(Model.) 2 Sheets—Sheet 1.

J. L. & C. P. HOWARD.

Berth Look for Sleeping Cars.

No. 243,374. Patented June 28, 1881.

Fig. 1.

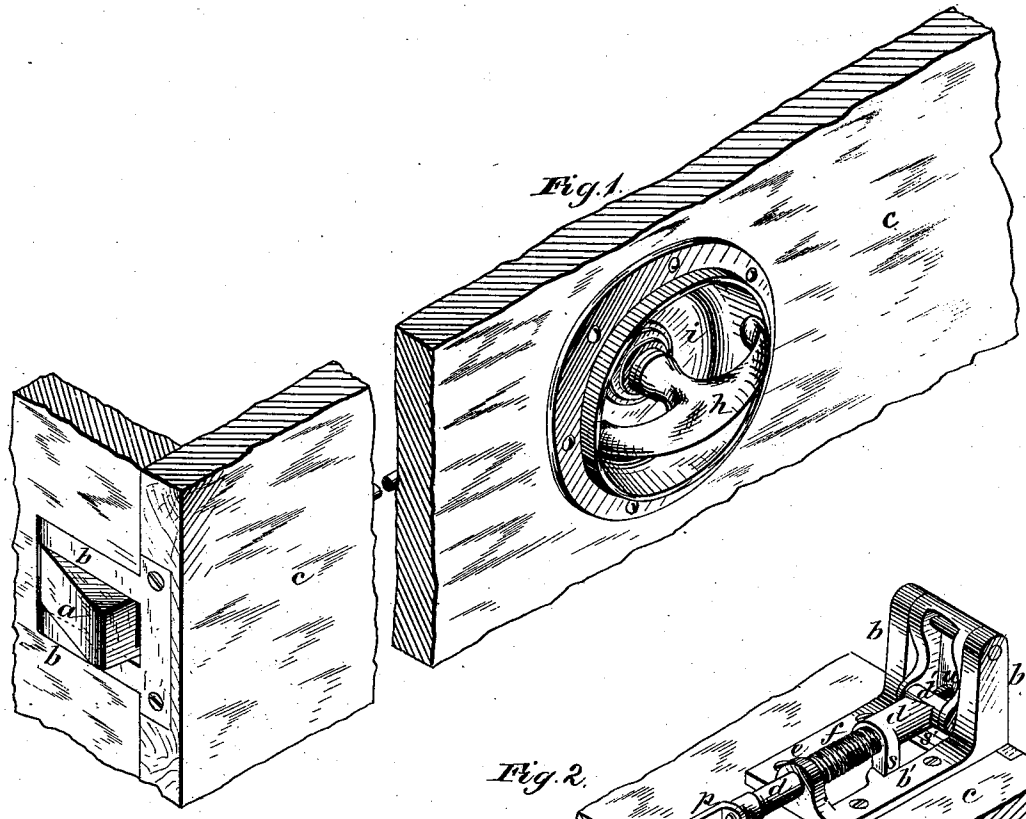
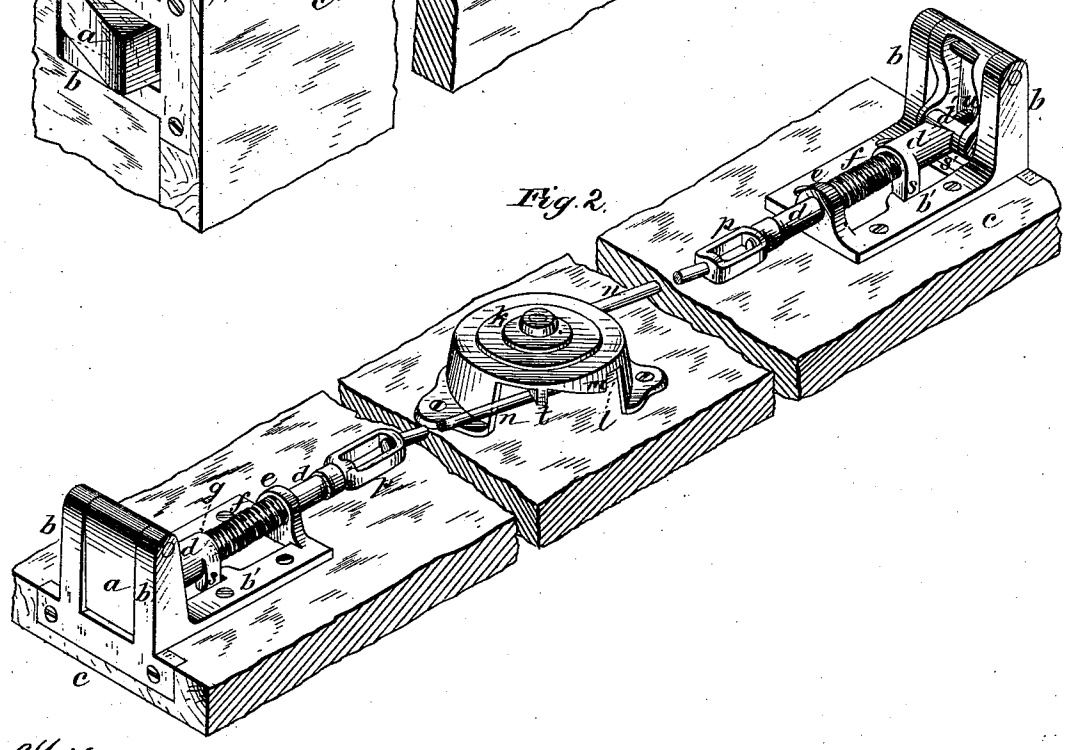


Fig. 2.



Witnesses.
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(Model.) 2 Sheets—Sheet 2.

J. L. & C. P. HOWARD.

Berth Lock for Sleeping Cars.

No. 243,374. **Patented June 28, 1881.**

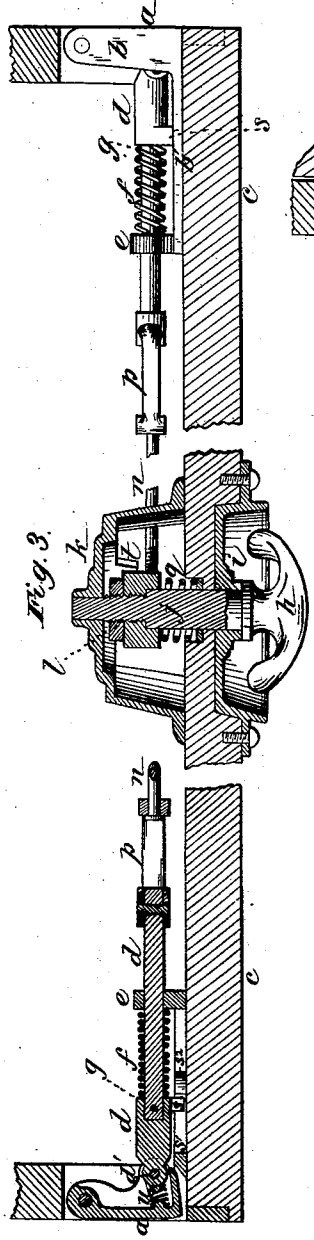


Fig. 3.

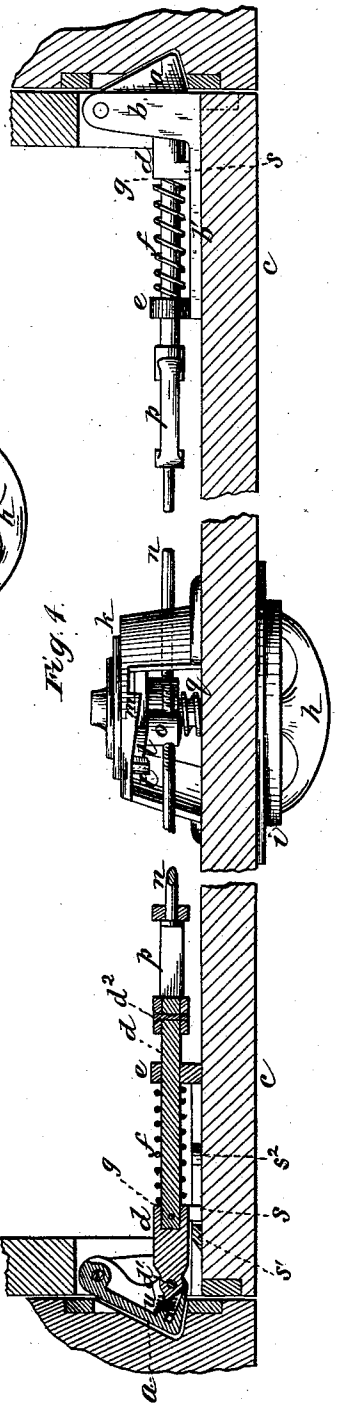


Fig. 4.

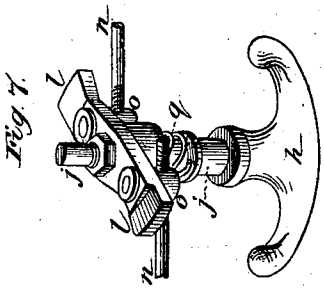


Fig. 7.

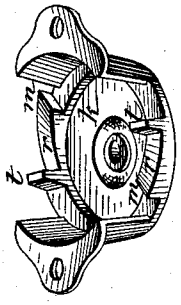


Fig. 6.

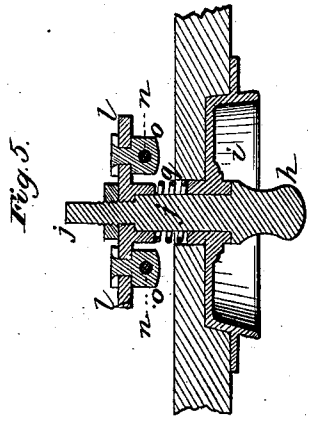


Fig. 5.

Witnesses.
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UNITED STATES PATENT OFFICE.

JAMES L HOWARD AND CHARLES P. HOWARD, OF HARTFORD, CONN.

BERTH-LOCK FOR SLEEPING-CARS.

SPECIFICATION forming part of Letters Patent No. 243,374, dated June 28, 1881.

Application filed April 27, 1881. (Model.)

To all whom it may concern:

Be it known that we, JAMES L. HOWARD and CHARLES P. HOWARD, citizens of the United States, and residing at Hartford, in the county of Hartford and State of Connecticut, have invented a new and useful Safety Berth-Lock for Railroad Sleeping-Cars; and we do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the annexed drawings, and letters of reference marked thereon, forming a part of this our specification of said invention.

The object of our invention is to provide a safety berth-lock for the upper berths of sleeping-cars, which berths are hinged longitudinally to the car-wall above the windows in such manner that they may be thrown up from the horizontal sleeping position which they occupy at night into an inclined or vertical position suitable to accommodate day-travel, and when so turned up out of the way are locked in position by spring-catches, which engage with the wall of the car.

Hitherto hinged berths have been provided with spring-latches which always stand out, ready to come into action to fasten the berth when the latter is thrown up from a horizontal to an inclined or a vertical position, and thus in case of an accident in which the car becomes overturned the berth is liable to close, lock in, and smother the occupant.

Our invention provides for locking the spring-latches in or back, and thereby keeping them in a condition of non-action so long as the berth is occupied by a person, and until the berth is to be closed up out of the way, suitable for day-travel, by the porter in charge.

Having reference to the accompanying drawings, Figure 1 represents, in perspective, so much of the frame of a hinged car-berth as is necessary to illustrate the application thereto of our safety-lock, the view being taken from the outside, showing the operating-handle of the lock, its cup-plate, and the latches in the positions occupied when the berth is closed and locked. Fig. 2 is a similar view, looking at the inner side of that portion of the berth-frame which carries the safety-lock, the parts being in the positions they will maintain when the berth is occupied. Fig. 3 is a sectional view, the latches being shown as locked back when the berth is in use, same as in Fig. 2. Fig. 4 is a similar view, the latches being shown as projected to lock the berth when not in use, same as in Fig. 1. Fig. 5 is a cross-section of the locking device. Fig. 6 is a view of the fixed locking plate or cap, showing more clearly the ratchet-shoulder for the locking-arm of the handled spindle; and Fig. 7 a view of the handle, its spindle and locking-arm, and the pivoted connections between the latter and the latch-operating rods.

As represented in the drawings, the latches *a a* are pivoted between the ends of projecting lugs *b b* of fixed metallic plates *b' b'* at the opposite ends of the berth-frame *c*, and they are connected for simultaneous action, so as to fasten the berth, when it is not in use, in a closed position, as well as to prevent their fastening function coming into action when the berth is in use, they being controlled by turning and pulling the handle *h*. The free ends of the latches *a a* swing next to the inner side of the berth-frame, as shown, and they have a throw beyond the ends of said frame sufficient to surely lock it with the car-wall or berth-casing when closed. A draw bar or rod, *d*, having a cross-head or pivotal connection, *d'*, with the free end of each latch, is fitted to slide in a guide, as at *e*, in the latch-plate *b'*, independent of its lock-operating connections. A spring, *f*, coiled upon the rod *d*, between the guide *e* and a shoulder or stop, *g*, on the draw-bar *d*, serves to outwardly project the draw-bar and its connected latch when the handle-locking device, with which the draw-bar is connected, is released.

The catch-locking device proper is, by preference, centrally located in the berth-frame, and consists, primarily, of a handle-spindle, *h j*, provided with a cross-arm, *l*, and a fixed cap, *k*, adapted to serve, if required, as a bearing for the inner end of said spindle and a locking-plate for its cross-arm. The handle *h*, with its spindle, forms a T, and is fitted within a hub of a sunken or cup plate, *i*, as shown, said plate being secured by screws to the side of the berth-frame, and forming the outer bearing for the spindle, and by its cup form giving the advantage of setting the handle *h* within a recess. The spindle *j* projects a suitable distance on

the inner side of the berth-frame and may have its inner bearing in the cap *k*, which is secured by screws to said frame. The cross-arm *l* is located within the cap *k*, and the cap is formed with ratchet-projections *m* on its inner side, with which the said cross-arm is adapted to be locked. Rods *n* connect the arms *l l* with the latch draw-bars *d d*, such connection being made by bosses *o*, pivoted or swiveled to said arms so as to properly articulate and accommodate themselves to the turning of the arms, while the connection of these rods *n* with the draw-bars *d* is made by open links *p p*, as shown, to allow the draw-bars to move independently of the lock-connecting rods *n n*, when the latches *a a* are released and forced back in closing and locking the berth to the car-wall, and so relieve the locking device from any back action of the latch-rods *n*, as well as the rods *n* from becoming cramped. In other words, the links *p*, which are fixedly attached to the draw-bars *d*, as indicated at d^2, Fig. 4, freely slide or travel along and upon a portion of the rods *n*, while these rods remain stationary during the act of closing and locking the berth to the car-wall. The spindle *j* is so constructed and applied that it is adapted for longitudinal and turning movements within its bearings, such movements being imparted to it in order to lock and unlock the spindle-arms *l l* from the ratchet-teeth *m* of the fixed cap *k*; and for the purpose of maintaining the lock of said arms when made, a spring, *q*, coiled upon the spindle at a point between the arms *l* and the inner side of the cup-plate *i*, as shown, constantly tends to force the spindle inward and to hold its arms *l* securely locked with the ratchet-projection *m* of the fixed cap. The ratchet-teeth are slightly cut under or beveled inward to prevent any tendency of the arms to slip off. On turning the handle *h* its connected rods *n* pull the draw-bars *d* inward, and with them the free ends of the latches *a*, while at the same time the arms *l*, riding over the inclined faces *r* of the ratchet-teeth *m*, will force the handled spindle *h j* outward against the tension of the spring *q* until the arms pass from the inclined faces, whereupon said arms will be snapped behind the teeth *m* under the action of the spring *q*, forcing the spindle and its arms *l* inward, and thus securely locking the latches flush with the sides of the berth, as indicated in Figs. 2 and 3. On pulling out the spindle to free the arms *l* from the ratchet-teeth *m*, the force of the draw-bar springs *f* upon the draw-bars *d* and rods *n* throws out the latches and thrusts the spindle-arms *l* down the inclined faces of the ratchets, thereby causing the lock to assume the position signified in Fig. 4; and in order to furnish means for limiting the throw of these parts we make a provision which, as to the latches, consists of a projection, *s*, on the draw-bars *d*, and stops s' s^2 on the latch-plates *b'*, while the throw of the cross-arms *l* is limited by stops, as at *t t*, on the inner side of the fixed cap *k*.

The draw-bar connection with the latch, being formed by cross-bearings *d'*, might in time become loose from wear, and to prevent rattling of this pivoted connection and of the swing-latch upon its pivots a spring, *u*, is placed on the cross-bearing, as shown, so as to press against the latch and bind it upon its bearings.

The lock connecting rods *n* are screwed into the pivoted or swiveled bosses *o* of the spindle-arms *l*, as shown, and by this means of connection they may be properly adjusted to the required movements of the said arms and the swing of the latches *a*.

When the porter wishes to "make up" an upper berth for the night, to which our safety berth-lock is applied, he turns the handle *h* hard to the right, drawing back both latches from their position, shown in Fig. 4, and, releasing the berth, lowers it in position. In thus turning the handle its spindle-arms *l l* become locked with the fixed cap *k*, and the latches are thereby secured within the berth-frame, as indicated in Figs. 2 and 3, so that if, by any accident, the berth should be slammed back into its wall-recess the latches will be held in a condition of non-action, and cannot lock the berth. To swing the berth up for the day, the porter pulls out the handle, thus releasing the lock of the arms *l*, whereupon the latches are thrown out in positions to lock the berth when closed in its wall-recess.

We will here state that if cords or chains be substituted for the connecting-rods *n n* and links *p* the latches may be forced in and out without affecting the central locking device in the act of latching up the berth; we prefer, however, the use of the connecting rods and links, as shown; and, further, that our invention can be used in connection with slide-latches as well as swing-latches, and that the spindle *j* may work without a bearing for its end in the cap *k*.

We claim—

1. One or more spring car-berth latches combined with a handle, and with means whereby the latches are held positively out of operation when the berth is in use, and thrown into operative position when the berth is being moved out of use, substantially as described.

2. In a lock for the hinged berths of railway-cars, the combination of the handled spindle *h j*, provided with a cross arm or arms, *l*, and having both a turning and a longitudinal movement within fixed bearings on the berth-frame, with a fixed ratchet-plate or cap, *k m*, which forms a lock for the cross arm or arms *l*, and means for connecting said arm or arms with the latch or latches of the berth, substantially as described, for the purpose set forth.

3. In a lock for the hinged berths of railway-cars, the combination of the handled spindle *h j*, provided with a cross arm or arms, *l*, and having both a turning and a longitudinal movement within fixed bearings on the berth-frame, a fixed ratchet-plate or cap, *k m*, which

forms a lock for the cross arm or arms *l*, a spring, *q*, adapted to control the inward longitudinal movement of said handled spindle, and means for connecting said arm or arms with the latch or latches of the berth, substantially as described, and for the purposes set forth.

4. In the lock for the hinged berths of railway-cars, the combination of the handled spindle *h j*, provided with a cross arm or arms, *l*, and having both a turning and a longitudinal movement within fixed bearings on the berth-frame, a fixed ratchet-plate or cap, *k m*, which forms a lock for the cross arm or arms *l*, the stops *t t* on the fixed ratchet-plate, which limit the throw of the arms *l l*, and means for connecting said arm or arms with the latch or latches of the berth, substantially as described, and for the purposes set forth.

5. The combination, with the latch or latches of the berth, of a locking and unlocking device connected with the said latches by means of a connecting contrivance, *d p n*, or its equivalent, whereby the latches are caused to move with the locking device when they are to be locked in or back, and are allowed a movement independent of the locking device when they are not locked in or back, substantially as and for the purpose described.

6. The combination, in a berth-lock for railway-cars, of pivoted swing-latches, draw-bars having pivoted connection with the free or swing ends of said latches, springs *f* for projecting said latches, and a spring, *u*, interposed between the latch and its pivoted draw-bar connection, substantially as and for the purpose described.

7. In a berth-lock for sleeping-cars, the handled spindle, *h j*, provided with arms *l l*, a fixed locking-plate or cap, *k m*, and the spring *q*, in combination with the latch-connecting rods *n n* and the spring draw-bar connections of the latches, the said connecting-rods having swiveled or pivoted boss connections with the arms *l l*, and the throw of the arms being limited by the stops *t t* on the fixed locking-plate, substantially as and for the purpose described.

8. In a lock for the hinged berths of railway-cars, the combination, with the berth-frame, of a safety-locking device centrally located therewith, and consisting of a handled spindle provided with cross-arms, an interior fixed ratchet-plate, an exterior sunken or cap plate for said handle, and a spring adapted to control the inward longitudinal movement of said handled spindle, the said locking device being connected with and actuating latches which at times have movements independent of said lock-connections, substantially as and for the purpose described.

9. In a berth-lock for railway-cars, the handled spindle *h j*, provided with arms *l*, and having both a turning and a longitudinal movement, a fixed bearing-cap, *k*, having locking-teeth *m*, and forming a guard for the arms *l*, in combination with rods *n n*, pivoted latches *a a*, and draw-bars *d*, having pivoted connection with the swing or free ends of said latches, and adapted for independent movement therewith upon the lock connecting rods *n n*, substantially as and for the purpose described.

JAMES LELAND HOWARD.
CHARLES PATTON HOWARD.

In presence of—
FRANK L. HOWARD,
ALBERT L. BURKE.