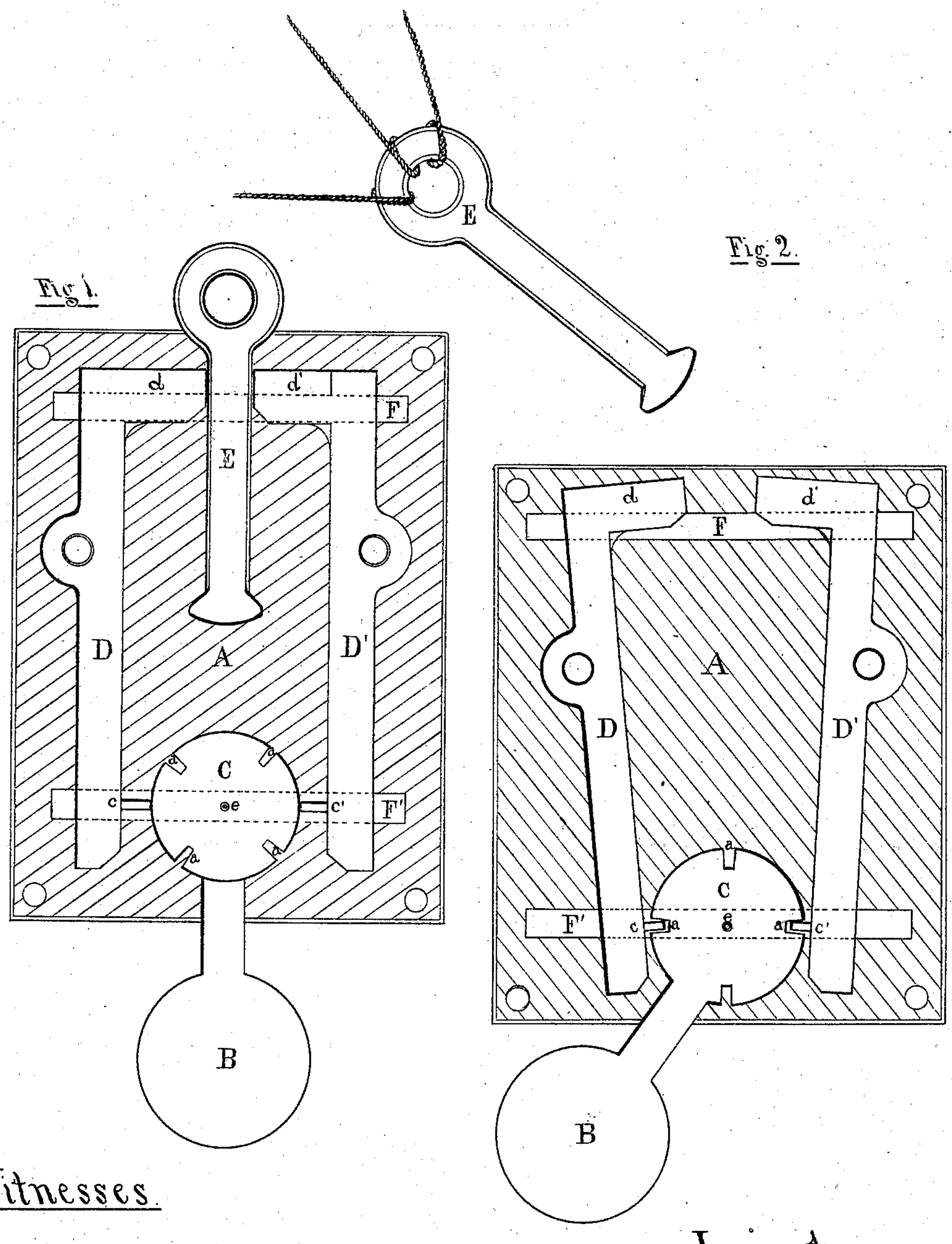
J. S. RAY.

AUTOMATIC CAST-OFF FOR SAILS OF VESSELS.

No. 182,288. Patented Sept. 19, 1876.



Witnesses.

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JOHN S. RAY, OF HUDSON, NEW YORK.

IMPROVEMENT IN AUTOMATIC "CAST-OFF" FOR SAILS OF VESSELS.

Specification forming part of Letters Patent No. **182,288**, dated September 19, 1876; application filed August 19, 1876.

To all whom it may concern:

Be it known that I, JOHN S. RAY, of the city of Hudson, county of Columbia, and State of New York, have invented an Automatic "Cast-Off" for Sails of Vessels, of which the following is a specification:

The object of my invention is to automatically, promptly, and efficiently cast off the standing part of the top-halyards, the standing part of the peak-halyards, and the standing part of the jib-halyards, or the jib-sheet, any one or more of these separately or all at once, by making them fast to the safety-bolt E, which is held by the lock-jaws *d d'*, and and these latter caused to open and let go the bolt, together with the halyards and sails attached, by the oscillation of the pendulum B, caused by the lurching or careening of the vessel.

The combination of the several parts of this device for preventing vessels from capsizing may be seen and clearly understood by reference to the accompanying drawings, forming a part of these specifications.

Figure 1 is a front or transverse sectional view of the several parts of my invention, in their relative combination and condition in ordinary sailing. Fig. 2 is a similar view, representing the condition of these parts in case of a lurch or list of forty-five degrees with the safety-bolt and halyards let go.

A cord or small rope may be attached to the ring of the safety-bolt, and made fast within convenient reach, to prevent its going farther away than just sufficient to allow the halyards to let go the sails, and so that with it the bolt may be brought back to its place.

To a back board, A, which is to be secured to the mast of the vessel or to a stanchion, I attach a heavy pendulum, B, with a short shaft, and having a circular disk-head, C, surrounding the center-pin, on which it vibrates. In the periphery of this circular head are cut gains or notches *a a a a*, on radii forming angles with the shaft of the pendulum of from twenty to forty-five degrees, according to the timidity or cautiousness of the sailing-master, or to the build of the vessel. These or any intermediate angle will be the degree of inclination to which the vessel is permitted to list, lurch, or careen before the sails with which the device is connected are let go.

On each side of this notched pendulum-head is a vertical lever-bar, D D'. These have their fulcrums *b b'*, at opposite points, attached to the back board A about two-thirds the way up from the pallets *c c'*, and one-third the length down from the jaws *d d'*, which form the top ends of the levers.

The pallets ride ordinarily on the periphery of the circular head C, as shown in Fig. 1, with no effect; but when the vessel lurches or careens to any angle to which it is limited, they then drop into these notches *a a*, &c., and immediately the jaws *d d'* open, and allow the headed (lower) end of the safety-bolt E to escape from them, and, as a result, the halyards and sails attached are promptly let go, and the vessel restored to her normal position.

Steady or tie bars F F' confine the several parts of the device in their places and to the back board A. They are represented in part by dotted lines, where they cross in front of other and working parts. (See Figs. 1 and 2.) The lower one of these forms a support for the outer end *e* of the center-pin of the pendulum.

Other equivalent devices for connecting the motions of the pendulum B with these halyards and sails, for casting them off, and thus preventing the vessel from capsizing, may be employed, but none so prompt and efficient in their operation as that above described.

I claim as my invention—

The combination of the pendulum B, having a circular head, C, provided with gains or notches *a a a a*, surrounding its vibratory center, with the vertical levers or clamp-bars D D' and safety-bolt E, substantially as and for the purpose hereinbefore set forth.

JOHN S. RAY.

Witnesses:

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