

(No Model.)

J. COOK.
KEEL FOR BOATS.

No. 486,158.

Patented Nov. 15, 1892.

Fig 1.

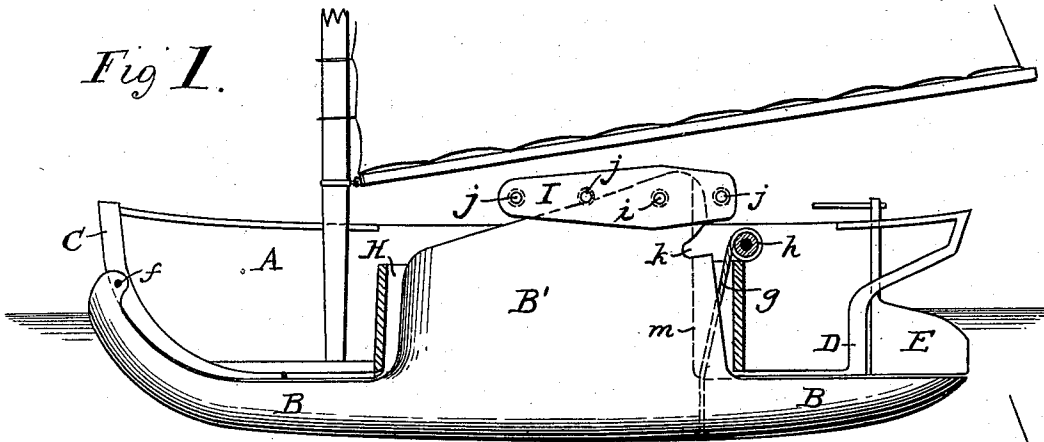


Fig 2.

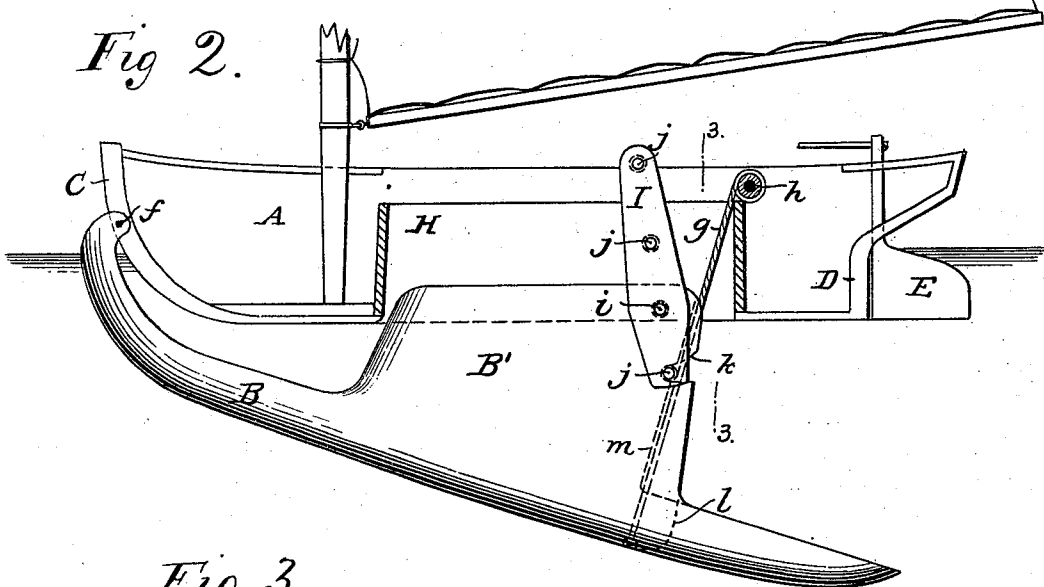
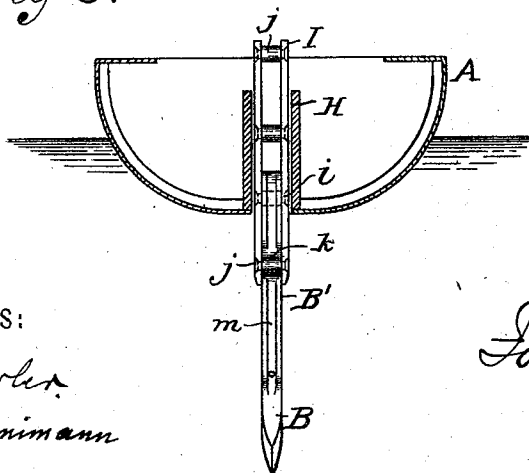


Fig 3.



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KEEL FOR BOATS.

SPECIFICATION forming part of Letters Patent No. 486,158, dated November 15, 1892.

Application filed July 1, 1891. Serial No. 398,201. (No model.)

To all whom it may concern:

Be it known that I, JOHN COOK, a subject of the Queen of England, residing in the city, county, and State of New York, have invented certain new and useful Improvements in Keels for Sail or other Boats, fully set forth in the following description and represented in the accompanying drawings.

This invention relates generally to the construction of sail or other boats, and more particularly to the construction of the keel of such boats, whereby it may be moved from and toward the body of the boat, according as the depth of water may require and the exigencies of the sailing conditions of the boat.

The improvement consists in a keel pivotally connected to the stem of the boat and extending, as usual, to the stern-post, or, as in the preferred construction, extending beyond the stern-post to substantially the length of the rudder.

It also consists in combining with the movable keel the usual center-board, and also in combining with the keel or with the keel and center-board a supplemental extension or brace, by which the keel is held more rigid and prevented from swaying laterally when the keel is in its lower or extended position.

The accompanying drawings illustrate the invention in its preferred and simple form, in which—

Figure 1 is a longitudinal section of a sail-boat provided with the invention, the keel being up in its normal position. Fig. 2 is a similar view, the keel being shown in its down or extended position; and Fig. 3 is a cross-section on the line 3 3 of Fig. 2.

It will be understood that so far as the improvement is concerned the boat may be of the usual construction and while represented in the drawings as a sail-boat may obviously be a steam or other boat or launch.

The boat A is preferably constructed without the usual keel, although that might be present in the case of providing boats already constructed with the invention, and whether having a keel or not is provided with a movable keel B, preferably extending from a point on the stem C above the water-line, thence aft to a point beyond the stern-post D, and, as shown, extending beyond the stern-post to substantially the length of the rudder E. The keel is

hung at its bow end upon a suitable pivot *f*, as to the stem, as shown in the drawings, and is connected so as to be held normally in place, as in Fig. 1, or extended downward or lowered, as in Fig. 2, by a chain or cable *g* or the like, connected to the keel and to a suitable windlass *h*, which may be similar to those usually employed in connection with center-boards or of any other suitable construction. With this movable keel there is provided a center-board *B'*, forming in the present construction an extension of the keel extending within the usual well *H* in the boat, and which center-board, in addition to its usual functions in a boat of this character, may serve as imparting stiffness to the keel when the latter is either in its normal up position or in its lowered position. This construction when the keel is in its lowered position provides a forward open reach between the keel and the body of the boat and forward of the center-board portion, which imparts sailing qualities to the boat well recognized by yachtsmen. The center-board of the boat is also increased in effectiveness, in that the keel extending forward of it and aft of it increases its effective surface and renders the boat correspondingly stiff when close-hauled in sailing against the wind. The keel, and the keel and center-board when the center-board portion is used, may be further stiffened by providing it with a supplemental brace *I*, pivoted at *i* to the upper end of the center-board, so as to rock down into the position shown in Fig. 1 to escape the boom and allow the latter to swing freely over said brace. The brace is formed of two portions to straddle the center-board and is braced by a number of interposed studs *j*, the lower one of which is adapted to take into a slot *k* in the end of the center-board when the keel and center-board are extended, as shown in Fig. 2, thereby rigidly connecting the supplemental brace with the center-board, and as it extends downward into the well of the boat is held firmly against lateral movement by the sides of the well. Instead of forming the center-board in one piece with the keel, it may obviously be formed of a separate piece jointed to the keel, and the combined keel and center-board may be of metal, or the keel may be of metal and the center-board of wood jointed to the keel, or they may each be formed in any suitable way;

and also, instead of extending the keel aft of the center-board, it may terminate, as shown in dotted lines 1, Fig. 2, substantially in line with the end of the center-board.

- 5 The end of the center-board is provided with a vertical groove or recess *m*, (see Fig. 3 and dotted lines, Figs. 1 and 2,) adapted to receive the chain or cable *g* when the parts are in their extended positions, as shown in
10 Figs. 2 and 3, whereby the cable below the body of the boat is protected and matter floating in the water prevented from accumulating thereon.

What is claimed is—

- 15 1. In a boat, the combination, with the body having a well, of a keel and center-board formed together, the keel part being hinged to the body at the stem and the center-board part traversing the well and adapted to be
20 moved conjointly with the keel, substantially as and for the purpose set forth.

2. In a boat, the combination, with the body and well, of a combined keel and center-board

pivoted to the stem and a supplemental brace pivoted to the center-board, adapted to stiffen 25 the combined keel and center-board when down and to be folded over when the latter is up, substantially as described.

3. A boat provided with a combined keel and center-board, the keel being pivoted at 30 its front end to the stem of the boat and having a supplemental brace pivoted to the center-board with a stud coacting with a slot in the center-board, substantially as described.

4. The combination, with the combined keel 35 and center-board having the groove or recess *m* in the end of the center-board, of the hoisting chain or cable *g*, working in said groove, substantially as and for the purpose described.

In witness whereof I have hereunto signed 40 my name in the presence of two subscribing witnesses.

JOHN COOK.

Witnesses:

GEO. H. GRAHAM,
N. MARLER.