E. ELLISON.

MECHANISM FOR LESSENING DRAUGHT OF VESSELS.

No. 186,331. Patented Jan. 16, 1877.

Fig. 1.

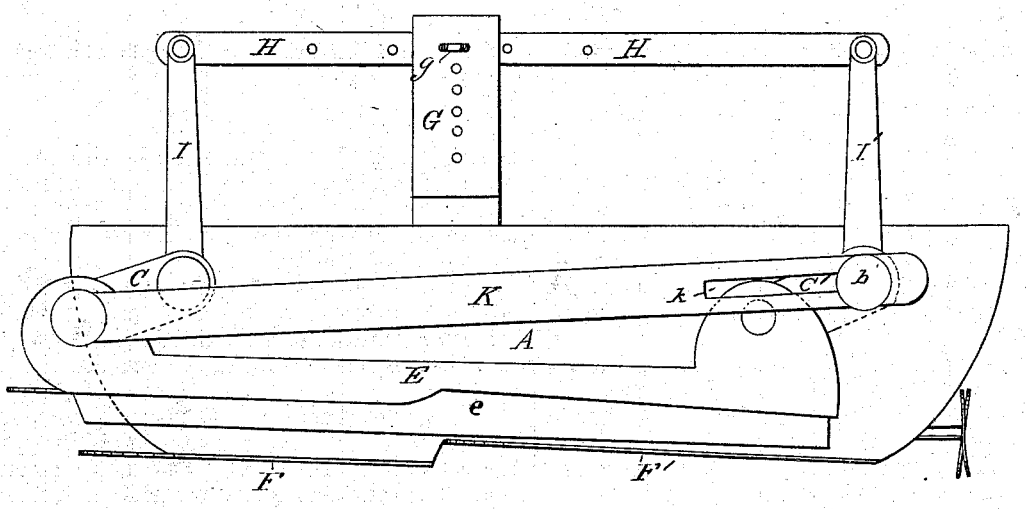
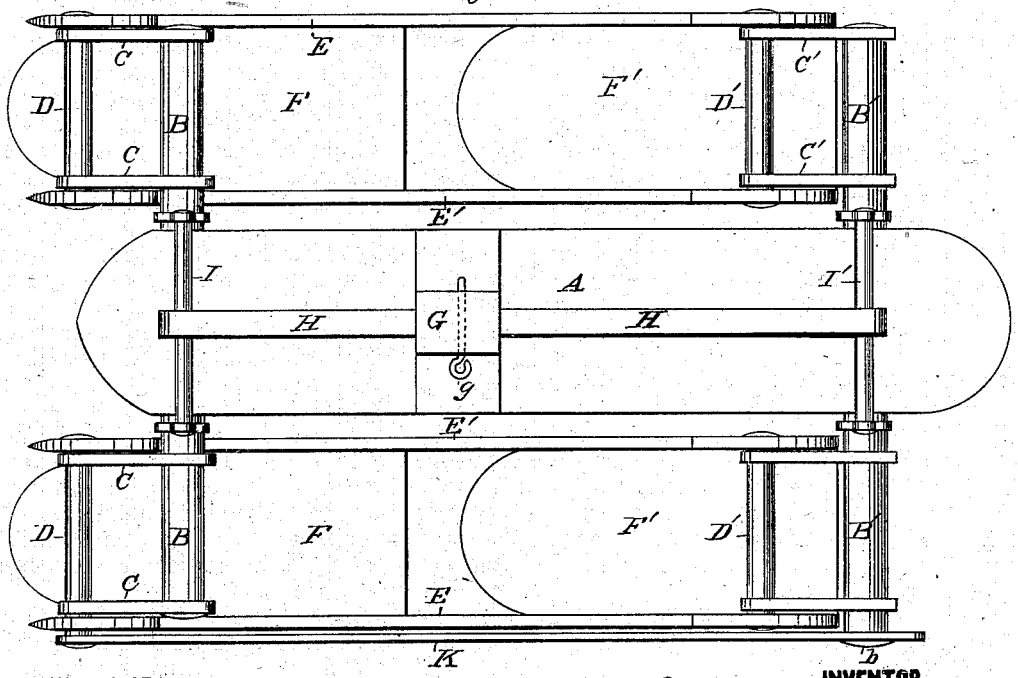


Fig. 2.



WITNESSES:

J. C. Kennon

L. A. Pettit

INVENTOR:

Edward Ellison

BY Munn & Co

ATTORNEYS.

UNITED STATES PATENT OFFICE.

EDWARD ELLISON, OF SAN FRANCISCO, CALIFORNIA.

IMPROVEMENT IN MECHANISMS FOR LESSENING DRAFT OF VESSELS.

Specification forming part of Letters Patent No. **186,331**, dated January 16, 1877; application filed July 14, 1876.

To all whom it may concern:

Be it known that I, EDWARD ELLISON, of San Francisco, in the county of San Francisco and State of California, have invented a new and useful Improvement in the Propulsion of Vessels; and I do hereby declare the following to be a full, clear, and exact description of the same.

In the drawings, accompanying and forming part of this specification, Figure 1 is a side elevation of my invention. Fig. 2 is a plan view of the same.

The invention relates to the construction and arrangement, in an inclined position, of plates, either on the bottom of a vessel or on frames attached to the hull of the same, whereby the draft may be lessened when the vessel is moving, as hereinafter more fully described.

In the accompanying drawings, A represents the hull of a vessel, through the bow and stern of which pass, respectively, the shafts B and B′, the outwardly-extending ends of said shafts being connected on each side of the hull, and by means of the bars C C and C′ C′, with the shafts D and D′, which have their bearings in upward projections of the vertical plates E and E. To the bottoms of said plates, on each side of the vessel, are secured the plates F and F′, which extend and incline slightly upward from stern to bow.

Firmly fixed to the hull, midway between the shafts B and B′, is the slotted upright or frame G, through which plays the horizontal bar or connecting-rod H. Both the bar H and frame G are provided with holes throughout their length, by means of which, and of a pin, *g*, the bar may be secured to the frame at any desired height, or at differents points of its length.

Instead of this arrangement the bar may be fastened to the frame by any other suitable means of attachment.

The rods I I′, respectively, connect the shafts B and B′ to the bar H, their middle portions which pivot, I in the front and I′ in the rear end of the bar H, passing transversely across the hull. The rods then curve forward and downward, and have their ends fixed firmly in the shafts B and B′. On one or both sides of the vessel the ends of the shafts D and B′ are connected by the rod or brace K, provided at its rear end with the slot *k*, in which the end of the shaft B′ travels, and at any point of which it may be fixed by means of the bolt and nut shown at *b*. To the inner sides of the vertical plates E′ E′, next to the sides of the hull, are attached other vertical plates *e e*, extending downward into the water and serving the purpose of center-boards.

Instead of the arrangement described above, the plates F F′ may be fastened directly to the bottom of the hull. This arrangement would be preferable in river or still-water navigation.

The mode of operation of the invention is as follows: The vessel being in motion, the water, striking against the under surface of inclined plates F F and F′ F′, will force the hull up until the inclined plates are flush, or nearly so, with the surface of the water. By moving the bar H forward and downward, and securing it in that position to the upright or frame G, the inclined plates may be lowered as much as desired, and may be fixed firmly at any point by means of the slotted brace K and bolt and nut *b*.

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

1. In combination with a vessel, the inclined plates F and F′, substantially as described, for the purpose specified.

2. In a vessel, in combination with the hull A, upright or frame G, horizontal bar H, and connecting-rods I I′, the shafts B B′, bars C C′, shafts D D′, slotted brace K, bolt and nut *b*, vertical plates E E′, and inclined plates F F′, all constructed and arranged, substantially as shown and described, for the purposes set forth.

3. In a vessel, the combination of the vertical plates *e e* with the vertical plates E E′, bars C C′, shafts B B′, and hull A, substantially as shown and described, for the purpose specified.

The above specification of my invention signed by me this 22d day of June, 1876.

EDWARD ELLISON.

Witnesses:

FREDRIK LUNDIN,

NELS. OLEEN.