June 4, 1963 W. N. BENEDICT 3,092,064

SAIL SLIDE ARRANGEMENT

Filed March 22, 1961

FIG. 1

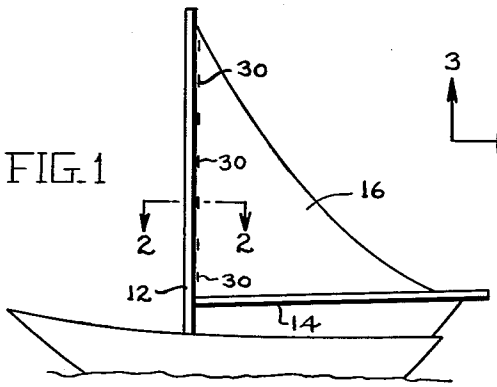


FIG 2

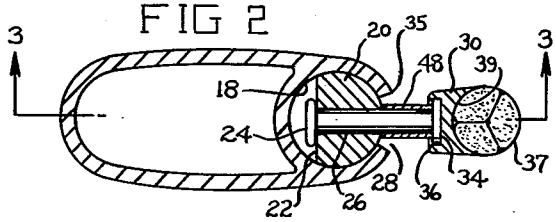
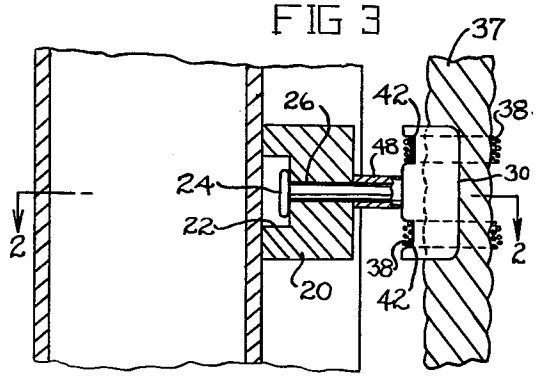


FIG 3



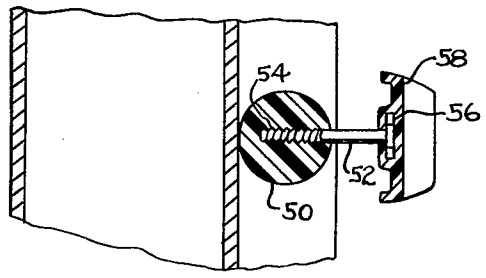


FIG. 6

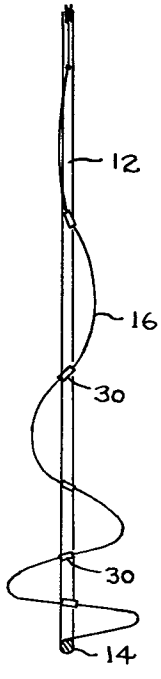


FIG. 4

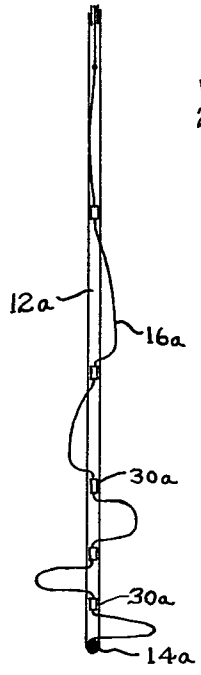


FIG. 5

INVENTOR.

WILLIAM N. BENEDICT

BY

JOHN E. Mc RAE

United States Patent Office 3,092,064 Patented June 4, 1963

3,092,064

SAIL SLIDE ARRANGEMENT

William N. Benedict, 145 Mohawk Place, Dearborn, Mich.

Filed Mar. 22, 1961, Ser. No. 97,552
3 Claims. (Cl. 114—112)

This invention relates to an improved guide-slide arrangement for facilitating the raising and lowering of the sails in a conventional sail boat. The particular aim of this invention is to provide a novel guide structure which will enable the sails to be freely raised and lowered without binding of the slide elements in the fixed guides.

Among the more important objects of the invention are the provision of a sail guide-slide arrangement wherein the individual slide elements can be manufactured as relatively low cost devices on a mass production basis, wherein the individual slide elements can be easily connected with spaced selected areas of the sails and then readily installed on a mast track structure, wherein the slide elements function very smoothly in the mast track without binding therein, and wherein the sails may very easily be raised and lowered on the mast without excessive drag from the slide elements. Other objects of the invention will be apparent as the description proceeds.

In the drawings:

FIG. 1 is a side elevational view of a sailboat having one embodiment of the invention installed thereon,

FIG. 2 is an enlarged sectional view taken on line 2—2 in FIGS. 1 and 3,

FIG. 3 is a sectional view taken on line 3—3 in FIG. 2,

FIG. 4 is a schematic representation showing the configuration taken by the sail in the illustrated embodiment as it is lowered from its raised operating position to its lowered standby position,

FIG. 5 is a schematic representation showing the configuration taken by the sail in a conventional arrangement during the sail-lowering movement.

FIG. 6 is a view of a second embodiment of the invention taken in the same direction as FIG. 3.

Referring in greater detail to the drawings, there is shown in FIG. 1 a conventional sailboat **10** having an upright mast **12** and a generally horizontally extending boom **14** for supporting the sail **16**. As best shown in FIG. 2, the mast is of hollow configuration, with the rear portion thereof configured to define a generally cylindrical guide surface **18** for shoes or slide elements **20**. Each shoe is connected to one of a series of saddles **30**, which are secured to vertically spaced areas of a luff rope **37** forming part of the conventional sail **16**. The arrangement is such as to mount and maintain the sail for movement between its FIG. 1 operating position and a standby position draped over the boom **14**.

Referring to FIGS. 2 and 3, each of the shoes **20** is of generally cylindrical configuration so as to fit smoothly within the track surface **18** and slide and rotate freely thereon. The side surface area of each shoe is cut away, as at **22**, to define a recess for receiving the head portion **24** of a connector pin **26**. As will be seen best from FIGS. 3 and 4, each connector pin extends freely through a transverse bore in its shoe **20**, thence through vertical slot **28** formed at the rear of the fixed track **18**, and thence into the saddle **30**. Preferably, although not necessarily, the enlarged head portion **34** of the connector pin is affixed to the saddle, as by clinching the areas **36** of the saddle onto the head portion.

FIG. 3 of the drawings shows the luff rope **37** of the sail secured to the saddle by means of wrapped around twine denoted generally by numeral **38**. In order to ensure that the rope and saddle will remain anchored together the back surface of the saddle is configured as cylindrical surface **39**, and the front surface of the saddle is configured to define two vertically spaced notches or recesses **42**. In this manner the saddle has an extensive area of contact with the rope, and the twine is securely locked against working off the upper or lower areas of the saddle so that each saddle is securely retained in designated position on the luff rope.

In the process of installing the shoe-saddle assemblies into a sailboat construction the assemblies are preferably sewn to the sail, as by the aforementioned twine **38**. The shoe portions are then inserted into track surface **18** through an enlarged opening (not shown) adjacent the base of the mast. Since the shoes are freely journaled on the connector pins **26** there would be some tendency for the shoes to slide or work along the pins toward the saddles so as to make it difficult for the shoes to be inserted into the tracks. In order to prevent such action there is preferably provided around each pin **26** a spacer sleeve **48**, which has the function of constantly maintaining the shoes and saddles in the desired spaced apart relationship.

Sleeve **48** is freely rotatable on pin **26** so that during operation of the sail the sleeve functions as roller whenever it contacts the fixed edge surfaces **35** formed by the aforementioned track slot **27**, as when the sail is taken by the wind to assume an angle to the ship centerline. The action of sleeve **48** is such that pins **26** are prevented from rubbing against edge surfaces **35** in a manner to cause premature wear and early failure in service.

One important feature of the invention resides from the fact that due to the utilization of pins **26** each shoe **20** is rotatably related to the corresponding saddle **30**. By this arrangement the sail can be folded or draped down toward boom **14** without binding of the shoes in the fixed track. Thus, referring to FIG. 4, as the sail undergoes its lowering movement the saddles **30** can turn around the pin **26** axes without transmitting the turning motion to the shoes **20**. The shoes can thus continue to work smoothly in the vertical track without tendency to bind or cant against the track surface **18**.

The advantage of the invention arrangement may be better appreciated by referring to FIG. 5 which illustrates the operation which would occur if the shoes and saddles were not free to turn relative to one another. Thus, as the sail undergoes its lowering movement the weight and inertial factors associated therewith tend to twist the various saddles **30***a* toward angular positions extending crosswise of the fixed track. The various shoes are thereby canted in the track so as to be frictionally retarded against smooth easy movement. The resultant action is characterized by a slow irregular movement of the sail, and in some cases by an actual failure to assume a fully lowered position except after manual forcing of the shoes down in the track. The disadvantageous condition is avoided with the invention arrangement.

The above description has proceeded on the basis that each connector pin **26** is affixed to its saddle and freely rotatable in its shoe. However it will be understood that within the broader aspects of the invention each connector pin could be rotatably related to its saddle, in which case the shoe could be free on the pin or affixed thereto as production requirements would dictate.

The invention may be embodied in a construction of the type shown in FIG. 6, wherein the slidable shoe is formed as a spherical member **50**. In this form of the invention the rope-engaging saddle **58** is formed of molded plastic around the head portion **56** of a conventional bolt **52**. The threaded portion **54** is secured to shoe **50**, as by molding the shoe around the bolt. Other methods

of securing connector **52** to the saddle and shoe can also be employed.

In use of the FIG. 6 construction, while the sail is being lowered the turning forces from the sail are transmitted to bolt **52**, and due to the spherical nature of shoe **50** the shoe is enabled to rotate around the bolt axis without exerting any opposing twist force back to the sail. In this manner the sail is enabled to be easily lowered with a smooth action such as described in connection with the description of FIG. 4.

I claim:

1. In a sailboat having an upright mast and a sail mounted for raisable and lowerable movement thereon, the combination comprising a hollow track extending lengthwise along the mast, said track having a vertical slot extending substantially its entire length, the interior surface defined by the track being cylindrical in contour, a series of shoes slidably disposed within said track for vertical sliding movement therein, each of said shoes being substantially circular in horizontal section for horizontal pivoting in the track, a plurality of saddles, one for each shoe, said saddles being mounted at spaced points along the sail to secure said sail for raising and lowering movement, a connector pin extending from each saddle to a corresponding one of the shoes, each connector pin having a rotary fit in at least one of said saddle and shoe, and a sleeve freely encircling each connector pin to rollably engage a portion of the track when the sail is obliquely angled to the vertical slot of the track, the diameter of the sleeve being less than the width of the slot to permit the connector pin and sleeve to pivot in a horizontal plane, the arrangement ensuring that the sail will move freely during raising and lowering.

2. The combinataion of claim 1 and further characterized in that said shoes have an elongated, generally cylindrical configuration.

3. The combination of claim 1 and further characterized in that each shoe has a generally spherical configuration.

References Cited in the file of this patent

UNITED STATES PATENTS

259,209 Rand ---------- June 6, 1882

FOREIGN PATENTS

256,360 Great Britain ---------- Aug. 12, 1926