(No Model.)

S. D. CASTLE & A. SKAATS.

SWINGING ARM FOR SECURING FOLDING STEPS TO MOVABLE BERTHS.

No. 285,569. Patented Sept. 25, 1883.

Fig 1.

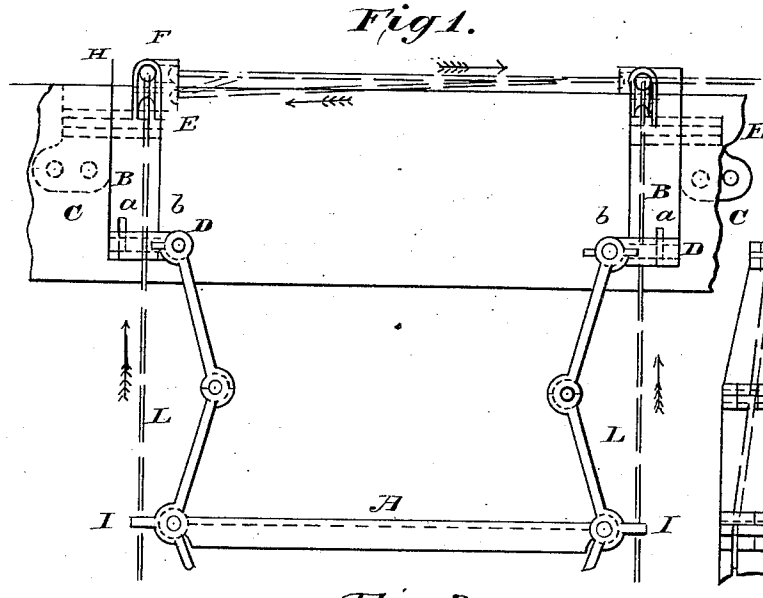


Fig 2.

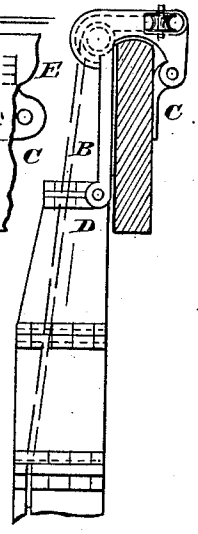


Fig 3.

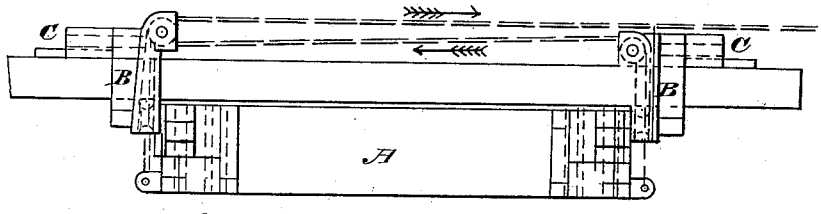


Fig 4.

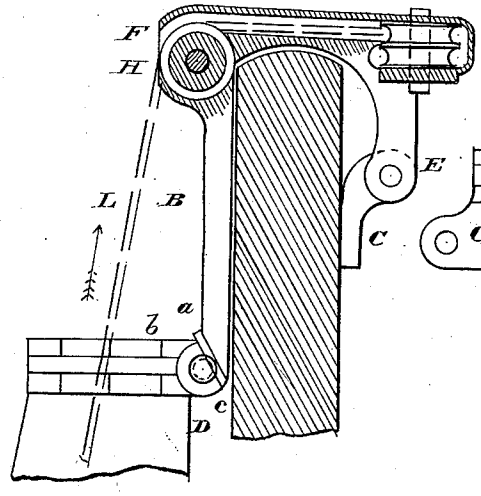


Fig 5.

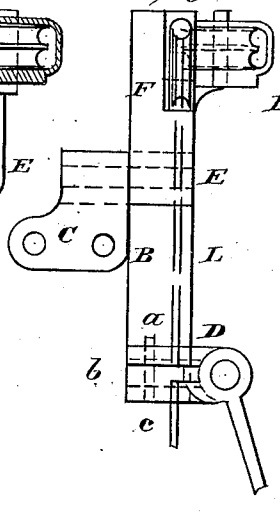
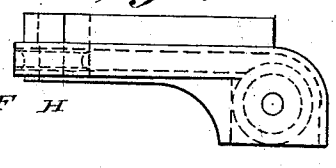


Fig 6.



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UNITED STATES PATENT OFFICE.

SAMUEL D. CASTLE AND ABRAHAM SKAATS, OF BRIDGEPORT, CONN.

SWINGING ARM FOR SECURING FOLDING STEPS TO MOVABLE BERTHS.

SPECIFICATION forming part of Letters Patent No. 285,569, dated September 25, 1883.

Application filed September 18, 1882. (No model.)

To all whom it may concern:

Be it known that we, SAMUEL D. CASTLE and ABRAHAM SKAATS, citizens of the United States, residing at Bridgeport, in the county of Fairfield and State of Connecticut, have invented certain new and useful Improvements in Swinging Arms for Securing Folding Steps to Movable Berths, of which the following is a specification.

Our invention relates to the attaching of swinging arms or hinges to the back of the front rail of a sleeping-car, (or any berth or bunk that swings up back of a cornice, so that the rail is covered, or that slides back under cover,) for securing folding steps or their equivalents, by which the user can readily reach the berth; and it consists, first, in securing to the back of the front rail of the berth a plate, to which is pivoted an angular swinging arm or hinge that will swing over onto the front of the rail to receive the folding steps; second, the combination, with these arms, of a pin working in a groove formed in the pivot of first joint of folding step, (as shown in the application filed May 4, 1882, No. 60,429, folding steps for ship-berths,) by which the step is kept in place; third, of arranging in these arms or hinges two sheaves set angular to each other for the cord to run over that operates the step; fourth, of the construction of the arms, one sheave-socket projecting beyond the other, so that the cords will draw parallel with each other, and the setting of the securing-plates on the sides of the arms opposite the direction of the pull of the cord, so that the arms can be turned over with the steps without interfering with the cord. We attain these objects by the mechanism illustrated in the accompanying drawings, in which—

Figure 1 is a front view of the device, showing the berth-rail, the arms in working position, and connected with the steps. Fig. 2 is an end view of the same. Fig. 3 is a plan of the device. Fig. 4 is an enlarged section of the arm. Fig. 5 is a front view of the arm separate from the berth-rail. Fig. 6 is a top view of the arm, showing the sheaves.

1, Fig. 2, shows the berth-front; A A A, the steps, described in former application; B, the arm or hinge; C, the securing-plate; D, re-enforced end to receive the pivot *b;* E, pivot secured in plate C, on which the arm B swings; F and G, sheaves working on the axles H; I, ears on the steps through which the cord L passes; *a*, pin set one-half its diameter in the groove *c* in pivot *b*.

To the back of the berth-rail we secure the plate C by any suitable method. The upper end is re-enforced and the pivot E is rigidly secured in it. On this pivot E we fit the angular arm or hinge B, cast with the sockets for the sheaves F and G, the axles H H fixed rigid in the arm, and the sheaves revolving on them. These arms are set at the sides of the securing-plates C toward the direction of the pull of the cord, and the one farthest from the pull of the cord projects sufficiently beyond the other to allow the cords to clear, so that when the arm or hinge is turned over into the berth the cord will clear all projections on the other arm. This cord L is secured on the back of berth-rail near the head of the berth by a loop or suitable device to hold the steps up in place when folded.

To keep the steps in place in connection with the lower end of arm B, the same is bored for the pivot *b* at D, and the pin *a* is fitted so that one-half its diameter will fit into a corresponding groove in the pivot *b*, so that the pivot *b* can readily revolve in the arm and cannot work endwise. In setting the sheaves F and G care is taken to set the center of the eye of the step exactly opposite the groove of the axle F, so that when the step folds over against the face of the berth-rail the strain of the cord L will be direct.

In setting the sheaves G we are not confined to a perfect right angle to the sheave F, only using care to have the centers of the grooves set so that the pull of the cord L will be direct and parallel to the sides of the sheaves. The sockets fit closely to the sheaves, so that while it will allow of the free passage of the cord it cannot slip out of the grooves of the sheaves, or in any way bind when working.

What we claim, and desire to secure by Letters Patent, is—

1. The combination of the securing-plate C

and the swinging arm B with the berth-rail 1, as and for the purpose specified.

2. The sheaves F and G, set angular to each other in sockets cast in arms B, for the cord or equivalent L to run over, when arranged substantially as described and set forth.

3. The berth-rail 1, the securing-plates C C, the swinging arms B B, pivoted to plates C C, having the sheaves F and G, the projecting sheave in arm B, the cord or equivalent L, and the pin *a*, working in pivot *b*, when combined and arranged substantially as specified.

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Witnesses:
C. W. PHIPPS,
GEO. Z. SKAATS.