

April 29, 1952

J. W. STEUBE ET AL

2,595,110

MEANS FOR SETTING AND FURLING SAILS

Filed Nov. 15, 1949

2 SHEETS—SHEET 1

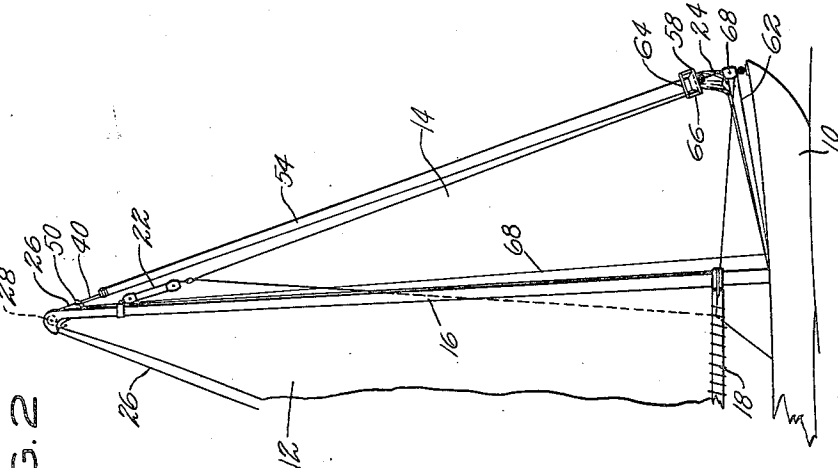


FIG. 2

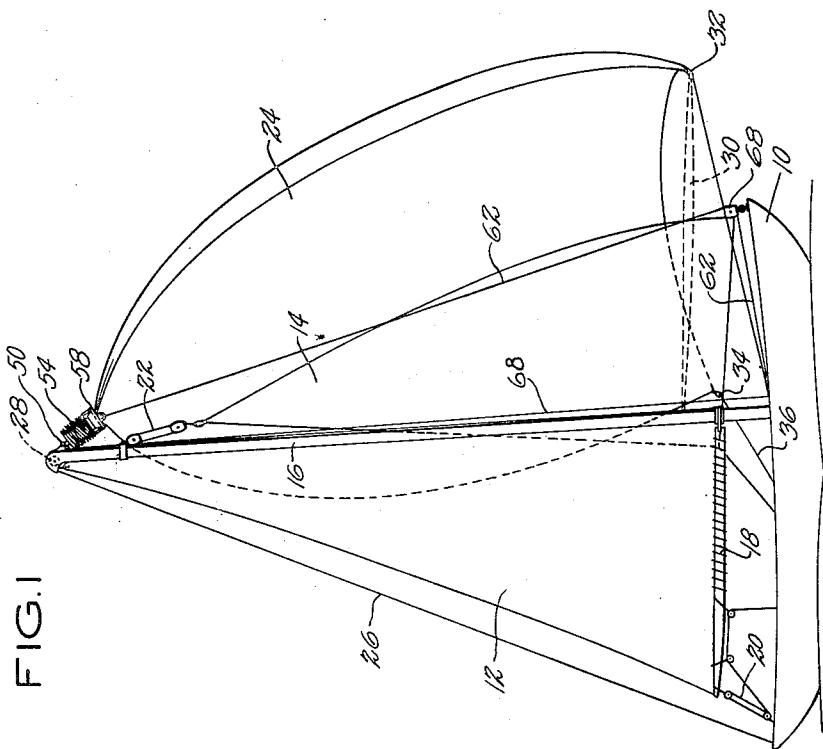


FIG. 1

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2 SHEETS—SHEET 2

FIG. 3

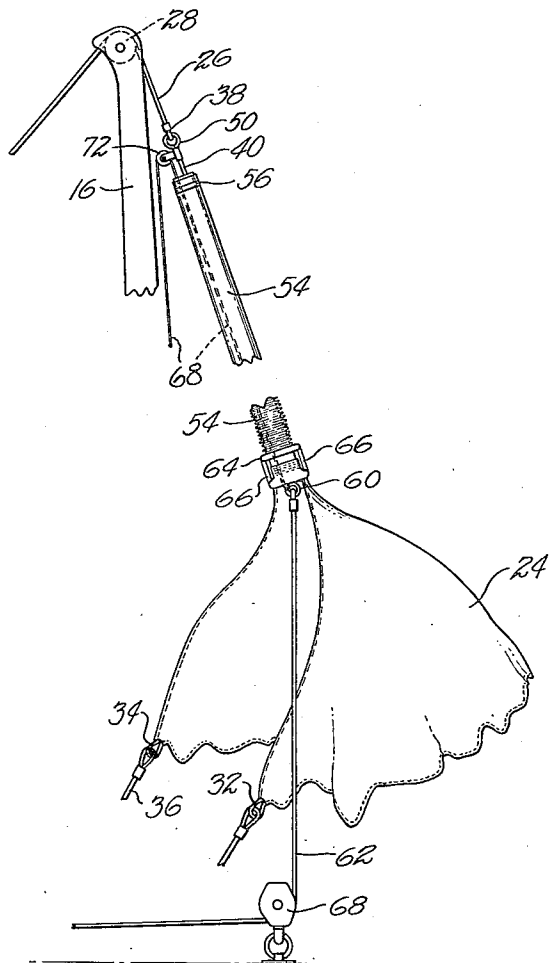


FIG. 5

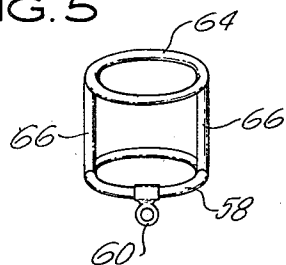
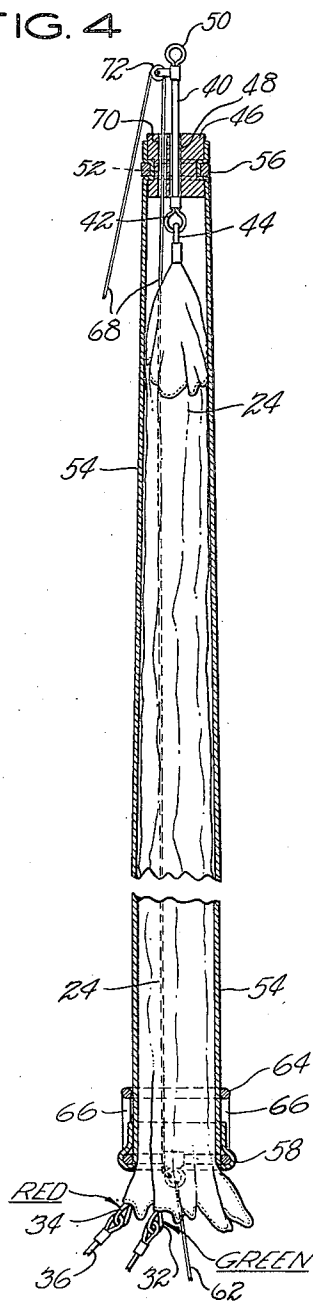


FIG. 4



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2,595,110

MEANS FOR SETTING AND FURLING SAILS

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5 Claims. (Cl. 114—104)

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This invention relates to improvements in means for setting and furling sails and, more particularly but without restriction thereto, to means for setting and furling light sails such as spinnaker sails or spinnaker balloon sails.

Heretofore, in setting and furling light sails such as spinnaker and balloon spinnaker sails, it has been common practice to collapse the sails transversely by manually bunching them about their longitudinal axis and holding the sails so furled by a plurality of stops spaced longitudinally along the furled sail, said stops being made of readily frangible material. The upper end of the sail was then hoisted aloft to a position adjacent the upper portion of the mast of the sail boat. Lines were also fastened to the clew and tack at the lower corners of the sail. Under some circumstances, a relatively light boom was attached at one end to one of the clews or tack and the other end of the boom was fastened to the mast, for example. When such light sail was to be set, one or two of the stops were broken adjacent the lower end of the sail, and upon the wind catching the thus loosened lower portion of the sail, the sail would billow outward and, in so doing, would successively break the stops until the entire sail caught the wind and was completely sheeted or set. The lines attached to the clew and tack were then adjusted so as to position the sail as desired relative to the boat.

Under the foregoing circumstances, setting sails by the described method has not been unusually difficult but great difficulty has been experienced frequently in furling such light sails, particularly in view of the relatively great spread thereof which rendered furling thereof difficult since no means were available readily to engage the sail in order to furl it in any convenient manner. Such sails were generally held only at their upper ends and the lower corners thereof, and these few control points were frequently inadequate for purposes of conveniently controlling the sail while being furled, and particularly so if furling was attempted while any appreciable amount of wind was still blowing.

It is an object of the present invention to provide means which are inexpensive and easily attachable to the mast of a boat adjacent the upper end of a light sail such as a spinnaker, said means being readily movable in opposite directions longitudinally of the sail for purposes of either setting or furling the same, regardless, within reasonable limits, of the amount of wind blowing during such operations.

Another object of the invention is to provide an

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elongated longitudinally collapsible sail-encircling means such as a sleeve attachable at one end adjacent the upper end of such light sail and also preferably including means adjacent the lower end of said encircling means freely slidable relative to the sail for facilitating the collapsing of the encircling means longitudinally of the sail to set the sail or extending the encircling means longitudinally of the sail when it is desired to furl the same.

Still other objects of the invention are to provide means for controlling, supporting and facilitating the collapsing and extension of such sail-encircling means by which a light sail such as a spinnaker is set and furled.

Details of the foregoing objects and of the invention, as well as other objects thereof, are set forth in the following specification and illustrated in the accompanying drawings comprising a part thereof.

In the drawings—

Figure 1 is a side elevation of a sail boat having a light sail such as a spinnaker set thereon in fully sheeted position.

Fig. 2 is a fragmentary view similar to Fig. 1 but showing the light spinnaker sail furled by means comprising the present invention.

Fig. 3 is a fragmentary view showing the manner in which a light spinnaker sail is secured to a sail boat, said sail being illustrated as it appears during the initial setting operation. In this view, several of the parts are broken away in order to foreshorten the figure.

Fig. 4 is a sectional view, partly broken away to foreshorten the figure, and illustrating a light spinnaker sail furled by means comprising the present invention.

Fig. 5 is a perspective view of a detail of part of the present invention.

Referring to the figures, and particularly Fig. 1, a sail boat 10 is illustrated under sail. The main sail 12 and the jib sail 14 are supported at their upper ends by a conventional mast 16. As usual, the lower edge of the main sail is secured to a boom 18 which is arranged to be manipulated by suitable blocks and tackle 20. The jib sail 14 is also raised and lowered by additional blocks and tackle 22.

The present invention relates to mechanism for readily furling and setting light sails, of which spinnaker sail 24 is one example. As mentioned hereinabove, control and particularly furling of spinnaker sails has heretofore been difficult when using conventional means as heretofore employed relative to such sails. Conven-

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tional means for setting and controlling such spinnaker sails has heretofore comprised a halliard 26 which passes through a block 28 supported by the tip end of the mast 16. Such spinnaker sail is raised aloft by the halliard 26. One end of the halliard is secured to the upper end of the spinnaker by a shackle and the other end of the halliard is fastened to the boat 10 by securing the same to any suitable means on the boat. Sometimes, the lower corners of the spinnaker are controlled by means of lines secured to loops formed at said corners and conventionally referred to respectively as a clew and a tack. The other ends of the lines are fastened to the boat 10 at any desired position depending upon the position in which the spinnaker is to be set relative to the boat.

Spinnaker sails are also frequently set in desired position by use of a light pole or boom 30, one end of which is fastened, for example, to the mast 16 and the outer end of which is fastened to the tack 32 of the spinnaker 24. Under these circumstances, the clew 34 will be fastened to a line 36 by which the clew is controlled. Similarly, the tack 32 will also have lines attached thereto for properly positioning the tack and boom 30 relative to the boat 10. In Fig. 1, the spinnaker boom 30 has been indicated in dotted lines since such boom is not always used.

In the present invention, it is contemplated that the upper end of the exemplary light spinnaker sail 24 will be raised and lowered by the halliard 26 passing through the block 28. The uppermost end of the halliard is secured by a shackle 38 to the upper end of a pendant 40 which may be formed from any suitable material such as braided wire rope. Nautically, the pendant is sometimes referred to as a "penant." Details of the pendant are best shown in Fig. 4. The lower end of the pendant 40 has an eye 42 secured to a ring 44 attached to the upper end of the spinnaker 24. A disc-like member 46 has a central aperture 48 through which the pendant 40 freely passes. Movement of the disc-like member 46 longitudinally of the pendant 40 is limited by the engagement of opposite ends of the disc-like member with the eye 42 at the lower end of the pendant and the eye 50 at the upper end thereof. The disc-like member also preferably is provided with an annular groove 52 formed in its outer periphery for purposes to be described.

The spinnaker 24 is held in closely compacted and furled condition, as illustrated in Figs. 2 and 4, by suitable means which closely encircle the compacted sail throughout the length thereof, said means comprising, in the exemplary embodiment shown herein, an elongated sleeve 54 which is collapsible longitudinally into a bunched or puckered concertina-like formation as illustrated in Fig. 1. The sleeve 54 may be formed of any suitable material which should preferably present a minimum amount of friction when the sleeve is sliding relative to the sail 24.

It has been found that silk fabric or fabric formed from synthetic resinous fibers sold under the trade name nylon is highly suitable for this purpose. Not only does such material afford the required strength, but it is also very light in weight and is practically frictionless when sliding relative to the sail 24. It should also be noted that light sails such as spinnakers made in accordance with present practice are also frequently formed from very strong light weight material such as nylon fabric and, under these cir-

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cumstances, the sleeve 54, when also formed from nylon fabric, slides with substantially no friction relative to a sail formed from similar fabric. As is evident from the various figures, the sleeve preferably tapers outward from the upper end thereof toward its lower end inasmuch as light sails such as spinnakers are frequently either triangular or somewhat parabolic in outline, whereby the upper end of the sail, when furled in compactly bunched condition, may be contained in a smaller space than the lower end thereof.

The upper end of the sleeve 54 is secured to the disc-like member 46 by any suitable means such as a fastening ring 56 which surrounds said upper end of the sleeve and holds it in firmly fixed engagement with the member 46 by compressing part of the sleeve into the annular groove 52 in said member. The lower end of the sleeve 54 is fastened in any suitable manner to a ring 58 which is preferably made as smooth as possible and formed from preferably light weight material such as a synthetic resin or a suitable metal such as aluminum. Aluminum tubing has also been found to be highly satisfactory for this purpose. The lower end of the sleeve 54 may be secured to the ring 58 as shown in Fig. 4 by hemming the end of the sleeve around the ring or the end of the sleeve may be secured to the ring by a thread or cord spirally whipped around the ring and through the material at the end of the sleeve. Secured to the ring 58 is means such as an eyelet 60 to which a line such as a down-haul 62 may be secured.

Assuming the sleeve 54 is collapsed as illustrated in Fig. 1 and the sail 24 is set or sheeted as shown, when it is desired to furl the sail, it is merely necessary to pull the down-haul 62 which will cause the ring 58 to pass along the leech and luff, as well as the closely bunched intermediate portions of the sail, for purposes of progressively and compressibly collapsing the entire sail laterally as the ring 58 and sleeve 54 progressively move downward along the sail. In order to maintain the ring 58 in a plane substantially transverse to the sail while the latter is being furled, a second ring 64 is preferably used and is fixed to the ring 58 by suitable struts 66, whereby the rings 58 and 64 are fixed in parallel spaced relationship to each other, the assembly being very light in weight and the outer surfaces are made as smooth as possible. The spacing between the rings may vary but it has been found that a space substantially equal to the diameter of the rings is satisfactory. The ring 64 encircles the sleeve 54 as clearly shown in the figures and the ring 64 will, of course, encircle the sail when the same is in furled condition or while it is being furled.

The down-haul 62 is easily manipulated by passing the same through a block 66 secured to the boat at any suitable position or, if a boom 30 is used, the block is secured to the outer end thereof. From the foregoing, it will be seen that a light sail such as a spinnaker may be quickly and easily furled and also be maintained in furled position by the sail enveloping or encircling means of which the sleeve assembly illustrated herein comprises one specific example.

Assuming that the sail 24 is furled and it is desired to set or break-out the same so as to sheet it, such setting is accomplished readily merely by releasing the down-haul 62 and pulling on the free end of an up-haul line such as halliard 68 which is connected at one end to the eyelet 60, for example, and passed upward within the

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sleeve 54, through an opening 70 in member 46, and around a sheave 70 adjacent the upper end of pendant 40. The halliard 68 is of such length that the free end of it is available at any desired position on the boat when setting of the sail is desired. Upon pulling downward, said free end of the halliard 68, the rings 58 and 64, as well as the lower end of the sleeve 54, are slidably moved upward away from the lower end of the sail so as to start puckering or collapsing the lower end of the sleeve and thereby expose the lower end of the sail 24 as shown in Fig. 3. The clew 34 is secured to a line and the tack 32 is secured to a line, or a line and the boom 30, so that the wind will engage the exposed lower portion of the sail 24. When sufficient area of the sail is thus exposed, the wind will catch the sail and quickly spread the unfurled portion and rapidly carry the rings 58 and 64 aloft along the remainder of the sail, puckering and thereby collapsing the entire sleeve 54 before them as they move up the sail. Under these circumstances, the sail is set almost instantaneously, especially if a strong wind catches the sail during such setting operation.

During the upward movement of the sleeve 54, the halliard 68 in no way interferes with such movement. Preferably, but not necessarily, the halliard 68, as well as down-haul 62, are formed from strong, light weight material, such as nylon, which also affords a minimum amount of friction during movement thereof. After the sleeve 54 has been collapsed entirely as foresaid, any slack left in halliard 68 may be taken up by pulling the free end of the same until taut and said free end is then made fast at any desired position on the boat. Any such slack may be maintained at a minimum by pulling on the halliard 68 while the sleeve 54 is being collapsed by the setting motion of the sail due to the wind as aforesaid.

The length of the pendant 40 is such that, when the sleeve is completely collapsed in puckered, concertina-like condition as illustrated in Fig. 1, the disc-like member 46 will be moved substantially into engagement with ring 50 and the collapsed sleeve will be disposed around the portion of the pendant 40 extending below the member 46. The ring 58 will be disposed adjacent the upper end of the sail 24 and will be held in such raised position by the spread of the upper portion of the sail 24. When set as described hereinabove, the sail may be readily manipulated by means of the lines attached to the tack 32 and clew 34.

To facilitate the setting of the sail from furled condition and particularly to indicate the tack 32 and clew 34 while the sail is furled, such tack and clew may bear suitable indicia such as by being colored respectively green and red or any other suitable distinguishing colors, or the same may be finished in other ways or shaped so that they can be readily distinguishable, in the dark or otherwise, merely by feeling the same. Thus, the lines secured to the tack and clew may be positioned for suitable handling prior to setting the sail. Inasmuch as the setting frequently takes place very quickly, the relative positions of the tack and clew must be known beforehand in order that the lines attached thereto may be properly manipulated during such rapid setting of the sail.

It will be seen from the foregoing that the present invention thus provides means closely encircling a light sail such as a spinnaker

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throughout the length thereof in order to maintain the sail in compactly furled condition and maintain the sail furled as long as desired without danger of the sail becoming accidentally unfurled or set. Also, the sail may easily and quickly be set or sheeted by merely collapsing the encircling means comprising the exemplary sleeve 54 by merely sliding the lower end of the sleeve and the ring assembly attached thereto a short distance upward from the lower end of the sail until the thus exposed and unfurled lower portion of the sail catches the wind so that the wind may then quickly spread or sheet the remaining portion of the sail and thereby substantially instantly carry the sleeve and ring assembly aloft into collapsed condition such as illustrated in Fig. 1. Furling of the sail is also easily accomplished merely by pulling on a down-haul to extend fully the sleeve 54 from its collapsed condition and, in so doing, quickly and easily collapse the sail into closely compacted, furled condition with the sleeve.

While the invention has been illustrated and described in its preferred embodiment and has included certain details, it should be understood that the invention is not to be limited to the precise details herein illustrated and described since the same may be carried out in other ways, falling within the scope of the invention as claimed.

We claim as our invention:

1. Means for setting and furling light sails and comprising an elongated longitudinally collapsible sleeve attachable at one end adjacent one end of said sail and arranged, when extended, to encircle said sail and hold it furled in compactly collapsed condition throughout the length thereof, the other end of said sleeve and the intermediate portions thereof being movable longitudinally of said sail in opposite directions from one end to the other thereof to either dispose said sleeve in longitudinally collapsed condition adjacent said attachable end thereof to free the sail for setting or, when extended, closely encircle said sail for furling it, a ring arranged to encircle said sail and fixed to said other end of said sleeve and movable therewith relative to said sail during the setting and furling thereof, and a halliard connected at one end to said sleeve adjacent said other end thereof and passing through said sleeve when extended, said halliard being operable to be pulled toward said one end of said sleeve to move said other end thereof and ring toward said one end of said sleeve.

2. Means for setting and furling light sails and comprising an elongated longitudinally collapsible sleeve attachable at one end adjacent one end of said sail and arranged, when extended, to encircle said sail and hold it furled in compactly collapsed condition throughout the length thereof, the other end of said sleeve and the intermediate portions thereof being movable longitudinally of said sail in opposite directions from one end to the other thereof to either dispose said sleeve in longitudinally collapsed condition adjacent said attachable end thereof to free the said for setting or, when extended, closely encircle said sail for furling it, a ring arranged to encircle said sail and fixed to said other end of said sleeve and movable therewith relative to said sail during the setting and furling thereof, and means carried by said ring and arranged to be connected to a down-haul operable to move said ring and sleeve longitudinally of said sail to extend said sleeve and furl said sail.

3. Means for setting and furling light sails

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and comprising an elongated longitudinally collapsible sleeve attachable at one end adjacent one end of said sail and arranged, when extended, to encircle said sail and hold it furled in compactly collapsed condition throughout the length thereof, the other end of said sleeve and the intermediate portions thereof being movable longitudinally of said sail in opposite directions from one end to the other thereof to either dispose said sleeve in longitudinally collapsed condition adjacent said attachable end thereof to free the sail for setting or, when extended, closely encircle said sail for furling it, a ring arranged to encircle said sail and fixed to said other end of said sleeve and movable therewith relative to said sail during the setting and furling thereof, a second ring arranged to encircle said sail and sleeve and disposed in substantially parallel relationship to said first mentioned ring, means securing said rings to each other in fixed spaced relationship, and a halliard connected to one of said rings and operable to move said rings and said other end of said sleeve longitudinally of said sail to extend said sleeve and furl said sail.

4. Means for setting and furling light sails and comprising, in combination, a pendant attachable to the upper end of said sail, disc-like means surrounding said pendant and slidable longitudinally thereof, and an elongated longitudinally collapsible sleeve attached at one end to said disc-like means and arranged, when extended, to encircle said sail and hold it furled in compactly collapsed condition throughout the length thereof, one end of said sleeve being movable longitudinally of said sail in opposite directions from one end to the other thereof to either be collapsed longitudinally about said pendant to free

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the sail for setting or, when extended, closely encircle said sail to furl it, and actuating means connected to said one end of said sleeve and operable to move said end as aforesaid.

5. A light sail for use on a sail boat and having at the ends of the lower edge of said sail a pair of clews arranged respectively to be connected to lines for controlling said sail during setting thereof and also for holding said sail when set, said clews having distinguishing indicating means respectively designating the same relative to the opposite sides of said sail boat, in combination with means arranged to closely and generally encircle said sail and hold it furled in compactly collapsed condition throughout the length thereof, said indicating means of one end of said clews extending beyond said encircling means when said sail is furled and said encircling means also being collapsible and said one end thereof being movable longitudinally of said sail in opposite directions from one end to the other thereof to either free said sail for setting or closely encircling it for furling, and actuating means connected to said one end of said sleeve and operable to move said end as aforesaid.

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