

(No Model.)

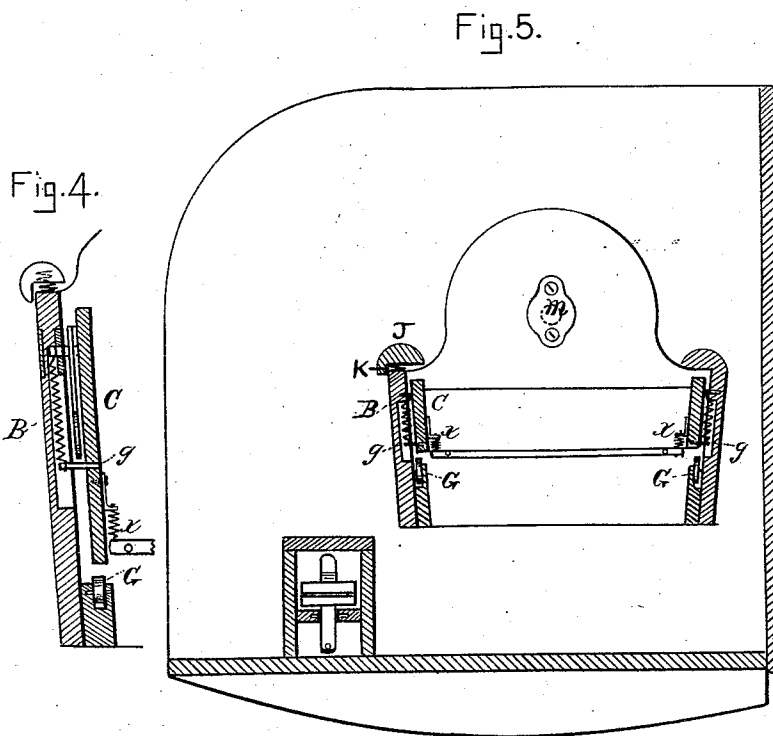
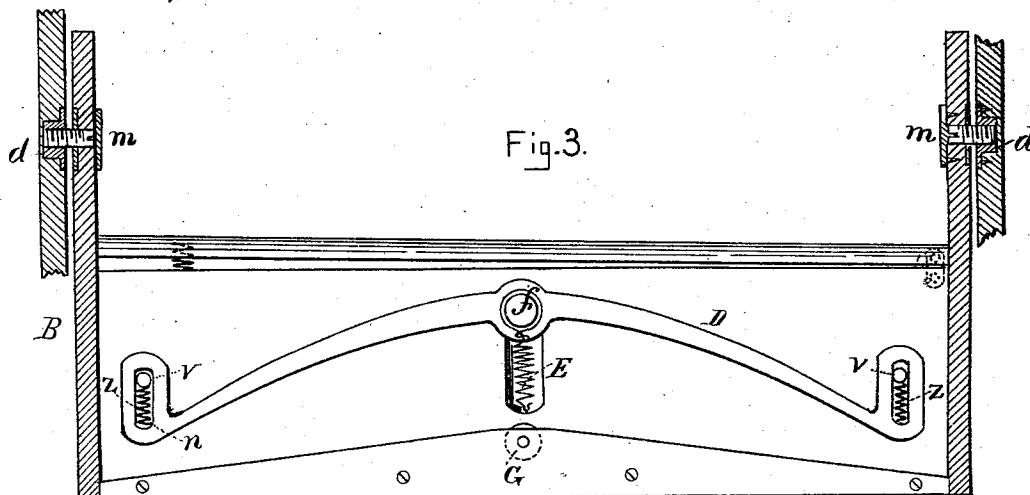
2 Sheets—Sheet 2.

C. A. MILLIGAN & M. J. KILLION.

SELF LEVELING BERTH.

No. 273,581.

Patented Mar. 6, 1883.



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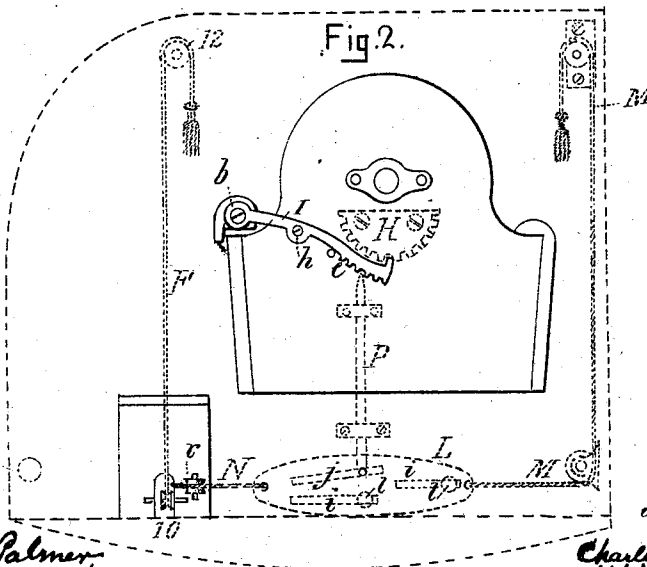
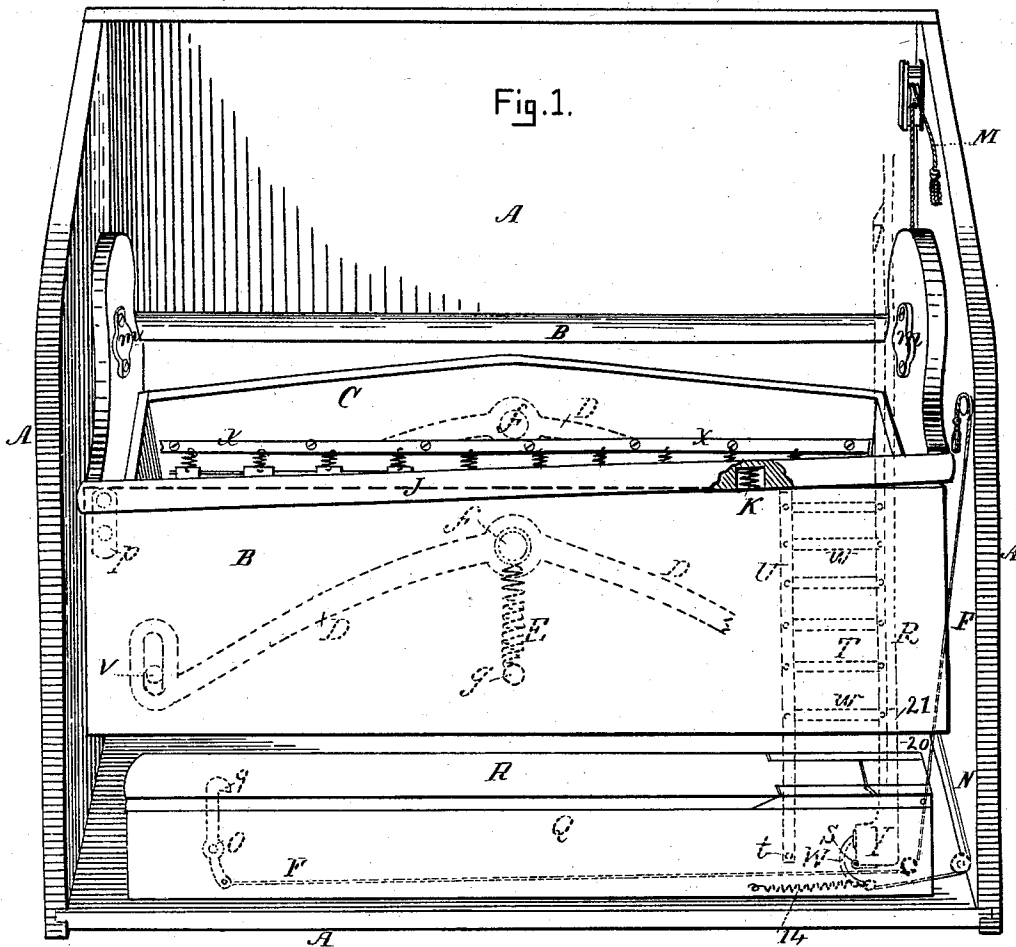
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Witnessed:  
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# UNITED STATES PATENT OFFICE.

CHARLES A. MILLIGAN, OF SOMERVILLE, AND MICHAEL J. KILLION, OF NEEDHAM, ASSIGNORS OF ONE-THIRD TO WILLIAM KILLION, OF BOSTON, MASSACHUSETTS.

## SELF-LEVELING BERTH.

SPECIFICATION forming part of Letters Patent No. 273,581, dated March 6, 1883.

Application filed August 9, 1882. (No model.)

*To all whom it may concern :*

Be it known that we, CHARLES A. MILLIGAN, of Somerville, in the county of Middlesex and State of Massachusetts, and MICHAEL J. KILLION, of Needham, in the county of Norfolk, State of Massachusetts, have invented a certain new and useful Improvement in Ships' Berths, of which the following is a description sufficiently full, clear, and exact to enable any person skilled in the art or science to which said invention appertains to make and use the same, reference being had to the accompanying drawings, forming a part of this specification, in which—

Figure 1 is an isometrical perspective view; Fig. 2, an end view, showing the segment or ratchet and its operative mechanism; Fig. 3, a vertical longitudinal section; Fig. 4, a vertical transverse section of one side of the berth, and Fig. 5 a vertical transverse section of the berth and ladder.

Like letters of reference indicate corresponding parts in the different figures of the drawings.

Our invention relates to that class of ship-berths which swing or are self-leveling; and it consists in a novel construction and arrangement of the parts, as hereinafter more fully set forth and claimed, by which a more effective device of this character is produced than is now in ordinary use.

In the drawings, A represents the state-room, B, the berth, and C the crib.

The berth is suspended at either end by the studs *m m*, which are threaded to form screws which work in corresponding nuts, *d d*, fixed in the walls of the state-room, the object of the screws being to create greater friction between the parts, and thus prevent the berth from swinging as freely as it would in case the studs were plain.

The crib is provided with a spring-bottom, *x x*, and is suspended in the berth by means of the bent vibratory levers D D—one on either side—the levers being centrally supported by the studs *f f*, projecting inwardly from the sides of the berth.

Projecting outwardly from the sides of the crib, near each of its ends, are studs *v v*, which

work in slots *z* and rest upon springs *n*, disposed in the ends of the lever D. An additional support is also afforded the crib at its center by a spring, E, upon either side. These springs are attached at their lower ends to studs *g*, projecting from the sides of the crib, and at their upper ends to the studs *f*.

A friction-roller, G, is arranged within the berth on either side under the center of the crib, to assist in supporting it when heavily loaded and permit it to swing freely in a longitudinal direction. Several of these rollers arranged on the arc of a circle may be used instead of one, if desired.

A toothed segment, H, is attached to the end of the state-room or casing opposite head of the berth, as shown in dotted lines in Fig. 2, and connected with this there is a lever or pawl, I, pivoted at its center, *h*, to the head of the berth, and at its outer end, *b*, to the front rail, J. This rail is pivoted at its lower end, *p*, to the foot of the berth, and near its upper end is provided with a spring, *k*, which acts expansively to raise the upper end of the rail, and thus detach the lever I from the segment H.

Beneath the head of the berth B there is a plate, L, provided with the slots *i*, and fitted to work longitudinally on the headed studs *l*. This plate is also provided with an inclined or cam-shaped slot, *j*, and attached to its inner end there is a cord, M, and to its outer end a cord, N, the cord M passing around proper pulleys to carry it to the top of the state-room, and the cord N around the pulley *r* into the ladder-box, where it connects with a lever, hereinafter described.

A rod, P, is fitted to slide vertically on the end wall of the state-room at the head of the berth, its lower end connecting by a laterally-projecting stud with the slot *j*, in which said stud works, and its upper end engaging with teeth *e* on the lower side of the lever I.

A box, Q, is permanently arranged on the floor of the state-room opposite the lower berth, being of a proper height to form a seat when closed. The cover R of this box is provided with a projection or heel, Y, corresponding in depth with the depth of the box, and is hinged

to the bottom of the same, near its upper end, at s. The cover also forms one side or rail of the ladder T, the other rail, U, being jointed at its lower end, t, to the bottom of the box, and both rails connected by a series of rungs or rounds, w w, jointed at either end to the rails. A curved lever, W, is attached to the under side of the heel Y, its lower or free end being connected to the cord N.

A spring-catch, O, is pivoted in the lower end of the box Q, and attached to its lower end there is a cord, F, which passes under the pulley 10 and over the pulley 12, at the head of the berth.

A spring, 14, acting contractively, has one of its ends secured to the lever W, and its other to the bottom of the box Q.

When the ladder is housed and the box Q closed, there is a space between the heel Y and the head of the box, which is covered by the short hinged cover 20. This cover is raised when the ladder is erected, and falls into a horizontal position, to make the cover of the box continuous, when the ladder is depressed, having an incline, 21, on its inner end, to enable it to slide up and down the rail R, as that rises and falls.

In the use of our improvement, the person to occupy the berth places the hand on the upper end of the rail J, causing the pawl or lever I to engage the toothed segment H and lock or secure the berth in position. The ladder is then erected by pulling the cord F, releasing the spring-catch O, and permitting the spring 14 to raise the ladder to the position shown by the dotted lines in Fig. 1, the cord N, as the ladder rises, drawing the plate L toward the front of the berth, and thereby forcing the rod P against the lever I and securing the same in position. After the person has mounted to the berth, the ladder may be depressed or housed in the box Q by pulling on the cord M, and at the same time the berth released and permitted to swing freely on its supports m, in a manner which will be readily understood by all conversant with such matters.

It will be obvious that a ladder of this construction may be used with equal advantage in state-rooms which are not provided with swinging berths, if desired.

Having thus explained our improvement, what we claim is—

1. The combination of an oscillatory berth provided with central inwardly-projecting studs at its sides, bow-shaped levers centrally fulcrumed on said studs and provided with vertical slots at their outer ends, a crib within said berth, provided with laterally-projecting studs near its ends, which project into the slots of said levers, and springs within the slots, on which said crib-studs rest, substantially as described.

2. The combination of an oscillatory berth provided with central inwardly-projecting studs at its sides, bow-shaped levers centrally fulcrumed on said studs and provided with

vertical slots at their outer ends, a crib within said berth, provided with laterally-projecting studs near its ends, which rest in the slots of said levers, and springs connecting the berth-studs with intermediate laterally-projecting crib-studs, substantially as described.

3. The combination of an oscillatory berth provided with central inwardly-projecting studs at its sides, bow-shaped levers centrally fulcrumed on said studs and provided with vertical slots at their outer ends, a crib within said berth, provided with laterally-projecting studs near its ends, which project into said slots, springs within said slots, on which said crib-studs rest, and springs connecting said berth-studs with intermediate laterally-projecting crib-studs, substantially as described.

4. The combination of a casing or support, an oscillatory berth pivoted thereto, a toothed segment fixed to said casing opposite one end of said berth, a pawl-lever pivoted to said end and adapted to engage said segment for locking the berth in position, and means for automatically forcing said pawl into contact with the segment on climbing into the berth, and means whereby the pawl may be readily released by the occupant of the berth, all substantially as described.

5. The combination of a casing or support, an oscillatory berth pivoted thereto, a device for locking said berth in horizontal position, and means for actuating said locking device, consisting of a pivoted spring-actuated front rail attached to the outer edge of the berth and connected to said locking device, all substantially as described.

6. The combination of a casing or support, an oscillatory berth pivoted thereto, a toothed segment fixed to said casing opposite one end of said berth, a pawl-lever pivoted to said end, and adapted to engage said segment for locking the berth in horizontal position, a side rail pivoted at one end to the berth and connected at the other to said lever, and a spring which raises said rail, whereby the pawl-lever is normally disengaged from said segment, substantially as described.

7. The combination of a state-room, casing, or support, an oscillatory berth pivoted thereto, a device for locking said berth in horizontal position, a folding ladder, mechanism for raising and lowering said ladder, and mechanism, as herein described, or its equivalent, connecting the ladder-raising-and-lowering mechanism with said berth-locking device, whereby the raising and lowering of the ladder respectively locks and releases the berth, substantially as described.

8. The combination of a state-room, casing, or support, an oscillatory berth pivoted thereto, a toothed segment fixed to said casing opposite one end of said berth, a pawl pivoted to said end and adapted to engage said segment, a device for locking and releasing said pawl, a folding ladder, mechanism, as herein described, or its equivalent, for raising and lowering said ladder, and mechanism connecting

the ladder-raising-and-lowering mechanism with the pawl-locking-and-releasing device, whereby the raising of the ladder locks the pawl and the lowering of the ladder releases the pawl, substantially as described.

- 5 9. The combination of a state-room, casing, or support, an oscillatory berth pivoted thereto, a toothed segment fixed to said casing opposite one end of said berth, a pawl pivoted to said end and adapted to engage said segment, and means for engaging and disengaging said pawl from said segment, consisting of a vertically-movable rod, the upper end of which engages a rack on the under side of said pawl, into the cam-slot of which a stud on the lower end of said rod projects, and cords, with supporting-pulleys, at the sides of the berth, connected
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to said movable cam-slotted plate for sliding said plate to the right or left, respectively, for raising or lowering said rod and locking or releasing said pawl, substantially as described.

10. The combination of a state-room, an oscillatory berth therein, a folding ladder adjacent to the berth, mechanism, substantially as described, for folding said ladder, and an actuating cord, or its equivalent, connected to the wall of said state-room and arranged in convenient proximity to said berth, whereby the ladder may be closed by the occupant after entering the berth, substantially as described.
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