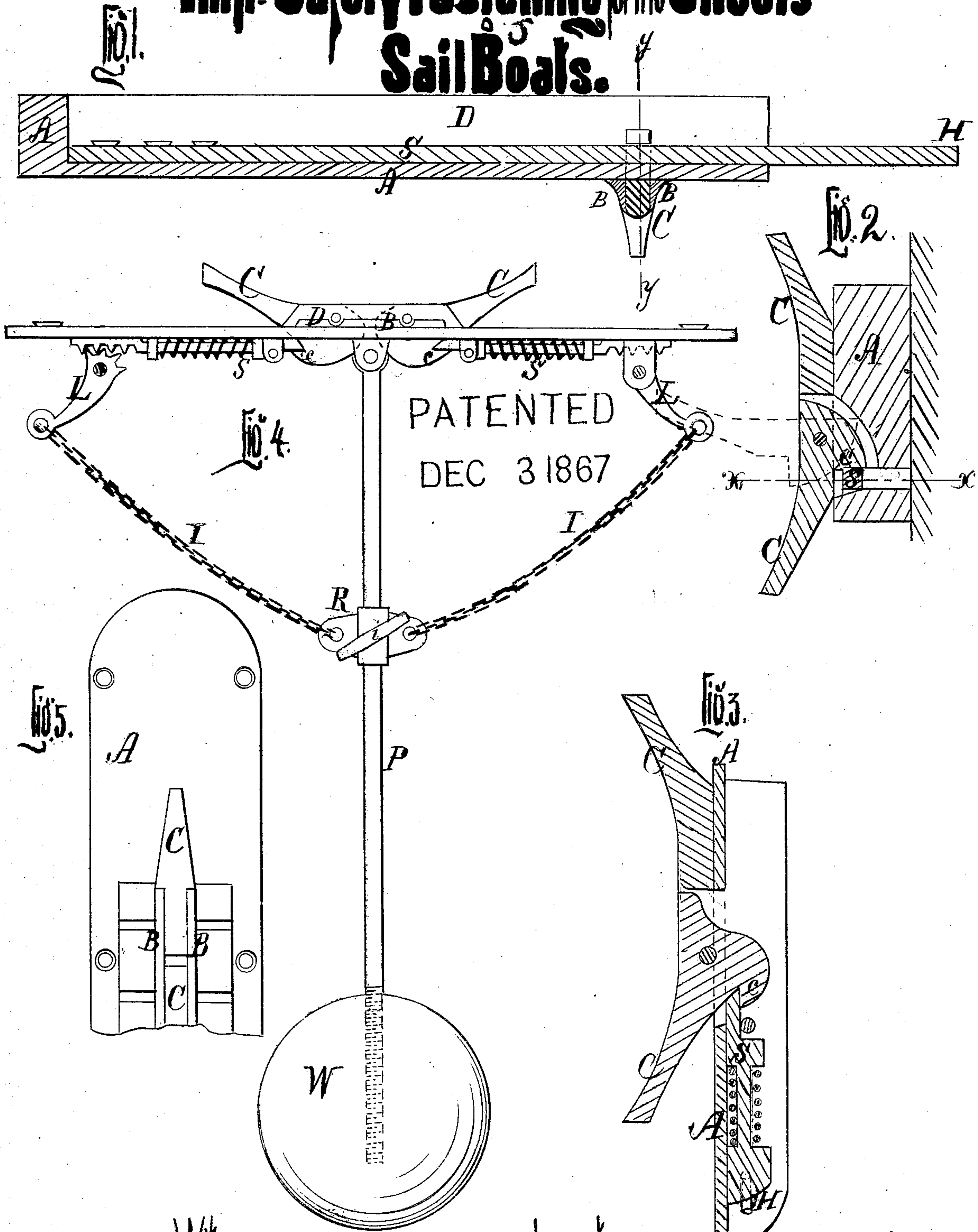


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Lysander Hill.

Imp^d Safety Fastening for the Sheels Sail Boats.



Witnesses:

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Inventor:

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LYSANDER HILL, OF ALEXANDRIA, VIRGINIA.

Letters Patent No. 71,615, dated December 3, 1867.

IMPROVEMENT IN AUTOMATIC CLEATS FOR SAIL-BOATS.

The Schedule referred to in these Letters Patent and making part of the same.

TO ALL WHOM IT MAY CONCERN:

Be it known that I, LYSANDER HILL, of the city and county of Alexandria, and the State of Virginia, have invented a new and improved Safety-Fastening for the Sheets of Sail-Boats; and I do hereby declare the following to be a full, clear, and exact description of the same, sufficient to enable one skilled in the art to which my invention belongs to construct and use the same, reference being had to the accompanying drawings, forming a part of this specification, and in which similar letters of reference denote corresponding parts.

Figure 1 is a section of my invention through the line *x x* of fig. 2.

Figure 2 is a section of the same through the line *y y* of fig. 1.

Figure 3 is a longitudinal section similar to that of fig. 2, but showing a different form of the device.

Figure 4 is a side elevation of the same when connected with a pendulum; and

Figure 5 is a top view of a portion of the apparatus seen in figs. 3 or 4.

This invention is a simple, cheap, and practical device for preventing the capsizing of boats by squalls.

The drawings show several forms of my invention. In all, however, the principle is the same. Two cleats or arms hold the sheet, one or both of the cleats being hinged and movable. The movable one is provided with a jaw, behind which a spring-stop or bolt slides, holding the cleat firmly in position as long as the stop is in contact with the jaw. When forced away from the cleat by hand or automatically, the cleat is released, and the force of the wind throws it over on its hinge and pulls off the sheet, liberating the sail. In one form it is designed that the spring-stop shall be withdrawn by hand, and in another by the action of the boat itself.

In the drawings, A represents the plate or block to which the cleats C C are attached, one or both of the cleats being hinged to lugs B B, projecting up from the surface of the block, so that such cleat can be easily turned back on its hinge as a pivot, as shown in red lines in fig. 4. A spring-stop, S, engages behind a jaw, *c*, on the under side of the cleat, and holds the latter firmly in place until the spring-stop is forced out of the way by hand or otherwise. I do not claim any particular form of spring-stop. In figs. 1 and 2 it is shown as a wooden spring-bar, fastened in a deep groove or gain, D, in the block, with its end projecting out at the end of the block at H; while in figs. 3 and 4 it is shown as a sliding plate or bar of metal actuated by a spring, which forces it behind the jaw *c*. The jaw *c* is bevelled off on one side, so that it will press the spring-stop back out of the way while the cleat is being set. When the cleat reaches the position shown in the black lines, the jaw passes the spring-stop, which instantly springs behind it and prevents its return till the stop has been removed. The spring-stop is either furnished with a projecting arm, by which it can be instantaneously pushed back from the jaw by a movement of the hand or foot, or else it is connected with the apparatus shown in fig. 4, which will force it back automatically whenever the boat reaches a dangerous position.

The simplest form of this device is shown in figs. 1 and 2, in which A is a rectangular block of wood, about eight inches in length by four in breadth, and from one to two in depth, having a deep, narrow, longitudinal gain or groove, D, on the side opposite to the cleats C C. The jaw *c* reaches down and into and across this groove, resting at the side of the groove when the cleat is set, as shown in fig. 2. The spring-stop is a long spring-bar of wood, fastened in the gain D, and springing up past the jaw *c*, so that the latter cannot move till the bar is withdrawn, one end of the bar projecting out of the gain. In this form the cleat which extends transversely across the top of the block A is set or fastened by simply pressing it down against the block. It is liberated again by pressing the hand or foot against the spring-stop and forcing the latter away from the jaw *c*, either operation being but the work of an instant. The rope or sheet which holds the sail is fastened to the cleats, and the force of the wind causes it to draw upon the movable one. While the latter is held in position by its jaw operating in connection with the spring-stop, the sheet is held fast, but when the spring-stop is forced away from the jaw, the cleat is liberated, and instantly turns back upon its hinge, letting the sheet go. The jaw *c* assists to clear the sheet, catching in it and throwing it upward and backward as the cleat turns over. In this form of construction the spring-bar may be used alone or in conjunction with an assisting spring under it in the gain. Any suitable method of fastening the fixed end of the spring-bar may be employed. It may be screwed, bolted, confined by pins operating in transverse notches upon it, or be fastened by inserting its end into a hole or socket at the inner end of the gain.

In the form shown in fig. 3, the wooden block A gives place to a metallic plate, having lugs to support the

cleats, and lugs *l l* on the opposite side, to support and guide the spring-stop. The latter is a sliding plate, actuated by a spring, as shown clearly in the drawings. A projecting arm, *H*, serves to draw the slide back and release the cleat.

In fig. 4 there are two movable cleats and two spring-stops, of the form shown in fig. 3. The stops are drawn back by means of pivoted arms or levers *L L*, terminating in a segment pinion, and operating on a rack on the spring-stop. A pendulum, *P*, heavily weighted, is suspended between the spring-stops, and upon its rod a ring, *R*, slides up and down, being fixed in any desired position on the rod, by a set-screw, *i*. The ring has two lugs, from which chains *I I* extend to the lower end of the levers *L L*. The lower end of the pendulum-rod screws into the weight *W*, so that it can be lengthened or shortened at pleasure. The device in this form is fastened to a thwart in a transverse position to the boat, the pendulum swinging underneath. As the boat careens to the left the sheet will pull on the right-hand cleat, as seen in the drawing. By the careening of the boat the right end of plate *A* will be raised, while the pendulum will remain vertical. The chain *I* on the right side will thus become taut, and begin to pull on the lever *L*, and if the boat careens far enough, will draw the spring-stop from behind the jaw *c*, liberate the sheet, and cause the boat to right again. The point to which the boat may be allowed to careen is to be ascertained, and the instrument gauged accordingly, by slipping the ring *R* up or down on the pendulum-rod. The chain *I* is to be of such a length that if the ring *R* is slipped up to the top of the pendulum, it will not act upon the levers at all, no matter how far the boat careens, and if it is slipped down far enough it will not allow the boat to careen at all without liberating the sheets. It is obvious that the instrument works the same, whether the boat careen to right or left.

This instrument has been thoroughly tested in small boats in the heaviest gales, and found to work admirably, instantly disengaging the sheet at the point of danger, and causing the boat to right herself upon the water without difficulty. Where the device above described is employed, the sheets may be tied and knotted to the cleats, or fastened down in any manner, and they will disengage themselves just as quickly, rendering the boat perfectly safe from any accident from squalls. If the automatic apparatus is not used, the other will instantly liberate the sheet, no matter how firmly it may be tied. It is only necessary to press the foot or hand lightly upon the arm *H*, so as to disengage the spring-stop, and the sail is free.

The great source of so many fatal accidents in small boats has been the fastening of the sheets by inexperienced or careless persons. If the sheet is tied or even wound two or three times about the cleat, when a heavy squall strikes the boat it will cause the sail to draw the knot or make the rope bind so tight that no amount of force can untie or disengage it, and the boat has to capsize. This improved device enables the occupants of the boat to fasten the sheets in any manner, and yet be perfectly safe. The use of such a device effects not only greater safety to the passengers, but a saving of time and labor that is of great importance. With it every sheet can be fastened down within reach of the helmsman, and he alone can attend to and regulate them without assistance. A two-masted boat has heretofore required two men to manage it with safety. With this instrument, one can do it with perfect ease.

Having thus described my invention, what I claim, and desire to secure by Letters Patent, as new, is—

The combination of the pendulum *P*, sliding gauge *R*, chains *I I*, or their equivalents, levers *L L*, or their equivalents, spring-stops *S S*, and cleats *C C*, substantially as and for the purposes set forth.

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Witnesses:

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