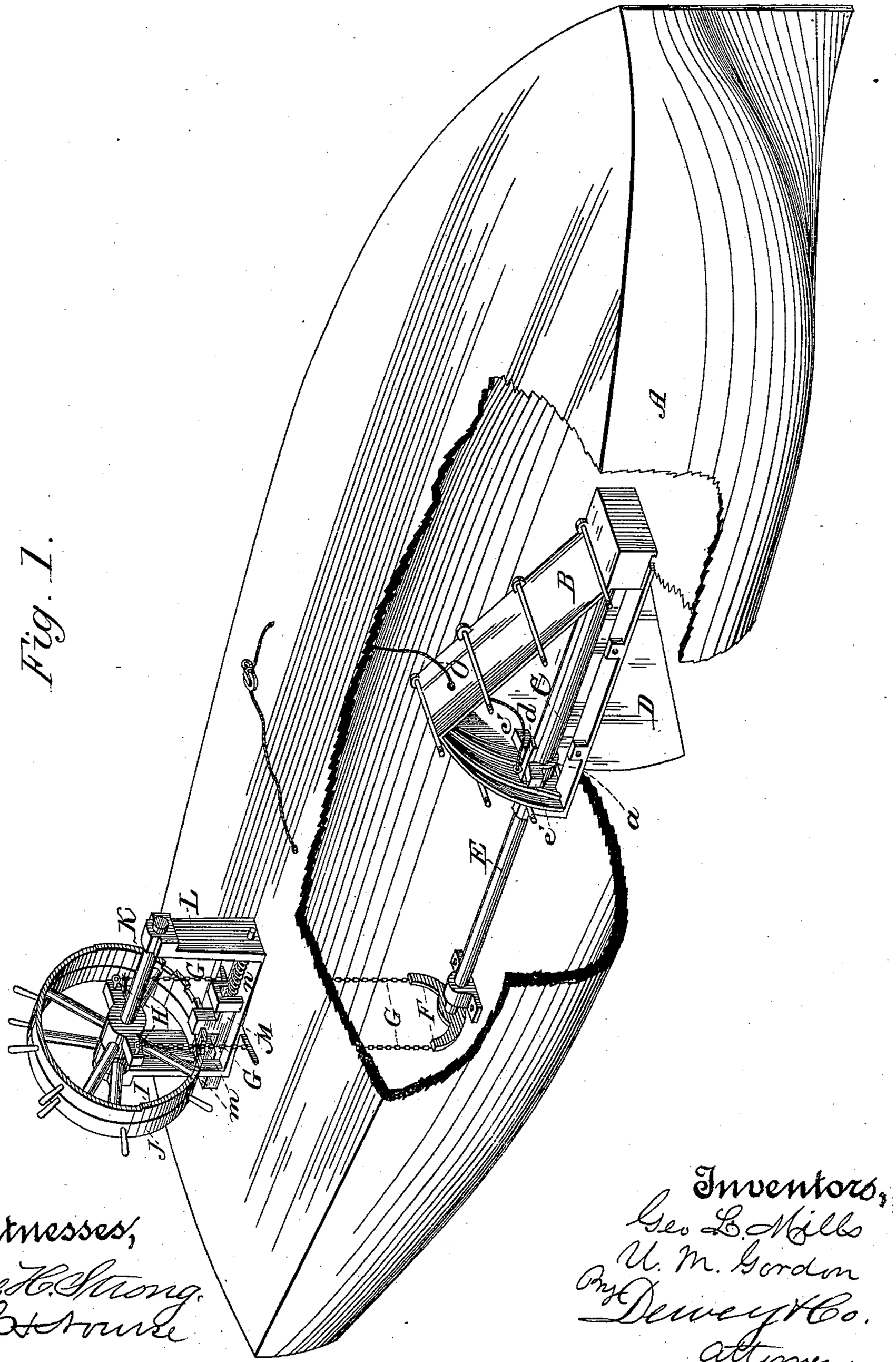
(No Model.) 2 Sheets—Sheet 1

G. L. MILLS & U. M. GORDON.

ADJUSTABLE CENTER BOARD FOR VESSELS.

No. 292,031. Patented Jan. 15, 1884.

Fig. 1.



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(No Model.) 2 Sheets—Sheet 2.

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Fig. 3.

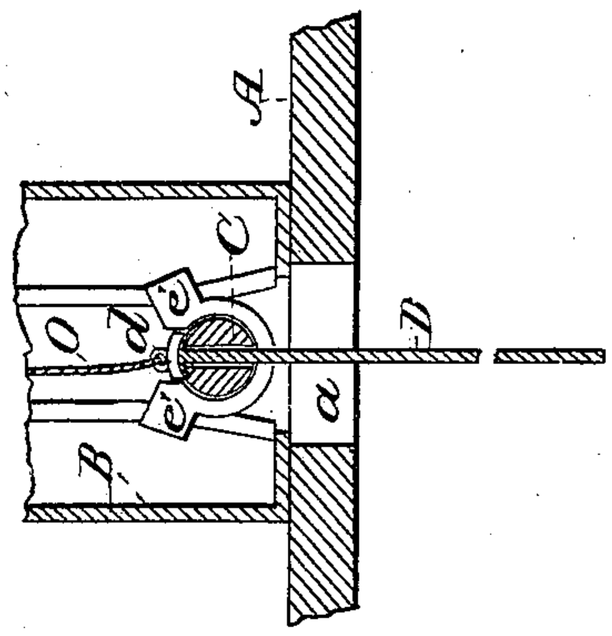


Fig. 2.

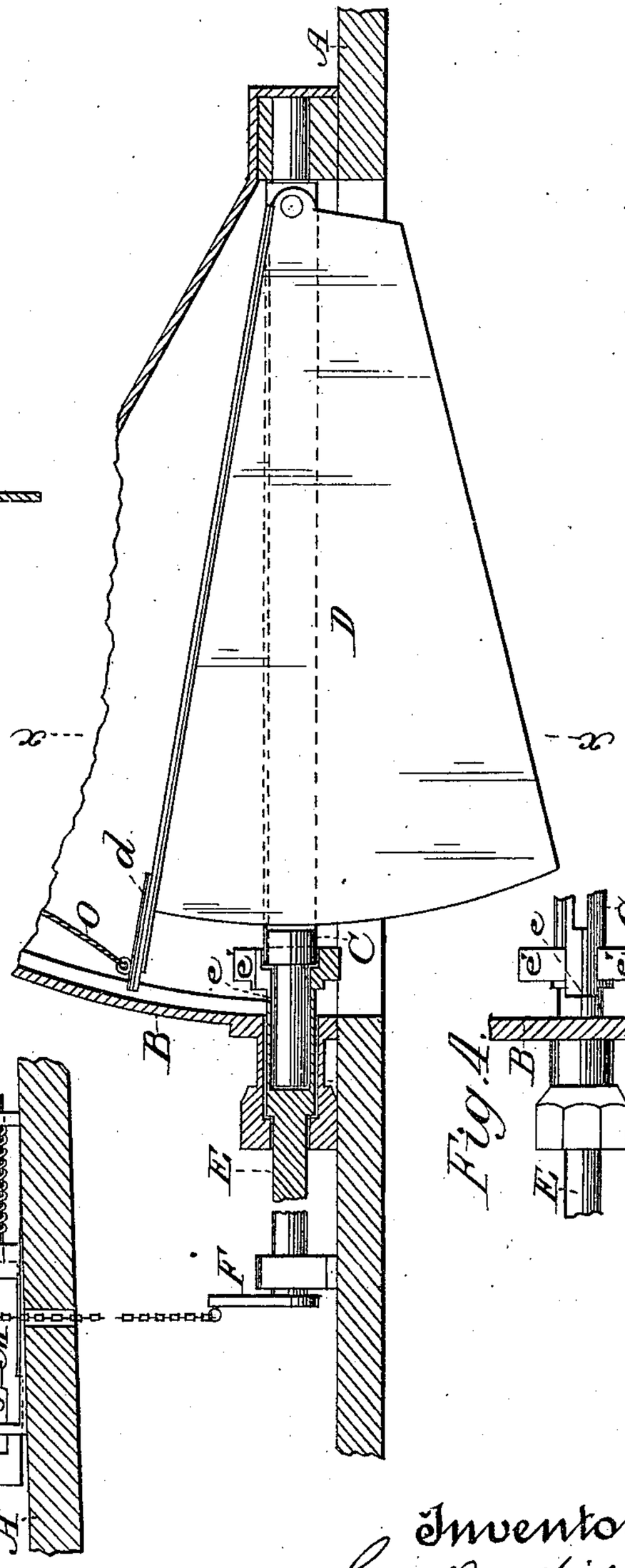
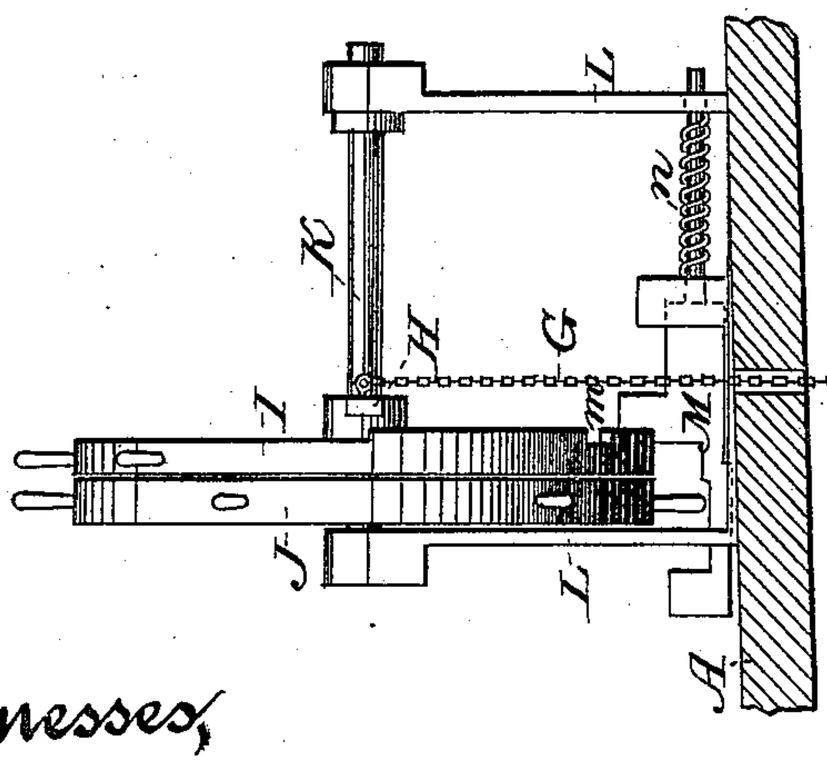


Fig. 4.



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UNITED STATES PATENT OFFICE.

GEORGE L. MILLS AND UPTON M. GORDON, OF SAN RAFAEL, CALIFORNIA.

ADJUSTABLE CENTER-BOARD FOR VESSELS.

SPECIFICATION forming part of Letters Patent No. 292,031, dated January 15, 1884.

Application filed November 17, 1883. (No model.)

To all whom it may concern:

Be it known that we, GEORGE L. MILLS and UPTON M. GORDON, of San Rafael, county of Marin, and State of California, have invented an Improvement in Adjustable Center-Boards for Boats; and we hereby declare the following to be a full, clear, and exact description thereof.

Our invention relates to a new and useful center-board for boats, having a peculiar adjustability adapting it to maintain its perpendicularity.

Our invention consists in a center-board hinged along its top longitudinally and pivoted at one end, and a means for turning it laterally on its hinge, as will be hereinafter fully explained.

The object of our invention is to maintain the perpendicularity of the center-board, no matter what may be the list of the boat, in order to prevent her from falling off.

Referring to the accompanying drawings, Figure 1 is a perspective view, showing the application of our device, a portion of the boat A being cut away. Fig. 2 is a side elevation and part section of our adjustable center-board for boats on an enlarged scale. Fig. 3 is a transverse section on the line *x x*, Fig. 2. Fig. 4 is a plan, looking down, of a portion of shafts C and E.

A is a boat having in her bottom a wide slot, *a*, over which is built a water-tight casing, B. Within this casing is mounted longitudinally a shaft, C, which is slotted nearly its entire length, and lies just over the opening *a* in the hull of the boat.

D is the center-board, lying in the slot of shaft C, and pivoted therein at one end. The upper edge of the center-board is provided with a flange, which limits its downward movement in the slotted shaft, and the rear end of this flange projects in a short lip, *d*.

E is a rod or tube, the forward end of which passes into the casing B through a suitable stuffing-box and journal, and is connected with the shaft C, so that when said rod or tube is oscillated it will oscillate the shaft. The connection we here show is as follows: The forward end of the tube fits loosely over the end of shaft C, and has made in it a shallow slot, *e*, with projecting side wings, *e'*. The center-board, when lowered, fits its lip *d* in this slot between the wings, and thus when the tube is turned the center-board is acted upon to turn the shaft. This connection, therefore, is complete only when the center-board is lowered, and that is the time when its adjustment is needed. When raised, the tube E may be turned without affecting it.

On the rear end of the tube E are secured side arms, F, with which chains G are connected, and pass up through the deck of the boat, where they are connected directly or indirectly with crank-pins H on a hand-wheel, I. This wheel, for the sake of convenience, is mounted next to the rudder-wheel J on a shaft, K, mounted in a frame, L. It is held firmly, when not used, by a pawl-bar, M, mounted in the lower part of frame L, and engaging with teeth *m*, formed on the forward edge of its rim. This pawl-bar has a spring, *n*, to hold it to its engagement, and its end projects backwardly in position to be pushed forward to release the wheel I by the foot of the helmsman.

The operation of our device is as follows: When the boat has a list and a consequent tendency to fall off, the center-board being lowered would in ordinary cases have an inclination with the boat; but by the means here shown it may be kept perpendicular. The helmsman moves forward the pawl-bar, and then turns the wheel I in the proper direction, rocking rod E and shaft C, which turns the center-board, and it may be retained in any position by releasing the pawl-bar to hold the wheel.

In order to raise the center-board entirely within the casing, we have the line O secured to its top, passing up through casing and deck to a convenient place from which it may be operated.

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

1. In a boat, a center-board within the opening in the bottom thereof, and pivoted at one end and hinged longitudinally therein, in combination with means for rocking or inclining said center-board from side to side, substantially as and for the purpose set forth.

2. The slotted shaft C, mounted to oscillate over the opening in the bottom of the boat, and

the center-board D, fitted in said shaft and pivoted by one end, in combination with means for rocking or oscillating said shaft to incline the center-board, substantially as herein described.

3. The slotted shaft C, mounted to oscillate over the opening in the bottom of the boat, and the pivoted center-board D, fitted in said slotted shaft, in combination with the rod or tube E, connected with the shaft, and having arms F, the chains G, and the hand-wheel I, to which they are secured, substantially as herein described.

4. The slotted shaft C, mounted to oscillate in a suitable casing over the opening in the bottom of the boat, and the center-board D, pivoted by one end in said slotted shaft, and having a flange or lip, *d*, projecting from the top edge of its rear end, in combination with the tube E, fitting loosely the rear end of shaft, and having a slot, *e*, and side wings, *e'*, on its end to receive and confine the lip *d* of the center-board, the arms F on said tube, chains G, and hand-wheel I, all arranged and operating substantially as herein described.

5. In a boat, the pivoted and laterally-swinging center-board D, as described, in combination with the rocking tube or rod E, connected with the center-board, the arms F, chains G, and wheel I, and the means for holding said wheel, consisting of the spring pawl-bar M and the teeth *m* on the wheel, substantially as herein described.

In witness whereof we have hereunto set our hands.

GEORGE L. MILLS.
UPTON M. GORDON.

Witnesses:
CHAS. S. BARNY,
S. M. AUGUSTINE.