(No Model.)

A. P. BICKMORE.

SWINGING OR SELF LEVELING BERTH.

No. 358,328. Patented Feb. 22, 1887.

Fig. 1.

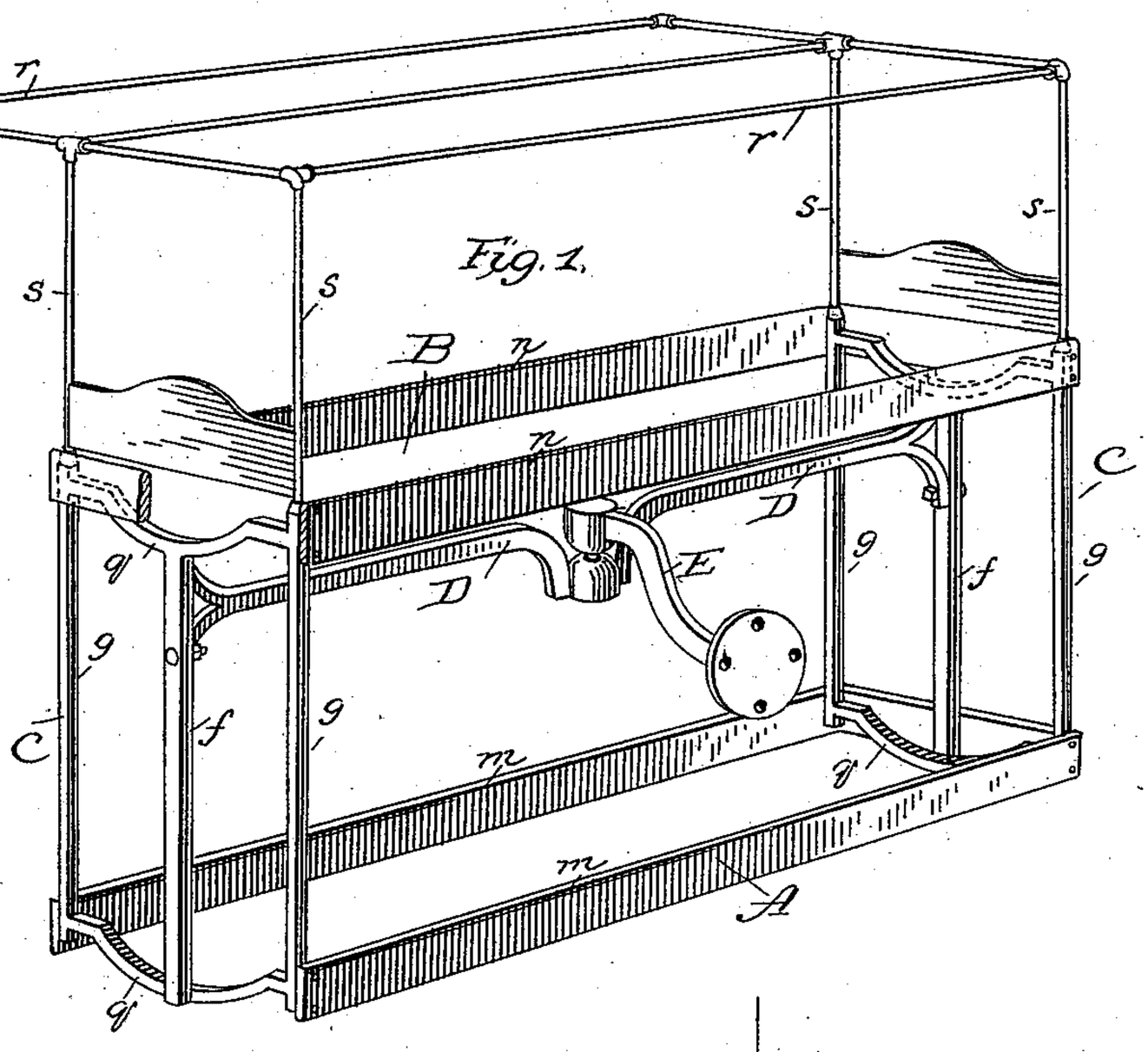


Fig. 2.

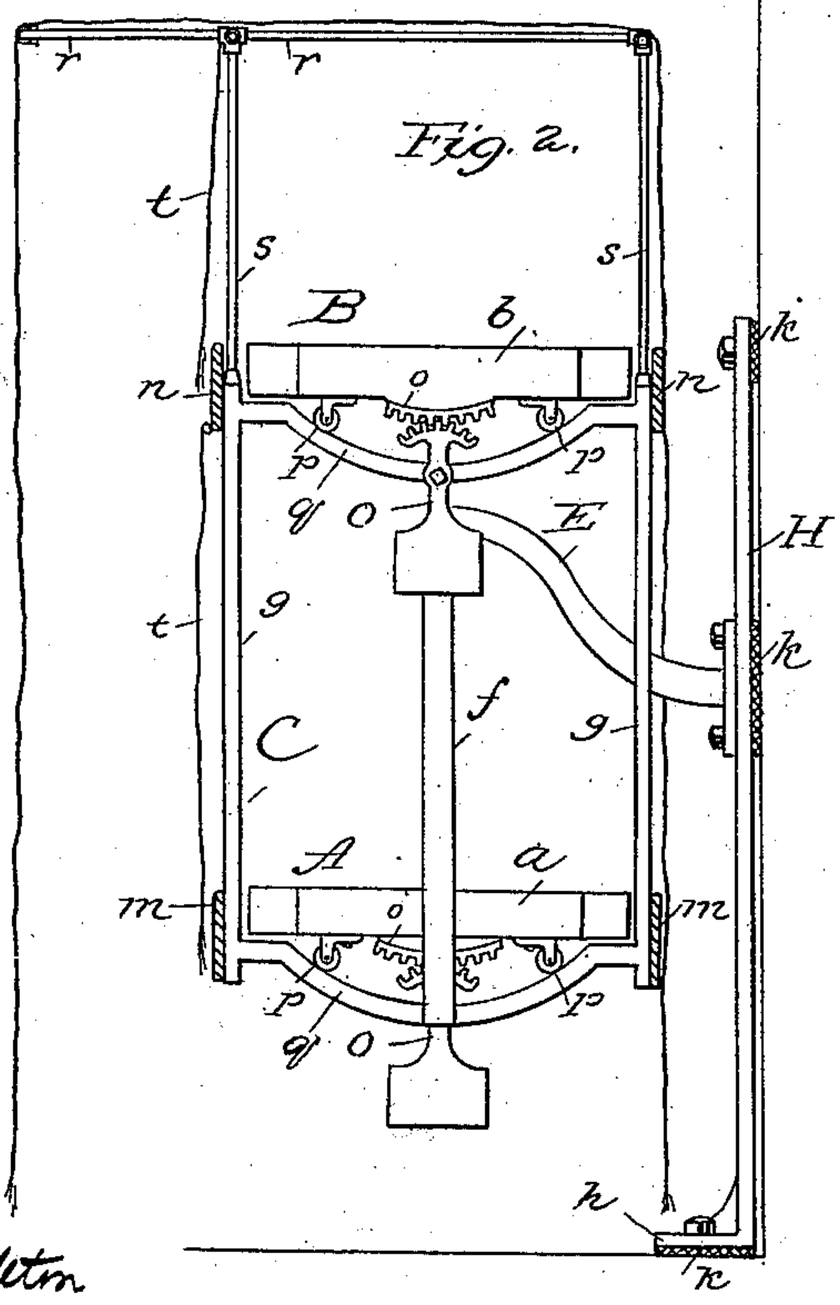


Fig. 3.

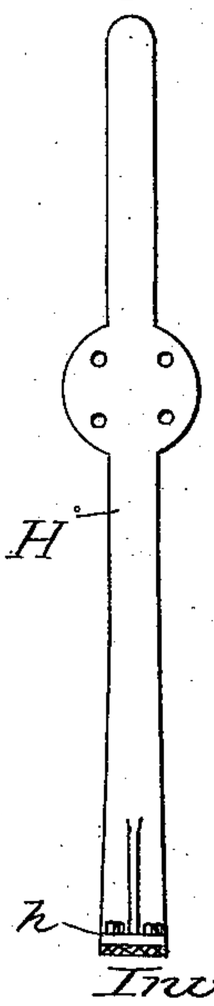
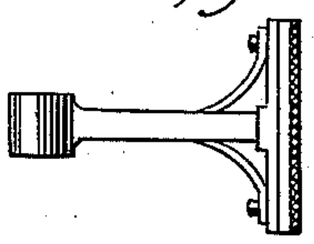


Fig. 4.



Attest:

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UNITED STATES PATENT OFFICE.

ALBION P. BICKMORE, OF HYDE PARK, MASSACHUSETTS, ASSIGNOR OF ONE-HALF TO EDWARD B. PENDLETON, OF SAME PLACE.

SWINGING OR SELF-LEVELING BERTH.

SPECIFICATION forming part of Letters Patent No. 358,328, dated February 22, 1887.

Application filed June 15, 1886. Serial No. 205,282. (No model.)

To all whom it may concern:

Be it known that I, ALBION P. BICKMORE, of Hyde Park, in the county of Norfolk, in the Commonwealth of Massachusetts, have invented certain new and useful Improvements in Swinging or Self-Leveling Berths, of which the following is a full, clear, and exact description.

My invention is an improvement in swinging or self-leveling berths for passenger-craft of all kinds. It includes the general form of suspended berths shown in Letters Patent of the United States granted me on the 24th day of April, 1883, and numbered 276,341.

In this invention I have had in view, first, to reduce the space occupied by the supporting-frame between the upper and lower berths; second, to simplify the frame-work supporting the berths; third, to combine the berths, their supporting-frames, and the canopy with inclosing-curtains, with the supporting-arm on which they are pivoted, so that a complete inclosed state-room is made, all movable on the pivot, and no movement of parts is visible to the occupants of the berths in rough sea, and whereby, also, a complete state room is provided which may be set in any convenient space, as between decks; fourth, to prevent the jar of the machinery from affecting the occupants of the berths when these berths are used on steamships; fifth, to combine the berths or berth boards or frames with the supporting-frames in such a manner that the berths are better steadied and made more secure and convenient to get into or out of without interfering with their easy pendulum movement in relation to the ship; sixth, to provide for limited lateral movement of the bed or mattress within the berth-frame. The details of construction for accomplishing these objects are fully set forth hereinafter, and are illustrated in the accompanying drawings, in which—

Figure 1 is a perspective view showing the end frames, the berth-frames fixed thereto, the supporting-arms for the entire structure, and the canopy-frame, the inner rocking bed, with the mechanism for controlling it, being omitted for the sake of clearness in illustrating these parts. Fig. 2 is an end view, partly in section, showing the inner or movable berths or beds, the devices for steadying them, and the canopy and curtain. Figs. 3 and 4 show details of construction.

In the drawings, A represents the lower and B the upper berth, both fixed to end frames, C C. Each of these frames consists of a strong central vertical bar, *f*, and side bars, *g g*, with connecting cross-pieces, made straight or curved for the special purpose hereinafter described. These end frames thus connected by the berths or berth-frames are also connected by the main supporting-bar D, which is bolted at each end to one of the central bars, *f*. This bar occupies less space than the separate frames shown in my said patent. It is placed as close as possible to the upper berth, and for this purpose is made with an offset at the center to give room for the end of the supporting-arm E. The main supporting-bar D, connected to the frames in the manner described, sustains the whole structure, and is itself suspended from the arm E by devices shown in my said patent or by any others suited to the purpose, which requires that the whole suspended structure shall have free and easy movement in all directions necessary to the maintaining of the berths in horizontal position during the pitching or rolling movements of the ship.

In the improved form of the berth structure herein shown I have made the berths or berth-frames rigid with the frames, as shown in Fig. 1, and when the whole structure of the berths is fixed to the frames I depend for the horizontal position of the berths upon the pivotal suspension of the main bar; but I have provided also, mainly for smaller craft, an inside movable bed-support within the berth-frame. These inner frames or bed-supports are shown at *b* and *c* in Fig. 2. They are arranged to leave some space between their edges and the inner surfaces of the berth-boards *m* and *n*, so that there is room for lateral rocking movement of the bed within the side boards, *m* and *n*, of the berth. To steady this rocking motion of the bed, I fix to or form upon the end cross-bars of the inner or loose bed-frame a segmental rack-bar, *o*, which meshes into one reversely-curved on the upper end of a lever, O, pivoted on the end frame, and having a

weight on its lower end. The bed-frame may be guided and supported on small trucks or rollers, as *p*, which run on tracks on the cross-bars *q*, which are curved to conform to the movement of the bed-frame thereon. The weights give steadiness of movement to the parts, and whether the inner movable bed be used or the whole berth and bed be fixed to the frame the occupant can get into or out of the berth without causing it to tip, as it would when suspended.

The arm E extends laterally to the wall and is provided with a suitable flange on its outer end for attachment to the wall or side of the ship. I do not limit myself to any special form of such arm, or to the special means shown for attaching it to the side wall, deck, or other part of the ship. In cases where the berth can be supported on the side of the ship a flange on the end of the arm is sufficient to hold the arm and support the whole structure of the berths; but I have shown provision for holding the arm when the same is to be fixed to a wall less solid and stable than the side of the ship. In this the arm E is formed with or fixed to an iron standard, H, the foot *h* of which rests on the floor. The standard is flat or thin, and extends upward to give as much surface as possible for holding it against the wall, while the foot rests upon the deck or floor. Underneath or back of the flange or standard I place a rubber or other yielding elastic packing, *k*, which protects the occupants of the berths from the jarring caused by the machinery when the berth is used on board of steamcraft.

It is well known that persons susceptible to sea-sickness are affected by the appearance of motion in surrounding objects, as well as by the motion itself. In order to shut out from the occupants of the berth the sight of all surrounding parts which partake of the motion of the ship, I have provided a canopy and curtains entirely surrounding and covering the berths and supporting-frames. To support this canopy a frame, *r*, is set on posts *s*, fixed to the end frames of the berths. This frame *r* extends forward to overhang the front side of the berths, and leave ample space between the berths and the curtains suspended from the front edge of the frame. These curtains cover and inclose, when drawn together, the whole structure, and the occupants of the berths are suspended and inclosed free from sight or feeling of motion of the ship. For greater privacy of the upper and lower berths, inner special curtains, *t*, are provided for each berth. With this construction, also, the berth is made complete for placing in any position—as, for example, between decks—on ships in the place of ordinary berths. The frames may be made of castings or plain forgings and rods, with cast connections; but these are mere details of construction, to which I do not limit myself.

I claim—

1. In combination, the end frames, the upper and lower berths connected rigidly thereto, a main bar secured to the end frames for supporting the same, and an arm fixed to the partition side or other part of the ship, with pivotal connection between the supporting-bar and said arm, substantially as described.

2. In combination with the berths fixed to the end frames, and with the main bar D, the arm E, for sustaining the supporting structure, fixed to the ship with interposed packings, substantially as described.

3. The upper and lower berths fixed to the frames, said frames rigidly connected to a main supporting-bar pivoted on a laterally-extending arm fixed to the ship, in combination with a canopy supported on the frames, substantially as described.

4. The upper and lower berths fixed to the frames and rigidly connected to a main supporting-bar pivoted on laterally-extending arms fixed to the ship, in combination with a canopy supported on the frames and curtains surrounding the berths and frames, all substantially as and for the purposes described.

5. The upper and lower berths fixed to the frames and rigidly connected to a main supporting-bar pivoted on a laterally-extending arm fixed to the ship, in combination with a canopy supported on the frames and extended to project to the front of the berths, and supporting curtains surrounding the berths and frames, whereby a complete state-room is provided, all substantially as described.

6. In combination with the berths fixed to the end frames, and with the main supporting-bar pivoted on the arm fixed to the ship, the inner movable or rocking bed adapted to rock independently of the berth, all substantially as described.

7. In combination with the berths fixed to the end frames, and with the main supporting-bar pivoted on the arm fixed to the ship, an inner laterally-rocking bed, a segmental rack on the ends of the frame of said bed, curved cross-bar in the end frame on which the frame is supported, and a segmental rack-bar on a pivoted and weighted lever, all substantially as described.

In testimony whereof I have signed my name to this specification in the presence of two subscribing witnesses.

ALBION P. BICKMORE.

Witnesses:

EDMUND DAVIS,

LEVI A. RUNNELLS.