(No Model.) 2 Sheets—Sheet 1.

J. Y. MAINLAND.

SELF LEVELING BERTH.

No. 262,964. Patented Aug. 22, 1882.

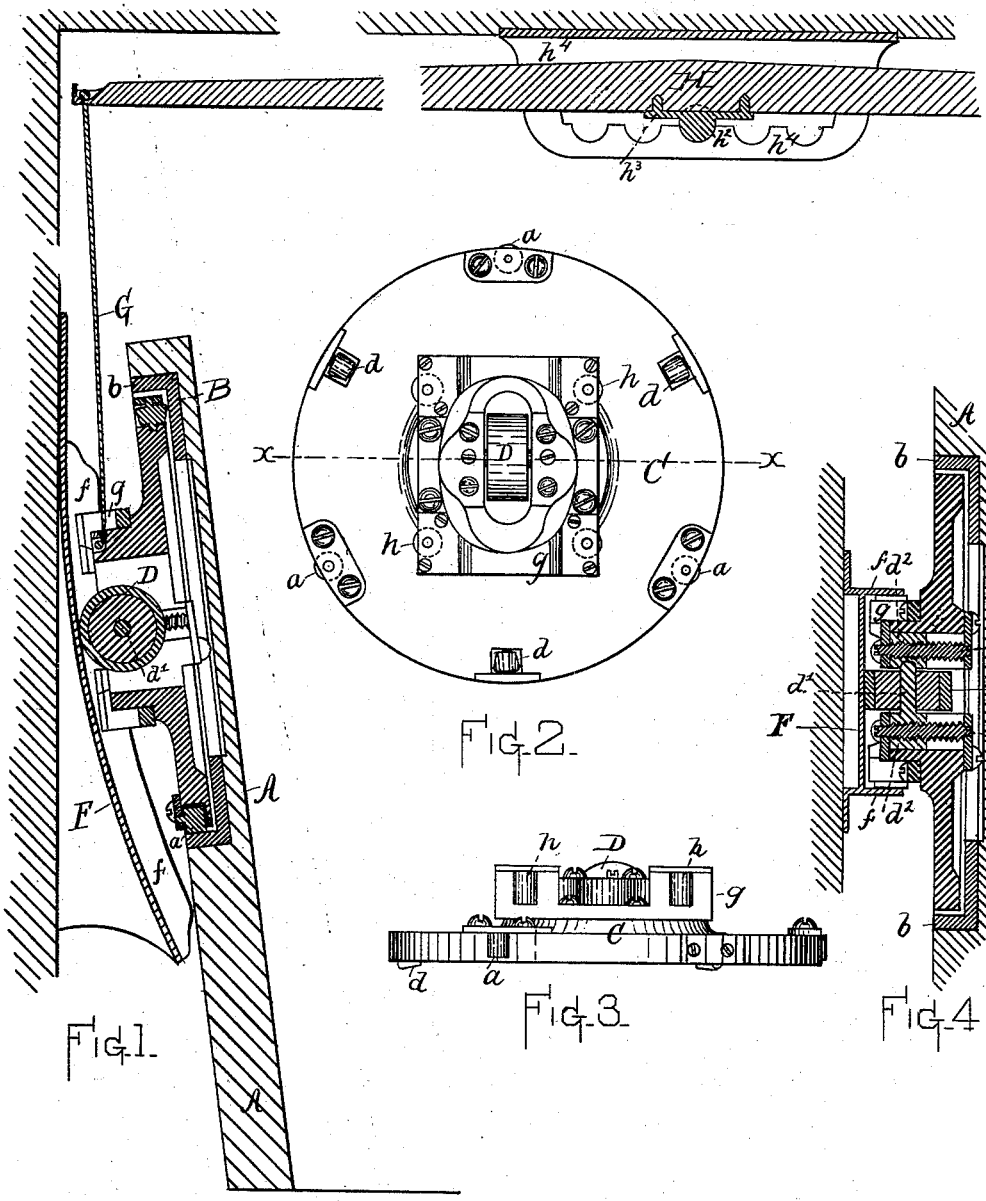

Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

Attest:
Wm. Littel.
J. R. Snow.

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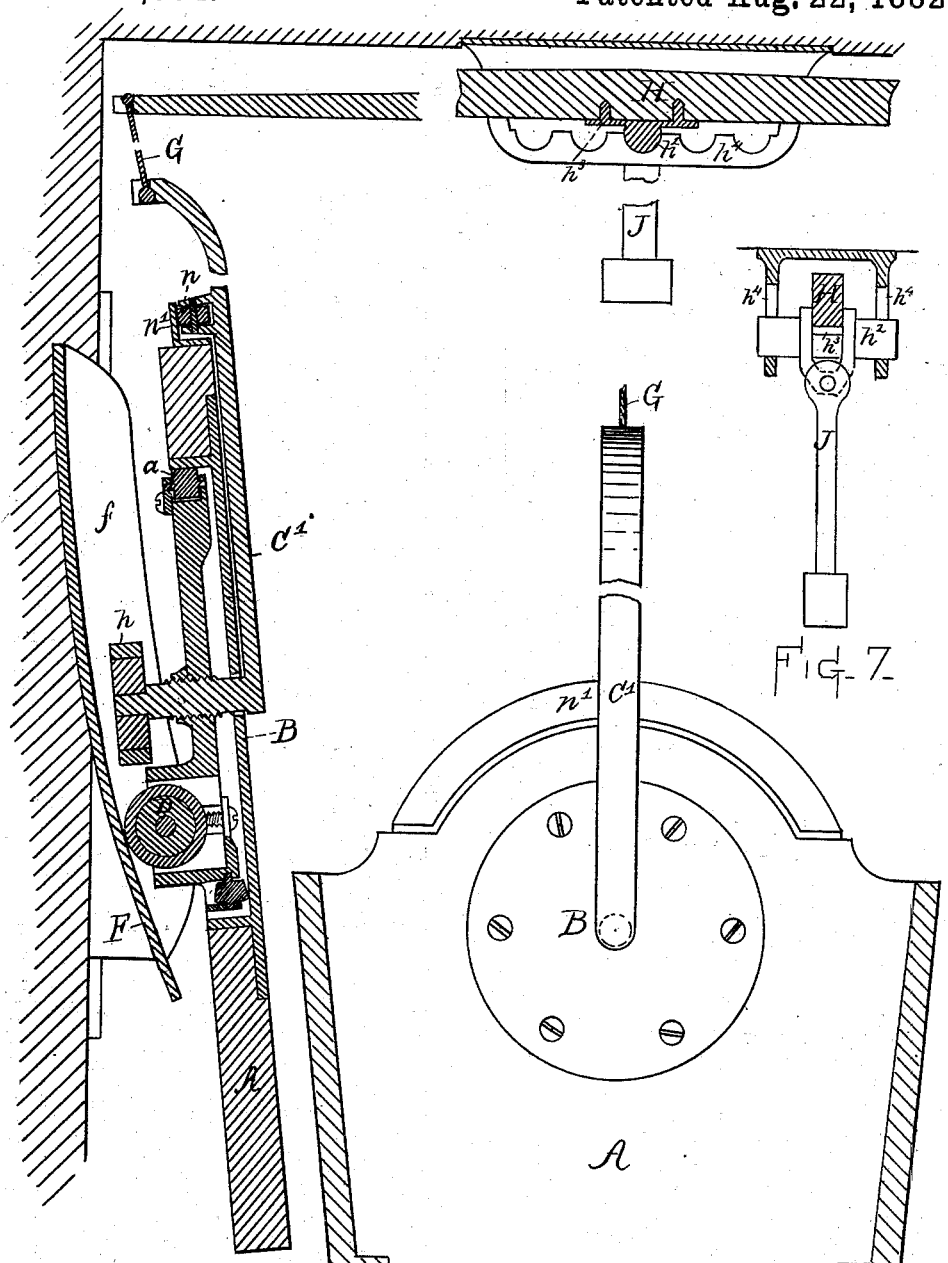

FIG. 5.

FIG. 7.

FIG. 6.

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UNITED STATES PATENT OFFICE.

JOHN Y. MAINLAND, OF BOSTON, MASSACHUSETTS, ASSIGNOR TO THE BRUNSWICK BERTH COMPANY.

SELF-LEVELING BERTH.

SPECIFICATION forming part of Letters Patent No. 262,964, dated August 22, 1882.

Application filed July 19, 1880. (No model.)

To all whom it may concern:

Be it known that I, JOHN Y. MAINLAND, of Boston, in the county of Suffolk and State of Massachusetts, have invented certain Improvements in Self-Leveling Berths, of which the following is a full, clear, concise, and exact description, reference being had to the accompanying drawings, forming a part hereof.

In the drawings, Figure 1 is a vertical section of one end of a berth embodying all the features of my invention. Fig. 2 is a plan, and Fig. 3 an edge view, of the carrier upon which the berth is supported. Fig. 4 is a cross-section on line *x x*, Fig. 2. Fig. 5 shows a different form of my invention. Fig. 6 is an elevation of the same. Fig. 7 is a detail view.

The object of my invention is to so support a berth upon suspended journals that the motion of the ship shall have the least possible effect upon the position of the berth.

The berth A is provided at each end with a metallic plate, B, having a circular rim, *b*, around it. A metal carrier, C, of a diameter a little less than the inside diameter of rim *b*, is inserted in each of these plates, and these carriers are hung so that they can move up and down a few inches, preferably by a wire rope, G, passing over pulleys or attached to a scale-beam, as indicated in the drawings, which illustrate only one end of the berth and its connections, the other end being the same in all respects. Friction-rolls *a* are inserted in the periphery of the carrier C, in order to prevent friction between the rim *b* and the periphery of C, and other friction-rolls, *d*, are inserted in the face of C to prevent friction between the face of carrier C and the face-plate B. It is this combination with the berth of the face-plate B, carrier C, and peripheral and radial friction-rolls *a d* that constitutes the first part of my invention, and this part of my invention is designed to so support the berth that the motion of the ship (commonly rolling, as the berths are usually lengthwise of the ship) shall not tip the berth on a longitudinal axis. In my improved berth the rolling of the vessel only turns the carriers slightly in the face-plates when the berths are lengthwise of the ship.

To prevent the tipping of the berth on an axis crosswise of the berth, and also to prevent endwise motion of the berth, each carrier is provided with a wheel, D, tired with soft rubber, preferably, to prevent noise. The journal d' of this wheel is supported by two blocks, d^2, which are supported on screws d^3, and by means of these screws the wheels D can be accurately adjusted, so that each wheel will touch its track F when the berth is in place. The tracks F are secured to the walls of the state-room, and are slightly curved, as shown; or they may be straight. Each is provided with side pieces, *f*. Friction-rolls *h*, attached to the carrier C, lie between these side pieces, and serve to prevent friction between these side pieces, *f*, and the support *g* of the friction-rolls. The journal d' of wheel D is arranged below the center of carrier C, and the wire rope G is connected with carrier C above its center. This prevents the weight of the berth from throwing the lower part of carrier C out of the face-plate B, and also makes the contrivance more sensitive. When the vessel pitches (the berth being lengthwise of the ship) the carriers C appear to move one up the other down over the tracks F; but in reality the tracks move. Of course all rolling is accompanied by some pitching and all pitching by some rolling; but both are prevented by my contrivances from moving the berth materially.

The second part of my invention consists in the combination of the carrier C with wheel D, track F, side pieces, *f*, and friction-rolls *h*.

A third feature of my invention consists in the arrangement of the journal *d* of wheel D below the center of carrier C, and the connection of the wire rope G with carrier C at a point above its center, whereby the weight of the berth and its occupant is prevented, to a large extent, from disengaging the bottom part of the carrier from the face-plate B and its rim *b*.

The wire rope G has heretofore in berths of this class been supported by two pulleys; and a fourth feature of my invention consists in the combination of a berth supported on axes at each end, with a scale-beam supported at or near its middle by means of wire ropes or jointed links or other flexible connections. This method of suspending the berth not only makes it act better, but admits of an adjustment which

is impossible when pulleys are used, for the fulcrum h^2 of the scale-beam H can be adjusted, as desired, to properly balance the berth and the weight of the occupant. One form of adjusting means is shown in the drawings, the fulcrum-pin h^2 being attached to plate h^3, having dowel-pins projecting from its upper surface and entering holes in the beam H. This plate is readily shifted, so as to bring the pin h^2 in either one of the boxes in the bracket h^4.

Another mode of connecting the carrier C with the berth is shown in Fig. 5. Here the face-plate B has a hole through it at its center, and an arm, C′, passes through it, this arm being fast to the carrier and extending up above the berth to the wire rope G. In this construction the wheel D and its connections are placed lower down in the carrier C, and a single roll, h, is used instead of the friction-rolls h of the other form of my invention. A roll is also used, as shown at n, to prevent friction between the arm C′ and track n'.

When my berth is used athwartship, as is sometimes the case, the roll of the vessel tips the berth on an axis crosswise of the berth, and consequently the rise and fall of the head and foot of the berth are very much more than is possible in a berth arranged lengthwise of the ship, as they usually are. Consequently when the berth is athwartship the tracks must be made considerably longer than those shown, and an additional contrivance to keep the berth horizontal is necessary. This contrivance also constitutes one feature of my invention, and consists of a pendant, J, weighted at its lower end and tending to keep beam H horizontal. This is an essential feature when the berth is crosswise of the vessel, and of use in any case. The weight on the pendant may be sufficient to make it impossible for the weight of the occupant to tip the berth, unless his whole weight is brought near one end of it; but commonly it answers all requirements if sufficient to counteract the ordinary changes in the position of the occupant.

The pendant J may be secured rigidly to the beam H or its journal; or it may be pinned to the journal, as illustrated in Fig. 7, so that the pendant will always remain nearly plumb. This weighted pendant is of course applicable to all berths suspended from a scale-beam.

What I claim as my invention is—

1. In combination, berth A, face-plate B, and carrier C, provided with radial and peripheral friction-rolls a d, the carrier being suspended, all substantially as described.

2. The carrier C, provided with wheel D and friction-rolls h, in combination with berth A and track F, having the side pieces, f, substantially as described.

JOHN Y. MAINLAND.

Witnesses:
J. E. MAYNADIER,
J. R. SNOW.