T. P. FORD.

Swinging-Berths for Ships.

No. 167,091. Patented Aug. 24, 1875.

Fig. 1.

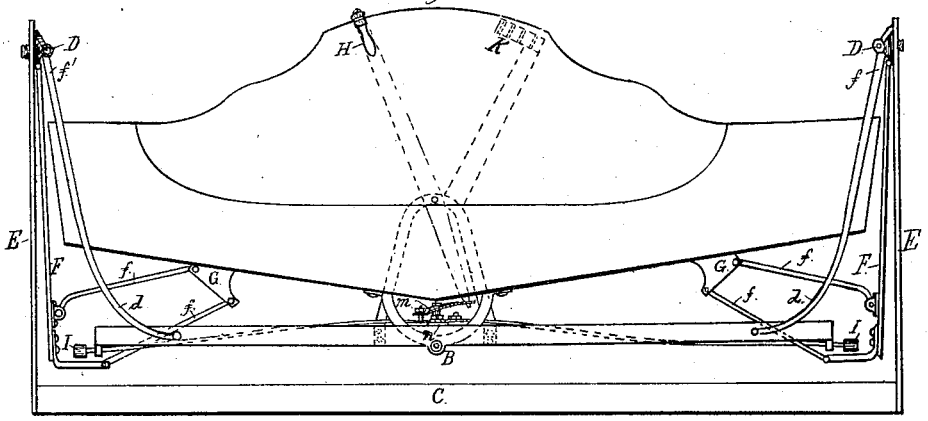
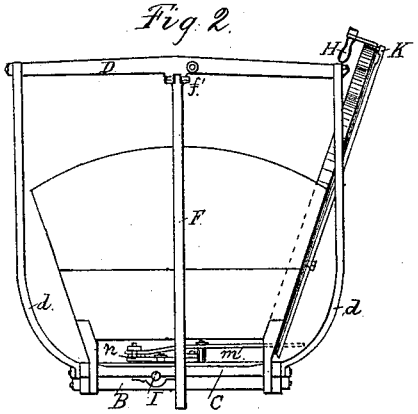


Fig. 2.



Witnesses.
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UNITED STATES PATENT OFFICE.

THOMAS P. FORD, OF BROOKLYN, ASSIGNOR OF ONE-HALF HIS RIGHT TO THOMAS S. DICK, OF GREEN POINT, NEW YORK.

IMPROVEMENT IN SWINGING BERTHS FOR SHIPS.

Specification forming part of Letters Patent No. **167,091**, dated August 24, 1875; application filed June 4, 1875.

To all whom it may concern:

Be it known that I, THOMAS P. FORD, of the city of Brooklyn, county of Kings, State of New York, have invented new and useful Improvements in Ships' Berths; and I do hereby declare that the following, taken in connection with the drawings which accompany and form part of this specification, is a description of my invention sufficient to enable those skilled in the art to practice it.

The object of my invention is to limit and control the motion of the berth, and so to carry it by an oscillating frame and axle connected to an oscillating cross-beam that it shall have free motion within certain predetermined limits, and 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 berth in suspension; and to effect these ends my invention consists in supporting or carrying the berth on a cross-axle, at such point in its length as will balance evenly when the berth is occupied, or at about four inches nearer the head than to the foot end of the full-sized berth. This axle is centered in and carried by a frame or rods, and is made to oscillate longitudinally by means of suspension-rods, which are connected to an oscillating cross-beam centered to the bulk-head, the proper angle longitudinally being maintained by guide-frames jointed at their upper ends to the cross-beam near its center, and at the lower end jointed to the under side of the berth by two connecting-rods, and made to oscillate free from the carrier-frame, 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 longitudinal elevation, and Fig. 2 a transverse section, of a berth constructed in accordance with my invention.

Referring to Fig. 1, the berth is carried on the axle by the carrier-frame C, which is connected with cross-beam D by means of the suspension-rods *d d*. The axle B, it will be seen, is not placed centrally of the berth or of the frame C, but nearer to one of their ends than to the other, and the lowest point of the berth is also correspondingly at one side of its center. This peculiarity of construction adapts the berth to the preponderance of weight in the upper part of the human body, and permits it to balance evenly in the direction of its length when occupied. The cross-beam D is centered to the bulk-heads E, thus forming a support for the carriage of the berth that will allow it to oscillate either longitudinally or transversely. The guide-frames F are each connected by joints or hinges with hangers or brackets G, secured to the under side of the berth by means of two connecting-rods, *f f*, and also to one of the cross-beams at *f'*. This construction compels the berth to maintain a level as the motion of the vessel oscillates the carrier-frame longitudinally. H is a hand-lever for locking the berth when desired, to prevent its lateral or longitudinal sway or swing. It is connected at its lower and shorter arm to a compound system of levers for operating the friction-bolts I I, and is locked to the desired position by being brought into engagement with one of the teeth of the ratchet K on the arm L attached to the carrier-frame C. The compound system of levers shown consists of a lever, *m*, directly connected with lever H at one end, and at its other end to a swivel, *n*, to each end of which one of the slide-bolts I I is connected, these bolts being arranged to play through suitable guides, and provided at their ends with friction-pads, which, when the bolts are forced outward, press against the bulk-heads E, and lock the carriage-frame.

This construction relieves or frees the berth itself from all strain in the process of locking.

The same principle and method of maintaining an equilibrium as above described for a berth, it is evident, may be applied to other things, as, for instance, to a cabin, sofa, chair, table, platform, car, &c.

I claim—

1. The berth carried and balanced on an oscillating axle, B, at or near the center of its length, in combination with the frame-carriage

C, suspension-rods *d d*, oscillating cross-beams D, and guide-frames F unattached to the carriage, and jointed at the top to the cross-beam D, and by a double connection-rod to the under side of the berth at G, substantially as and for the purpose set forth.

2. In a swinging berth, the means of locking and controlling the movements of the carriage-frame between the bulk-heads, consisting of bolts I I, combined with a system of levers, substantially as described, operated by a hand-lever, H, and ratchet, or its equivalent, substantially as and for the purpose above set forth.

3. The described method of compensating, in a suspended and self-balancing berth, for the preponderance of weight in the upper part of the human body by supporting the berth at a point in its length more or less removed from its center, such point of support being located beneath the lowest point of the berth, substantially as set forth.

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Witnesses:
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