A. L. WERTHEIM.

SELF LEVELING COT, BUNK, COUCH, AND THE LIKE FOR USE ON SHIPBOARD.

APPLICATION FILED JULY 28, 1909.

963,966.

Patented July 12, 1910.

4 SHEETS—SHEET 1.

Fig. 1.

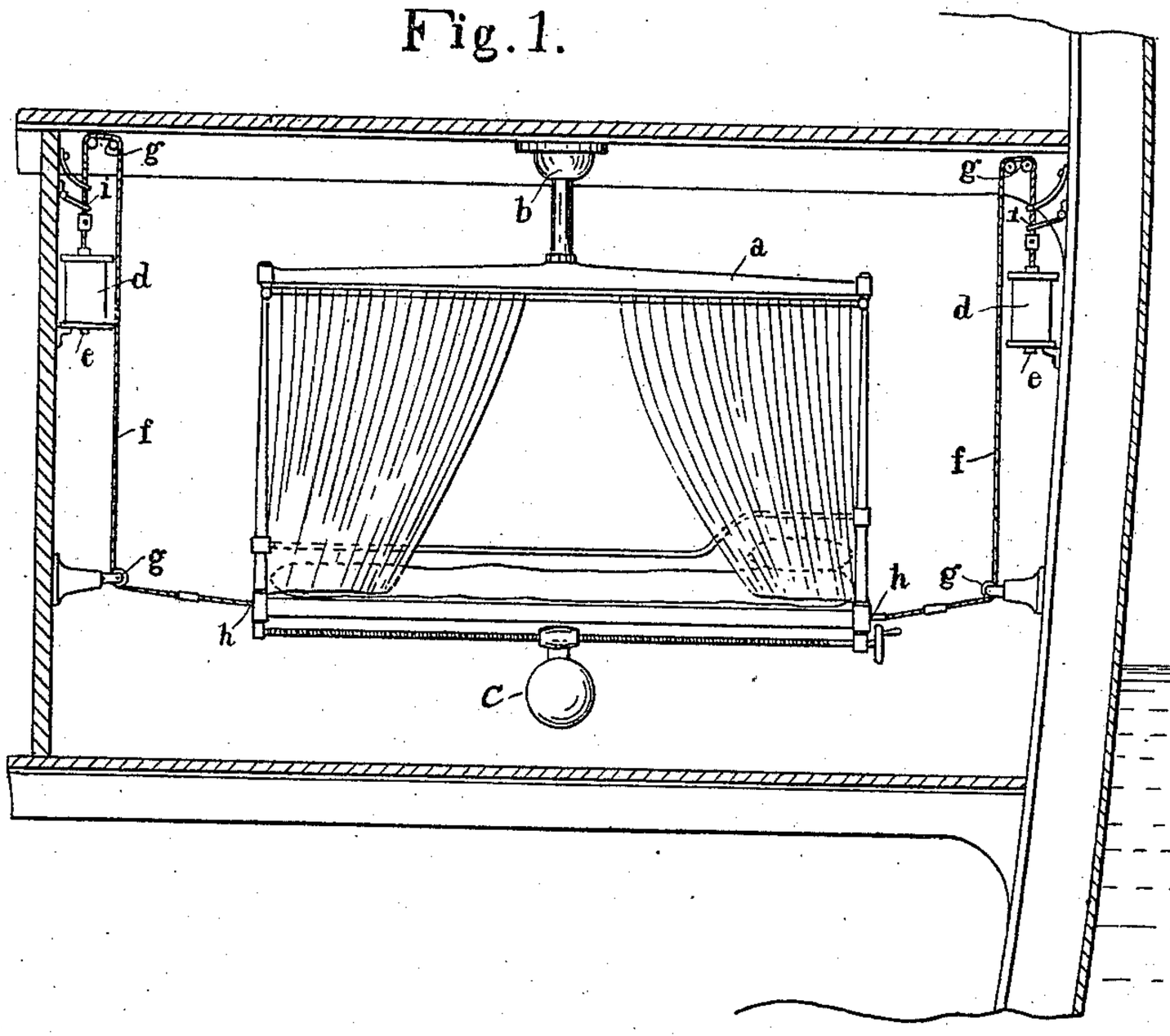

Fig. 2.

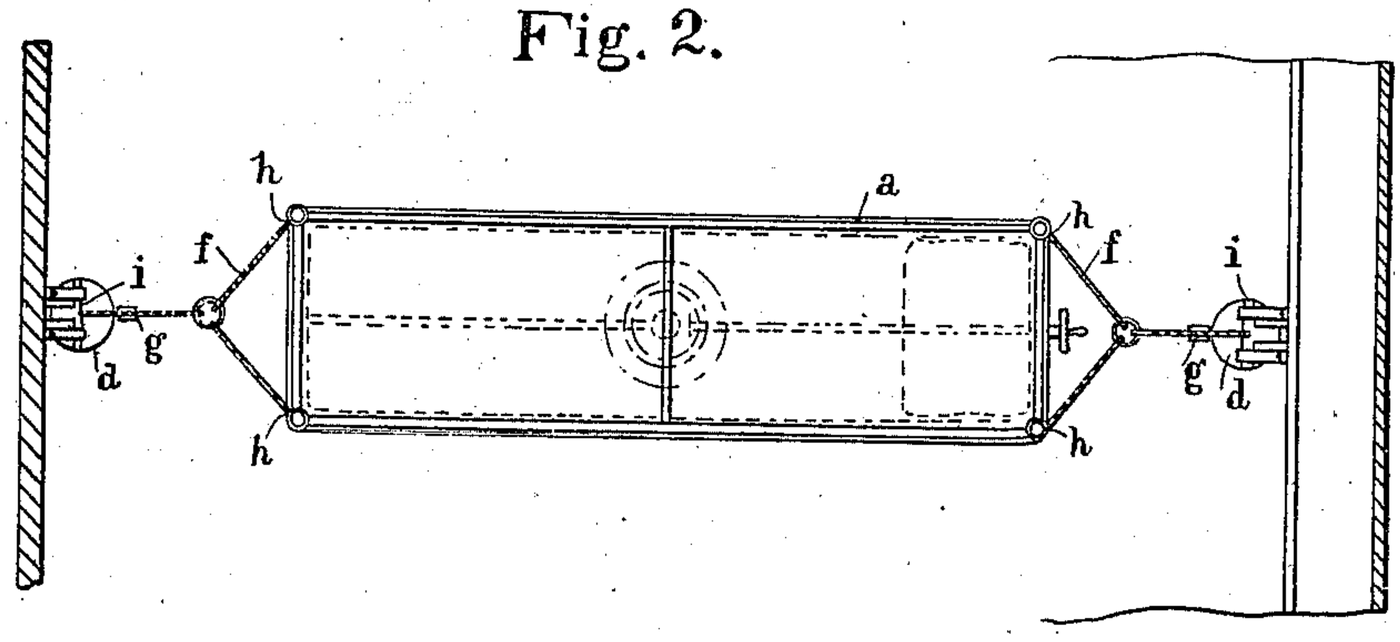

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Fig. 3.

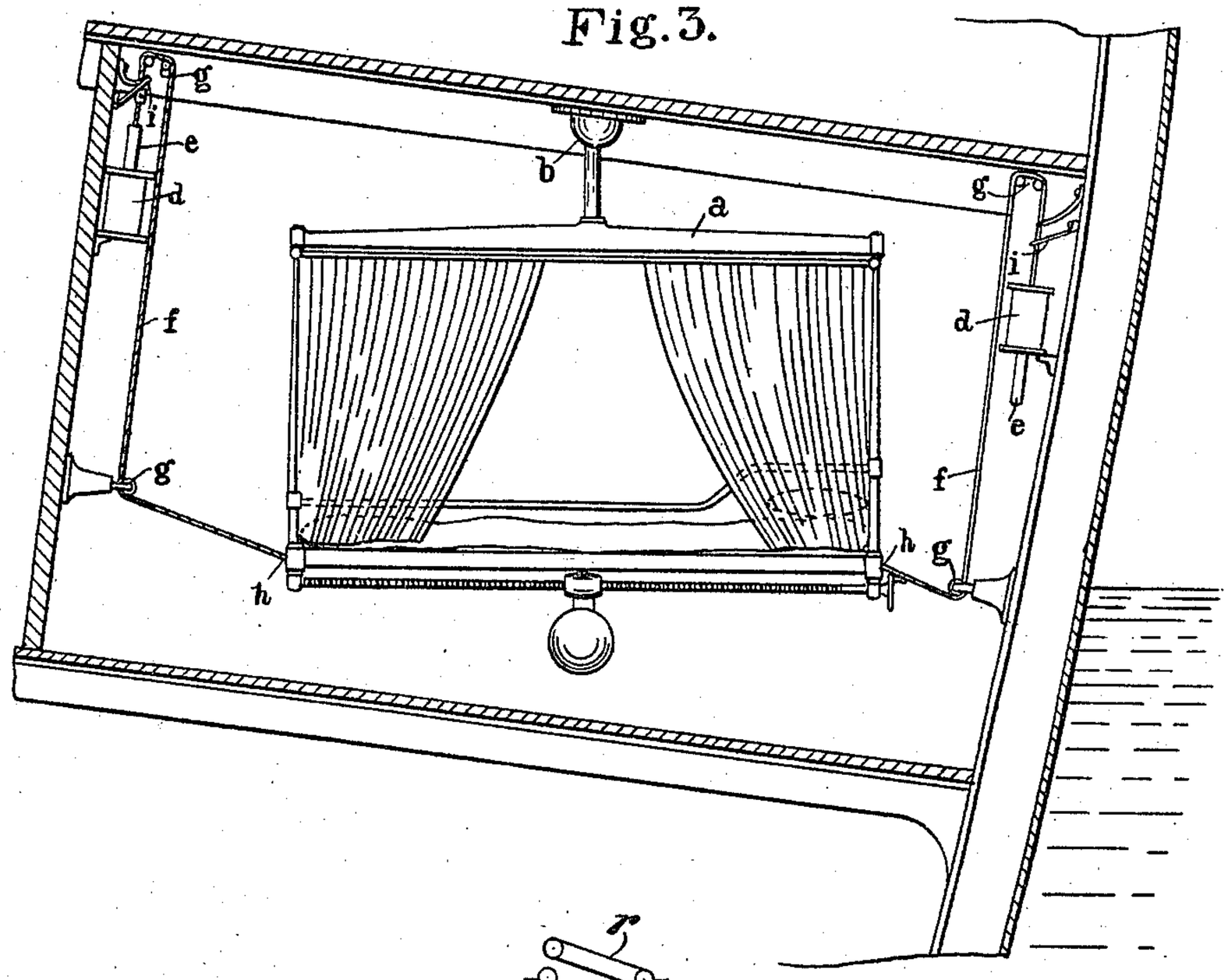
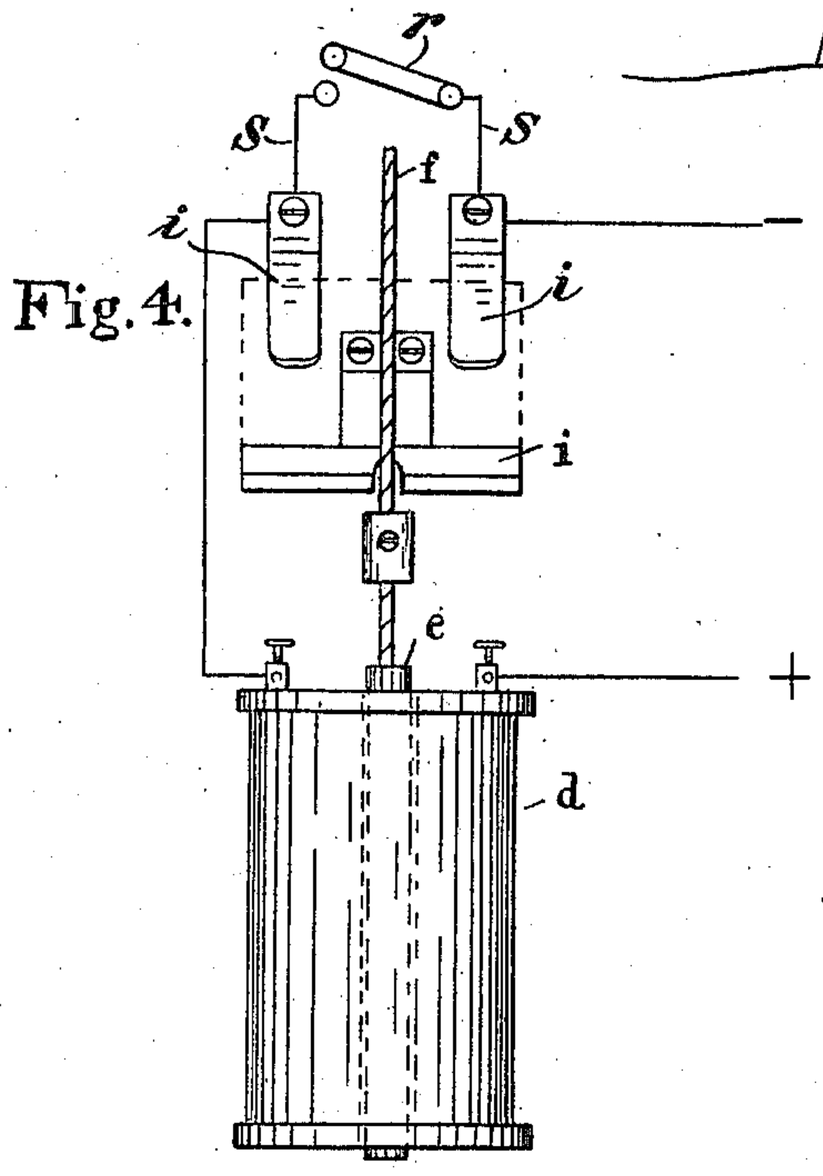


Fig. 4.



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4 SHEETS—SHEET 3.

Fig. 5.

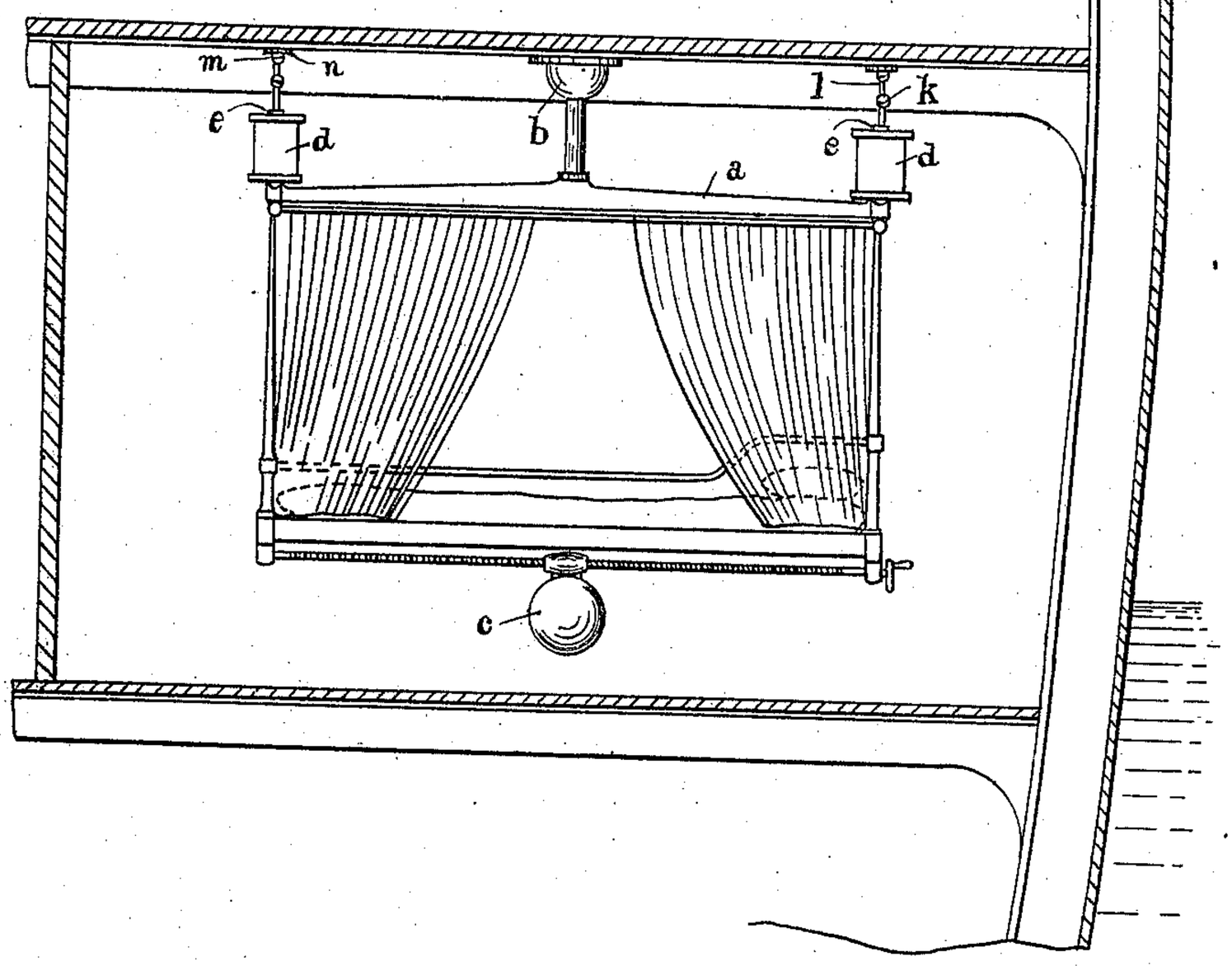
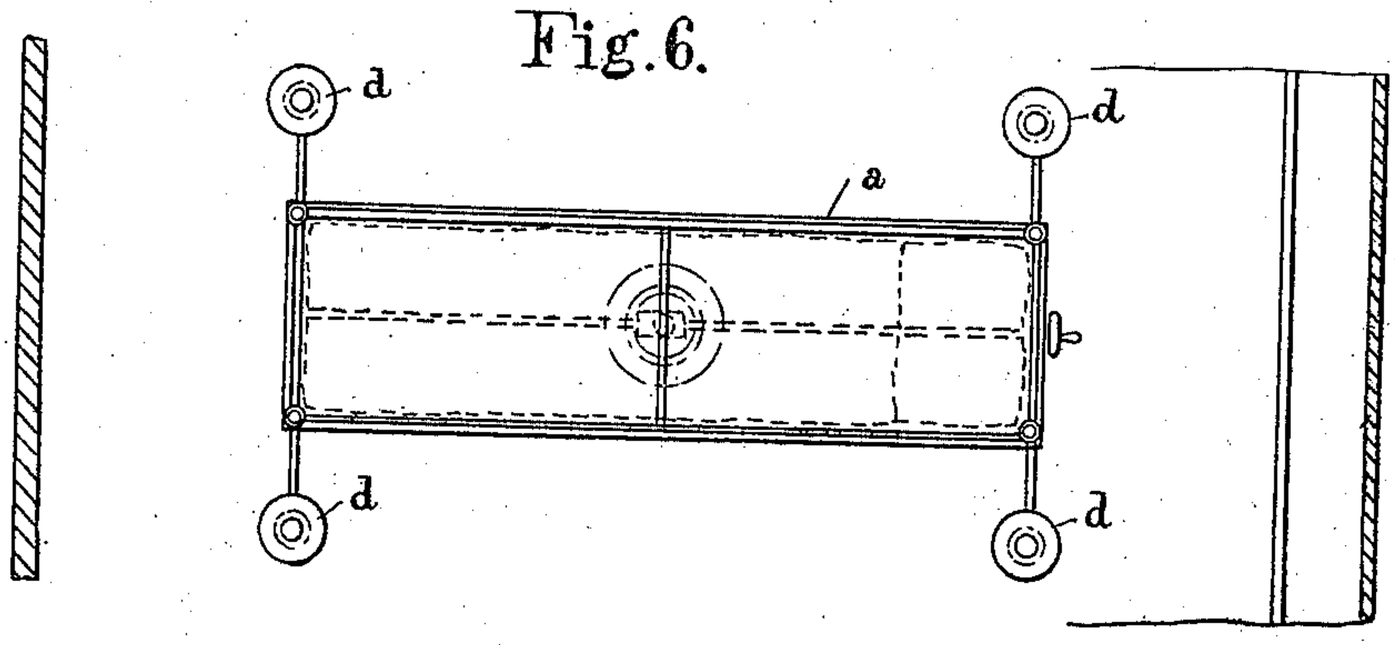


Fig. 6.



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4 SHEETS—SHEET 4.

Fig. 7.

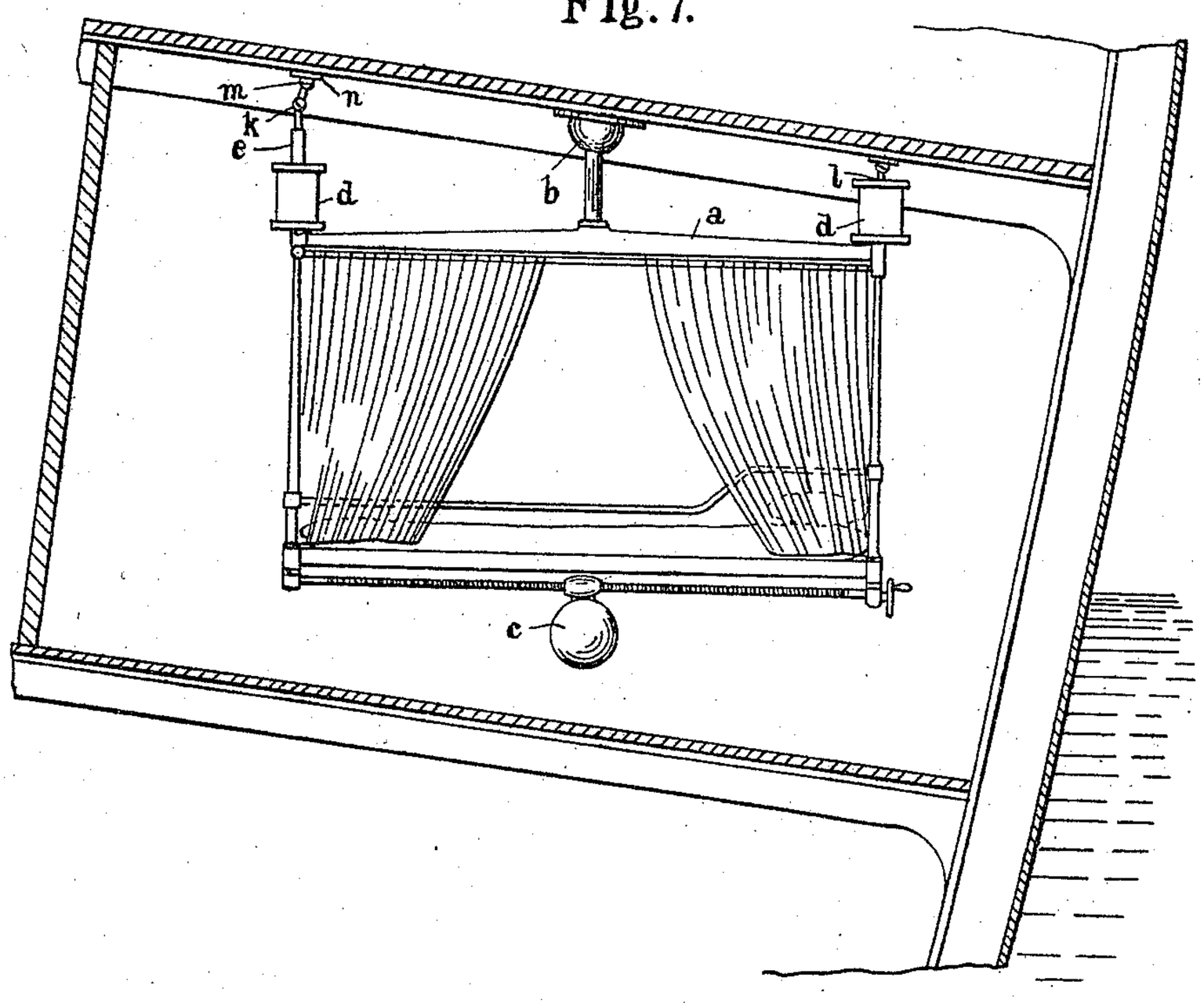
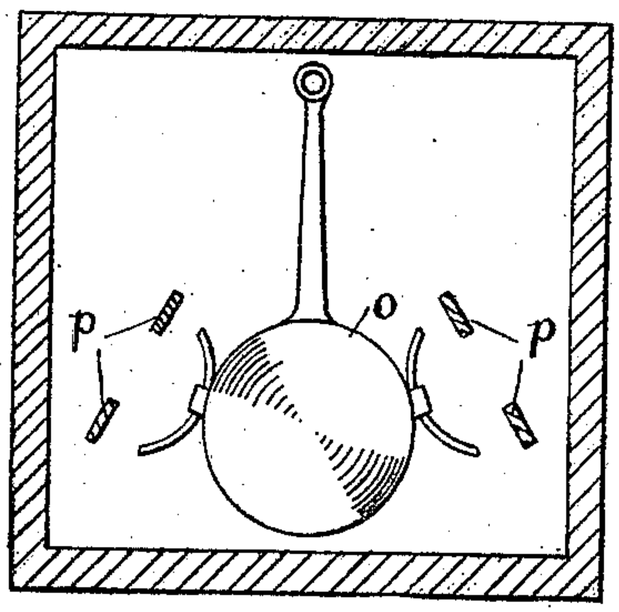


Fig. 8.



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UNITED STATES PATENT OFFICE.

ANNE LÖWENSTEIN WERTHEIM, OF LONDON, ENGLAND.

SELF-LEVELING COT, BUNK, COUCH, AND THE LIKE FOR USE ON SHIPBOARD.

963,966. Specification of Letters Patent. Patented July 12, 1910.

Application filed July 28, 1909. Serial No. 510,005.

To all whom it may concern:

Be it known that I, ANNE LÖWENSTEIN WERTHEIM, a princess of the German Empire, of 8 Upper Belgrave street, London, England, have invented new and useful Improvements in Self-Leveling Cots, Bunks, Couches, and the Like for Use on Shipboard; and I do hereby declare that the following is a full, clear, and exact description of the same, reference being had to the accompanying drawings, forming a part hereof.

This invention relates to certain improvements in connection with cots, bunks, couches and the like, used upon sea-going vessels, and refers particularly to the type in which electrically operated means are employed or made use of to maintain the said cots, bunks, couches and the like, in a horizontal position, notwithstanding the rolling or pitching of the vessel when at sea.

The object of this my invention is to provide simple and effective electrical means for automatically checking any movement of the bunk or other object from the horizontal so that said bunk or other object is always held in a level position, independently of the movements of the ship or vessel upon which it is fitted.

In accordance with my invention I suspend the cot, bunk couch or other object or article from a central point above by means of a universal joint, the berth or the like so swinging will be kept more or less steady by gravity and the inertia of the load, but to counteract the unequal distribution of a person's weight when the cot, bunk, or the like is occupied, I provide a weight arranged to slide along the bottom of the said cot or bunk. Even then there will be a tendency for the berth or the like to attain a swinging motion and to prevent this I make use of electrical solenoids.

A convenient manner of arranging the solenoids is as follows:—To the core of each solenoid I attach one end of a cord which after passing over a pulley or pulleys is fastened at the other end to a corner of the suspended berth, cot, or bunk. Suitable switches are provided which actuated by the motion of the vessel energize either or all the solenoids, as may be required or necessary, or as an alternative (when rough weather demands it) the solenoids may be left continually energized by the current. In some cases I mount the solenoids upon the upper part of the top frame of the berth, and the core of each solenoid is then connected by means of a universal joint to a rod, which rod is by means of a universal joint connected to a ceiling plate. The connecting rod aforesaid may be either rigid or flexible or a chain may be made use of for the purpose. When the solenoids are thus arranged I make use of a convenient number (preferably two) of either mercury or pendulum switches each secured to the wall of the cabin in the same horizontal plane but at right angles one to the other. As the ship rolls or pitches so will the cores of the solenoids rise and fall, while the said rolling or pitching of the vessel will actuate the switches aforesaid and the solenoids thus becoming energized will hold the cot, practically in a horizontal position notwithstanding the movements of the vessel.

The invention will be described with reference to the accompanying drawings in which:—

Figure 1 is a side elevational view of the cot provided with my improvements in the means employed for rendering the same self-leveling. Fig. 2 is a plan of the same. Fig. 3 is an elevation of the cot shown as maintained in its horizontal position by the action of the solenoids while the ship is rolling. Fig. 4 to an enlarged scale illustrates one of the solenoids and its switch. Fig. 5 is an elevational view of the cot fitted with the solenoids arranged in accordance with the modification above mentioned. Fig. 6 is a plan of the same. Fig. 7 is a side elevation of the cot showing the action of the modified arrangement of the solenoids when the ship is rolling, and Fig. 8 shows a pendulum switch suitable for use with the modified arrangement of the solenoids.

Referring particularly to Figs. 1, 2, 3, and 4 *a* indicates the cot or bunk swung from a central point above by means of a universal joint *b*, *c* is a weight capable of being slid or moved along the bottom of the cot or bunk *a* by a screwed spindle as shown or by other suitable means, and serving to counteract any unequal distribution of a person's weight when the cot is occupied.

d, *d*, are the solenoids and *e*, *e*, the cores of such solenoids. A cord *f* is attached at one end to the core *e* of each solenoid *d* and passing over the pulleys *g* is fastened at the other end to the corresponding corners *h* of the suspended cot *a*.

i, *i*, shown separately to an enlarged scale, in Fig. 4 are switches which, as the core of the solenoid rises at one end of the cot by the movements of the vessel as aforesaid, make contact and energize the solenoids which will then hold the cot in a level position until released by the rolling of the vessel in the reverse direction, when the solenoid at the other end of the cot comes into operation and the cot is still retained in its level position.

In the arrangement of solenoids shown in Figs. 5, 6, 7, and 8, the said solenoids *d* are as aforesaid mounted upon the upper part of the top frame of the cot *a* or the like, and the core *e* of each solenoid is connected by a universal joint *k* to a rod *l*. This rod *l* at its other end has also a universal joint *m* connected to a ceiling plate *n*. The rising and falling of the cores in the solenoids operate in the same manner as described with reference to Figs. 1, 2, 3, and 4. A suitable switch for energizing the same is illustrated in Fig. 8 of the drawings to an enlarged scale. The switch is of the pendulum type, and two of these switches are made use of placed at right angles to one another so that contact may be made either by the rolling or pitching of the vessel. O represents the pendulum and *p* the contacts. When required, however as in very rough weather, the solenoids may be left continually energized by the electric current.

As shown in Fig. 4, the upper switch members *i* are connected by wires *s* adapted to be controlled by the switch *r*. By closing the switch *r* the solenoid will be constantly energized or if it is desired the switch *r* may be left open so that the solenoids may be energized intermittently by the switch *i*.

What I claim as my invention and desire to secure by Letters Patent is:—

1. The combination with a ship structure, a bunk or berth, means suspending said bunk or berth from said structure and permitting the bunk to seek a normal position by gravity, electrical means connected with said bunk to restrain movement thereof beyond a normal position, and a switch for closing the circuit of said electrical means.

2. The combination with a ship structure, a bunk or berth, means for suspending the bunk or berth from said structure to permit the bunk to seek a normal position by gravity, electrical means connected with each corner of the bunk for restraining movement thereof beyond a normal position, and a switch for closing the circuit of said electrical means.

3. The combination with a ship structure, of a bunk or berth, a universal joint device suspending said bunk or berth from said structure and permitting the bunk to seek a normal position by gravity, a weight mounted on said bunk, means for adjusting the position of said weight, electrical means attached to each corner of the bunk for restraining movement thereof beyond a normal position, and a switch for closing the circuit of said electrical means.

4. The combination with a ship structure, of a bunk or berth, a universal joint device suspending said bunk from said structure and permitting the bunk to seek a normal position by gravity, a weight mounted on said bunk, means for adjusting the position of said weight, electrical means for restraining movement of said bunk beyond a normal position, said means comprising a plurality of two part electrical mechanism, one part being attached to each corner of the bunk and the other part being connected to said structure, and a switch for closing the circuit of said electrical means.

5. The combination with a ship structure, of a bunk or berth, a universal joint device suspending said bunk from said structure and permitting said bunk to seek a normal position by gravity, a weight adjustably mounted on said bunk, means for adjusting the position of said weight, solenoids, means operatively connecting said solenoids with said bunk, and a source of current for said solenoids to restrain movement of said bunk beyond a normal position.

6. The combination with a ship structure, a bunk or berth, means suspending said bunk or berth and permitting the same to seek a normal position by gravity, electrical means connected with said bunk to restrain movement thereof beyond a normal position, and a switching device in circuit with said means and actuated as result of movement of the ship structure for energizing said means.

In testimony whereof I affix my signature in presence of two witnesses.

ANNE LÖWENSTEIN WERTHEIM.

Witnesses:

GEORGE HUGHES,

A. H. MAYES.