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Publication number:

0 056 259
A1

EUROPEAN PATENT APPLICATION

Application number: **82100094.0**

Int. Cl.³: **B 63 B 21/08, F 16 G 11/10**

Date of filing: **08.01.82**

Priority: **08.01.81 US 223255**

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Date of publication of application: **21.07.82**
Bulletin 82/29

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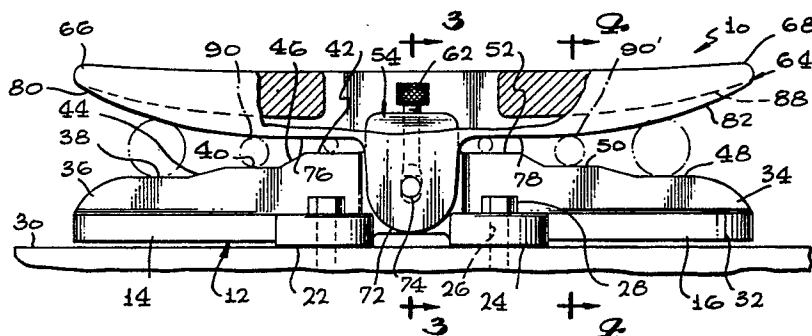
Designated Contracting States: **AT BE CH DE FR GB IT LI LU NL SE**

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Cleat for multiple sizes of line.

The present invention relates to cleats for securing multiple sizes of lines. The disclosed cleat has a base for mounting on deck or dock, and the cleat head is pivotably mounted so that it may rock with respect to its base. The base has a plurality of stepped seats arranged on both sides of the pivot point,

with higher steps being disposed towards the generally centrally located pivot point. The horns on the head cooperate with the seats to form jaws in which lines of various sizes can be releasably clamped. The horns are slightly upwardly curved to provide for easy receipt and clamping of lines of different sizes.



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TECHNICAL FIELD

This invention is directed to a cleat which can receive
5 and secure lines of different sizes, particularly used for mooring boats and other line securement.

Flexible lines have long served as a means for connection between various devices and equipment. They are widely used on boats and ships, and particularly sailboats where various lines
10 are employed to control various sail functions. Additionally, various lines are used for mooring or docking boats. Flexible lines are also used for various nonnautical purposes, such as for hoists and pulling devices. Often, such lines must be temporarily attached to hold the boat against the dock and to hold the
15 holst line in position. Easy, quick and reliable attachment is desirable, together with ease of release of the line when release is desired. Consequently, several types of bits, cleats and bollards have been designed for the securement of such lines. Some of the prior structures are particularly designed so that
20 they will not catch lines when lines move across them, see Thompson U.S. Patent 107,738; Winther U.S. Patent No. 2,870,733; Bigelow U.S. Patent 3,126,859; and Johnson U.S. Patent 3,597,808. While these structures have a movable part, they are designed to move from a functioning position to a nonfunctioning position.
25 Another twopiece cleat is represented by Semolic U.S. Patent 2,833,240. Thus, there is a need for a structure which enhances cleating force on a line.

It is desirable for a cleat to be able to handle lines of different sizes and to successively clamp and cleat lines of
30 different sizes without adjustment of the cleat between use with one size of line and use with another size of line.

SUMMARY OF THE INVENTION

In order to aid in the understanding of this invention, it can be stated in essentially summary form that it is directed
35 to a cleat for use with multiple sizes of line and for the clamping securement of line within the cleat. The cleat has a base, and stepped seats are formed on the base. Between the stepped seats, a head is pivoted, and the head has horns which extend over the stepped seats on opposite sides of the pivot so that rocking
40 of the head causes its horns to move in clamping relationship

with the stepped seats and providing space therebetween for clamping line of various sizes.

It is, thus, an object of this invention to provide a cleat suitable for securement of multiple sizes of line.

5 It is another object to provide such a cleat which has a head pivoted with respect to a base, and has horns thereon which swing with respect to the base for clamping line therebetween, and stepped seats facing the horn for cooperation therewith for line clamping. It is a further object to provide a cleat wherein the
10 stepped seats and the facing horns are configured so that lines of various sizes can be clamped therebetween without adjustment. It is a further object to provide a cleat which can reliably and quickly clamp multiple sizes of line therein without intermediate adjustment.

15 The features of the present invention which are believed to be novel are set forth with particularity in the appended claims. The present invention, both as to its organization and manner of operation, together with further objects and advantages thereof, may be best understood by reference to
20 the following description, taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

FIGURE 1 is a side-elevational view of the cleat for multiple sizes of lines in accordance with this invention, with
25 parts broken away and parts taken in section.

FIGURE 2 is a plan view thereof.

FIGURE 3 is a section taken generally along the line 3-3 of FIGURE 1.

FIGURE 4 is a section taken generally along the line
30 4-4 of FIGURE 1.

FIGURE 5 is a side elevational view of the cleat, similar to the view in FIGURE 1, but showing the cleat securing a line therein, with the head of the cleat in the tilted position.

DESCRIPTION OF THE PREFERRED EMBODIMENT

35 The cleat for multiple sizes of line in accordance with this invention is generally indicated at 10 in FIGURES 1, 2, and 3. It has a base 12 which has elongated arms 14 and 16 on which are secured the four feet 18, 20, 22, and 24. These feet are each provided with an opening therethrough, such as the opening 26

In foot 24 so that the base 12 may be secured down to a surface for the securement of cleat 10. As seen in FIGURES 1 and 2, fastening bolt 28 extends down through opening 26 and into the structure below surface 30 to secure the cleat onto the surface.
5 Similar fastening means extend down through the other feet. Preferably, the feet extend downwardly slightly below the bottom surface of the arms 14 and 16 so that the feet clamp solidly down onto the surface 30, with slight clearance under the arms 14 and 16.

10 The arms are configured in the shape of an inverted T. Arm 16 illustrated in FIGURE 4 has a T-head 32 and a web 34. In the inverted position illustrated, the web 34 extends upwardly. Arm 14 has a similar web 36, see FIGURES 1 and 2. The top edge of each of the webs is configured as the lower half of the
15 clamping jaws of the cleat 10. As is seen in FIGURES 1 and 2, the upper surface of web 36 is configured with substantially flat, stepped seats. Seats 38, 40 and 42 are illustrated and are separated by ramps 44 and 46. Similar seats 48, 50 and 52 are illustrated on web 34 on the right side of FIGURE 1, and seats
20 48 and 50 are seen in FIGURE 4. The seats are preferably substantially parallel to the bottom of the base and may be at the same height on the opposite elongated arms of the base. Thus, seats 38 and 48 are at the same height, seats 40 and 50 are at the same height, and seats 42 and 52 are at the same height.

25 As is seen in FIGURE 3, a central portion 54 has flat sides 56 and 58 that has a slot 60 therethrough. Slot 60 extends from one side to the other of the base and is slotted up and down in the base. Stop screw 62 is an adjustment screw which extends downward through the central portion 54 of the
30 base and extends into slot 60.

Head 64 has horns 66 and 68 which extend laterally from the central portion of the head. At the central portion, webs 70 and 72, see FIGURE 3, extend downwardly and embrace the central portion 54 of the base. Pivot pin 74 extends
35 through the webs and through the slot 60, beneath stop screw 62. Pivot pin 74 permits rocking of head 64 on the pivot pin with its horns 66 and 68 moving towards and away from the corresponding webs 34 and 36.

The horns 66 and 58 respectively have straight sections

76 and 78 closely adjacent the webs 70 and 72, towards the inner portions of the horns. The horns have gentle upward curves 80 and 82 outwardly from the straight section. FIGURE 4 shows horn 68 with its downwardly directed flanges 84 and 86 positioned
5 outwardly from recess 88. The recess 88 is approximately three times as large as the thickness of web 34 so that a line will be curved into secure engagement between the upstanding web and downwardly directed flanges on the horn. The gentle upward
10 curves 80 and 82 of the horns as they extend outward from the central pivot towards the outer ends provide more open spacing between the lower part of the horns and the upper facing steps on webs 34 and 36. In view of the fact that the steps are generally horizontal, the angle between the step and the adjacent part of the horn at which the line is engaged is more acute
15 than if the webs on the base were curved downwardly.

In use, a line is pulled into the space between the upwardly facing webs on the base and the lower curve of the horns on the head. As a particular example, line 90 is pulled into the space between web 36 and horn 66. In view of its inter-
20 mediate size, it can readily be pulled onto seat 40 as indicated in FIGURE 1. This action rocks head 64 to the right. Next, line 90 is pulled under horn 68 and over web 34, rocking the head to the left. This portion of the line 90 is identified as 90' in the right portion of FIGURE 1 and it is pulled up onto
25 seat 50, beneath horn 68, as shown in FIGURES 1 and 4. By this cleating action, the line 90 is seized or cinched on seat 40 and is engaged on seat 50 whereupon it is loaded by rocking the head to the left.

Cleat 10 is suitable for use with multiple sizes of
30 line without adjustment of stop screw 62 because of its stepped seats and the small curvature under the horns, facing the seats. A large line can be placed on one of the lower seats and still the angle between which the line is seized and engaged is sufficiently acute that the line is not squeezed out of
35 engagement. Similarly, a small line can be seized or cinched on one of the higher seats and engaged on a similar high seat on the opposite side of the pivot. Three different line sizes are shown, to indicate how the cleat 10 can engage multiple sizes without adjustment. The adjustable stop screw 62 is

usually only employed to adjust the cleat for the general service in which it will be used, including the size of the boat on which it is installed which is related to the size range of the lines for which the cleat 10 will be utilized. While three seat heights are illustrated and the head of the cleat is level, it can be readily seen that the same line may engage upon seats at two different heights on opposite sides of the pivot so that five different clamping pairs are available for seizing and engaging the line.

FIGURE 5 illustrates the manner in which the cleat 10 can secure a line of larger than minimum size. When the line is first pulled into the opening below the left horn, the head tilts to the right as shown. The line is seized beneath the horn, and when the same line is pulled under the right horn, as illustrated in FIGURE 5, engagement occurs when the line is then pulled under the right hand horn under the loaded end of the head. Due to the leverage of the engagement of the line under the right hand horn, seizing or cinching strongly occurs on the line under the left horn to reliably cleat the line. Furthermore, with the flexibility of such lines, the flexibility will make up for intermediate line sizes. Thus, multiple sizes of line can be readily cleated by seizing or cinching the line on one seat under its adjacent horn and engaging or loading the line onto a seat on the other end of the cleat base to coact with that horn for line securement.

This invention has been described in its presently contemplated best mode, and it is clear that it is susceptible to numerous modifications, modes and embodiments within the ability of those skilled in the art and without the exercise of the inventive faculty. Accordingly, the scope of this invention is defined by the scope of the following claims.

CLAIMS

1. A cleat comprising: a base, means on said base for securing said base onto a surface, said base having first and second oppositely disposed elongated arms, each of said arms having an upwardly directed web, a plurality of upwardly directed seats on each of said webs; a head pivotally mounted on said base, said head having first and second elongated horns directed over said webs so that pivotal motion of said head moves said horns towards and away from said webs, each of said horns having a downwardly directed surface positioned at an acute angle with respect to said seats so that, in use, a line may be seized on one of said seats and under its adjacent horn on one end of said cleat and engaged on another seat and under its facing horn on the other end of said cleat for cleating the line on said cleat.

2. The cleat as claimed in Claim 1 wherein said seats are substantially parallel to each other and are disposed step-wise from the distal ends of said base to the point at which said head is pivotally mounted on said base, the seats closer to the point at which said head is pivotally mounted also being more closely spaced from said head.

3. The cleat as claimed in Claim 2 wherein each of said horns has a pair of downwardly directed flanges spaced apart with a recess therebetween with said recess facing the corresponding web on said base.

4. The cleat as claimed in Claim 3 wherein said recess is at least twice as wide as the thickness of said web so that, in use, a line can be engaged in cinched configuration between said web and said downwardly facing flanges on said horn.

5. The cleat as claimed in Claim 1 further including pivot means on said base and said pivot means on said head for pivotally mounting said head to said base and adjustment means for adjusting said head towards and away from said base to adjust the spacing between said seats and said horns.

6. The cleat as claimed in Claim 5 wherein said pivot means on said base and said head comprise: an upwardly directed boss on said base, a pair of downwardly directed webs on said head embracing the sides of said boss, and a pivot pin extending therethrough to permit pivoting of said head with respect to said base.

FIG. 1

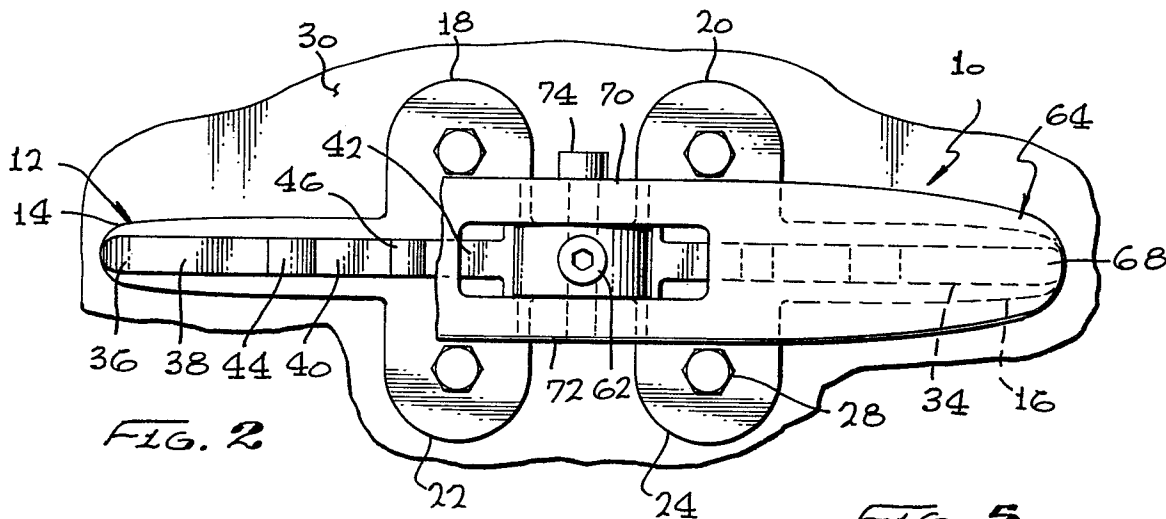
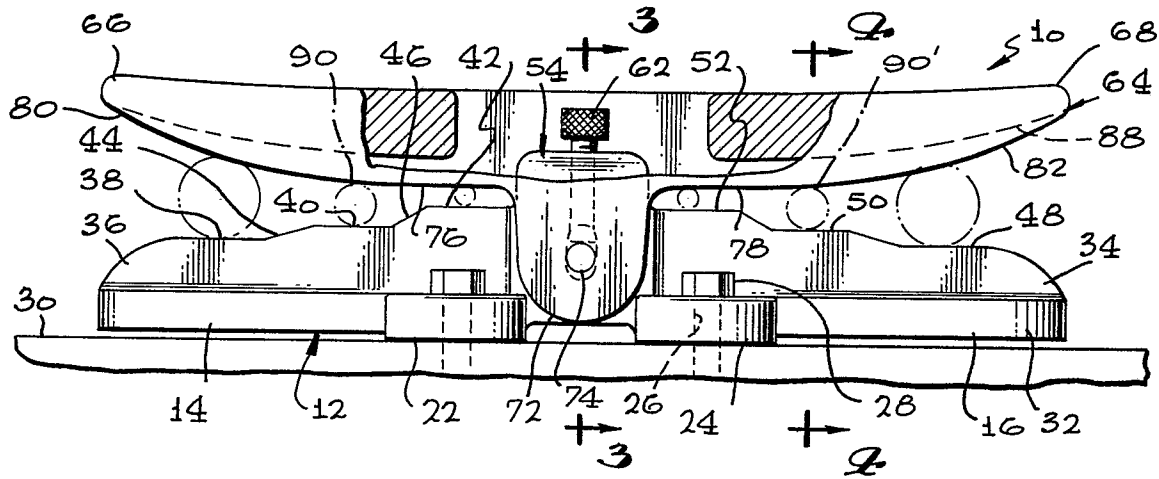


FIG. 3

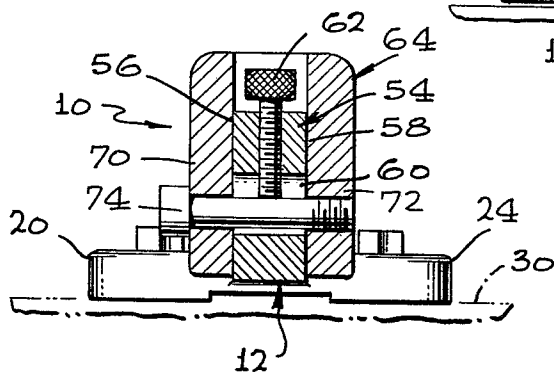


FIG. 5

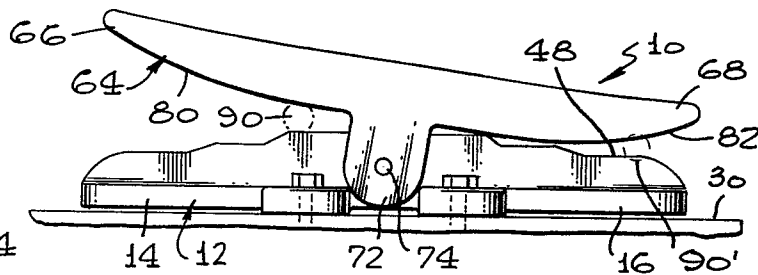
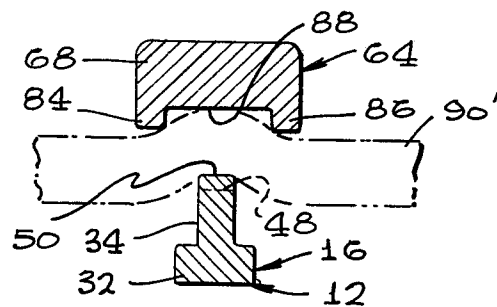


FIG. 4





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EUROPEAN SEARCH REPORT

0056259

Application Number

EP 82 10 0094

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int. Cl. ³)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
A	<u>GB - A - 873 245 (PIDCOCK)</u> * pages 1-3; figures 1-5 * ---	1	B 63 B 21/08 F 16 G 11/10
A	<u>GB - A - 1 329 015 (FULLAGAR)</u> * entire document * ---	1,6	
A	<u>US - A - 3 574 900 (EMERY)</u> -----		TECHNICAL FIELDS SEARCHED (Int.Cl. ³) B 63 B F 16 G
			CATEGORY OF CITED DOCUMENTS X: particularly relevant if taken alone Y: particularly relevant if combined with another document of the same category A: technological background O: non-written disclosure P: intermediate document T: theory or principle underlying the invention E: earlier patent document, but published on, or after the filing date D: document cited in the application L: document cited for other reasons
☒ The present search report has been drawn up for all claims			&: member of the same patent family, corresponding document
Place of search The Hague		Date of completion of the search 19-04-1982	Examiner DE SCHEPPER