2 Sheets - Sheet 1.

B. Kennon,

Center Board.

No. 90046. Patented May. 11. 1869.

Fig. 1.

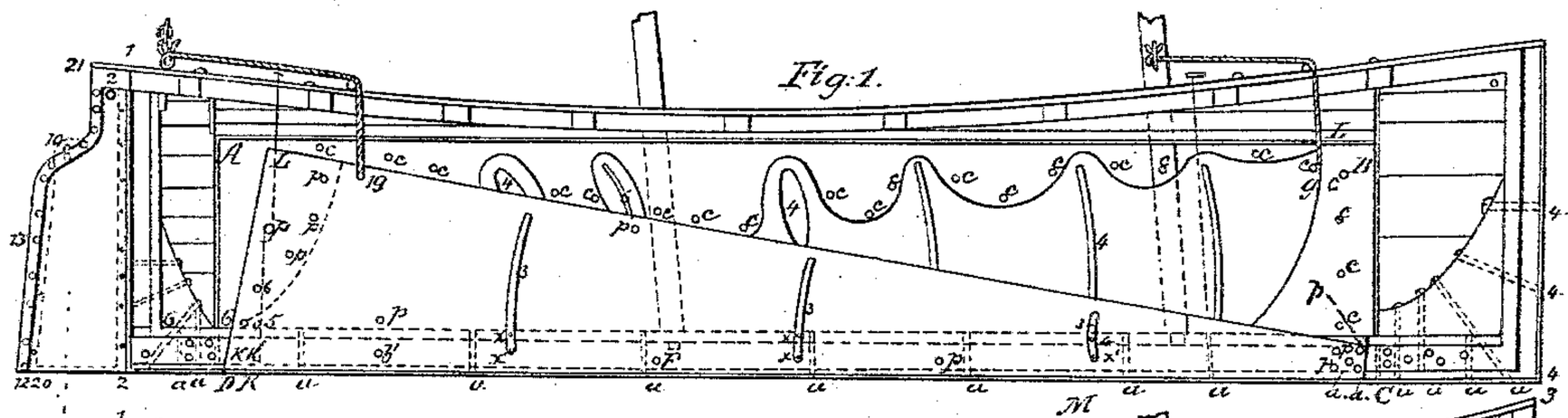


Fig. 2.

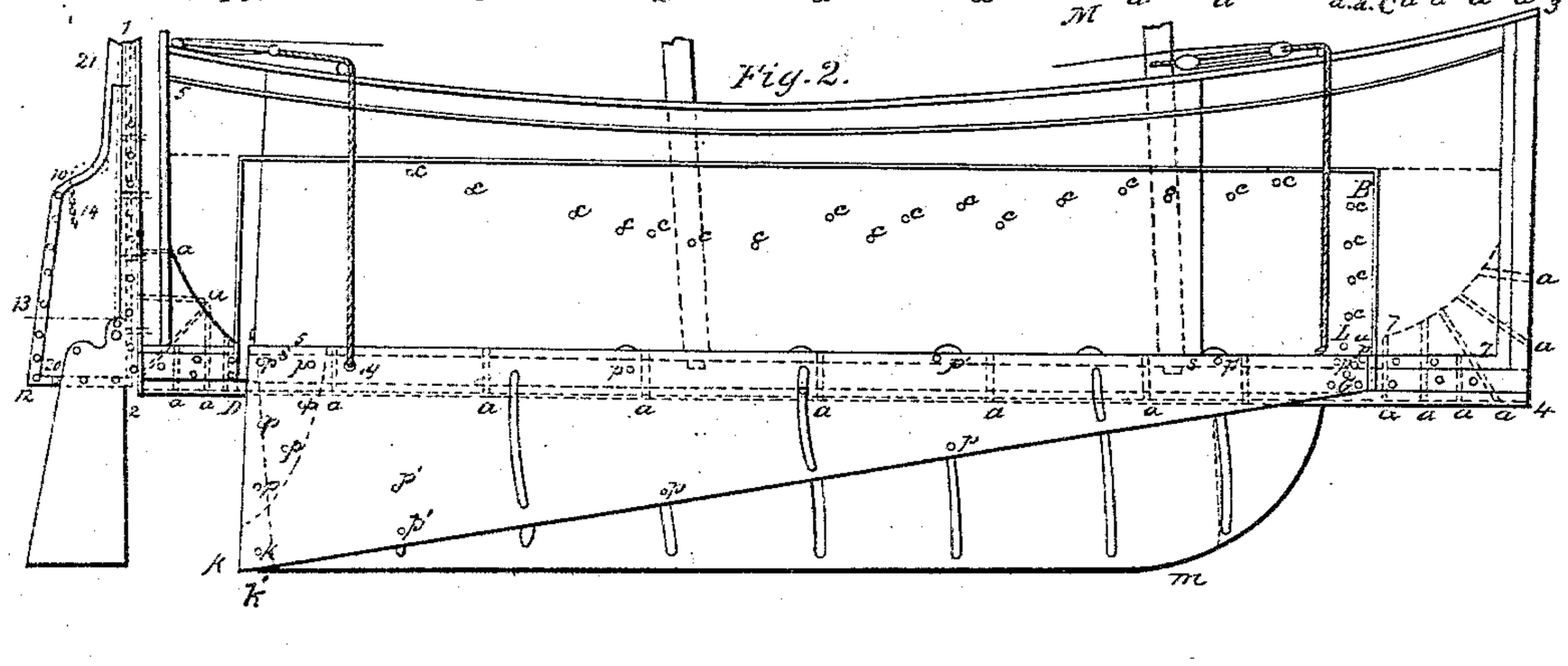


Fig. 3.

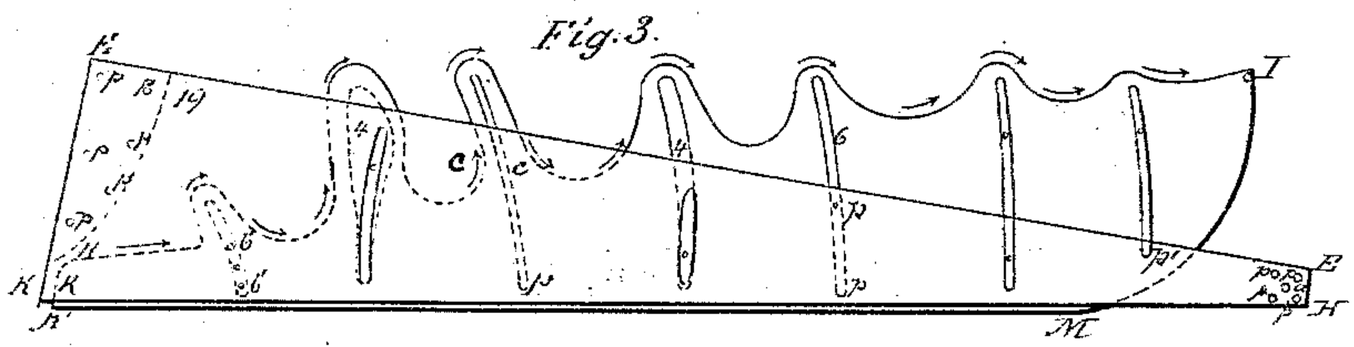


Fig. 4.

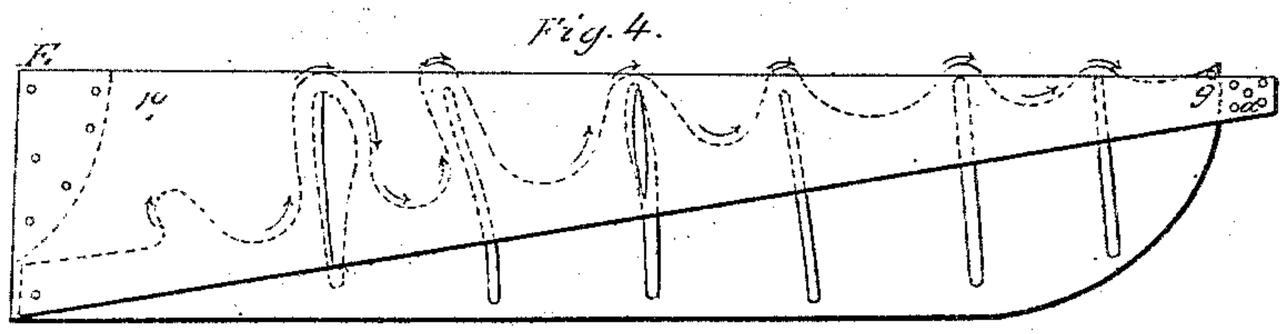
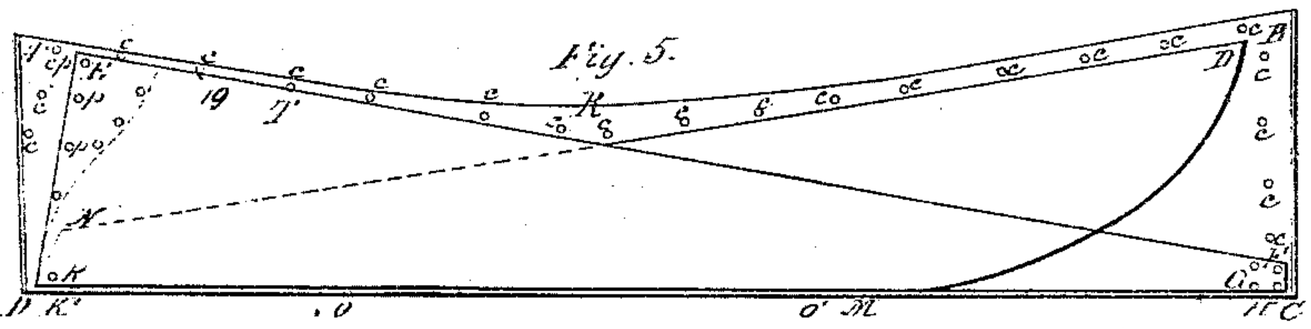


Fig. 5.



Witnesses

W. T. Latrobe

J. T. Locke.

Inventor:

Beverly Kennon

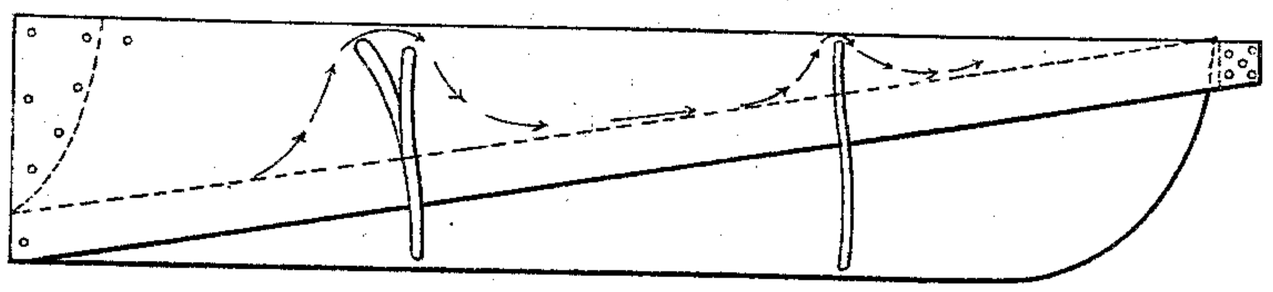
N. PETERS, PHOTO-LITHOGRAPHER, WASHINGTON, D. C.

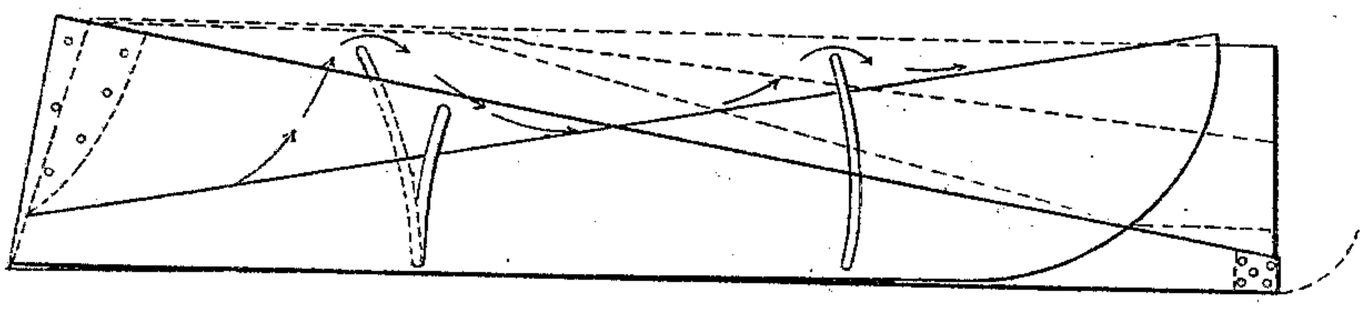
2 Sheets - Sheet 2.

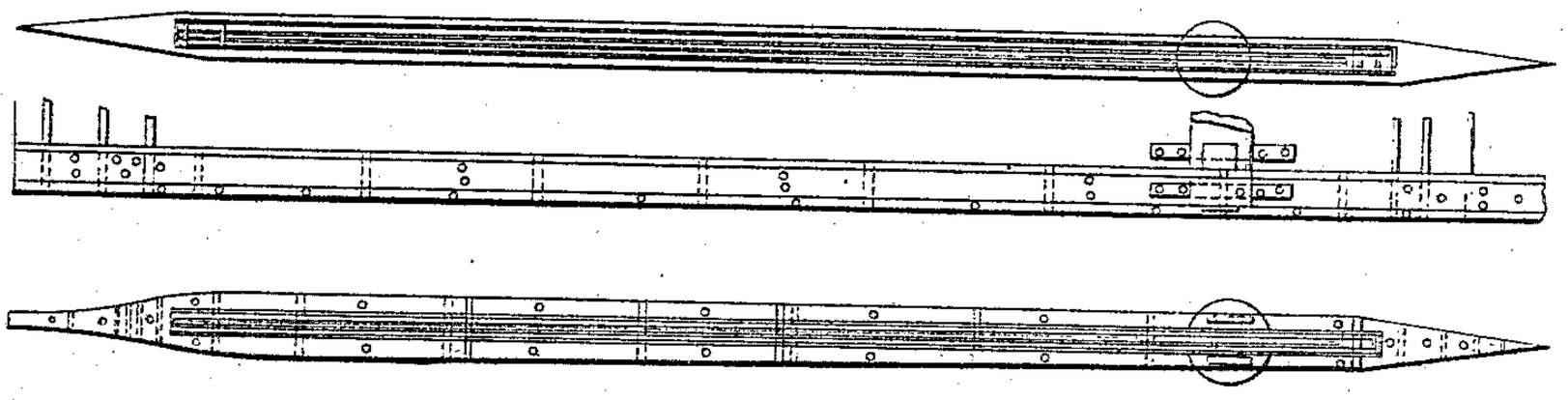
B. Kennon,

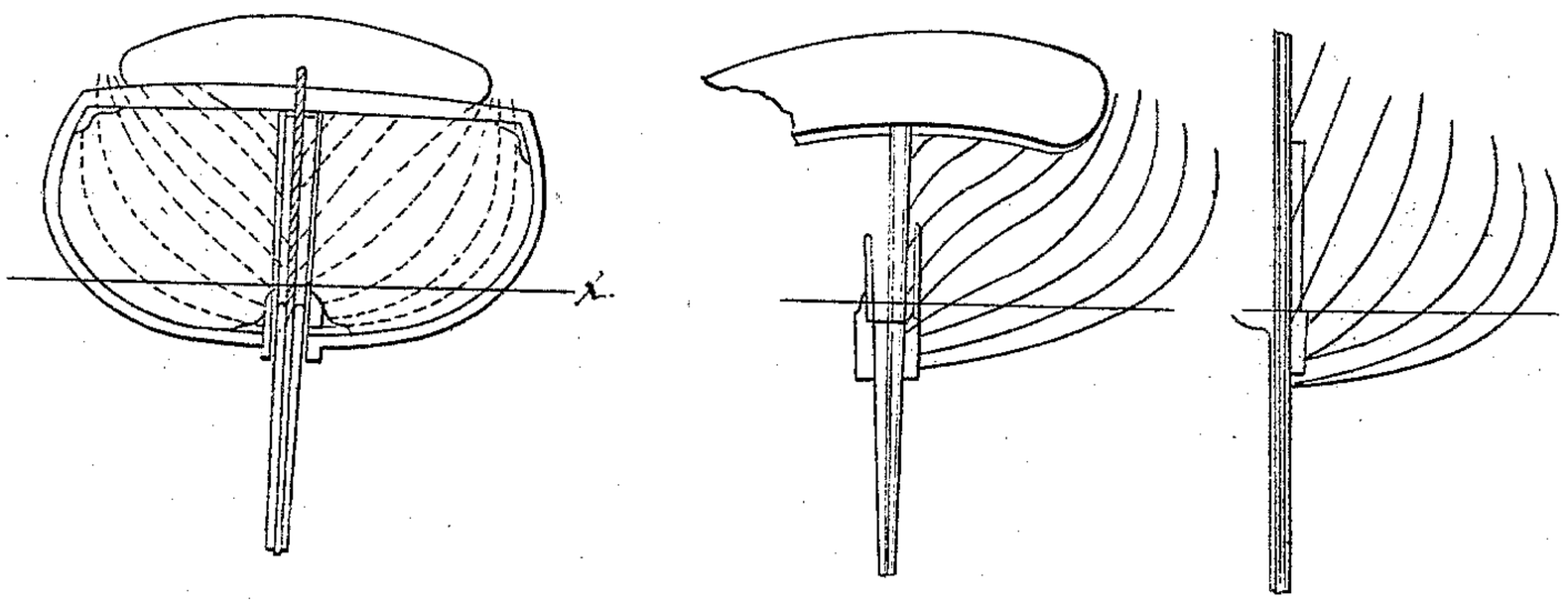
Center Board.

No. 90,046. Patented May. 11. 1869









Witnesses
H B Latrobe.
J Blocke.

Inventor.
Beverly Kennon.

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

United States Patent Office.

BEVERLEY KENNON, OF NEW ORLEANS, LOUISIANA.

Letters Patent No. 90,046, *dated May* 11, 1869.

IMPROVEMENT IN CENTRE-BOARDS.

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, BEVERLEY KENNON, of the city of New Orleans, parish of Orleans, and State of Louisiana, have invented a certain new, useful, and improved Centre-Board for Vessels; and I do hereby declare the following to be a full, clear, and exact description of the same, reference being had to the annexed drawings, making a part of this specification.

My invention has for its object, in the construction of vessels, to adapt them to deep and to shallow water, as occasion may require, so that, while they possess all the steadiness requisite for safe ocean-navigation, they can also be carried, without lightering, into the shoalest of our rivers, harbors, inlets, or other arms of the sea; and, also, to adapt river-boats for such ocean-navigation, at least, as is involved in the coastwise trade of our country.

In order that my invention may the more readily be applied to practice, it will be necessary to refer to particulars of construction of the vessel to which it is applied, which do not enter into my invention, as a part thereof, further than is necessary to its actual adaptation and use.

Referring to the drawings—

Figures 1, 2, 3, 4, upon plate 1, represent the outline of a vessel, from the bottom of her keel to top of spar-deck planking.

Figure 5, on same plate, and Figures 6, 7, 8, on plate 2, represent the space between the bottom of spar-deck beams and top of keelson.

A B C D is a "well," extending, as shown, nearly the whole length of the keel; and as there is but little space left at either end of it, or between the top of it and the deck above, I propose to let its ends be extended to the extremes of the vessel, and its height to be raised with sheer of vessel, until the beams rest upon it. This well divides the vessel into two water-tight compartments, fore and aft, each perfectly independent of the other in every respect. The filling of one side with water will not wet the cargo in the other compartment; nor, should one compartment fill, would the vessel sink, as long as her well and spar-deck planks stood, but she would lay over on her side, in which condition she could be towed into port.

The well forms a firm foundation upon which to build the vessel, since it is firmly secured to the keelson throughout its entire length, to each end, throughout its entire height, whilst its top, throughout its entire length, has resting upon it, and bolted to it, the spar-deck beams.

Knees, near the keelson, secure it more firmly to the bottom of the vessel, and also at each end, and under each beam, and, if need be, at their ends next the vessel's side.

The mast or masts straddle it in stepping, which gives additional support, whilst the beams, being supported by it, are far stronger than if they extended across the vessel without support.

In this well, A B C D, is my improved centre-board E F H K, the outer casing of which is double and hollow, and within it works a second or inner plate, which is single, and when down is represented in full, at fig. 4, by L M K N.

In fig. 1 its upper edge only can be seen.

This centre-board runs nearly the entire length of the vessel's keel, and may be made as high, (which will give that much more draught of water, less distance from top of keelson to bottom of keel,) as the vessel is high between bottom of keel and bottom of deck-beams.

This outer casing is bolted to its mate, E F H K, at points p and p'.

The two shells forming the casing are bolted firmly together at the ends at p, but at p' space is left for L M N K to move clear.

The bolts at p' are intended to prevent the two sides of E F H K from being forced apart, from strain from L M N K, the inner or lower plate or joint, which completes the centre-board.

At G is the pivot-bolt, upon which the centre-board is supported and worked.

This bolt goes through the forward end of E F H K, and both sides of the keel.

It is placed low down to assist in supporting the pressure on the keel, but principally to confine the working of the lower end H within as small an arc as possible; for, if bolted as high up as S, in fig. 7, on being lowered it would describe an arc, H S, which would necessitate extending the opening in the keel further forward, which is impossible, it being already in that direction as far as it can go.

At k, in E F H K, is bolted L M K′ N, which works only on this bolt. No great strain is brought to bear on it, but on the whole lower edge of E F H K.

The bolts at p' and x will not allow either part of the centre-board to pass them, but will support their weight when down, and the bolts at p' and x will not allow either part to pass them on hoisting.

If the centre-board were bolted at S or S″, in fig. 7, it would also bring additional strain on the well, which so far is intended for its legitimate use of keeping the water out.

Fig. 5 represents a modified form of my invention, in which there are no slots for bolts at p', x, and x'.

Where the inner plate crosses the outer plate at R, it is so low that it is adapted to any sheer a vessel may have.

A centre-board, constructed upon the plan as exhibited at fig. 5, will answer well enough for small yachts in waters like lakes Maurepas and Pontchartrain, where there is not much sea, and hence no great strain can be brought to bear upon it. But for larger vessels, designed for ocean-navigation, as well as for shallow waters, additional strength should be given. As the power to overcome resistance is only at the ends D and C, the vessel might open and leak at the well.

Figs. 3 and 4 represent the centre-board triced up and lowered for use.

After bolting the two sides of E F H K together,

at p', it becomes necessary to cut slots in the inner or lower plate L M N K′, so that it may vibrate upon its pivot at k.

To give still greater strength, bolts are put through the keel and keelson at x and x'. (See fig. 1.)

To pass these bolts, for they go entirely through everything, slots have to be cut in E F H K, at points 3, and at point 6 in L M K W.

The slots in inner plate make it necessary to give it the shape it has in the figure, for to have it run straight along the line L N, would weaken it too much.

Now, these projecting parts extending high up in the centre shell, when the lower plate is down, give additional strength to the whole concern, as more surface is brought into use to bear the strain, without any considerable additional weight.

To make more use of the well than simply to regard it as a "levee" or dam, let strength be another consideration, and, instead of confining all the fastenings to resist pressure on the keel, let some of that pressure be borne by the well itself

One bolt only need be put near x' and x, instead of two, as in fig. 1, and through the well.

All along at c c', and so on, other bolts could be put, thereby giving a still greater security against the pressure of the centre-board.

The forward end H F might be extended toward B as far as H′, fig. 7; thence to H″; from H″ to T′, and ample support be obtained without widening the centre-board at every point along its entire length.

The bolts, which bind the two halves of E F H K, at p', might also go entirely through the keel, like those near x and x', and there would then be an equal number of slots in each part of the centre-board, the whole forming a series of centre-boards, as it were, but working as one.

With slots corresponding to bolts every three feet along the keel, for one hundred feet, not over three feet of the centre-board would be lost in any length of it, for that space, provided the slots are made no wider than is requisite for the easy working of the board.

In fig. 1, the higher up the bolts are placed, the more metal will remain between the ends of the slots, and the bottom of the plates—a very important thing, for it is there that great strength is wanted.

Near the bolt at G, the edge K H might be pared, or sloped off, on the inner side, to allow the extra thickness of lower edge of L M K′ N′ to stow away.

At K the lower plate is thinnest.

In fig. 1, 9 represents a hole in inner plate, through which a pendant is spliced, or hooked. The end then leads directly through the upper deck, in the upper end splice-thimble, to prevent its unreeving; also to hook a tackle to, to trice up inner plate, when down.

This purchase may be used as a deck-tackle.

When the centre-board is up, unhook purchase, and belay the pendant. The forward part, or lower plate is now hanging by it, and by the catch s^4.

Through hole at 19, is a pin, around which another pendant is spliced, to be used as the forward one, when centre-board is down. It, together with catch at s^5, holds it in place.

When down, it is supported by the bolts along the keel near x, or may be only by the pendants and catches.

To disengage the catch, sway a little on the pendants, shove down the rods y, and lower away.

Hatches must be made on each side of the centre-board, should the deck not bolt to the well. There may be no necessity, however, for more than the ordinary hatchways amidships.

My centre extending the whole length of the vessel, or very nearly so, can never be thrown out of water by the pitching of the vessel, and hence there can never be any sudden strain upon it.

Figures 8, 9, and 10, give different views of the keel, keelson, and well.

Figure 11 is a midship-section view, showing centre-board when down.

Figure 12 is a stern view.

Figure 13, a bow view.

In each of these figures, X is the water-line, and y, pendant, for tricing up forward and aft.

In fig. 1, when the greatest strength is required that my invention is capable of, so far as quantity of material is concerned, the first joint, or outer shell should take the shape E E′, H K, and the inner one, the shape of L M K′ L′.

In fig. 1, should one bolt be required amidships in the keel, to give additional strength, it would be advisable, rather, to place two, one near O, and the other near O′.

In figs. 6 and 7, its shape, as indicated by the arrows, would leave the spare material to be removed around the slots amidships, which would more readily conform to the sheer of the vessel.

J shows form of slots in outer shell, and J′, in inner plate, from their G and k, unless material were left around the slots in L M K′ N, too much.

In figs. 9 and 10, the bolts a pass up through keel, keelson, and, if need be, through the sides of the well, if its walls be thick enough, or they can pass along the outside of said walls, and be secured to it by clamps.

b represents bolts, passing through each half of the keel, with heads on inner side, and riveted on outer side. They will take the chafe off the interior of the keel, if it is not lined or reinforced by metallic plates.

b' are bolts, passing entirely through keel and keelson, outer shell, and inner plate of centre-board.

Near the ends of the well, the keel is rounded off, or tapered, to give strength, &c.

In vessels as large as three hundred tons, the bolts throughout the length of the keel, at x, might be, for a distance of one hundred and twenty feet, placed four feet apart. This will give thirty slots, which will take off something less than three feet of the whole centre-board, and without at all impairing its strength.

The schooner Sunnyside, of this port, has a centre-board sixteen feet long, which, when down, measures five and a half feet fore and aft, and ten feet below the keel. From its outer end to bottom of well, a distance of ten and a half feet, there is no extra support given it, and hence the strain in a heavy sea-way, and under a heavy press of sail, becomes enormous.

This is not the case as to my invention, which, by reason of its great length, affords as much resistance with a very slight depression below the keel of a vessel.

Any material may be used in the construction of my improvement, but I prefer metal, for vessls of all sizes, as occupying less space than wood, and having more strength than wood, unless the size of the vessel should be so great as to make a metallic centre-board too heavy to be handled, in which case it may be constructed of wood.

The keel should be shod at its bottom, and lined on its top with metal, from one end of it to the other.

The masts should straddle the centre-board well, as shown at figs. 8 and 10, if the greatest strength is required, but any proper mode of stepping them may be adopted in lieu of this arrangement.

By straddling the well, the masts can be made to subserve the purpose or functions of two transverse clamps, and thus greatly strengthen the walls of the same.

My centre-board is intended to be vertical, and to keep the vessel vertical, or as nearly so as possible, besides preventing lee-way. The vessel herself is, in fact, merely a shell, to float it in. She floats independently of it, but it enables her to carry an amount of canvas which otherwise she could not spread. Nor will any pressure of canvas strain a vessel built upon my plan, and provided with my improved centre-board,

for the well is a part of the vessel herself, and not a secondary thing, as in all other existing cases.

One side of the vessel is drawn toward the points of pressure as much as the other is forced from them. The vessel moves as one solid body. Her frame may be lighter built than now, and yet she will be less liable to work.

The centre-boards now in use have but little length in proportion to their depth. The mast strains a vessel prodigiously, for the pressure is altogether at one place. Moreover, the well cannot give the support that mine does. It is smaller, but more unhandy than mine. It affects the steering of the vessel beyond control; mine does not.

One of the great advantages possessed by my centre-board results from its consisting of two parts, so that only half of it need to be handled at one time, commencing with either half. Should the vessel ground forward, amidships, or aft, the centre-board will lift and stow itself within the vessel out of harm's way.

Catches may be easily adjusted, so as to retain the centre-board at any point to which it may be elevated. It gives increased stability and draught to a vessel fitted with it, which can hence carry any quantity of sail much longer than she could otherwise do, without corresponding weight, friction, or resistance to overcome.

The vessel will be safer, the extreme weight in her centre-board being more equally distributed. She will roll less, drift less, steer better, be stiffer under canvas, and hold a better wind. Her draught can be altered at pleasure.

If she is dull in stays, let the after-end of the centre-board be triced up, and she will stay against any head-sea, and generally without aid from her rudder.

To wear short round on her heel, it is only necessary to trice up the forward end of the centre-board.

No ballast is wanted, for my centre-board serves its purpose, and it can never be shifted, even if the vessel be turned bottom up. Hence there is no delay, expense, trouble, wear and tear, to take in ballast, or to discharge the same to receive cargo.

A rudder, as shown in fig. 1, acting on telescopic principles, may be used in connection with my invention. It is hollow, and a joint works in it. In a word, it is to be so constructed and adjusted as, that whilst it will operate automatically, it can readily be worked by hand.

Having thus described my invention,

What I claim, and desire to secure by Letters Patent, is—

The centre-board herein described, consisting of two distinct plates, E, F, H, K, and L, M, N, K′, when the same are constructed and united for conjoint operation, substantially as herein described for the purpose set forth.

BEVERLEY KENNON.

Witnesses:

WM. T. KEY,

C. E. MORRIS.