

- [54] ANTI-NOISE DEVICE FOR THE MASTS OF SAILING VESSELS AND THE LIKE AND METHODS FOR PREVENTING NOISE
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- [51] Int. Cl.² **B63H 9/04**
- [58] Field of Search 114/90, 102, 109; 52/120, 52/148; 116/173, 174

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[57] **ABSTRACT**

An anti-noise device is provided for a sailing vessel which is useful when the sails are lowered and the halyards which normally support the sails in raised positions are free to slap against the related mast due to the effect of wind. The anti-noise device is in the form of a corrugated ring encircling the mast and having longitudinal grooves therein to accommodate the halyards which are thereby triangulated and placed under tension. The ring is supported on the mast by having inturned ends engaging a track on the mast or by having associated therewith a collar which is buckled onto the mast and has supports which hold the ring thereupon.

- [56] **References Cited**
UNITED STATES PATENTS
- 359,028 3/1887 O'Brien 114/102
- 3,173,395 3/1965 Laurent 114/102

15 Claims, 6 Drawing Figures

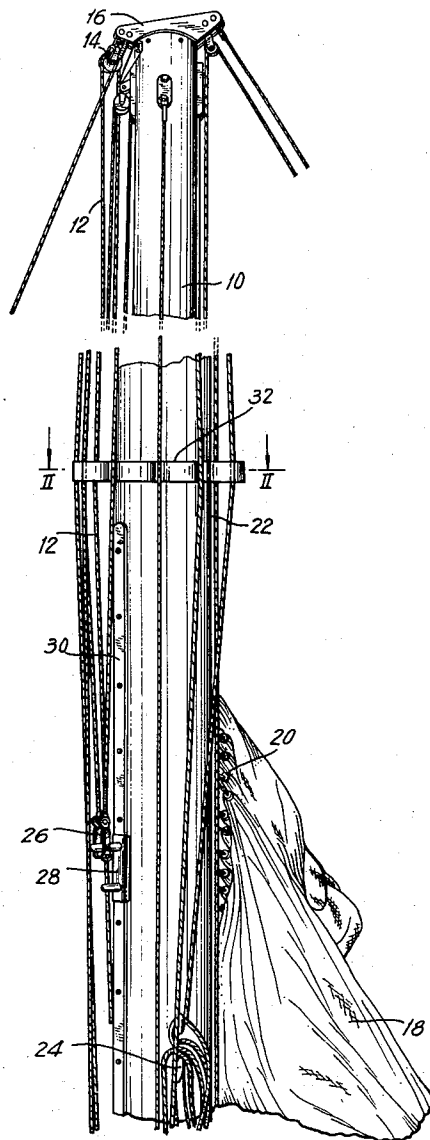


FIG. 1

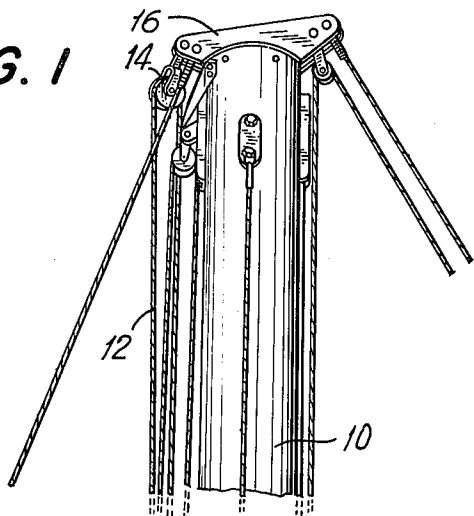


FIG. 4

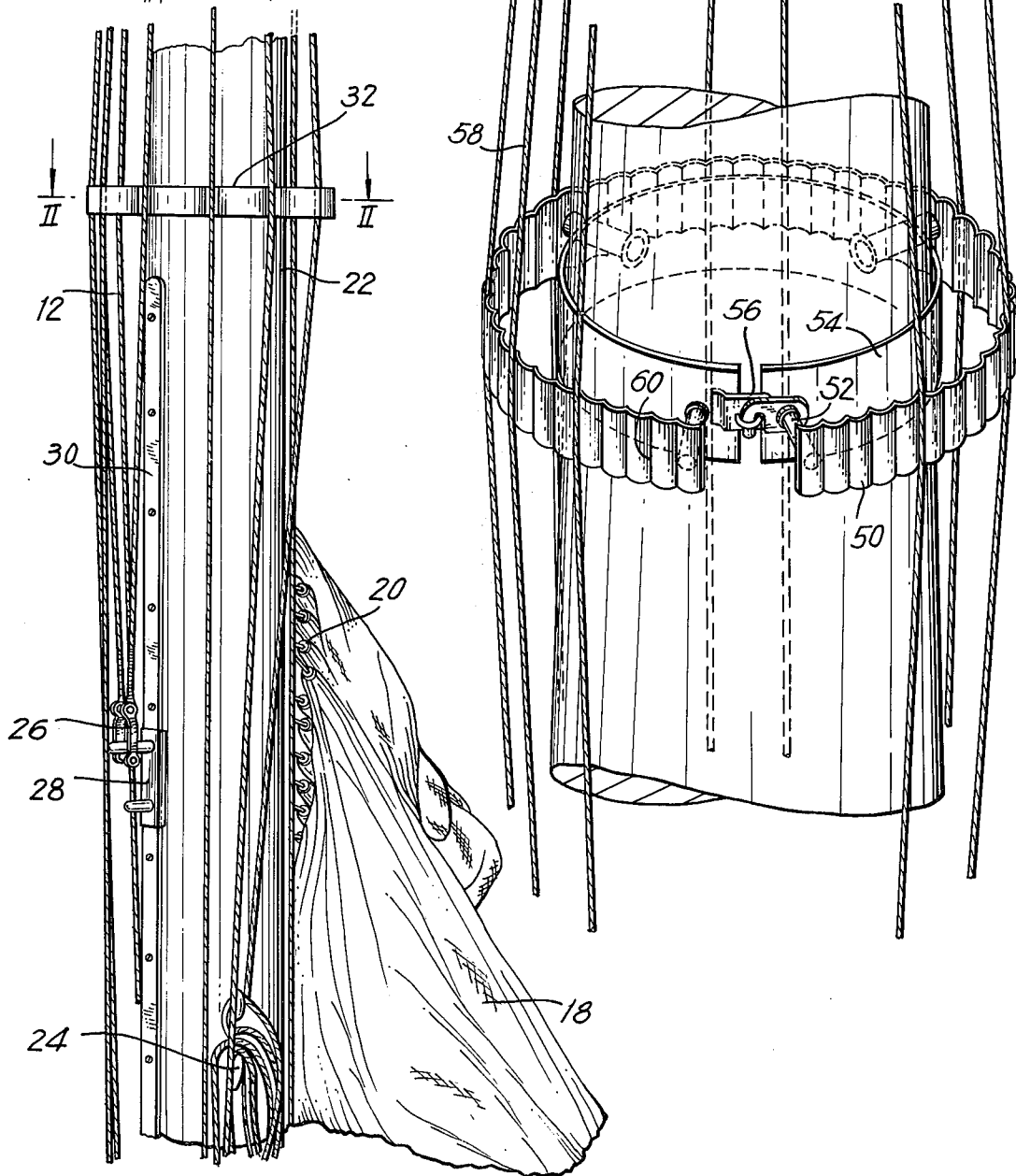


FIG. 2

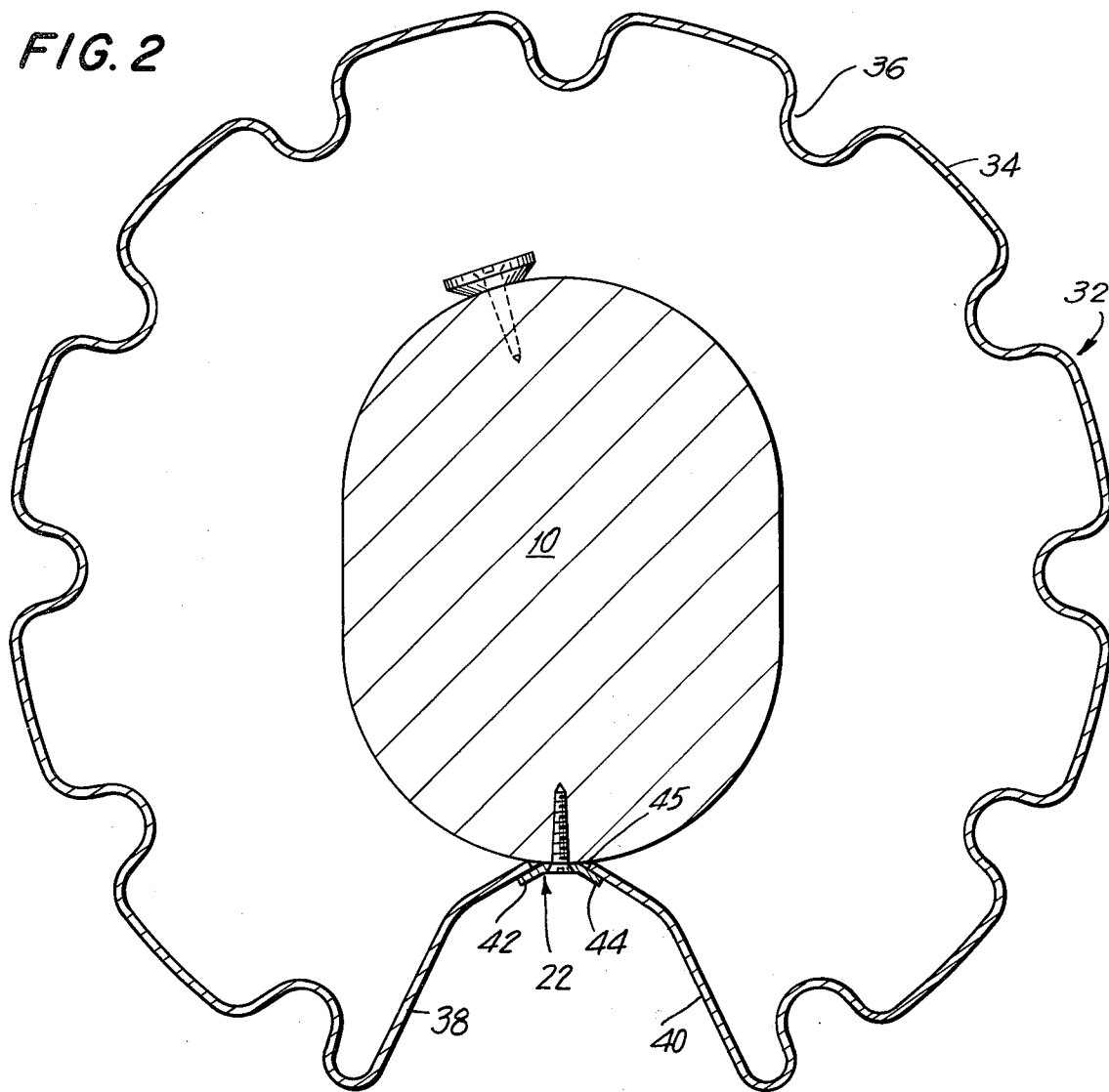


FIG. 3

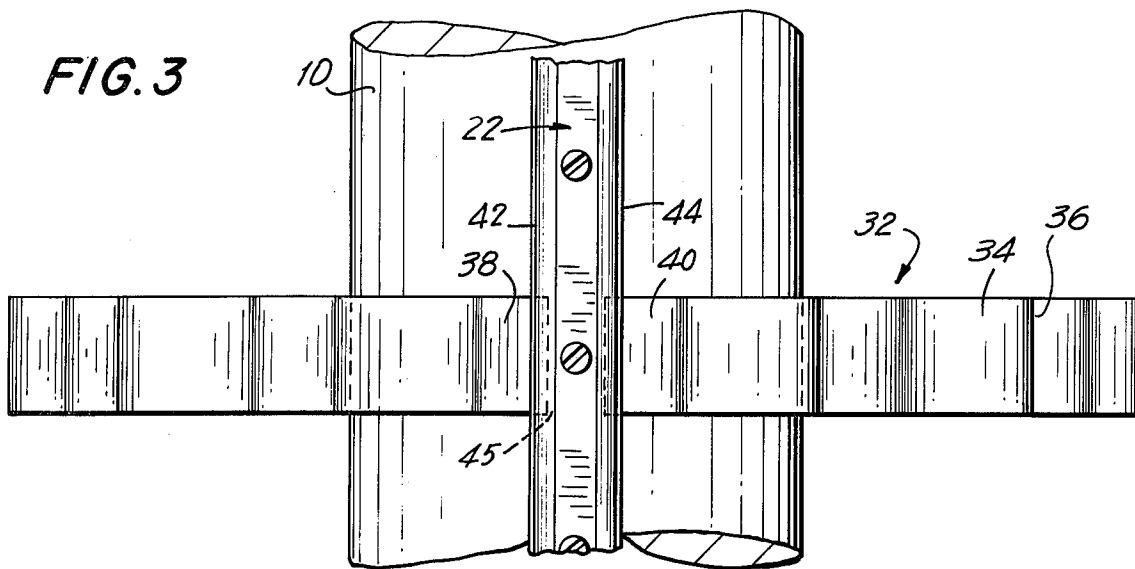


FIG. 5

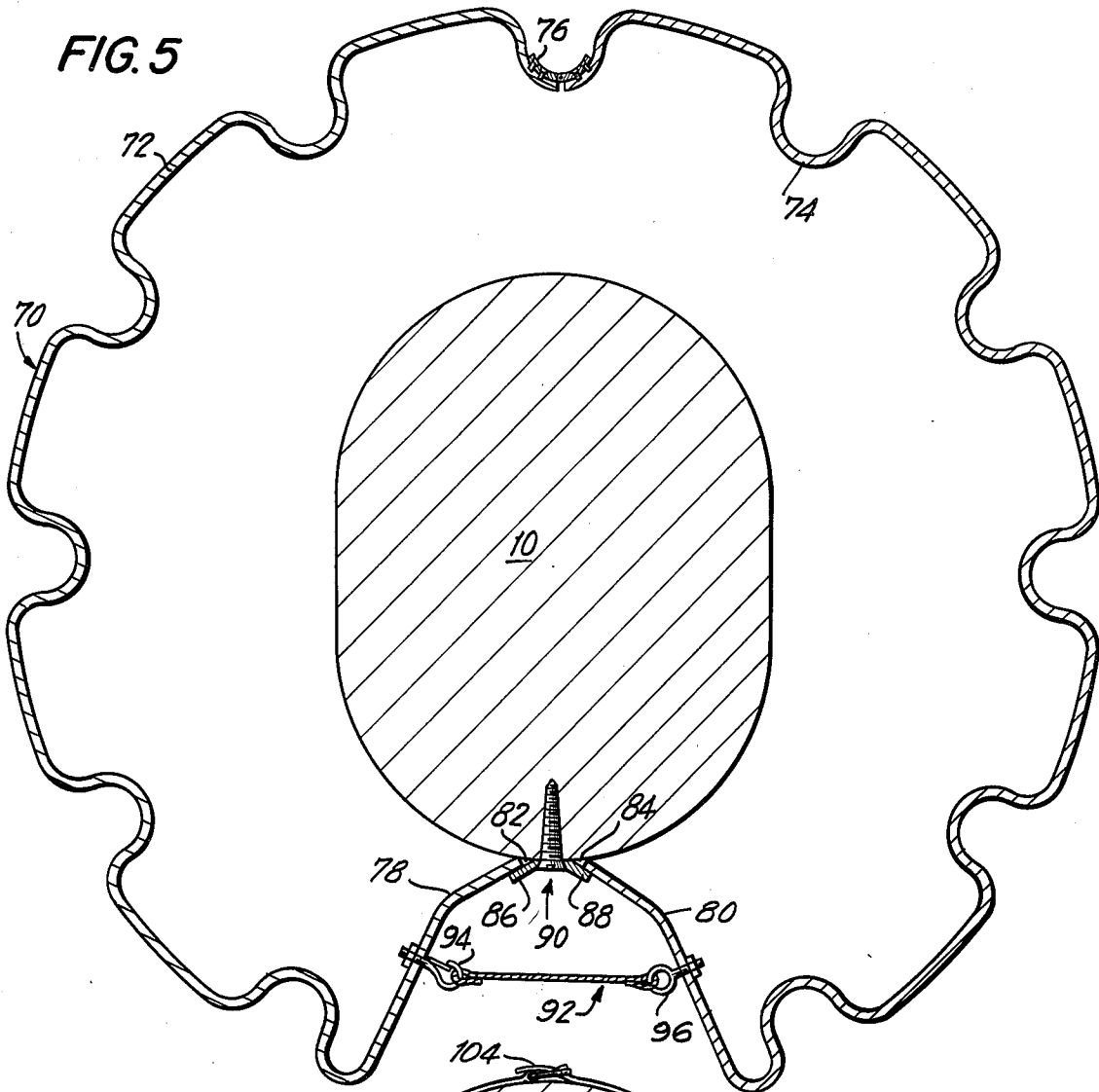
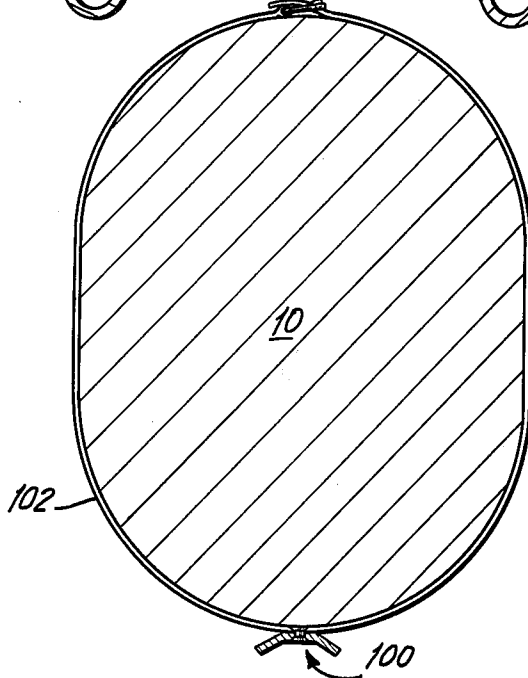


FIG. 6



ANTI-NOISE DEVICE FOR THE MASTS OF SAILING VESSELS AND THE LIKE AND METHODS FOR PREVENTING NOISE

FIELD OF INVENTION

This invention relates to anti-annoyance devices and more particularly to anti-noise devices especially useful on sailing vessels to prevent halyards from slapping against masts under the effect of wind or the like.

The invention is also applicable to related fields in which mast-like structures such as flagpoles have lines extending longitudinally therealong in vertical attitude and to methods for preventing noise which might be generated when lines are free to slap against vertically oriented mast-like structures under the effect of wind or the like.

BACKGROUND

On a sailing vessel such as a sailboat or the like, sails are generally raised by means of halyards which run through pulleys attached at the top of a mast. While underway, the sails usually maintain the halyards under tension so that they do not slap against the mast. In any event, the operation of a sailboat renders obscure the noise which is ordinarily generated.

At night, however, when the sails are lowered and the halyards are secured aboard a vessel, the halyards cannot be placed under sufficient tension by conventionally available means to prevent their being moved by the wind or by the motion of the vessel. Thus, there can be generated a noise by reason of the halyards slapping against the mast. This noise is sufficiently loud when the mast is made of wood. However, when the mast is made of a metal such as aluminum, as is currently common, the noise which is generated is frequently intolerable and can interfere significantly with the sleep of those who remain on board overnight.

Anti-noise or anti-annoyance devices suitable for dealing with the above problem are not known. However, there are a vast number of patents which deal with the mounting of halyards and other such lines on various types of vessels. These patents include, for example, U.S. Pat. Nos. 313,279; 359,028; 378,554; 1,642,716; 2,319,999; and 3,381,647.

The above mentioned patents, however, have absolutely nothing to do with noise suppression or avoiding devices. Thus, for example, the Belfrage U.S. Pat. No. 313,279 shows a device through which lines pass internally in extending longitudinally along a mast structure. This device is, however, not mountable and demountable in the sense intended in accordance with the instant invention.

Similarly, in the O'Brien U.S. Pat. No. 359,028, a device is shown for mounting lines along a horizontal boom. However, these lines are attached to the device so that it is not dismountable in the sense intended in accordance with the instant invention.

SUMMARY OF INVENTION

It is an object of the invention to provide an anti-annoyance device capable of suppressing the noise of halyards which are loose and flexible and capable of slapping against an associated mast under the influence of wind or vessel movement or the like.

It is further an object of the invention to provide an anti-noise device suitable for suppressing the noise which would otherwise be generated by the slapping of

lines against generally vertical mast-like structures adapted to support sheet-like members.

It is still another object of the invention to provide an anti-noise device which is readily mounted upon a mast when sails and the like are lowered with respect thereto and which is readily demounted radially from mast-like structures when it is desired to operate halyards or lines thereon for purposes of raising sails or the like.

Still further it is an object of the invention to provide a method for preventing noise from being generated by halyards slapping against masts on sailing vessels.

In achieving the above and other objects of the invention, there results a sailing vessel comprising a mast, a plurality of lines running along the mast to control the positions of sails relative thereto and anti-noise means between the mast and lines to triangulate the latter and take up slack in the same with the sails lowered whereby to prevent the lines from slapping against the mast, said lines peripherally engaging said means without connection thereto whereby to facilitate mounting said means on said mast and dismounting said means from the mast.

According to a feature of the invention the aforesaid means includes a ring encircling the mast in spaced relation thereto and provided with longitudinal peripheral grooves to accommodate the aforesaid lines.

In certain cases where the mast is, for example, of metal and includes a vertical track for the guidance of a sail, which track is clear when the sail is lowered, the ring may be a resilient member including intumed ends for engaging the track for thereby supporting the ring on the mast.

According to another feature of the invention, the aforesaid means may include a collar for engagement around the mast with closure means being provided on the collar for locking the same on the mast and support means supporting the ring on the collar.

In a more generalized form, the invention may be considered for combination with an at least generally vertical mast-like structure and at least one flexible line extending along said structure and longitudinally displaceable therealong, the invention taking the form of an anti-annoyance device to prevent the slapping of the line against the mast-like structure, the anti-annoyance device comprising first means having a surface spaced from the mast-like structure and facing outwardly of the mast-like structure for peripherally supporting the line in spaced relation to the mast-like structure and second means to support the first means on the mast-like structure.

In accordance with still another aspect of the invention, there is provided a method for preventing noise from being generated by loose halyards slapping against a mast on a sailing vessel, said method comprising inserting an anti-annoyance device between the mast and halyards to triangulate the latter and place the same under tension when sails otherwise supported by the halyards are lowered.

Other objects and features of the invention as well as advantages thereof will be apparent from the detailed description of some preferred embodiments which follow hereinafter.

BRIEF DESCRIPTION OF DRAWING

In the drawing:

FIG. 1 is a pictorial view of a mast of a sailing vessel having halyards extending vertically and longitudinally

along the same with the anti-annoyance device of the invention installed on the mast between the latter and the halyards;

FIG. 2 is a sectional view taken along line II—II of FIG. 1;

FIG. 3 is a side view of the anti-annoyance device of the invention with the halyards removed;

FIG. 4 is a perspective view of a second embodiment of the invention;

FIG. 5 is a sectional view of a third embodiment of the invention; and

FIG. 6 is a sectional view illustrating a variation of a ring support for use with the foregoing embodiments.

DETAILED DESCRIPTION

In FIG. 1 is illustrated a generally vertical mast 10 mounted aboard a sailing vessel such as a sailboat or the like. Extending longitudinally along the mast 10 are a plurality of lines or halyards 12. These halyards run through a plurality of pulleys 14 or the like mounted at the top 16 of the mast. The mast is of such height that the halyards must be of such a length that they cannot be generally placed under enough tension at the fastening ends thereof to avoid a slapping effect under the influence of wind or the motion of the vehicle at anchor so that they tend to slap against the mast and generate noise. This noise is particularly intense when the mast is of a metal such as aluminum or the like.

Also illustrated in FIG. 1 is a sheet-like member or article such as a sail 18 shown in generally lowered and secured position. The sail 18 in the illustrated embodiment is provided with a number of track engaging elements 20 which engage in and run along a track indicated at 22.

The various halyards are secured in a variety of ways. Some are secured on dogs such as indicated at 24 whereas others are attached to fastening devices 26 which hook onto adjustable devices 28 slidable along tracks such as indicated at 30. There are a wide variety of other means for securing the halyards but none of these means take into account the materials from which the halyards are fabricated or the lengths of the halyards and are therefore not capable of placing the halyards under sufficient tension to prevent lateral flexing and therefore a slapping of the halyards against the mast 10.

Also illustrated in FIG. 1 is the anti-annoyance device 32 of the invention. In the illustrated embodiment, the anti-annoyance device or anti-noise device 32 is mounted on the track 22.

As appears more clearly in FIGS. 2 and 3, the anti-noise device 32 includes a ring 34 fabricated of steel or plastic or any generally resilient material. This ring 34 is provided with a plurality of grooves 36 extending longitudinally along the ring or, in other words, in parallel with the mast 10 and the halyards 12. The ring 34 due to the provision of the grooves 36 has a generally corrugated appearance. The grooves 36 serve as receptacles for peripherally accommodating the halyards 12 which may be arbitrarily placed into various positions in selected of the grooves. The ring 34 encircles the mast 10 in spaced relationship thereto and is an open ring including inturned ends 38 and 40. These ends extend beneath the flanges 42 and 44 of the track 22 and are in a sense sandwiched between the flanges and the mast 10. The rigidity of the ring 34 and the strength of the material from which this ring is fabricated render the

structure strong enough to be self-supporting on the mast 10 and to form a brace extending between the mast 10 and the various halyards to triangulate the latter and to place the halyards under sufficient tension to prevent the same from slapping against the mast under the effect of wind or like disturbances. The term "triangulating" in the sense of this description is intended to mean that the halyards are supported somewhat centrally of their longitudinal extents and are thereby divided generally into two longitudinal sections which are angularly related to one another in such a manner as to form what might be regarded as a triangle with the mast 10.

When the sailing vessel is underway and the sails are raised, the occurrence of noise due to the halyards slapping against the mast is generally avoided since the halyards are maintained under tension by the load of the sails thereupon. In any event, the noise would not create any discernible disturbance. Moreover, the presence of the anti-noise device with the vessel underway is not desirable since it might interfere with the operation of the halyards and, in any event, might cause wear thereof. For this reason, the anti-annoyance device of the invention is made readily detachable and, in this sense, the resiliency of the ring 34 and the facile manner in which the anti-noise device 32 can be detached by removal of ends 38 and 40 from underneath flanges 42 and 44, along with provision of opening 45 in the ring to permit lateral removal of the ring, all function to make the anti-annoyance device especially useful. In other words, the anti-annoyance device can be readily dismounted radially when the sailing vessel is to be put into condition for operation and is readily mountable, for example, at night when the sails are lowered and secured and when the slapping of the halyards against the mast would be most noticeable.

FIG. 4 illustrates another embodiment of the invention wherein a corrugated ring 50 is mounted by supports 52 on a collar 54 which is provided with a closure device 56. The collar 54 may be fabricated of metal, plastic, leather, rubber or the like and is such that it can encircle and engage upon a mast or mast-like structure. The closure device 56 may be any conventional closure device such as a buckle and belt which is capable of forming a closed ring of the collar 54 and of providing an adjustable circumference for such collar so that it can adapt to various sizes of mast. The supports 52 may be of plastic or metal or the like and may be formed separately of or integral with the collar 54. The function of the supports 52 is to support the corrugated ring 50 on the collar 54 and thereby on the mast to which the collar 54 is applied. Halyards 58 fit into grooves 60 formed in the ring 50 and operate in the manner which has been indicated hereinabove. In other words, these grooves 60 extend longitudinally or axially along the ring in parallel with the halyards and mast and serve as receptacles for the halyards which are arbitrarily placed in the same and prevented by the grooves from moving circumferentially around the ring.

In the above description, reference has been made to mast and mast-like structures. These will, of course, include such structures such as flagpoles and the like which are fabricated of metal and which frequently operate to generate noise by the slapping of lines thereagainst under the influence of wind and the like. In general, the invention will be considered as providing an anti-noise device which is applicable to generally verti-

cal mast-like structures which include masts and flagpoles and the like.

From what has been stated, it will now be seen that there is provided in combination with an at least generally vertical mast-like structure and at least one flexible line extending along and longitudinally displaceable along the mast-like structure, an anti-annoyance device to prevent the slapping of such line against the mast-like structure. This anti-annoyance device comprises first means having a surface spaced from the mast-like structure and facing outwardly of the mast-like structure for peripherally supporting the line in spaced relation to the mast-like structure. A second means is provided to support the first means on the mast-like structure.

There will now be obvious to those skilled in the art many modifications and variations of the structure set forth hereinabove. These modifications will not depart from the scope of the invention if defined by the claims which follow hereinafter.

The invention, it will be seen, furthermore provides a method for preventing noise from being generated by loose halyards slapping against a mast on a sailing vessel or the like. The method comprises inserting an anti-annoyance device between the mast and halyards to triangulate the latter and place the same under tension when sails or sheet-like members otherwise supported by the halyards are lowered and secured.

In the above described embodiments of the invention reliance is placed to some extent upon a use of a resilient material to constitute the ring-like member upon which the halyards are supported. FIG. 5 illustrates a further embodiment of the invention wherein a ring 70 of the corrugated type can be fabricated of two parts 72 and 74 which are connected together by means of a hinge 76. The hinge 76 permits the part 72 and 74 to be adjusted between two attitudes, namely opened and closed attitudes. The ring is shown in closed attitude in which the ring 70 encircles the mast 10 and constitutes a substantially closed ring member.

It will be noted in FIG. 5 that the ring 70 includes two inwardly turned extensions 78 and 80 engaging in the manner indicated hereinabove in receptacles 82 and 84 formed between the flanges 86 and 88 of the guide 90 and the mast 10.

When in closed attitude the parts 72 and 74 can be held together by a locking member 92 which in the illustrated case is connected between eyes 94 and 96 respectively connected to extensions 78 and 80. The eyes 94 and 96 can be fabricated in different ways such as, for example, integrally with extensions 78 and 80. The locking member 92 may take a variety of forms including by way of example ropes, chains and hooks.

In the embodiment illustrated in FIG. 5 the ring 70 may be fabricated of various materials including but not limited to plastics, metals and so forth. Resilience is not an important factor in the embodiment of FIG. 5 and the strength requirement of the ring is minimal since the halyards cannot exercise very large forces in a radial direction inwardly towards the mast 10.

Finally, FIG. 6 illustrates an embodiment of the invention in accordance with which the track 100 is mounted on the mast 10 by means of a strap 102 fastened together at the diametrically opposite side of the mast 10 by means of a buckle 104 or the like. The device 104 is a fastening device which permits the strap 102 to be secured to masts of different diameters and

/or cross-sections. The strap 102 is preferably of a flexible material such as natural or synthetic rubber, plastic or flexible metal strips or the like. The purpose of the strap 102 and the fastener 104 is to mount a track 100 on the mast 10 to serve as a support in the manner indicated hereinabove for a ring-like member or the equivalent thereof which forms a spacer for halyards relative to the associated mast and prevents such halyards from slapping against the mast under conditions of high wind or vessel movement.

From what has been seen above, it is now further to be noted that the invention provides for the situation wherein the ring is fabricated of two or more parts connected by hinge means or the equivalent for purposes of enabling the ring-like member to be opened for purposes of being fit around a mast and being closed and thereafter supported on the mast to provide for triangulating halyards in the manner which has been described above. Also there has been further shown a means for detachably mounting a support on a mast-like structure including by way of example a flexible strap adapted for encircling a mast-like structure and having associated therewith a fastening device adjustably closing the strap.

What is claimed is:

1. A sailing vessel comprising a mast, a plurality of lines running along said mast to control the positions of sails relative thereto, and anti-noise means provided with an opening and located between the mast and lines to triangulate the latter and take up slack in the same with the sails lowered whereby to prevent the lines from slapping against the mast, said lines peripherally engaging said means without connection thereto whereby to facilitate mounting said means on said mast and dismounting said means from the mast, said anti-noise means being at least in part readily detachable by way of said opening radially from and relative to said mast to permit the raising and lowering of said sails.

2. A sailing vessel as claimed in claim 1 wherein said means includes a ring encircling said mast in spaced relation thereto and provided with longitudinal peripheral grooves to accommodate said lines.

3. A sailing vessel as claimed in claim 2 wherein said means includes a collar for engagement around the mast, closure means on the collar for locking the same on the mast, and support means supporting said ring on said collar.

4. A sailing vessel comprising a mast, a plurality of lines running along said mast to control the positions of sails relative thereto, and anti-noise means between the mast and lines to triangulate the latter and take up slack in the same with the sails lowered whereby to prevent the lines from slapping against the mast, said lines peripherally engaging said means without connection thereto whereby to facilitate mounting said means on said mast and dismounting said means from the mast, said means including a ring encircling said mast in spaced relation thereto and provided with longitudinal peripheral grooves to accommodate said lines, the mast including a vertical track for the guidance of a sail and being clear when the sail is lowered, said ring being a resilient member including intumed ends engaging the track for supporting the ring on the mast.

5. In combination with an at least generally vertical mast-like structure and at least one flexible line extending along and longitudinally displaceable along said structure, an anti-annoyance device provided with an

opening and located to prevent the slapping of said line against said mast-like structure, said anti-annoyance device comprising first means having a surface spaced from said mast-like structure and facing outwardly of said mast-like structure for peripherally supporting said line in spaced relation to the mast-like structure, and second means to support said first means on said mast-like structure, at least said first means being readily detachable by way of said opening radially from and relative to said mast-like structure to permit the raising and lowering of an article attached to said line.

6. A combination as claimed in claim 5 wherein said first means is an at least substantially closed ring-like member.

7. A combination as claimed in claim 6 wherein said ring-like member is provided with longitudinal grooves as receptacles for said line.

8. A combination as claimed in claim 6 wherein said second means includes a collar encircling said mast-like structure and at least one support supporting the ring-like member on the mast.

9. A combination as claimed in claim 6 wherein said ring-like member includes at least two parts and hinge means connecting said parts.

10. A combination as claimed in claim 9, wherein said parts have opened and closed attitudes, comprising means to hold said parts in closed attitude.

11. In combination with an at least generally vertical mast-like structure and at least one flexible line extending along and longitudinally displaceable along said structure, an anti-annoyance device to prevent the slapping of said line against said mast-like structure, said anti-annoyance device comprising first means having a surface spaced from said mast-like structure and facing outwardly of said mast-like structure for peripherally supporting said line in spaced relation to the mast-like structure, and second means to support said first means on said mast-like structure, said first means

being an at least substantially closed ring-like member, said second means including a longitudinal track on the mast-like structure for slidably supporting sail structures and extensions on said ring for engaging said track.

12. In combination with an at least generally vertical mast-like structure and at least one flexible line extending along and longitudinally displaceable along said structure, an anti-annoyance device to prevent the slapping of said line against said mast-like structure, said anti-annoyance device comprising first means having a surface spaced from said mast-like structure and facing outwardly of said mast-like structure for peripherally supporting said line in spaced relation to the mast-like structure, and second means to support said first means on said mast-like structure, said first means being an at least substantially closed ring-like member, said second means including a support and mounting means for detachably mounting said support on said mast-like structure.

13. A combination as claimed in claim 12 wherein said support defines with said mast-like structure oppositely opening receptacles and said ring-like member includes extensions extending into said receptacles.

14. A combination as claimed in claim 13 wherein said mounting means includes a flexible strap encircling said mast-like structure and a fastening device adjustably closing said strap.

15. A method for preventing noise from being generated by loose halyards slapping against a mast relative to which a sheet-like member is raised and lowered, said method comprising inserting an anti-annoyance device between said mast and halyards to triangulate the latter and place same under tension when said sheet-like member is lowered, and removing said anti-annoyance device radially to permit the raising and lowering of said sheet-like member.

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