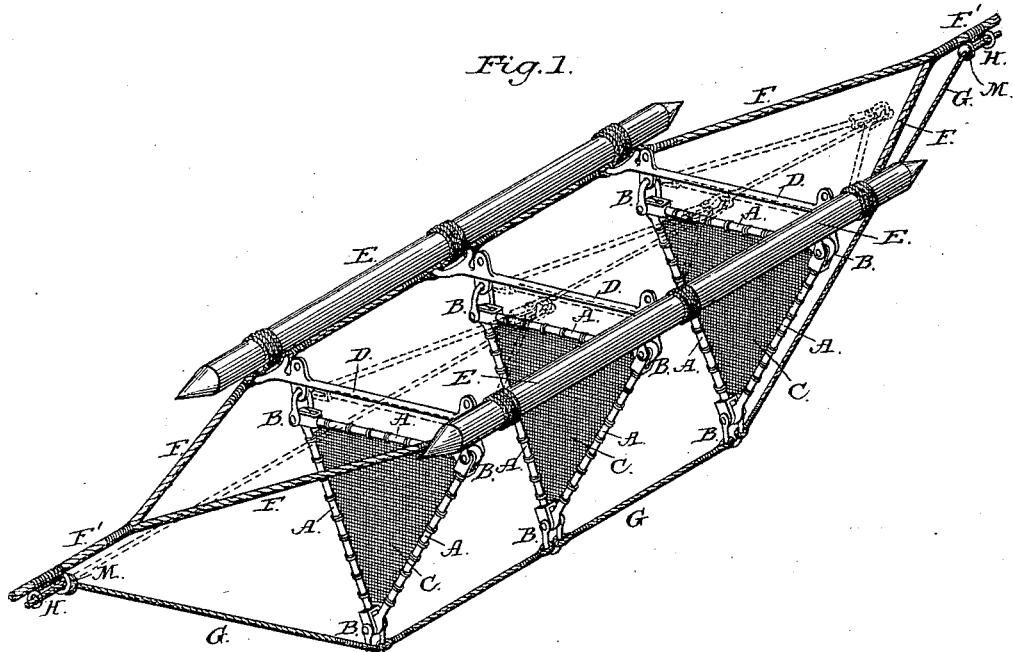


Fig. 1.

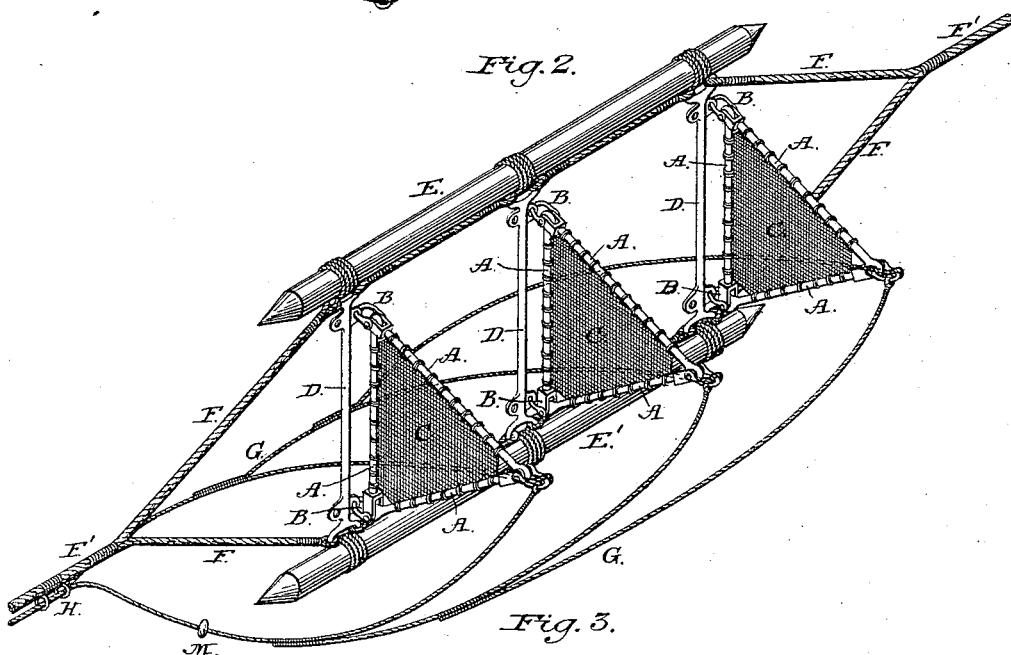
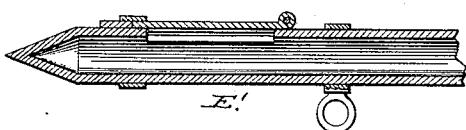


Fig. 2.

Fig. 3.

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Fig. 4.

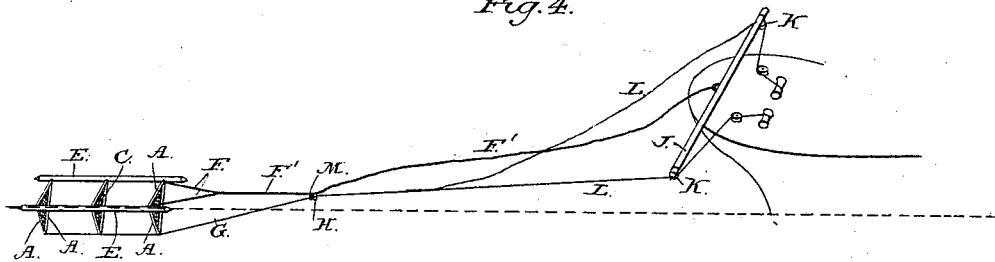


Fig. 7.

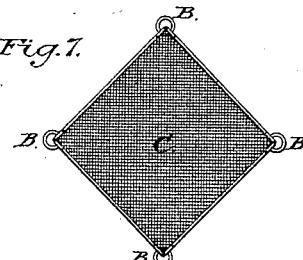


Fig. 8.

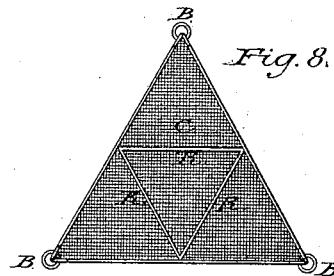


Fig. 5.

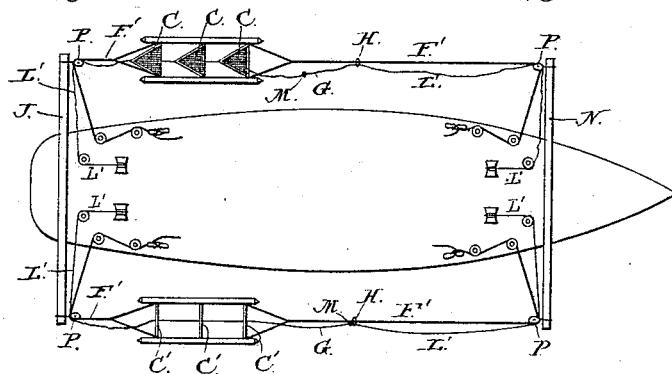
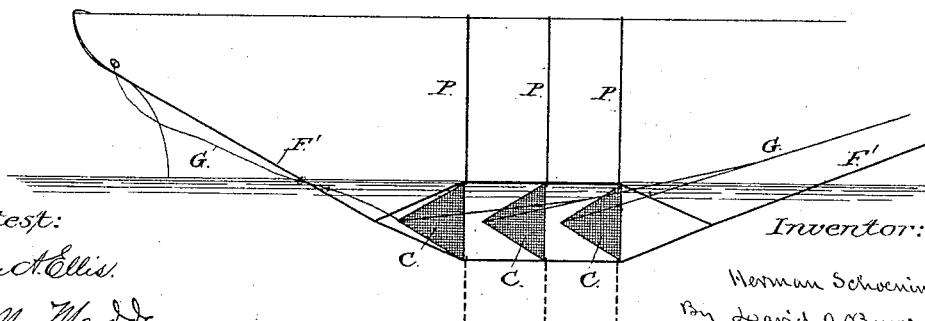


Fig. 6.



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UNITED STATES PATENT OFFICE.

HERMAN SCHOENING, OF ANTWERP, BELGIUM.

SEA ANCHOR OR DROGUE.

SPECIFICATION forming part of Letters Patent No. 346,689, dated August 3, 1886.

Application filed March 22, 1886. Serial No. 196,087. (No model.)

To all whom it may concern:

Be it known that I, HERMAN SCHOENING, a resident of Antwerp, in the Kingdom of Belgium, have invented a new and useful Improvement in Sea Anchors or Drogues Adapted for Use as a Jury-Rudder; and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, and to the letters of reference marked thereon, making a part of this specification, in which—

Figure 1 is a view in perspective of my improved drogue or jury-rudder; Fig. 2, a similar view illustrating a modification thereof; Fig. 3, a detached longitudinal section of one end of a hollow metallic spar adapted for use with my drogue; Fig. 4, a diagrammatic view illustrating the use and operation of my drogue as a jury-rudder in steering under headway; Fig. 5, a similar view illustrating the use of two of my improved drogues for steering under either headway or sternway. Fig. 6 illustrates in like manner the attachment of my apparatus directly to the sides of the ship. Fig. 7 illustrates a square wing for the apparatus, and Fig. 8 a method of strengthening the frames for wings of large size.

It is customary with seamen when the rudder becomes disabled to steer the ship by towing a drogue astern, and to shift this drogue from side to side, according to the direction the ship's head is wanted. The resisting force of the drogue is thus brought to bear constantly in opposition to the headway of the vessel, whether changing her course or not.

The object of my invention is to provide a simple and effective apparatus for steering a vessel in case of accident or derangement of the rudder, which may be conveniently and compactly stored on board ship, or may be improvised out of materials at hand in all well-equipped vessels, and which can be quickly put into operation, be used under headway or sternway at will, offering, as in the case of the rudder, but slight resistance to the headway of the vessel when not brought into action to change her course, and which may also, when required, be used as an effective drogue.

My improved drogue and jury-rudder consists of a series of wings, preferably of a triangular form, which may be constructed of an open frame covered with canvas, or of light

metal. The frames may be formed simply of iron bars connected at their ends to form the angles of the frame by eyes, through which 55 screw-shackles or other suitable links are passed, and when the apparatus is not in use these rods or bars may be separated and folded up so as to take but little space. The canvas may be lashed by cords to the iron rods, so as 60 to present an extended flat surface commensurate with the area of the frame. While it is generally preferable to make these wings of a triangular form, this form is not essential to the invention. In constructing the apparatus 65 a series of these wings are attached to floats or a buoyant body, so as to cause one angle or one side of the wing to remain at the surface of the water, leaving the body of the wing free to turn and present one edge only to the line 70 of draft. Where one corner only is thus buoyed, the opposite corner or side of the wing is weighted, so that it shall drop in a line perpendicularly beneath the buoyant corner, this line serving as an axis upon which the wing is 75 free to turn, so as to present its edge to the line of draft. When one side of the wing is buoyed, that side becomes a horizontal axis upon which the wing may turn. The buoyed edge or corner of each of the wings is made fast to a 80 line, which I call the "tow-line," and which is designed to be made fast to the stern of the vessel, so that the wings shall be towed thereby at a uniform distance apart. The free corner of each wing is also made fast to a line, 85 which I denominate the "adjusting-line," and which, if made taut, will serve to draw the wings each into a plane at an angle to the line of draft.

In the accompanying drawings, A A A represent iron rods or bars, which are united at their ends to each other by means of shackles or rings B B, so as to form the triangular frames, as shown in Fig. 1. C C represent pieces of canvas, lashed or secured to said 95 bars so as to wholly cover the frames. These frames so covered constitute the wings of my apparatus. One edge of each triangle is attached at each of its ends to a bar, D, by means of rings or shackles, so that it shall be free to 100 swing upon said bar. The bars D D are then lashed at each end to two buoyant spars, E E, (see Fig. 1,) placed parallel with each other at a right angle to the bars D. Said spars serve

to prevent the triangular wings C C from twirling and twisting and becoming entangled with the steering-rope and tow-line, and they will assist also in the working of the device by giving it greater stability. If, however, no spars are at hand, the upper edges of the wings C C or the bars D, to which they are pivoted, may be secured to cork fenders or to a life-raft or other buoyant object adapted to keep the upper towing corners or edges above the swinging corners or edges. The upper corners of each wing are made fast to lines F F, and these are united at one or both ends of the apparatus to a single strong rope, F', which serves as the tow-line. The remaining free corner of each triangle is attached to a single line, which constitutes the adjusting-rope G. The tow-line is provided with a ring or thimble, H, in its length, and the adjusting-rope is led through this ring or thimble and formed with a knot, M, interposed between the ring H and the wings C C, so that when the wings are drawn through the water by the tow-line they will, if the adjusting-rope be left slack, swing back freely into a plane parallel with the line of draft, (see dotted lines, Fig. 1;) but when the adjusting-rope is pulled taut the knot will engage the ring or thimble, and the wings be drawn and made to swing into a position each in a plane at an angle to the line of draft, so as to offer the greatest possible resistance thereto. (See positive lines, Fig. 1.) Instead, however, of supporting the pivotal side or edge of each wing in a horizontal position, I contemplate, as a modification of the device, attaching one corner only of each wing C to a buoyant spar, E, and attaching one of the opposite corners to a weighted spar, E', (see Fig. 2,) or other weight, which shall operate by its gravity to keep the intermediate side of the triangle constantly in a vertical position, this side or edge becoming the axis upon which the wing is left free to swing. The tow-line is secured to the buoyant spar or to the upper angles of the several wings attached to said spar, while the adjusting-line is attached to the free corners of the wings, so that by pulling upon the steering-line the wings may be made to turn upon their vertical axis and brought into a plane at an angle with the line of draft. With this form of the improved drogue or jury-rudder the ship may be steered by bringing the wings to an inclination of forty-five degrees with the keel-line of the ship, whereupon the apparatus will be caused to sheer off to one side, and in thus sheering to one side will draw the stern of the ship in that direction, and consequently steer it. In this form of the apparatus it is evident that the wings may be made square or rectangular in form, the two opposite corners of the square being connected, respectively, the one corner with the buoyant spar or float and the other with the weighted spar or weight.

In the use of my improved winged drogue or jury-rudder in either of its forms, in steering a ship under headway, a spar, J, having a

block, K, lashed to each end, is rigged transversely across the taffrail, and steering-ropes L L are rove through the end blocks and spliced to the end of the adjusting-rope G, (see Fig. 4;) or the blocks K K may be made fast to the sides of the ship, the use of the spar merely serving to render the apparatus more effective. The tow-line F' of the drogue is made fast at the center of the ship's stern, and is given slack enough to allow the wings C C to drift and be towed some distance astern. The adjusting-rope G is left slack enough to permit the wings to swing back free as they are towed by the tow-line. The inner ends of the two steering-ropes L L are carried from the blocks K K to the steering-winches on board ship, and the apparatus is then ready for use. So long as the steering-ropes L L are left slack, the wings C C, swinging free, will offer but little or no resistance to the headway of the ship; but so soon as the ship's head comes off her course a pull upon the steering-rope L on the side to which the ship's head is wanted until the tow-line F' becomes slack by reason of the engagement of the knot M in the adjusting-line G with the ring H on the tow-line will cause the wings to be drawn into a position transverse to the line of draft, so as to offer the greatest possible resistance, and by reason of the strain thus exerted upon the steering-line drawn taut, the ship's stern will be swung to that side, thereby throwing the bow of the ship toward the proper course. So soon as the ship is upon her course again, the steering-rope may be slackened, and the wings will then again swing out edgewise and the apparatus fall back into a central position, to be drawn by the tow-line.

When it is required to steer both for headway and sternway, a second spar, N, (see Fig. 5,) in addition to that rigged transversely at the taffrail, is rigged as far forward as convenient. Both the stern and forward spars, J and N, are fitted at each end with double blocks P P. Two of my improved winged drogues fitted as above described, but provided with adjusting-ropes and tow-lines extending from each end thereof, are now floated on each side of the ship, and the tow-lines from each end of each drogue are severally rove through one of the sheaves of each of the double blocks P P on the two spars J and N, and made fast so as to remain taut, and steering-ropes L' L' are led through the second sheave in the blocks at each end of the said spars, and thence to a winch or winches on board, by which to draw upon them when required. When it is desired to steer under headway, the steering and adjusting ropes at the rear ends of the two drogues are left slack enough to allow the wings to swing forward into a perpendicular position, all further slack being taken in and stopped, to prevent the ropes from fouling with the propeller. So long as the forward steering-lines are thus left slack, the wings on each side of the ship will swing free; but by pulling the steering-line on the one side or the other, the

wings to which they are fitted being thereby drawn into a position at an angle to the line of draft, (see at C' C', Fig. 5,) will cause the ship to swing in that direction. When, however, the ship has sternway instead of headway, this arrangement is reversed, the rear steering-lines are left slack and the forward steering-lines are taken up so as to leave only sufficient slack therein to permit the wings to be drawn backward into a transverse position by tension upon the rear steering-lines, which tension being exerted on the steering-line upon one side or the other will operate to bring the wings into effective position on that side, and thereby steer the ship.

Where spars are wanting, the apparatus may still be used by lashing a set of wings firmly against the ship's side, as shown in Fig. 6, by passing the tow-lines from one end of each set well forward and making them fast, and the tow-lines from the opposite ends back under the counter and there making them fast, and then passing lashing-ropes P P around the ship to bind the wings to the sides, so that they will hang and play like swinging doors against the ship's side. Steering-ropes G G are then led therefrom both forward and back and carried to the winch, so as to be tightened and slackened as occasion requires, in manner as above described. In this case the ship itself serves as the supporting float for the wings as an equivalent for a spar.

When it is desired to use the apparatus as a drogue, it is only necessary to make the steering-line fast, so as to maintain the wings in an outstretched or transverse position, and to allow the apparatus thus spread open to float in the customary manner. Any number of wings may be thus connected in order to obtain the amount of resistance required to prevent the ship from falling into the trough of the sea.

To facilitate the construction of my improved drogues on board ship I provide spars made hollow, so as to be buoyant and adapted to be opened at one end to permit of being filled with ballast, and be thereby converted at will from a buoyant spar to a weighted spar, as shown in Fig. 3. In constructing large frames for the wings I insert braces R R between the outer bars, A A, as shown in Fig. 8.

I am aware that a marine drag has been devised consisting of a flat plate or wing buoyed at one side, and having a tow-line made fast to short ropes of equal length extending to each of its four corners, and which is provided with a separate tripping-line attached to its upper buoyed side, whereby tension upon the line will cause the flat plate to swing to an angle from the perpendicular, to facilitate drawing it back to the ship, as described in Letters Patent to A. F. Lewis, No. 11,555; but my invention differs therefrom, in that each wing in my drogue is attached at its buoyed edge or corner to the tow-line, so that when left free to be held by the tow-line alone, the wing will automatically swing into a plane of least resistance coincident with the line of

draft, and that it is brought to a plane of greatest resistance transverse to the line of draft by tension upon the adjusting-line, the adjusting-line being provided with a stop which prevents the wing from being drawn too far, so as to carry it beyond this plane of greatest resistance.

I claim as my invention—

1. The combination, in a drogue and jury-rudder, of a flat wing, a float or buoyant support to which one side or corner of the flat wing is pivoted, and by which it is fixed, and an adjusting-line attached to one of its unsupported sides or corners, substantially in the manner and for the purpose herein set forth. 75

2. The combination, in a drogue and jury-rudder, of a series of wings pivoted by one edge or corner of each to and between parallel spars, with freedom to swing between said spars into a plane coincident with the line of draft, a tow-line connecting the upper sides or corners of the wings, and an adjusting-line connecting the free corners or sides of the wings, substantially in the manner and for the purpose herein set forth. 85

3. The combination of a series of wings, a buoyant spar attached by a pivotal connection to one corner or side of each of said wings, a weighted spar attached by a pivotal connection to an opposite corner of each wing, one or more tow-lines connecting the buoyed corners or sides of said wings, whereby said angles or sides are held stationary in the water, 95 to permit the wings to swing out therefrom to the position of least resistance when drawn by the line through the water, and one or more adjusting-lines attached to the free corner or edge of each wing, and which, when 100 made taut, shall operate in connection with the tow-line to draw said wings each into a plane at a right angle to the line of draft, so as to offer the greatest possible resistance, all substantially in the manner and for the purpose set forth. 105

4. The combination of a flat wing, a float or buoyant support to which one side or corner of the wing is pivoted, a tow-line secured to the pivoted side or corner only of the wing 115 to make it fast to the ship, a ring on the tow-line, an adjusting-rope led from the ship through the ring and secured to a free unsupported side or corner of the wing, and a stop or knot formed on the adjusting-line between 120 the ring and the wing, to engage the ring when the free side or corner of the wing has been drawn into a plane transverse to the direction of draft upon the tow-line, substantially in the manner and for the purpose herein set 125 forth.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

HERMAN SCHOENING.

Witnesses:

J. F. ACKER, Jr.,
S. M. MADDEN.