T. WINANS.

CONSTRUCTION OF SAILING VESSELS.

No. 180,690 Patented Aug. 1, 1876.

Fig. 1.

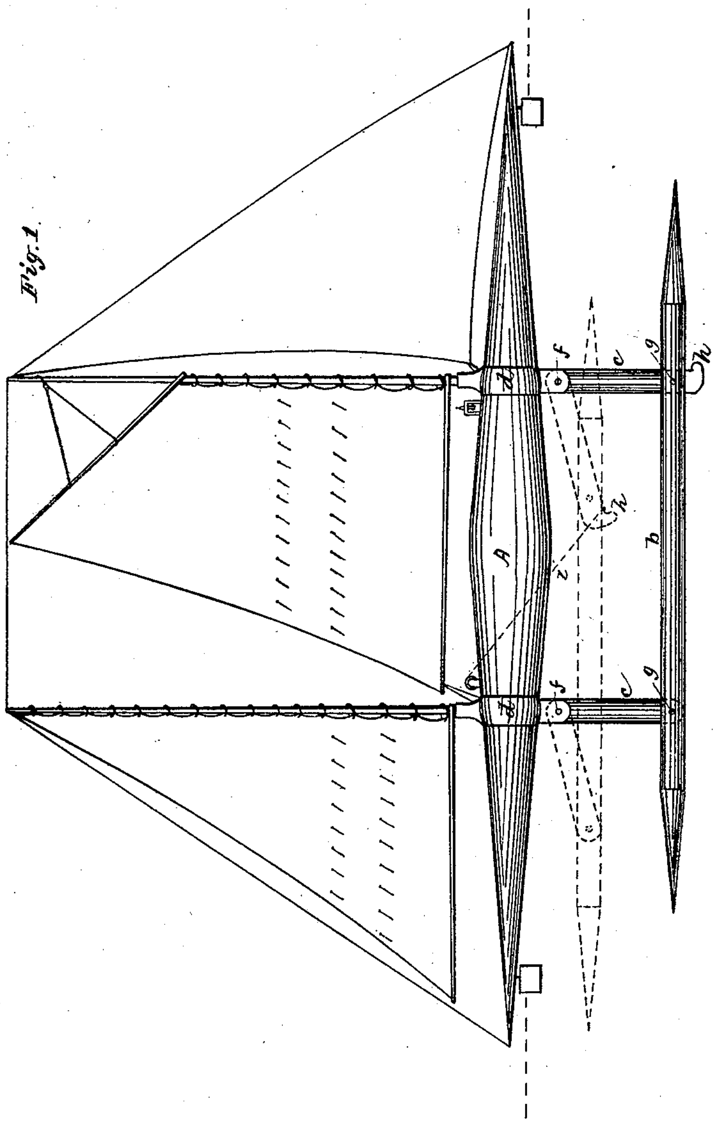


Fig. 2.

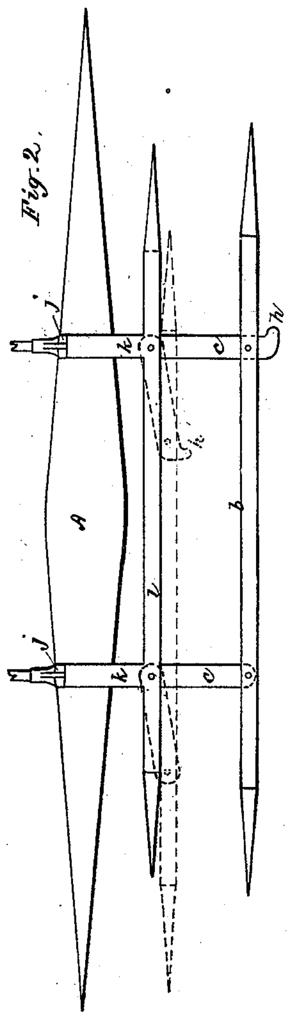


Fig. 3.

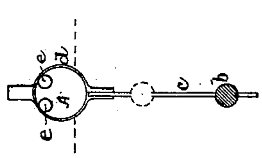
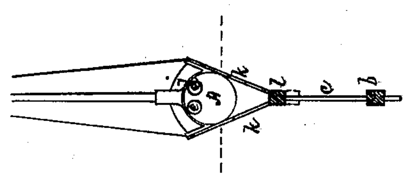


Fig. 4.



Witnesses

Ewell A. Dick

Joseph L. Wildman

Inventor

Thomas Winans

by attys Pollok & Bailey

N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

UNITED STATES PATENT OFFICE.

THOMAS WINANS, OF BALTIMORE, MARYLAND.

IMPROVEMENT IN CONSTRUCTION OF SAILING-VESSELS.

Specification forming part of Letters Patent No. **180,690**, dated August 1, 1876; application filed July 17, 1876.

To all whom it may concern:

Be it known that I, THOMAS WINANS, of Baltimore, Maryland, have invented certain new and useful Improvements in Sailing-Vessels, of which the following is a specification:

In another application for Letters Patent I have described and claimed a sailing-vessel in which the hull is combined with a pivoted independent keel, which carries the mast and sail.

In illustration of that invention I there represented the structure which I term the independent keel as pivoted to the ends of the hull.

My present improvements relate to a vessel embodying the same general principle, but I so modify the structure as to render it feasible to use one or more masts not located at the extreme end or ends of the vessel. I also make provision for raising up the keel, whenever this is desired, for purposes hereinafter stated.

Instead of arranging pintles or pivots at the extreme ends of the vessel, I now, in effect, make the body of the vessel the pivot on which the independent keel can move as an axis, friction-rollers being used, if necessary, to diminish friction between the parts. I also joint the vertical bars, from which the horizontal independent keel proper is suspended, so that the latter may move to and from the hull as one part of a parallel rule moves to and from the other part.

The nature of my improvements and the manner in which the same are or may be carried into effect will be understood by reference to the accompanying drawing, in which—

Figure 1 is a side elevation of a two-masted schooner-rigged vessel, embodying my invention. Fig. 3 is a transverse vertical section of the same. Fig. 2 is a side elevation of a like vessel representing a modified form of the structure, which I term the independent keel, and also a modified form of the joint which unites it with the hull. Fig. 4 is a transverse vertical section of the modification shown in Fig. 2.

A is the hull, of any suitable structure and configuration. In this instance it is shaped to resemble the cigar-vessel, so called. The independent keel B consists of the bottom piece or keel proper *b*, which is arranged below, and extends longitudinally and centrally of the hull; and the vertical bars *c*, which connect the keel with annular straps *d* encircling the hull, or bearings formed thereon. The straps may be prevented from end play either by the tapering in opposite directions of the bearings which they encircle and fit, as shown in the drawings, or by any other suitable means. Friction-rollers *e* may be employed at the proper points, to reduce friction, if necessary. The straps *d* carry sockets, in which the masts are fitted and firmly secured. The sails and masts can thus give to the wind without thereby tilting the hull or rendering it liable to capsize. The upright connecting-bars *c* are jointed, at *g*, to the independent keel proper, and at *f* to the straps *d*, as shown; and to a projection, *h*, on the lower end of the forward bar is connected a rope or chain, *i*, which leads to the deck of the vessel, and may be combined with pulleys and tackle, by which the rope may be drawn, so as to swing the bars *d* backward, and so elevate the independent keel, as indicated in dotted lines in Fig. 1.

By this arrangement large vessels may, by raising the keel, enter ports having comparatively shallow water, and still avail of the deep water of the ocean to obtain enormous lateral resistance for sail-power from the keel when lowered. In Figs. 2 and 4, instead of annular straps encircling the hull, I make use of what may be termed saddle-pieces *j*, which rest on and fit the top of the hull, or bearings thereon, and are combined with side braces or stays *k*, which extend down from each side of the saddle-pieces below the vessel, and converge, so as to meet in a keel, *l*, some little distance below the hull. The angle of convergence of these braces is such that they touch, or closely approach, the hull at a point below the longitudinal axis of the same, thus serving to hold the saddle-piece on its seat, and to prevent its lifting therefrom. Below the keel *l* is the second or main keel *b*, connected therewith by the jointed bars *c*, and arranged like the keel *b* in Figs. 1 and 3, to be raised and lowered, as indicated by the dotted lines.

Having now described my improvements

and the manner in which the same are or may be carried into effect, what I claim and desire to secure by Letters Patent, is—

1. The combination, with the hull of a sailing-vessel, of an independent keel hung on the hull, or on bearings formed thereon, at two or more points intermediate between the ends of the same, so as to be capable of lateral vibration independently of said hull, substantially as and for the purposes set forth.

2. The combination of the hull, the independent keel proper, the vertical connecting-bars, and the annular straps, or their specified equivalents, encircling the body of the hull, or bearings thereon, substantially as set forth.

3. An independent keel, carrying the masts and sails, capable of lateral vibration independently of the hull, and vertically adjustable nearer to or farther from the hull, substantially as and for the purposes set forth.

In testimony whereof I have hereunto signed my name this 15th day of July, A. D. 1876.

THOMAS WINANS.

Witnesses:

JOHN HENRY TILLEY,

CHAS. W. TILLEY.