T. P. FORD.

Swinging Ships' Berths.

No. 163,861. Patented June 1, 1875.

Fig. 1.

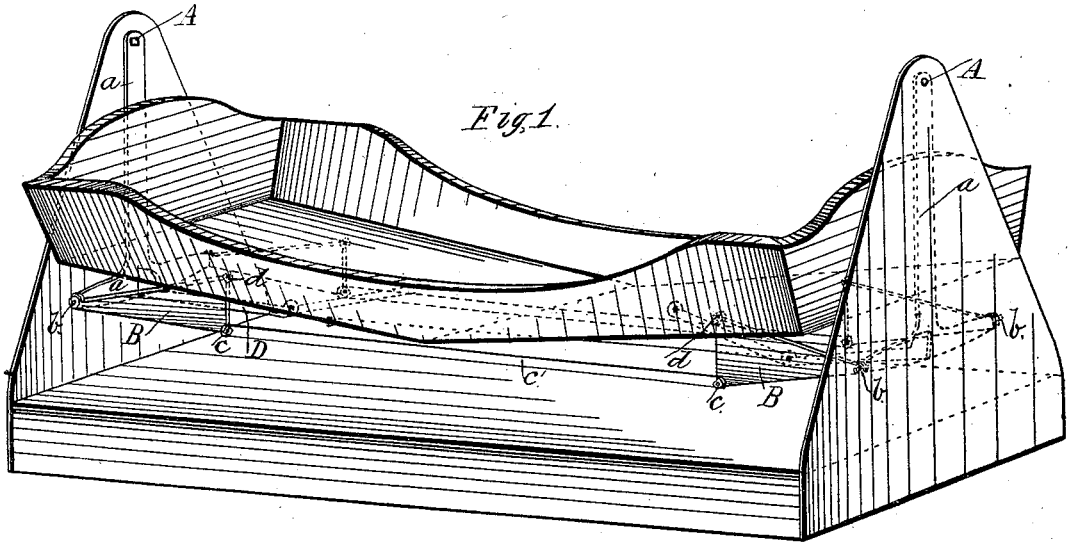
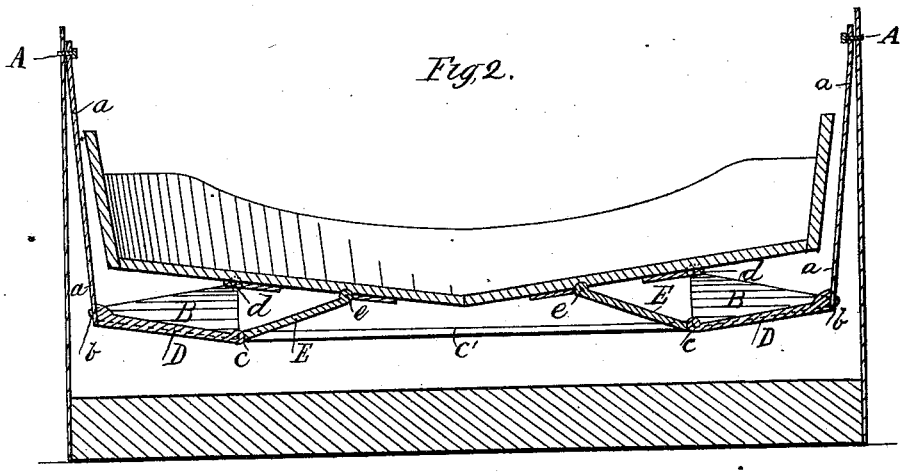


Fig. 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

THOMAS P. FORD, OF BROOKLYN, NEW YORK, ASSIGNOR OF ONE-HALF HIS RIGHT TO THOMAS SCOTT DICK, OF SAME PLACE.

IMPROVEMENT IN SWINGING SHIPS' BERTHS.

Specification forming part of Letters Patent No. **163,861**, dated June 1, 1875; application filed November 16, 1874.

To all whom it may concern:

Be it known that I, THOMAS P. FORD, of city of Brooklyn, county of Kings and State of New York, have invented Improvements in Ships' Berths, of which the following is a specification:

The object of my invention is to limit and control the motion of a ship's berth, and to sustain and carry it *in equilibrio* by suspension upon a system of rods or other equivalent frame-work, so that it shall have free motion within certain predetermined limits, and so that the equilibrium of the berth shall always be maintained while the vessel moves or sways laterally or longitudinally, any change or tendency to change from a horizontal level of the vessel being met and compensated for by the weight of the suspended berth. To effect these ends my invention consists in the employment beneath the berth of connecting-rods and carrier frames or supports, arranged to move freely on centers attached both to the berth and to suspension rods or frames placed at the ends of the berth, and permitting free motion to and fro in the direction of the ship's length, and giving the berth carriage and support. The level of the berth is maintained longitudinally by an arm or frame fixed to the suspension rod or frame, and also connected by rod and centers to the under side of the berth, and by this means compelling the berth to maintain a level longitudinally at all points within the limits of its action. The lateral motion is obtained from the centers of suspension, and may be limited by shackle or stop at any point.

In the accompanying drawings, Figure 1 represents a perspective view, and Fig. 2 is a vertical longitudinal section of a berth constructed according to my invention.

The berth is suspended, as shown, on the center-pins A A by the rods or frames *a a*, one at each end, and on each of which two carrier-frames or supports B B are centered at *b b*, and the frames B B at one end of the berth are coupled to the frames B B at the other end, at the centers *c c*, by means of the connecting-rods *c'*. At the centers *d* the carrier-frames are each attached by joints to the berth, thus forming the requisite movable support for the berth. Each of the arms D is rigidly fixed to its adjacent suspension-bar *a*, and connected with the berth at *e* by the rod E, to which it is jointed, thus compelling a change of position in the berth according with the change of angle of the suspension-rod. It will now be seen that by means of the suspended rods or frames *a a* the berth is free to swing laterally within any predetermined limits and seek a vertical suspension at all times, and that by means of its supporting and carrying frame underneath it, it is maintained in a level and horizontal position, the suspensories and the carrier-supports acting in harmony under all conditions, and insuring under all the movements of the vessel the self-adjustment of the berth, so as to prevent the occupant from being rocked or tossed about, and thus preventing sea-sickness, and insuring repose and opportunity for sleep.

It will be evident that the same principle and mode of maintaining an equilibrium in a berth as above described are applicable to other things, such as a cabin, car, platform, sofa, chair, table, &c.

What I claim as my invention is—

The combination of the suspension bars or frames *a* with the carrier-frames B and their connecting-rods *c'*, together with the fixed arms D and their connecting-rods E, attached to and in connection with the berth, substantially as described, and for the purpose set forth.

THOMAS POWNAL FORD.

Witnesses:
TIMOTHY PERRY,
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