United States Patent

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[31] 13, 843/68

[54] **ROTARY BOOM FITTING**
14 Claims, Drawing Fig.

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[51] Int. Cl. B63h 9/04
[50] Field of Search 114/102, 105, 106, 39

[56] **References Cited**
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ABSTRACT: A device for connecting a sail boom to a mast or other structure with which it is to be used comprising a first part for connection to or integral with the boom and a second part adapted for connection to the mast, the two parts engaging one another and locking together against rotation, release means which can be operated to hold the parts in an unlocked position so that one can be rotated in relation to the other and safety means which act to shroud the gap between the two relatively moveable parts when they are held in their unlocked position.

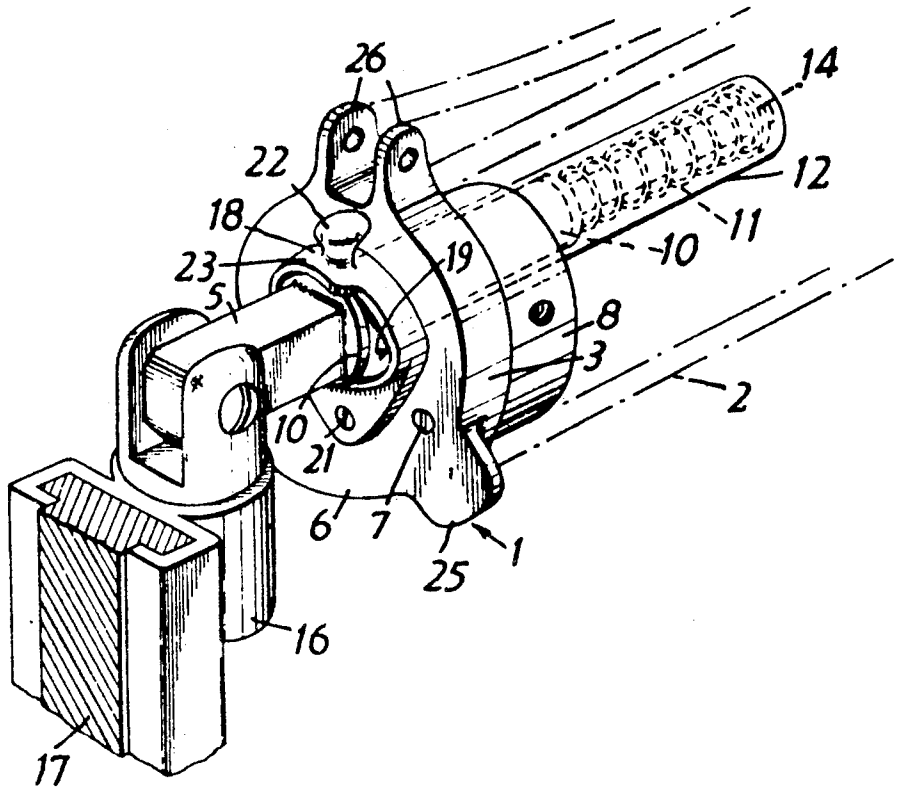


Fig.1.

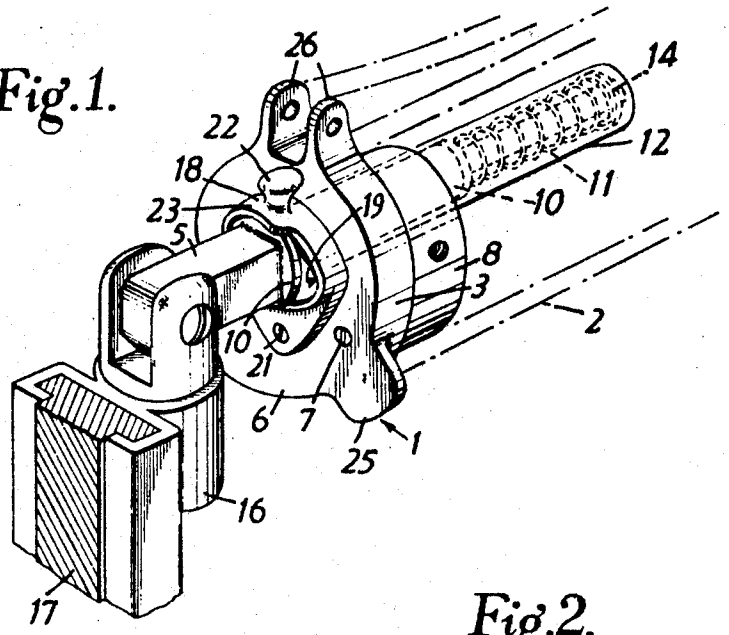
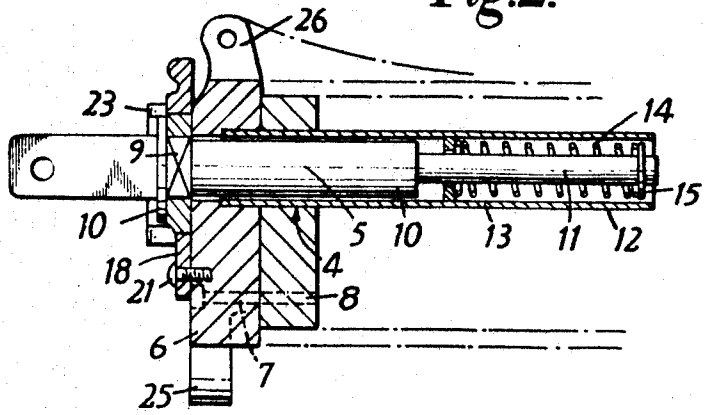


Fig.2.



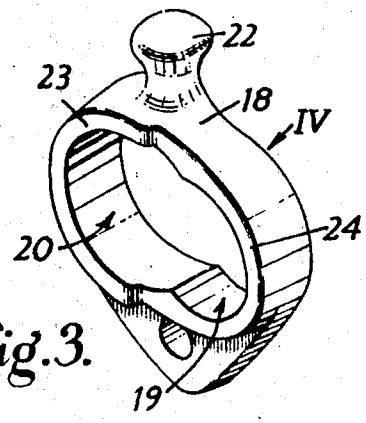
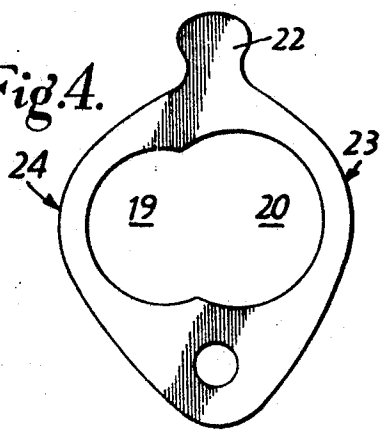


Fig.3.

Fig.4.



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ROTARY BOOM FITTING

This invention relates to a sail boom connecting device and is intended for use to connect a boom on which a sail may be rigged to another part of the structure of the craft such as the mast or some other spar on which the boom is mounted. The term mast is intended to include space frame structures or even stressed wire assemblies to which a boom may be connected.

The invention is intended to provide a construction by means of which the boom can be locked against rotation in normal use, but can be released so that it can be revolved to take in a reef by rolling the sail around the boom.

According to the present invention a device for connecting the sail boom to a mast or other structure with which it is to be used comprises a first part for connection to or integral with the boom and a second part adapted for connection to the mast, the two parts engaging one another and locking together against rotation, release means which can be operated to hold the parts in an unlocked position so that one be rotated in relation to the other and safety means which act to shroud the gap between the two relative moveable parts when they are held in their unlocked position.

The safety means therefore prevent the operator of the device trapping his fingers or part of his hand between the two parts, especially when operating the release means from the unlocked position.

In a preferred arrangement the safety means are provided on the release means which can be operated to hold the parts in an unlocked position.

Preferably the first and second parts are locked together by means of a shaped plug and socket arrangement which can be held out of engagement by the release means which comprise a spacer which can act on abutments provided on the first and second parts, the spacer having a shroud within which the plug is housed when the parts are in their locked position.

The spacer may thus comprise an annular member having an inner opening formed by two interengaging circular bores one of which is of greater diameter than the other.

Preferably the spacer is pivoted to one of the parts and the axes of the two interengaging bores are displaced from each other in the direction of angular movement of the spacer about its pivot.

The spacer may be provided with an operating knob at a point radially displaced from the pivot point to assist in moving the spacer from a position in which the shaped plug portion passes through it and engages the socket, to a position in which this engagement is prevented by the portion surrounding the smaller bore.

In a preferred embodiment at least part of the portion of the spacer surrounding the larger bore is of greater axial length than the portion surrounding the smaller bore which is engaged by the abutments when the spacer is in its operative position.

In any case, the plug which engages with its co-operating socket may be of square or polygonal cross section.

If desired the device could be incorporated with a boom, as opposed to being a separate fitting and the invention therefore also includes a sail boom incorporating or having attached thereto a device as set forth above.

The invention may be performed in many ways but one embodiment will now be described by way of example and with reference to the accompanying drawings in which,

FIGURE 1 is an isometric view of the device according to the invention,

FIGURE 2 is a part cross sectional side elevation of the construction shown in **FIGURE** 1,

FIGURE 3 is an isometric view of a spacer which is used in the construction shown in **FIGURE** 1 and,

FIGURE 4 is an end elevation of the spacer in the direction of the arrow IV in **FIGURE** 3.

The device comprises two main parts, a first part which is in the form of an end attachment **1** for a hollow metal boom indicated by broken lines which is formed by an end piece **3** which is provided with a square hole **4** and which constitutes a socket into which a second part in the form of a plug **5** can fit. The end piece **3** can be formed by a casting or mechanical from the solid, or as shown in the drawings be made up from an end plate **6** connected by screws **7** to an insert **8** the hole **4** in the plate **6** being square but being continued as a circular hole in the insert **8**. One end of the plug **5** is of generally rectangular cross section as shown at **9** and is so dimensioned that when it is fitted into the socket **4** the socket cannot rotate. An abutment flange **10** is provided on the square part **9** so that only a small portion of it can enter the socket. The plug **5** is also provided with an intermediate portion **10** which is of circular cross section and which has an inner end portion **11** which is of reduced diameter. A tube **12** projects rearwardly from the insert **8** on the first part in line with the socket and has an internal bore into which the mid portion **10** of the plug is located. Also mounted within the tube **12** is an abutment flange in the form of a collar **13** against which a spring **14** can react. This compression spring **14** surrounds the reduced inner end portion **11** of the plug **5** which carries a retaining washer **15** so that the plug is biased towards a position in which the square portion **9** is within the square socket **4**. Thus, the plug **5** is biased towards a locked position in relation to the end plate **6**.

The outer end of the plug **5** is provided with a goose-neck fitting **16** of any convenient kind and in the arrangement shown in **FIGURE** 1 is arranged to be moveable on a track **17** which can be secured to or is integral with the mast of the sailing carft with which the invention is to be used.

Also mounted on the end plate **6** on the first part is a spacer **18** shown in detail in **FIGURES** 3 and 4 and which is in the form of an annular member having an inner opening formed by two interengaging circular bores **19** and **20**. The bore **20** being of greater diameter than the bore **19**. The spacer **18** is pivoted to the end plate **6** by the screw **21** and the axes of the two interengaging bores **19** and **20** are displaced from each other in the direction of angular movement of the spacer about its pivot **21**. The spacer **18** is also shaped to provide an operating knob **22** at a point radially displaced from the pivot point and it is pivoted to the end plate **6** so that the plug **5** passes through its inner opening formed by the bores **19** and **20**. The diameter of the larger bore **20** is slightly more than the diameter of the abutment flange **10** on the square part **9** of the plug so that the spacer can be moved to a position in which it merely surrounds the abutment flange **10** as a shroud as shown in **FIGURE** 1. When the boom is moved rearwardly against the action of the spring **14** the spacer **18** can be rotated about its pivot **21** into the position shown in **FIGURE** 2 in which the smaller bore **19** surrounds the square part **9** of the plug **5**. The diameter of this smaller bore **19** is such that it is less than the diameter of the abutment flange **10** and it thus acts to hold the square part **9** of the plug out of engagement with the square hole **4** in the end plate **6**. A portion **23** of the spacer surrounding the larger bore **20** is of greater axial length than the portion **24** surrounding the smaller bore **19** which is engaged by the abutment flange **10** when the spacer is in its operative position and this portion **23** surrounding the larger bore thus provides a shroud which will prevent the operators fingers entering the gap between the abutment flange and the plate **6** when operating the spacer **18**. It will of course be appreciated that the axial length of the spacer surrounding the smaller bore is sufficient to prevent the square section **9** of the plug entering the square hole **4** in the end plate **6**.

When the spacer has been moved to its operative position as shown in **FIGURE** 2 the boom **2** can be rotated relatively to the goose-neck fitting **16** to roll in a reef or to perform some other function and when it is again desired to lock the boom **2** against rotation it is merely necessary to rotate the spacer **18**, the spring **14** again drawing the plug **5** into engagement with the socket to lock it into position.

In order to assist in rolling the sail about the boom when reefing the end plate **6** has ears **25** which act to locate the bolt rope of the wound sail and prevent its extending over the edge

and fouling or hiding the spacer **18**. The plate **6** also has a pair of attachment lugs **26** to which the tack of the sail can be pinned.

The arrangement described and shown in the drawings shows a construction which can be fitted to an existing hollow boom but if desired the tube **12** and end piece **8** could be made integral with the boom during its original construction. If the invention is to be applied to, for example, a wooden boom, then the end plate could be provided with side plates for securing to the sides of the boom, and the boom would of course have to be provided with a bore to accommodate the tube **12**.

I claim:

1. A device for connecting a sail boom to a mast comprising a first part for connection with a boom and a second part having means for connection to a mast, one of said parts having a shaped plug and the other of said parts having a complementarily shaped socket normally receiving said plug and locking said two parts together against rotation, release means mounted for movement between said two parts to hold said two parts in an unlocked position without further attention and facilitate the rotation of one part in relation to the other, and safety means positioned relative to said parts to shroud a gap which occurs between the two relatively moveable parts when they are held in their unlocked position.

2. A device as claimed in claim **1** in which said safety means are mounted on said release means.

3. A device as claimed in claim **2** in which said two parts have oppositely facing abutments, and said release means includes a spacer selectively positionable between said abutments, the spacer having a shroud within which the plug is housed when the parts are in their locked position.

4. A device as claimed in claim **3** in which the spacer comprises an annular member having an inner opening formed by two interengaging circular bores, one of which is of greater diameter than the other for selectively receiving and spacing one of said abutments.

5. A device as claimed in claim **4** in which the spacer is pivoted to one of the parts and the axes of the two interengaging bores are displaced from each other and in the direction of angular movement of the spacer about its pivot.

6. A device as claimed in claim **5** in which the spacer carries an operating knob at a point radially displaced from the pivot point.

7. A device as claimed in claim **4** in which said spacer has a portion surrounding the larger bore of greater axial length than a portion thereof surrounding the smaller bore, and said latter mentioned portion being engageable by the abutments when the spacer is in its operative position.

8. A device as claimed in claim **1** in which the plug is of polygonal cross section.

9. A device as claimed in claim **1** in which the socket is provided on the first part and the plug is provided on the second part.

10. A device as claimed in claim **9** in which the first part carries a tube extending rearwardly of the shaped socket and the plug has an extension in the form of a circular pin projecting into said shaped socket.

11. A device as claimed in claim **10** in which the first and second parts are resiliently biased towards their locked position.

12. A device as claimed in claim **11** in which the first part carries a spring which is housed within said tube and which acts to draw the plug into the socket.

13. A device as claimed in claim **1** in which the means on the second part for connection to a mast is part of a gooseneck fitting.

14. A device as claimed in claim **1** in which the first and second parts are resiliently biased towards their locked position.