Aug. 21, 1951 R. G. CUDINI 2,565,204

BERTH LEG AND ANCHOR

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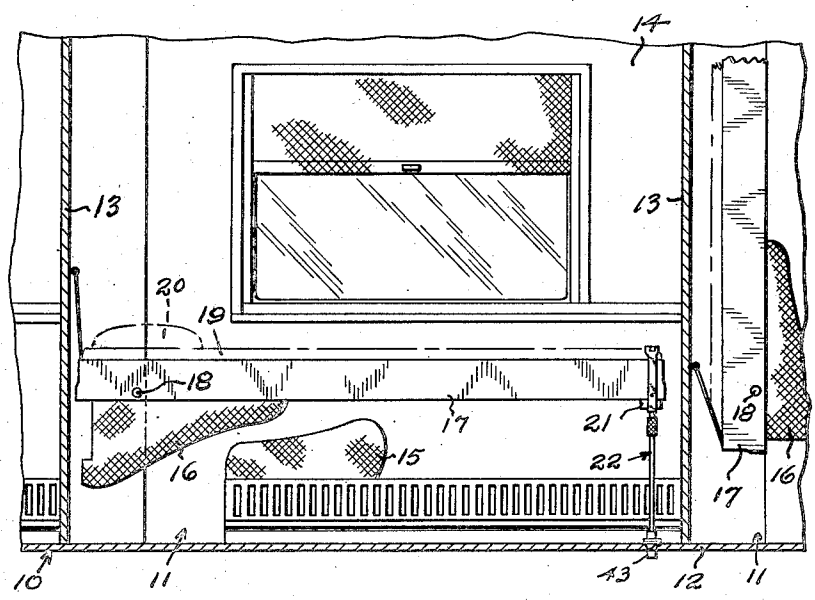


FIG. 1

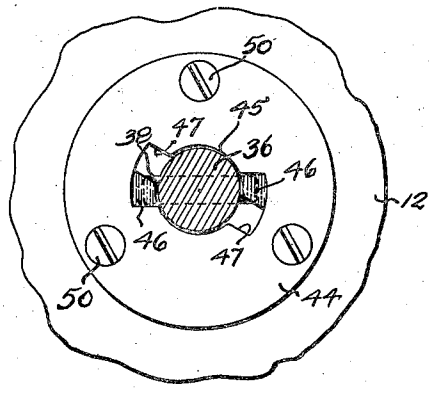
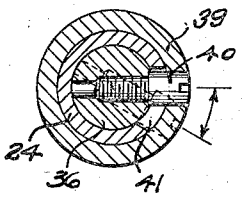


FIG. 2

FIG. 3



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FIG. 4

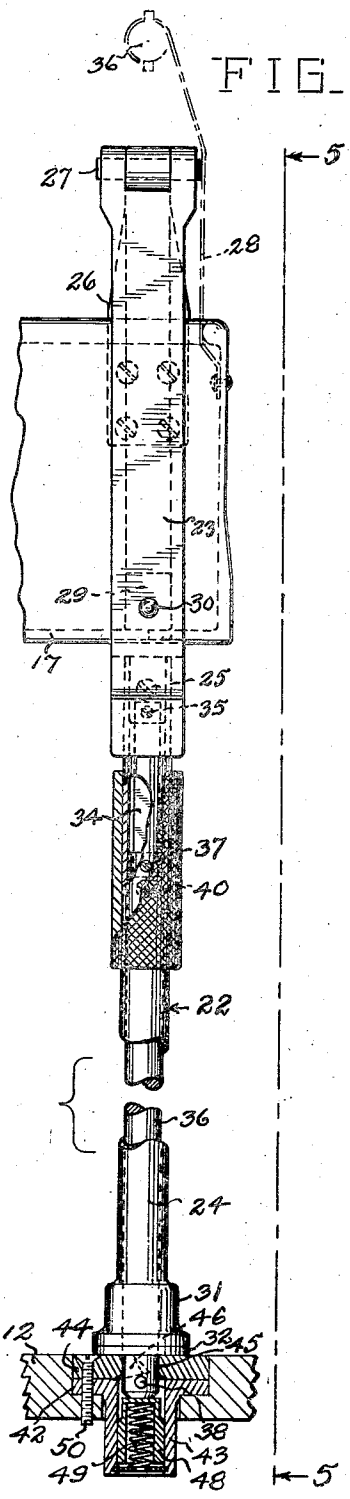
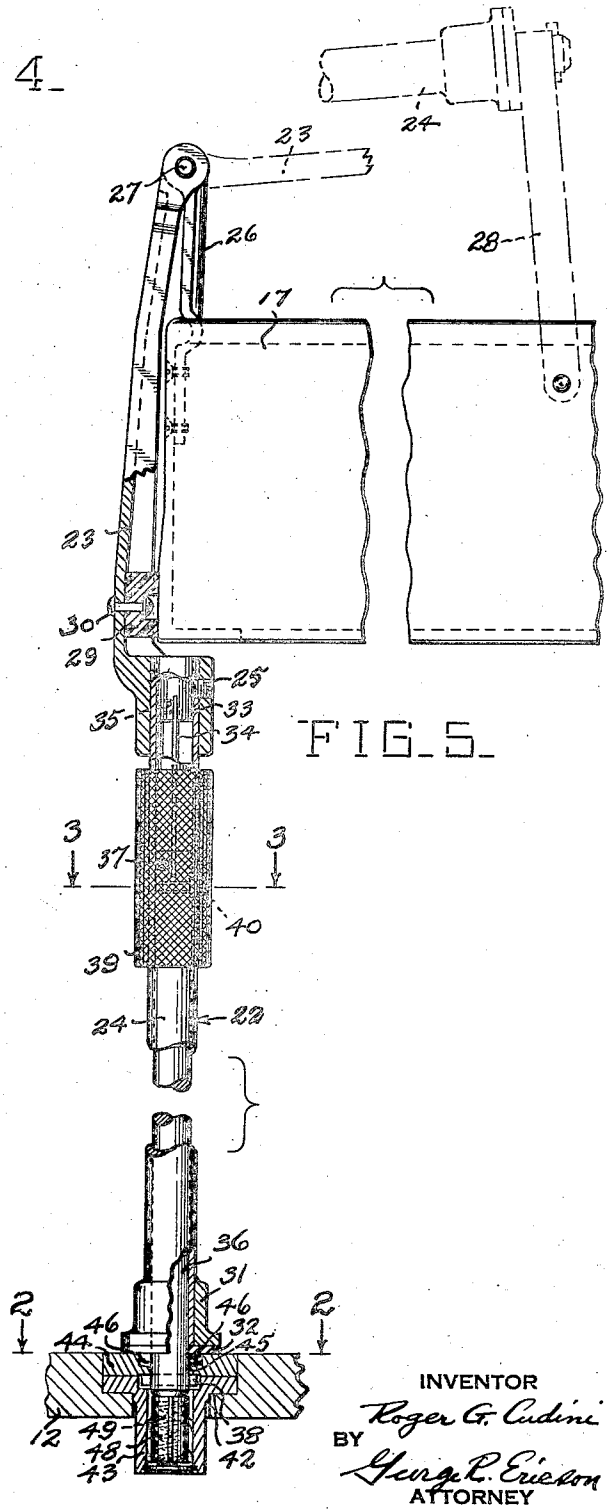


FIG. 5



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BERTH LEG AND ANCHOR

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5 Claims. (Cl. 5—9)

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This invention relates to folding berths for railroad cars and more particularly to supporting means for such berths while in prone position.

It is the custom to hinge one wall of a berth so that it can be stored against a room wall. It has also been proposed to provide fixed bracket supports in the room for the berth when in prone position. There are some conditions where it is not possible to mount such bracket supports at a desired point in the room and under these conditions a supporting leg is carried by the berth and mounted so that it can be stored over the berth mattress. Various types of legs have been proposed for this purpose, but considerable effort has been required for their adjustment into and out of operative position.

An object of this invention is to provide a supporting berth leg and anchorage such that the leg will be self positioned in operative relation upon lowering the berth into its prone position.

Another object of the invention is to provide means for automatically positioning and locking a berth leg with the floor as the berth is lowered to prone position.

These and other objects of the invention will be apparent to those skilled in the art from a study of the following description and accompanying drawings, in which:

Figure 1 is a fragmentary sectional view of a railroad sleeping car showing a room with a hinged berth and means for supporting it in prone position.

Figure 2 is a sectional view of the berth supporting leg taken on line 2—2 of Figure 5.

Figure 3 is another sectional view of the leg taken on line 3—3 of Figure 5.

Figure 4 is a fragmentary side elevational view showing the berth leg attached to the berth and floor, the floor being in section.

Figure 5 is another elevational view of the leg, berth and floor structure taken approximately on line 5—5 of Figure 4 with portions of the leg and the floor shown in section.

A conventional railroad sleeping car 10 has a plurality of bedrooms 11 formed by floor 12, end walls 13 and side walls 14 of which the outer one is shown in the drawings. Seat 15 is suitably mounted on the floor of the room adjacent one of the end walls and the seat back 16 is carried by a berth pan 17 mounted on pivots 18 for swinging movement into storage position adjacent an end wall or horizontal prone position in the room. The pan carries the usual mattress 19 and pillow 20.

The outer side wall 14 has a supporting bracket

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21 fixed to the room face thereof on which one side of the free end of the berth pan rests when in prone position and the other side of the free end of the berth pan is supported by a leg structure 22. This leg structure and the floor anchorage therefor form the subject matter of this invention.

The leg structure is rigid and includes an upper leg section 23 and a hollow lower leg section 24, preferably of tubular form, that telescopes into the upper section and is fixed thereto by set screw 25. Bracket 26 is fixed to and projects above the upper edge of the berth pan, the leg section 23 being hinged to bracket 26 by pin 27. The leg structure is hinged to the bracket so that it may be swung across the mattress at the free end of the berth pan or swung down along the side of the pan for supporting the same. Retainer strap 28 is fixed to the berth pan and engages the leg structure when in stored position across the mattress. Bumper block 29, preferably formed of rubber, is fixed to leg section 23 by rivet 30 and is arranged to space the leg structure from the berth pan when the leg structure is swung into supporting position.

The leg structure also includes a foot 31, formed as a flanged collar, that telescopes the lower end of leg frame section 24 and is suitably secured thereto. Rubber ring 32 is preferably fixed against the lower face of the foot flange for contact with the floor when the leg structure is in supporting position.

The leg structure and floor are provided with cooperating mechanism for automatically guiding and retaining the leg structure in pan supporting position on the floor when the berth pan is lowered to prone position. Plug 33 is fixed in the upper end of tubular leg section 24 by set screw 25 and the lower end of the plug is bifurcated to receive the upper end of leaf spring 34 that is secured in place by set screw 35. Rod 36 projects from the lower end of leg frame section 24 and has a bifurcated upper end for receiving the lower end of the leaf spring that is secured therein by set screw 37. A detent 38, in the form of a pin, traverses and is fixed to the lower end of rod 36 that projects beyond leg frame section 24. Hand grip 39, in the form of a knurled sleeve, telescopes leg frame section 24 and is secured to rod 36 by set screw 40. Section 24 is formed with an arcuate slot 41 for the reception of the set screw 40 and to allow limited rotation thereof so that the hand grip and rod can be rotated relative to section 24.

In the portion of the floor 12 where the leg

structure will rest when the berth pan is in prone position, a two diameter opening **42** is formed for the reception of the leg structure guiding and anchorage means. Cup-shaped housing **43** has an upper flange seated in the recess and a circular retainer plate **44** lies in the recess on the housing flange with its upper surface flush with the top surface of the floor. The retainer plate and housing are secured to the floor by screws **50**. The retainer plate has a central opening **45** through which the lower detent carrying end of rod **36** may pass. Portions of the detent plate adjacent opening **45** are formed with two cam faces **46** and adjacent one end of these cam faces are openings **47** of a length and width sufficient to allow the ends of pin **38** to pass below the retainer plate. In the cup shaped housing **43** is a hollow follower **48** and coil spring **49** normally urging the follower upwardly.

When the berth pan is to be lowered, the retainer **28** is released from the leg structure which is then swung to a supporting position beside the pan as shown in Figures 1, 4 and 5. As the pan is moved downwardly, the projecting ends of detent **38** will engage cam surfaces **46** and will ride downwardly thereon until they reach openings **47** through which they will pass. This downward guiding of the detent will cause rod **36** to rotate placing spring **34** under tension so that it will force the detent ends back under the lips of the cam faces as soon as they clear the lower edges thereof. Spring pressed follower **48** will now exert upward pressure against the lower end of rod **36** and this force will prevent rotation of the detent toward openings **47**. The leg structure is thus automatically guided into and retained by the floor anchorage. In order to release the leg structure from the floor anchorage, hand grip **39** is turned and through set screw **40** will turn the rod **36** so that the detent ends will align with openings **47** allowing the detent to ride upwardly on the cam faces due to the tension force of spring **42** created by turning the hand grip. The rod **26** will then clear the retainer plate and the leg structure can be swung across the mattress and retainer **28** applied thereto prior to moving the berth pan to stored position.

The invention may be modified in various respects as will occur to those skilled in the art and the exclusive use of all modifications as come within the scope of the appended claims is contemplated.

What is claimed is:

1. In a structure for supporting a berth on a floor, the combination of a retainer plate fixed in the floor, said plate having a keyhole opening therethrough and cam surfaces leading downwardly to the opening; a leg structure attached to the berth, said leg structure having a hollow lower end portion adapted to rest on the retainer plate and having a circumferentially directed slot therethrough; and means for securing the leg structure to the plate comprising a rod mounted for limited rotation in the lower end of the leg structure and projecting beyond the lower end thereof, a detent on the projecting end of the rod, a torsion spring connecting the leg structure and the rod, and a pin secured to the rod extending through the slot in the leg structure, downward movement of the detent on the cam surfaces of the plate turning the rod to place the spring in torsion until the detent passes through the keyhole slot whereupon the spring is released thereby turning the rod to carry the detent away from the keyhole slot beneath the retainer plate, the leg structure being removable from the retainer plate upon rotation of the rod by manual operation of the pin to register with the keyhole opening.

2. In a structure for supporting a berth on a floor, the combination of a retainer plate fixed in the floor, said plate having a keyhole opening therethrough and cam surfaces leading downwardly to the opening; a leg structure attached to the berth and having a hollow lower end portion adapted to rest on the retainer plate; and means for securing the leg structure to the plate comprising a rod mounted for limited rotation in the lower end of the leg structure and projecting beyond the lower end thereof, a detent on the projecting end of the rod, a spring connecting the leg structure and the rod and normally positioning the detent out of registration with the keyhole opening, and an actuator secured to the rod and extending through the leg structure, downward movement of the detent on the cam surfaces of the plate turning the rod to place the spring in torsion until the detent passes through the keyhole slot whereupon the spring is released to thereby rotate the rod and carry the detent away from the keyhole slot beneath the retainer plate, the leg structure being removable from the retainer plate upon rotation of the rod by manual operation of the actuator to register the detent with the keyhole opening.

3. In a structure for supporting a berth on a floor, the combination of a retainer plate fixed in the floor, said plate having a keyhole opening therethrough and cam surfaces leading downwardly to the opening; a leg structure attached to the berth and having a hollow lower end portion adapted to rest on said retainer plate; and means for securing the leg structure to the plate comprising a rod rotatably mounted in the lower end of the leg structure and projecting from the end thereof, a detent on the projecting end of the rod, a leaf spring connected at its upper end to the leg structure and at its lower end to the rod, said spring normally positioning the detent out of registration with the keyhole opening, and means operable manually for rotating the rod in the leg structure, downward movement of the detent on the cam surfaces of the plate turning the rod and placing the spring in torsion until the detent passes through the keyhole slot whereupon the spring torsion is released thereby rotating the rod to carry the detent away from the keyhole slot beneath the retainer plate, the leg structure being removable from the retainer plate upon rotation of the rod by the manually operable means to position where the detent registers with the keyhole opening.

4. In a structure for supporting a berth on a floor, the combination of a retainer plate fixed in the floor, said plate having a keyhole opening therethrough and cam surfaces leading downwardly to the opening; a leg structure attached to the berth and having a hollow lower end portion adapted to rest on said retainer plate; and means for securing the leg structure to the plate comprising a rod rotatably mounted in the lower end of the leg structure and projecting from the end thereof, a detent on the projecting end of the rod, a spring connecting the leg structure and the rod and normally positioning the detent out of registration with the keyhole slot, and actuator means including a hand grip exterior of the leg structure operable for turning the rod in the leg structure, downward movement of the de-

tent on the cam surfaces of the plate rotating the rod and placing the spring in torsion until the detent passes through the keyhole slot whereupon the spring is released to thereby rotate the rod and carry the detent away from the keyhole slot beneath the retainer plate, the leg structure being removable from the retainer plate upon rotation of the rod by the manually operable means to register the detent with the keyhole opening.

5. In a structure for supporting a berth on a floor, the combination of a retainer plate fixed in the floor, said plate having a keyhole opening therethrough and cam surfaces leading downwardly to the opening; a spring pressed follower beneath the opening in the retainer plate; a leg structure attached to the berth and having a hollow lower end portion adapted to rest on said retainer plate; and means for securing the leg structure to the plate comprising a rod rotatably mounted in the lower end of the leg structure and projecting from the end thereof, a detent on the projecting end of the rod, a spring connecting the leg structure and the rod normally positioning the detent out of registration with the keyhole opening, and means operable

manually for rotating the rod in the leg structure, downward movement of the detent on the cam surfaces of the plate turning the rod and placing the spring in torsion until the detent passes through the keyhole slot whereupon the spring torsion is released thereby rotating the rod to carry the detent away from the keyhole slot beneath the retainer plate where it is retained by the spring pressed follower, the leg structure being removable from the retainer plate upon rotation of the rod by the manually operable means to register the detent with the keyhole opening.

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