G. L. CARLTON & G. H. CRAGER.

Locking-Hinge for Sleeping-Car Berths.

No. 207,390. Patented Aug. 27, 1878

Fig. 1

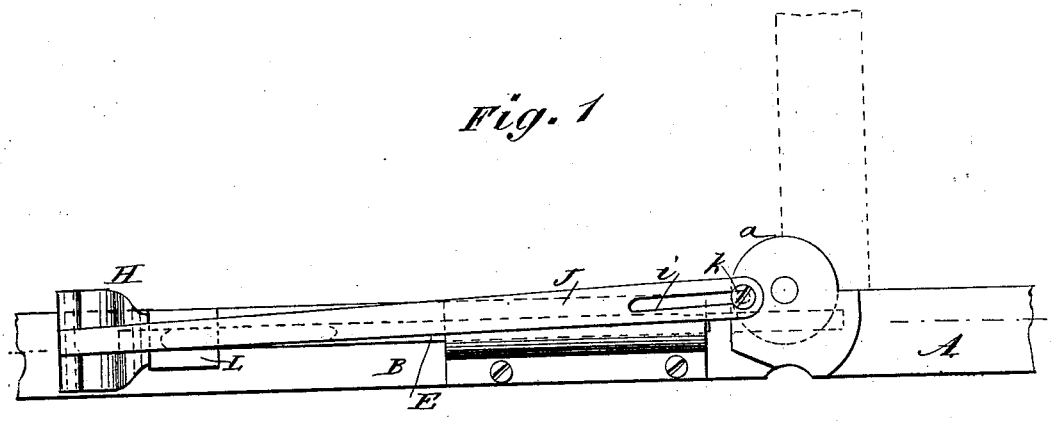


Fig. 2

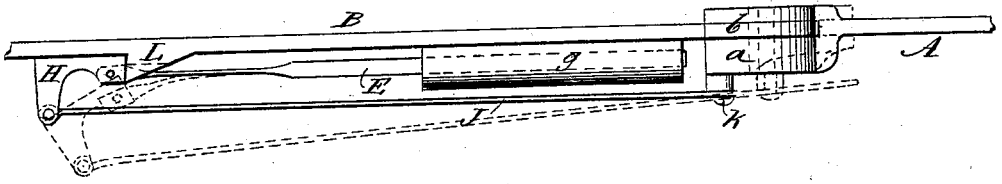
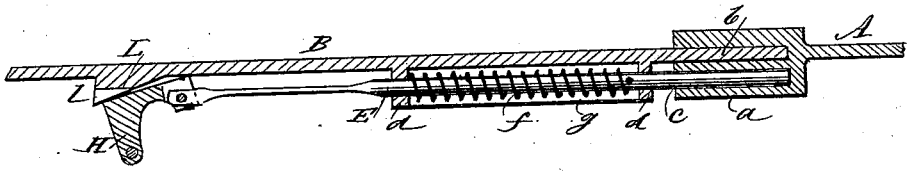


Fig. 3



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GEORGE L. CARLTON AND GEORGE H. CRAGER, OF OMAHA, NEBRASKA.

IMPROVEMENT IN LOCKING-HINGES FOR SLEEPING-CAR BERTHS.

Specification forming part of Letters Patent No. **207,390**, dated August 27, 1878; application filed June 10, 1878.

To all whom it may concern:

Be it known that we, GEORGE L. CARLTON and GEORGE H. CRAGER, of Omaha, in the county of Douglas and State of Nebraska, have invented a new and useful Improvement in Locking-Bolts, of which the following is a specification:

Our invention is particularly intended for use in connection with a folding berth in a sleeping-car, but is applicable to other cases where a bolt and hinge are employed in connection with each other. The principal object of the invention is to provide means for locking the folding portion of a berth and holding it securely in place when the berth is open for use; and also, under certain circumstances, when closed, to hold it sufficiently fast to prevent it from being accidentally displaced, but allow it to be readily opened, when desired, by the attendant or the occupant.

To this end the invention consists in a novel construction, combination, and arrangement with relation to each other of a spring-bolt, a pair of rods or bars, a hinge-joint connecting said rods or bars together, and certain devices co-operating with said bolt and said rods or bars, whereby the movable part is held rigidly in place by the engagement of the bolt with a socket when the parts are unfolded, and by pressure of the bolt against the surface of the hinge-joint when folded.

In folding berths for sleeping-cars, as heretofore constructed, the folding part of the berth has been provided with straps, tapes, cords, or rods for holding it in position in line with the stationary part when unfolded, and with spring latches or bolts for securing it when closed, said latches or bolts having knobs on the outside of the berth. In such berths usually no provision has been made for preventing the closing of the berth by the upsetting of the car in case of railroad accidents, nor for opening the berth from the interior. The consequence has been that in cases where sleeping-cars have been upset or turned over by accidents on the railway, some of the upper berths have been closed as the car turned over, and as the folding part of the berth was locked by the spring-bolts, with the knob on the outside, the occupant of the berth has been shut up therein without the possibility of release except by assistance from the outside of the berth.

By the use of our invention the folding part of the berth is held rigidly in place when open by a spring-bolt on one of the bars shooting into a socket in the portion of the hinge-joint which is on the other bar, and said bolt cannot be disengaged from the socket except by withdrawing it by hand. By this means the accidental closing of the berth by the upsetting of the car is impossible, unless the accident should be of such a nature as to break the bolt or render it unserviceable. And when the berth is closed the folding part is held in place by the pressure of the bolt upon a part of the hinge-joint formed for the purpose, so that if the berth should possibly be closed by accident it could not be locked so as to prevent its being opened from the inside unless it was provided with the spring-latches above referred to.

The accompanying drawings represent a locking-bolt and connections constructed according to our invention, Figure 1 being a side view; Fig. 2, an edge view, and Fig. 3 a longitudinal section.

Similar letters of reference indicate corresponding parts.

Two metallic bars, A B, are hinged together, after the manner of a folding measuring-rule, by means of a hinge such as is commonly known as a "rule-joint," consisting of two parts, *a b*, one part being divided into two branches, and the other part fitting between them and secured by a pin, bolt, or rivet, forming the hinge-pivot. One of the branches of the part *a* of the hinge is made much thicker than the other branch, and in said thick portion is a socket, *c*, in line with the length of the bar A.

On one side of the bar B are two perforated lugs, *d d*, through which passes a bolt, E. Surrounding this bolt is a spiral spring, *f*, one end of which is attached to the bolt, and the other end bears against one of the lugs *d*, so as to force the bolt outward. The spring and lugs are covered with a casing, *g*. The rear portion of the bolt E is flattened, so as to render it elastic, like a flat spring, and its extreme end is pivoted to a thumb-piece, consisting of a block, H, with two of its sides forming a right angle and its diagonal portion rounded, so as

to facilitate handling it with the thumb and finger.

A rod or bar, J, with a longitudinal slot, *i*, near one end, is attached to the thicker branch of the part *a* of the hinge-joint by a screw or stud, *k*, passing through the slot *i* and into the part *a*, on one side thereof, at a point near the periphery of the joint, located about in a line with the hinge-pivot and the pivoted end of the bolt E when the bars are unfolded, as shown in full lines in Fig. 1. The other end of the rod or bar J is pivoted to the block or thumb-piece H. This block H is arranged so that one of its flat sides lies against the bar B, and the other flat side extends outward therefrom, as shown clearly in Figs. 2 and 3. The bolt E is attached to the extremity of the flat side nearest the bar B, and the rod J to the extremity of the flat side which is at a right angle therewith. These two points of attachment form two points of a triangle, of which the point of junction of the two flat sides forms the third point. Near the outer end of the bar B, on the side toward the bolt E, is a projection, L, which may be in the same piece with the bar. It may be simply a lug or arm, or it may form two sides of a triangle, as shown in the drawing, one side being an inclined plane and the other side a square shoulder. In the face of this projection is a groove or notch, *l*, wide enough to allow the pivoted end of the bolt E to lie therein.

The operation of our locking device is as follows: The bar A is attached to the movable part of the berth, and the bar B to the stationary part. When the berth is open the parts are in the position shown in Fig. 3, with the bolt E in the socket *c*, thus locking the berth and preventing it from closing. In order to close the berth the thumb-piece H is moved back, so as to cause it to slide on the inclined plane and engage with the square shoulder on the projection L and lie flat against the surface of the bar B, as shown in full lines in Figs. 1 and 2. This withdraws the bolt from the socket, and leaves the bar A free to turn on the hinge-pivot. When the bar A is turned up to close the berth, the pin or stud *k*, carried by the part *a* of the hinge-joint, pulls on the connecting-rod J, so as to raise the block or thumb-piece H from behind the shoulder of the stop L to the position shown in dotted lines in Fig. 2, and allow the spring *f* to force the bolt outward and cause it to bear against the periphery of the thicker branch of the joint *a*. This pressure of the bolt is sufficient to hold the movable part in position when closed, provided said movable part is carried beyond a vertical line in order to close it. If not so carried beyond a vertical line, as is the case in some sleeping-cars, then it may be provided with suitable additional fastenings. In order to open the berth, the folding part is simply pulled down to a level position, upon reaching which the bolt shoots into the socket and locks the parts.

Having thus described our invention, we claim as new and desire to secure by Letters Patent—

The combination, with two bars, A B, jointed at *a b* and having bolt-socket *c*, of the bolt E, having elastic flat end, and rod J, having slot *i*, said bolt and rod being both pivoted to block H, as shown and described, for the purpose specified.

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