Sept. 2, 1969 J. B. LAWSON 3,464,379

SPINNAKER POLE

Filed Feb. 15, 1968 3 Sheets-Sheet 1

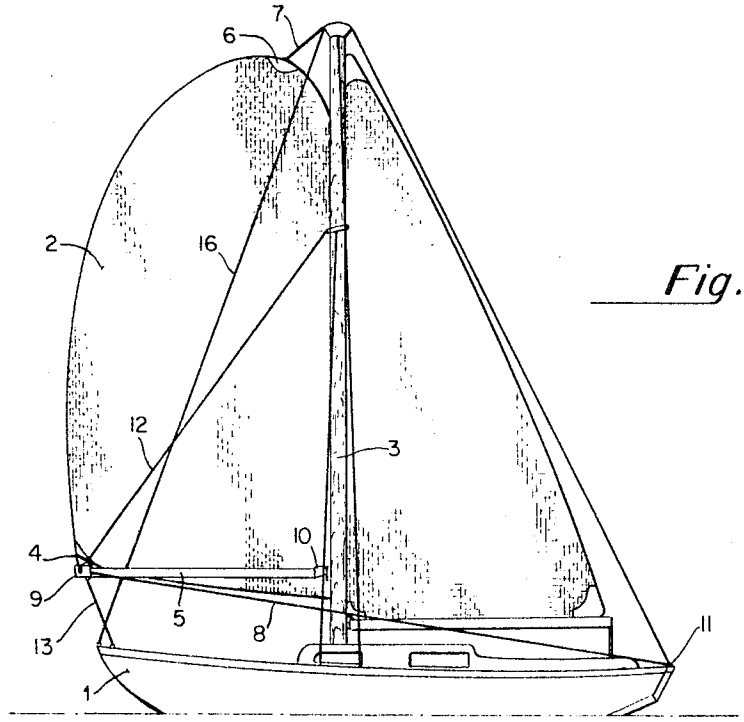


Fig. 1

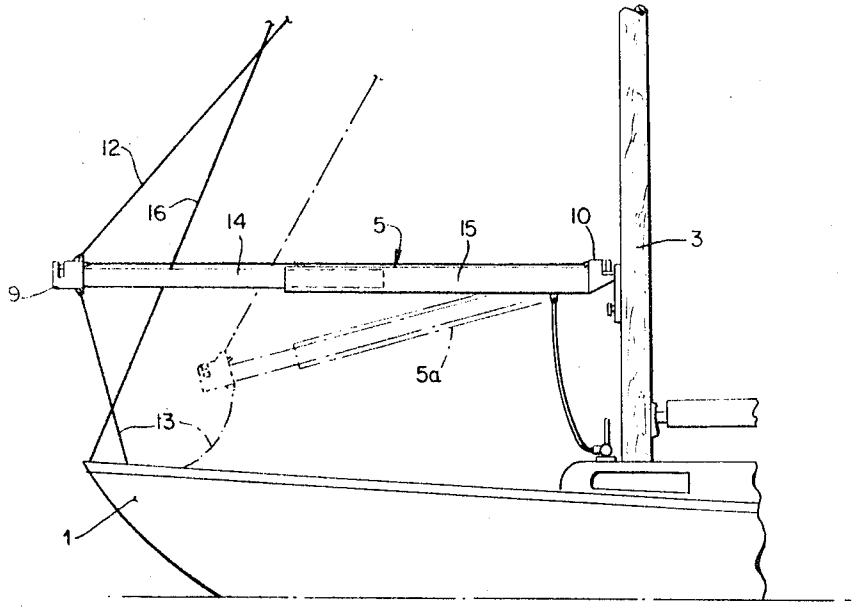


Fig. 2

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SPINNAKER POLE

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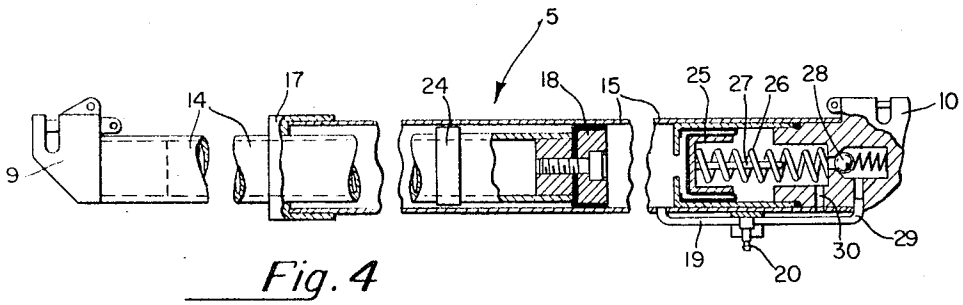


Fig. 4

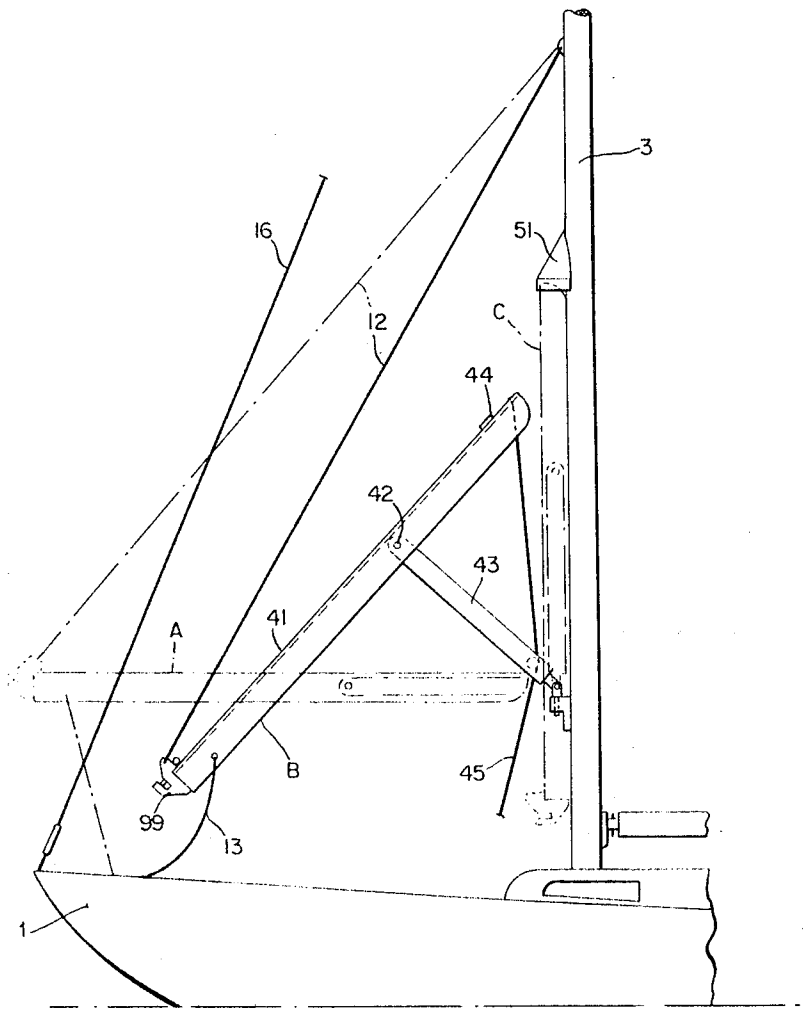


Fig. 3

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SPINNAKER POLE

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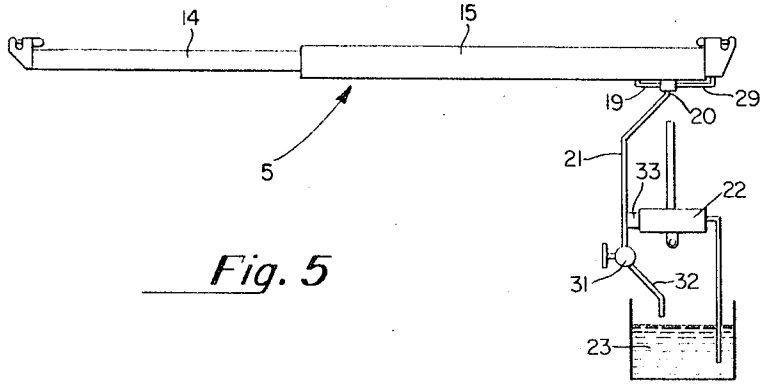


Fig. 5

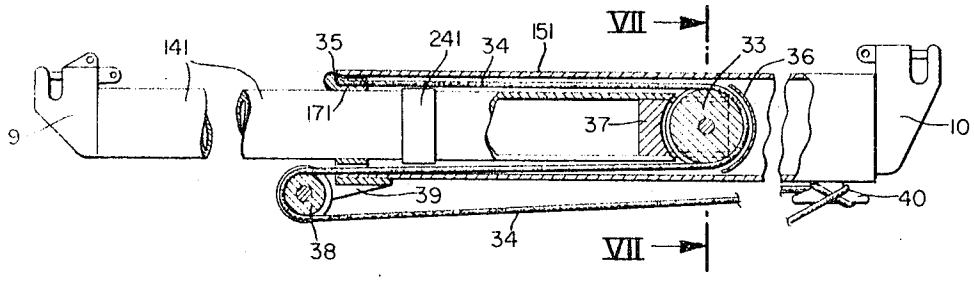


Fig. 6

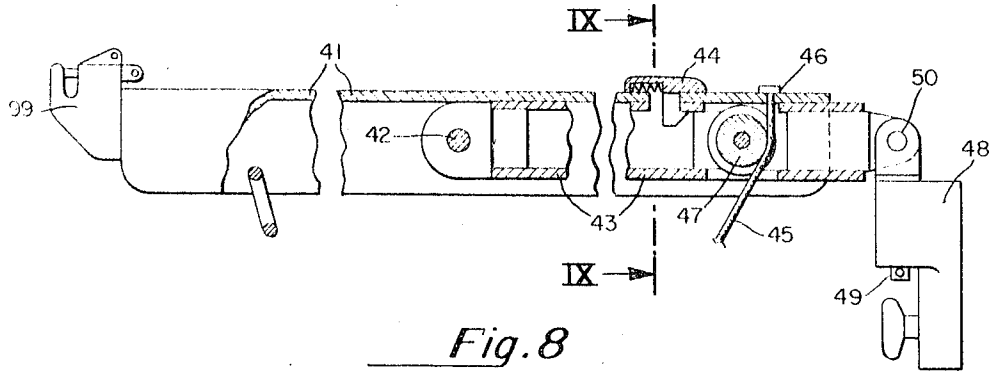


Fig. 8

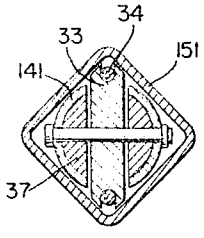


Fig. 7

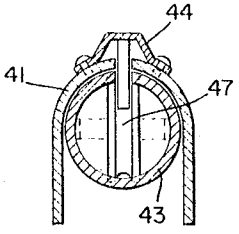


Fig. 9

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3,464,379

SPINNAKER POLE

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Int. Cl. B63h 9/04
U.S. Cl. 114—102 8 Claims

ABSTRACT OF THE DISCLOSURE

A sailing craft having a deck, mast and forestay is provided with a spinnaker pole which may be shortened telescopically or by folding. Mechanical and hydraulic devices control extension and contraction.

This invention relates to a spinnaker pole (boom) designed to reduce the physical exertion, fatigue and danger normally associated with spinnaker handling on medium and large size sailing craft. The new pole helps make experts out of the average week-end or occasional sailors through simplifications in spinnaker procedures.

Very broadly, this invention relates to spinnaker poles which can be either folded or telescoped in a controlled manner to shorten or lengthen them as required to make line-handling easier, and to make it possible to swing the pole past the forestay during jibing maneuvers without additional adjustments. Further, one embodiment of this invention relates to a pole which can be stowed on the mast and therefore never need be handled in an unsupported state.

BACKGROUND OF THE INVENTION

When sailing before the wind or when the wind is abaft the beam, it is often desirable to carry a large triangular sail known as a spinnaker from the foremast. This sail requires a pole which extends from the mast to one corner of the sail, called the tack, for control. On medium size and larger boats, spinnaker pole handling requires considerable skill, effort and precision on the part of the crew and can present certain risks and difficulty, for the pole may be quite long and heavy, making it awkward to handle. The pole is customarily stored on deck, clipped into fittings provided, or otherwise lashed down. As a boat approaches a situation where it is desired to carry a spinnaker, the pole must be released from its storage place, handled in an unsupported condition on what may be a pitching deck, and positioned, so one end can be clipped into a small fitting on the mast. Then lines must be fastened to the other end of the pole and adjusted to hold the pole in its proper position.

With the spinnaker set and drawing, it is often necessary to alter course to cross the wind, requiring a jibe, which maneuver necessitates that the spinnaker pole be shifted from one corner of the sail to another. In the past, jibing of the spinnaker has been accomplished one of several ways, all of which require skill, physical dexterity, and involve a certain amount of risk.

One method of jibing the spinnaker is to remove the end of the pole fastened to the mast from same and clip that end to the free corner of the sail, then to remove the end of the pole which was fastened to the sail from same and move that end of the pole back where it can be fastened to the fitting on the mast. Although, during the maneuver just described, the weight of the pole may be supported by a topping lift, when the pole is off the mast, it can swing violently and can present problems in manipulation. Further, in a fresh breeze it is often difficult to refasten the pole to the mast against existing pressures and there is the additional hazard removing the pole from the mast against the same forces.

Another way to jibe a spinnaker is to raise the mast end of the pole up the mast track for a sufficient distance to make it possible to pass the forward end of the pole through the triangle formed by the forestay, the deck and the mast, and then sequentially to lower the end of the pole fastened to the tack of the sail by releasing the topping lift, then release the tack of the sail from the pole, then pass the pole to the free corner (clew) of the spinnaker, then fasten the pole to the new corner, and then to reset the pole by readjusting the topping lift and sliding the pole back down the mast track. While this latter method provides better pole control, it requires considerable skill and timing and, if not performed smoothly, can result in a spinnaker wrapped around a stay.

Further, when it is decided to remove the spinnaker, the tack of the sail must first be released from the pole which is often difficult due to the length of the pole, and before the boat is again fully maneuverable, the pole must be released from the mast and returned to its storage position on the deck, and finally all the lines used must be straightened out so they will not foul with the working lines of the new sail plan.

SUMMARY OF THE INVENTION

It is an object of this invention to provide a new spinnaker pole which serves to simplify the maneuverings referred to, and to provide a pole which is capable of simple adjustment to shorten it for jibing, removal and/or setting of the spinnaker. It is a further object to provide a spinnaker pole which may be stored on the mast and which need not be released from the mast, and which is accordingly easy and safe to handle. These objects are accomplished by providing, in a sailing vessel having a deck, a mast and a forestay, a spinnaker pole constructed for attachment to the mast at a point spaced above the deck, and having a total extended length that is greater than the minimum distance from said mast attachment point to the forestay, said pole including means for shortening the effective length of the pole so that it can be shifted between extreme port and starboard positions while wholly within the triangle defined by the deck, the mast and the forestay.

These and other objects of this invention will become apparent hereinafter and in the drawings, of which:

FIG. 1 is a view in side elevation of a sailing craft with a spinnaker set and drawing;

FIG. 2 is a view of the foredeck portion of the craft appearing in FIG. 1, showing details of a collapsible spinnaker pole utilizing the features of this invention;

FIG. 3 is a view similar to FIG. 2, showing a modified form of pole;

FIG. 4 is a fragmentary view, partly in section, showing a hydraulic actuated telescoping pole comprising another embodiment of this invention;

FIG. 5 is a diagrammatic view of a hydraulic actuating mechanism which is useful in conjunction with the pole appearing in FIG. 4;

FIG. 6 is a fragmentary view of a tackle-controlled telescoping pole comprising still another form of pole in accordance with this invention;

FIG. 7 is a sectional view taken as indicated by the lines and arrows VII—VII which appear in FIG. 6;

FIG. 8 is a fragmentary side view of a folding pole comprising another embodiment in accordance with this invention, certain parts being shown in section in order to reveal important details; and

FIG. 9 is a sectional view taken as indicated by the lines and arrows IX—IX which appear in FIG. 8.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring to FIG. 1, the sail boat 1 has a spinnaker 2 set on mast 3 with its track 4 fastened to a spinnaker

pole 5. The spinnaker 2 is held and controlled from its three corners as follows: The head 6 of the spinnaker 2 is hoisted by halliard 7, the tack 4 is clipped to a guy line 8 which line is clipped through a quick release fitting 9 on one end of pole 5, and the third corner or clew of the spinnaker (not shown) is trimmed by means of a conventional sheet. The inboard end of the spinnaker pole 5 is fastened to the mast 3 by clipping a quick release fastening 10, which fastening is usually identical to fastening 4 on the outboard end of the pole, to a suitable ring or slide-track on the mast. The guy line 8 and the sheet (not shown) lead back to the stern 11 where they may be suitably trimmed. The pole 5 is further controlled by a topping lift 12 to hold the pole up, and by a fore-guy 13 to prevent the pole from lifting.

Now referring to FIG. 2, the spinnaker pole 5 is made up of two tubular sections 15 and 14 with section 14 proportioned so it can slide into section 15. Means are provided for controlling the sliding of section 14 into section 15, as will be disclosed hereinafter, such that the pole length may be selectively altered between fully extended and an infinite number of retracted positions for swinging of the free end of the pole 5 past the forestay 16. When section 14 telescopes into section 15, the length of the pole 5 as a whole is reduced as shown in dotted lines at 5*a* in FIG. 2. With the pole 5 thus shortened, the end 9 will lower as well as come in under the influence of the topping lift 12. The shortening of the pole 5 is sufficient to bring the fitting 9 within the reach of anyone on the foredeck and also to allow the pole 5 to be swung inside the forestay 16, for reasons described hereinafter.

Now referring to FIGS. 4 and 5, one construction is shown as follows: Both sections 14 and 15 are circular in cross-section, with section 14 supported inside section 15 by a bearing cap 17 mounted on the outboard end of section 15 and by a seal cup 18 fastened to the inside end of section 14. With tube section 14 slidably supported inside section 15 and with a hydraulic cup 18 sealing the space between the two sections, the whole pole 5 may be extended (lengthened) by introducing a fluid (preferably water) under pressure into section 15 behind cup 18. Fluid is supplied to section 15 through tube 19, quick disconnect 20 tube 21 and hand pump 22 from a reservoir 23. When the pump 23 is operated, as a power assist means remote from sections 14 and 15, the pole 5 extends until a stop collar 24 which is fastened to a tube section 14 comes up against the inside of bearing cap 17 on section 15 at which point the pole is fully extended, and further pumping will move pressure piston 25 against a spring pressure supplied by heavy spring 26 until pin 27 mounted on pressure piston 25 pushes a ball valve 28 from its seat letting any additional fluid pumped escape through tube 29 by ball 28 and out passage 30 where the pumper can see the overflow and is thus notified that the pole is fully extended and charged. With the pole 5 charged as just described, piston 25 is compressed against spring 26 to exert a continuous fluid pressure within the pole and to provide an expansion reservoir against any minor leakage in the system which otherwise might allow the pole to collapse gradually.

When it is desired to shorten pole 5, valve 31 is opened to let the fluid pass back to the reservoir through pipe 32 by-passing pump 22 and check valve 33, which valve holds fluid in the system when valve 31 is close. Once fluid is drained as per above, the pole shortens due to the pressues on the pole or if the wind is light, the crew may pull on the foreguy 13 to supply sufficient pressure to shorten the pole as desired.

FIGS. 6 and 7 show an alternate construction for a telescoping pole. This pole comprises a circular tubular section 141 which is slidably mounted inside a square tubular section 151. Tube 141 is supported in a bearing cap 171 which is mounted on the end of tube 151 and further supported by a wheel 33 which is mounted on the end of tube 141 which is inside tube 151, which wheel 33 is equipped with a groove for a rope or cable and is designed to roll inside square tube 151 across its diagonal. A rope or cable 34 is locked into bearing cap 171 at 35 then threaded down between tubes 141 and 151 around pulley wheel 33, which wheel is equipped with a shield 36 to prevent the rope from leaving the pulley, thence the rope passes back up between the two tubes, through a hole in bearing cap 171 and over a pulley 38 mounted in bracket 39 which bracket mounts on the outboard end of tube 151, thence the rope leads back along the outside of tube 151 to a convenient fastening 40 on tube 151. Pulling on rope 34 causes the rope 34 with associated pulley system components to operate as a remote power assist means which functions such that it extends section 141 inside section 151 until collar 241 fastened to tube 141 comes up against bearing cap 171 and the whole assembly is fully extended. With the rope the pole may be shortened or lengthened as the situation requires. It should be noted this system is a two part block and tackle arrangement; thus the tension on rope 34 is equal to only one-half the force exerted on the pole as a whole.

FIGS. 3, 8 and 9 show another embodiment of this invention, a folding pole. This folding pole is made up of two main sections, a U-shaped portion 41 inside which is pivotally mounted at 42 a circular tub section 43. In FIG. 3 a folding pole is shown in three positions, straight dash-line view A, partially folded solid view B, and fully folded on the mast dash-line view C. In the straight position the pole is held by a spring loaded latch mechanism 44 (FIG. 9) which is mounted on U section 41 and clips into a suitable hole in section 43. A remotely operable power assist means in the form of a rope or cable 45 is fastened through and to U section 41 at 46, then over a sheave 47 mounted in the base of tubular section 43. To shorten this folding pole the latch 44 is pushed forward to release the lock between the two main sections 41 and 43 and then the assembly is allowed to fold by letting up on rope 45 which rope may be cleated or otherwise fastened once the desired amount of folding has taken place. The pole is restraightened by pulling on rope 45 until latch 44 engages, locking the pole in its straight position.

Unlike the earlier embodiments of this invention, the telescoping poles, this folding pole is permanently fastened to the mast by a gooseneck fitting 48 which allows vertical movement on pin 50 and horizontal swing on pin 49. Fitting 48 is adjustable on the mast 3 for the purpose of fixing pole heights. Whereas the telescoping poles were fastened to the mast by a conventional quick release fitting and whereas those poles should be removed from the mast when they are not in use, this folding pole with its permanent fastening is simply pushed up into a boot 51 on the mast 3 with the lower end lashed or clipped to the mast for storage as shown in view C, FIG. 3. Thus this folding pole need not be handled in an unsupported state and it is always ready to swing out into action from its storage on the mast at a moment's notice by simply unfastening its lower end from the mast.

At this point it should be pointed out that although the telescoping pole versions of this invention should be removed from the mast for storage when not in use, they are easier to handle than a conventional pole; for they are conveniently shortened which makes them less awkward to handle.

Having described several spinnaker pole constructions which are all capable of being shortened, let us examine how such a flexibility simplifies the operations involved in manipulating a spinnaker. In the caseof the telescoping poles, they are easier to handle before they are fastened to the mast due to their shortened condition, and it is easier to fasten lines to the pole prior to the hoisting of the spinnaker since the end of the pole is well inside the deck line of the ship. Once the spinnaker is hoisted the

telescoping pole can easily be extended to its proper length for best spinnaker setting.

When a jibe is contemplated the pole may be shortened to bring its outboard end in over the deck. As the pole shortens its end also swings down in an arc as controlled by its topping lift, bringing the end of the pole in and down where the guy line may be easily removed. The pole may then be swung across the foredeck inside the head-stay to the spinnaker sheet which may be easily fastened into the clip on the end of the pole. With the pole transfer completed the pole is once again extended to re-establish proper spinnaker control. Throughout the whole jibing maneuver none of the lines controlling the spinnaker pole need to be adjusted, nor does the pole have to be shifted from or on the mast, which allows the crew to concentrate its whole attention to the timing of the jibe, not to the adjustment and re-adjustment of lines, etc.

Finally, with the telescoping poles, when it is time to take in the spinnaker the pole is once again shortened to bring the guy line in to a position where it is easier to release, or to bring the guy line in to the forestay, if sailing on a reach, taking the strain off the pole which then can safely be released from same. With the guy released, the spinnaker spills its air and the sail can easily be gathered in as it is lowered. After the spinnaker is down, the shortened pole should be lowered and restored on deck.

The folding pole operates similar to the telescoping pole for it can be shortened in its own fashion to make sail handling easier. In addition, the folding pole has other advantages. When it is time to set the spinnaker, the pole which is already fastened to the mast does not need to be brought out until just before or just after the spinnaker has been hoisted. With this advantage the crew does not have to determine which tack the spinnaker is to be set on until the last minute, for the pole when it is brought out may be directed to either corner of the sail, with equal ease. Further, there is much less chance of getting the spinnaker tangled in the various lines on the pole if the lines are not there to confuse the operation prior to the hoisting.

When a jibe is called for, the crew first releases the catch on the top of the folding pole and then lets the pole collapse partially by letting up on the line **45** to bring the end fitting in over the deck where the crew can release the guy line, swing the pole across the deck and refasten the new guy. When the pole is refastened the pole is restraightened by pulling on line **45** until the catch relocks the pole in its fully extended position.

When it is time to drop the spinnaker, the pole is first collapsed as described above to bring the guy line into reach where it may be released; then the pole can be set back onto the mast completely out of the way, making the boat fully maneuverable once the spinnaker is pulled in. It should be noted that, with the folding pole, even the topping lift does not need to be removed when the pole is stored. Thus, this folding pole is unique in that it is always set and ready for instant service when sailing procedures call for its use, and at no time does it have to be handled or does it need to be left swinging without sufficient support.

Having thus described my invention and with the understanding that the designs shown are only representative of the broad principles disclosed, and with the understanding that various equivalents may be used without departing from the scope of this invention, the following is claimed.

I claim:

1. In a sailing vessel having a deck, a mast and a forestay, a spinnaker pole constructed for attachment to the mast at a point spaced above the deck, and having a total extended length that is greater than the minimum distance from said mast attachment point to the forestay, said pole including means for altering the effective length of the pole between fully extended and an infinite number of selected retracted positions so that in a retracted position it can be shifted between extreme port and starboard positions while wholly within the triangle defined by the deck, the mast, and the forestay, and remotely operable power assist means for assisting the collapsing and extending of said sections relative to each other.

2. The pole defined in claim **1** comprising a pair of telescoping sections.

3. The pole defined in claim **2**, wherein said collapsing and extending means is hydraulic.

4. The pole defined in claim **1** comprising a pair of sections which are angularly swingable relative to one another.

5. The pole defined in claim **4**, wherein means are provided for folding said sections and for storing them in place on the mast in a folded condition.

6. The pole of claim **2**, wherein said latter means comprises means for assisting the exertion of extending forces at a mechanical advantage.

7. The pole of claim **6**, wherein said assisting means comprises a pully assisting means.

8. The pole of claim **6**, wherein said assisting means comprises a hydraulic means.

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