Feb. 13, 1951 J. W. PATTON 2,541,540

BERTH STRUCTURE

Filed Jan. 23, 1948 3 Sheets-Sheet 1

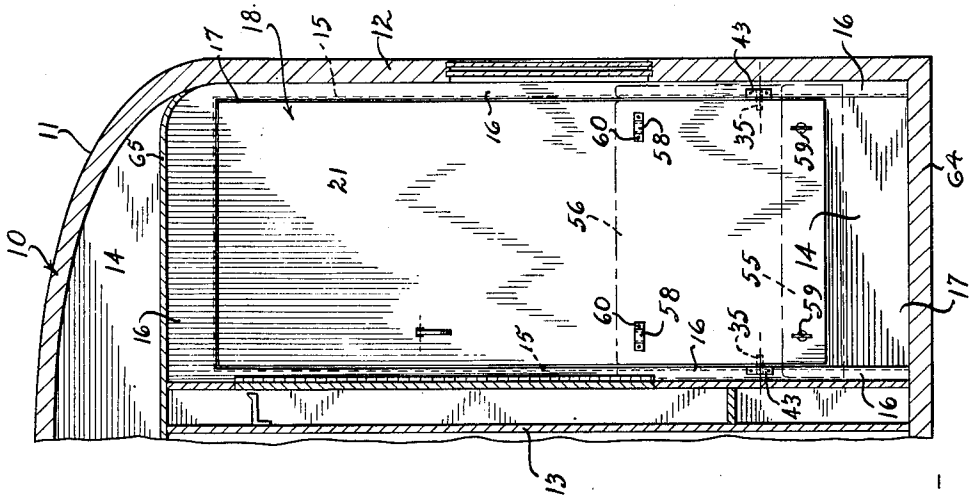

FIG. 1.

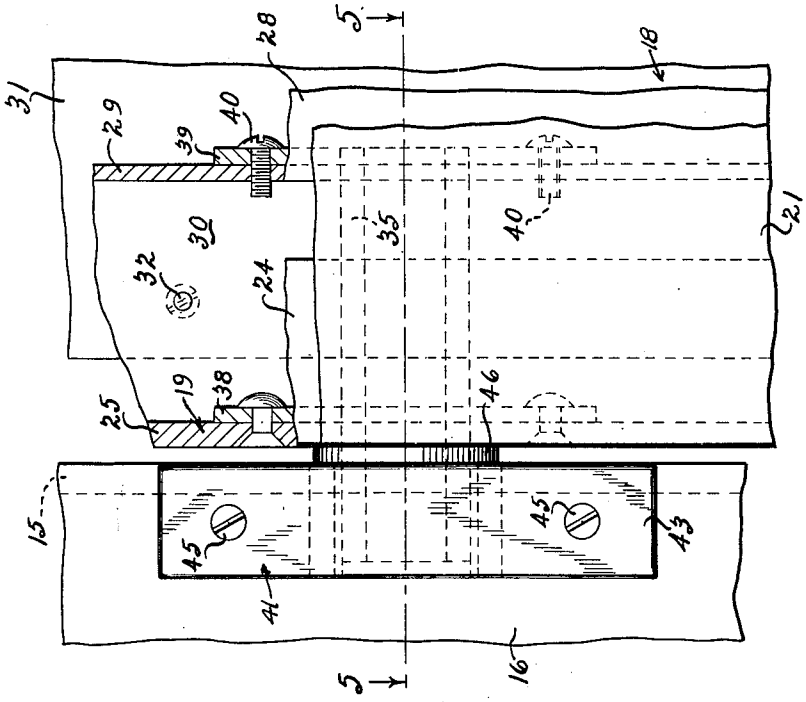

FIG. 3.

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Feb. 13, 1951 J. W. PATTON 2,541,540

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Filed Jan. 23, 1948 3 Sheets-Sheet 2

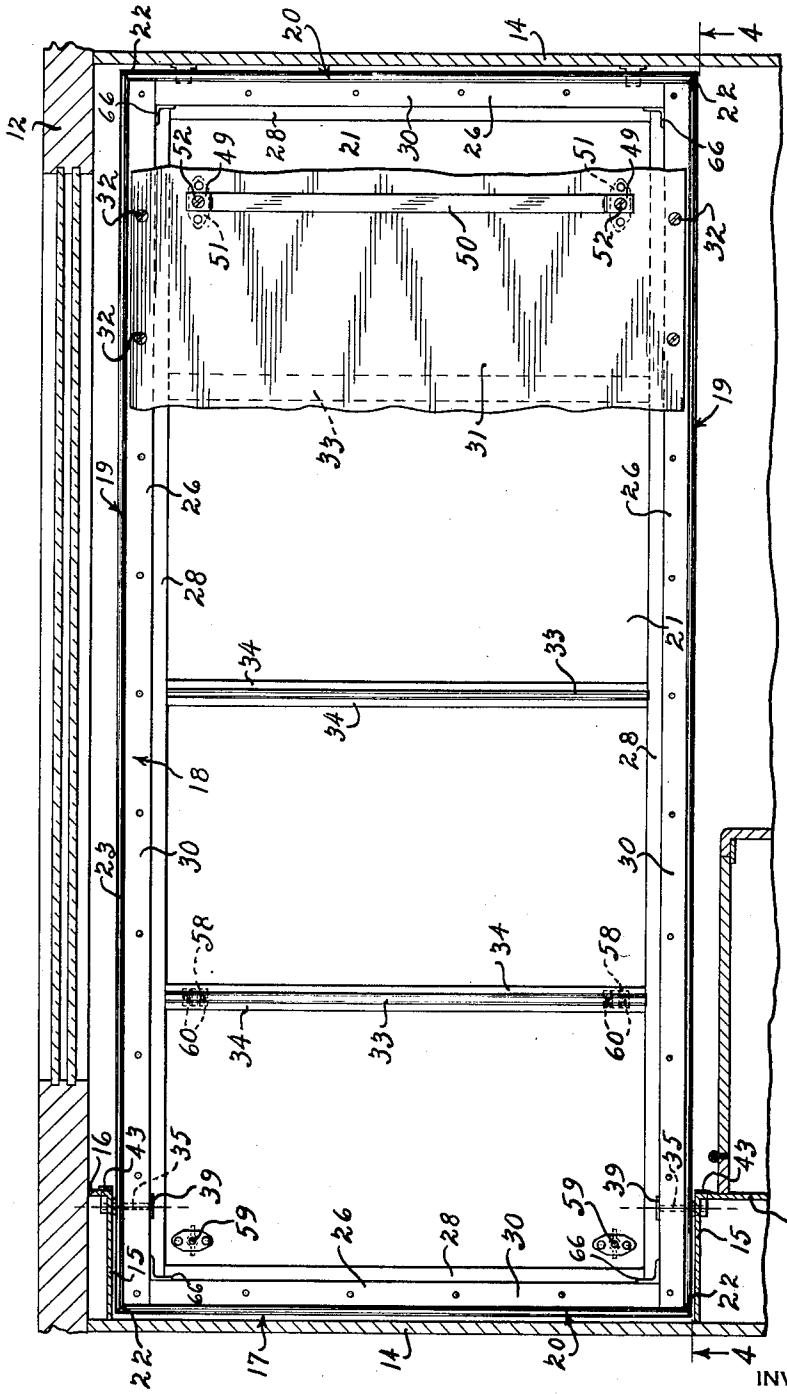

FIG. 2.

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Filed Jan. 23, 1948 3 Sheets-Sheet 3

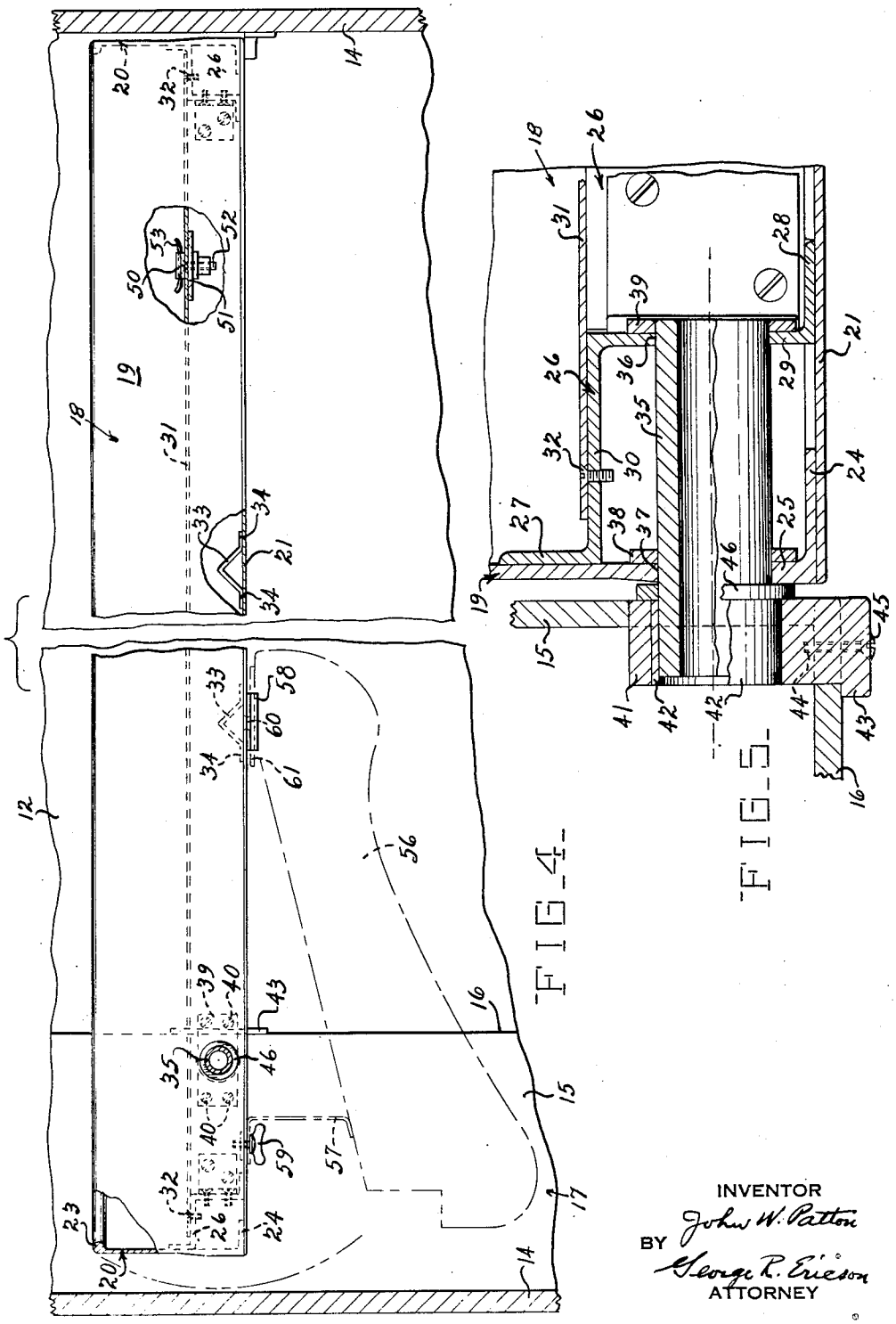

FIG. 4.

FIG. 5.

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BERTH STRUCTURE

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9 Claims. (Cl. 5—9)

1

This invention relates to berth structures and more particularly to the type useful for sleeping cars, boats and small bedrooms.

Shiftable berth structures, as now employed in railway cars, are formed of relatively heavy metal parts so that they will be strong enough to withstand distortion caused in the operation of the car and abuse resulting from movement between stored and prone positions. The weight of such berths is objectionable because of the physical effort required to move them between stored and prone positions.

It is an object of this invention to provide a relatively light weight metal berth structure constructed in such a manner that it will withstand the distortive forces to which it is subjected.

Another object of the invention is to strengthen a sheet metal berth pan by the provision of reinforcing means forming a box-like frame around the base portion.

Another object of the invention is to provide reinforcing means for a sheet metal berth pan structure that will prevent distortion and also act as a shelf for the mounting of a false bottom.

Another object of the invention is to provide a hinged sheet metal berth pan with a false bottom detachably secured therein spaced above the bottom of the pan to provide a chamber for the reception of accessories, such as mounting pins and latch operating mechanism.

Still another object of the invention resides in the mounting of pivot pins with a sheet metal berth pan structure in which the mounting is formed as a part of marginal walls and a pan reinforcing means within the marginal walls.

Another object of the invention is to provide a mounting for a pivoted berth that can be assembled with the berth and the bearing portion properly located within the walls of the room prior to being anchored thereto.

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 transverse sectional view through a portion of a sleeping car showing the berth structure in stored position.

Figure 2 is a horizontal sectional view through a car room showing the berth structure in prone position.

Figure 3 is an enlarged fragmentary view, partly broken away, of one of the pivotal mountings for the berth.

2

Figure 4 is a sectional view in the room showing the berth in side elevation and in prone position with the seat back attached, the view being taken substantially on line 4—4 of Figure 2.

Figure 5 is a sectional view of one of the pivotal mountings for the berth taken on line 5—5 of Figure 3.

In the drawings a sleeping car, indicated by numeral 10, has a roof 11, outer side wall 12, aisle wall 13 and floor 64. The space between the side wall and the aisle wall is divided into rooms by longitudinally spaced transversely extending partition walls 14. Walls 15 extend parallel with and adjacent the aisle wall and the outer wall at one end of the room and the ends thereof, toward the center of the room, join with transverse front walls 16 extending to the ceiling 65, the outer car wall and the aisle wall. Walls 15 and 16 provide an alcove 17 of slightly more than sufficient size to receive the pivoted berth structure 18 when swung into vertical stored position.

The berth structure is formed of relatively thin metal and has marginal wall means comprising side members 19 and end members 20 preferably formed as aluminum extrusions of similar cross section. There is a bottom cover means 21, preferably formed as a metal plate, secured to the base portion of the marginal wall means. The marginal wall members are welded together at their adjacent ends as indicated by numeral 22 and the upper edge is formed with a bead 23 projecting inwardly of the pan. Relatively short flanges 24 are turned inwardly from the base of the wall members and the lower marginal portion of the wall members is thickened, as shown in Figure 5 and indicated by numeral 25. The bottom plate 21 is preferably permanently secured by welding to the under-face of flanges 24 to form with the marginal walls the berth pan structure.

Reinforcing truss means are provided within the pan and comprise W-shaped angle members 26 substantially coextensive with the wall members and over-lying the flanges 24. The upper leg 27 of the reinforcing members extends parallel with and is secured to an intermediate portion of the adjacent pan wall, by welding or other suitable means, and the lower leg 28 of such reinforcing members extends horizontally and parallel with bottom plate 21 to which they are permanently secured by suitable means, such as welding. The inner legs 29 of the reinforcing members extend parallel with legs 27 and the adjacent marginal wall member while the inner

legs 30 of the reinforcing members extend parallel with the bottom plate and in spaced relation thereabove. Legs 28 and 29 are arranged to extend inwardly beyond the adjacent wall base flanges 24. The legs 30 of the reinforcing members provide a shelf on which a false bottom plate 31 is detachably secured by screws 32.

The marginal walls below legs 27 of the reinforcing members being thickened adds to the strength of the base portion of the pan. The reinforcing members, the thickened lower portions of the marginal walls, flanges 24 and base plate 21 form a box-like hollow frame around the base portion of the pan giving it such rigidity that the parts composing the pan can be relatively thin and at the same time provide sufficient strength to prevent distortion of the pan in the normal use of the berth structure in a sleeping car. The bead at the upper edges of the marginal walls provides an inwardly extending over-hang assisting in the retention of the mattress and bed clothes.

The pan structure is further reinforced by transversely extending ribs 33 of inverted V formation, such ribs terminating in legs 34 that are welded to the inner face of the bottom plate 21. The pan is further reinforced by angle members 66 welded to the adjacent ends of the reinforcing members. As the bed is mounted to be swung upwardly into alcove 17 in stored position, the outer face of base plate 21 is provided with a suitable finish to harmonize with the furniture and interior finish of the room in which it is located.

The reinforcing members 26 in addition to serving to form the box-like frame structure of the pan and providing a shelf on which the false bottom is mounted in spaced relation from the bottom plate, also provides a mounting for pivot pins 35 arranged concentrically adjacent one end of the bed. The legs 29 of the reinforcing members adjacent side walls 19 of the berth pan are formed with an opening 36 and concentric with such openings there are similar openings 37 formed in the pan side walls, see Figure 5. A reinforcing plate 38 is riveted to the inner face of the side walls 19 and has an opening concentric with openings 36 and 37. A head 39 is welded or otherwise suitably secured to the inner end of each pin and the pins are assembled with the pan by moving them axially through openings 36 and 37 until the heads abut the legs 29 of the reinforcing members to which they are detachably secured by screws 40. This method of assembling the pins with the berth from the interior of the pan is made possible by the removability of the false bottom.

A supporting device 41 for each pin carries a bearing 42 into which the ends of the pins projecting beyond the pan side walls are received. Formed as a part of these devices are face plates 43 having openings 44 therein for receiving screws 45. These plates 43 over-lie openings in walls 15 and 16 for accommodating the supporting device 41. Due to manufacturing inaccuracies, it is extremely difficult to provide drilled holes for the supporting devices so that the bed will be properly located when mounted but with the present construction, the supporting means can be mounted on the projecting ends of the pins, with washers 46 first assembled on the pins adjacent the marginal walls, whereupon the berth can be properly located in its desired pivotal position. After so locating the supporting devices holes can be drilled in walls 16 through openings 44 and the screws 45 then applied to properly secure the supporting devices.

Extending across one end portion of the pan is a detachable strip 50 having depending feet 49 at its ends resting upon the upper surface of the false bottom. These feet are detachably secured to threaded backing members 51 on the underside of the false bottom by screws 52 that pass through the openings in the false bottom. As the strip 50 is spaced above the false bottom, it provides an anchor for a mattress strap 53.

Referring to Figure 1, a chair seat is indicated by numeral 55 and a chair back is indicated by numeral 56. This back is arranged to be detachably secured to the bottom plate of the pan. Bracket 57 is fixed to the seat back and is secured to the bottom plate of the pan by a wing nut 59. Strap 58 is secured to the base plate by rivets 60. A hanger 61 is fixed to the upper portion of the seat back and slides under the strap.

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. A berth structure comprising marginal wall means, bottom cover means secured to the wall means forming a pan, reinforcing means around the inside of the pan secured along the upper edge to the wall means and along the lower edge to the bottom cover means, said reinforcing means having a shelf portion spaced above the bottom means, a false bottom resting on the shelf portion of the reinforcing means, and detachable means securing the false bottom to the shelf portion of the reinforcing means.

2. A sheet metal berth structure having marginal walls with inturned base flanges, a bottom secured to the wall base flanges forming a pan, and W-shaped reinforcing members in the pan and overlying the wall flanges, said members having one terminal edge portion secured to the walls and the other terminal edge portion secured to the bottom inside of the wall base flanges.

3. A sheet metal berth structure comprising marginal walls secured together at their adjacent ends, said walls terminating in an upper bead and an inturned base flange, a bottom plate permanently secured to said flanges and with the walls forming a pan, reinforcing means in the pan secured to an intermediate portion of the walls and to the bottom plate inside of the flanges, said reinforcing means having a portion forming a shelf around the pan spaced above the bottom plate, and a false bottom secured on the shelf.

4. A berth structure formed of relatively thin light weight metal comprising marginal walls secured together at their adjacent ends, said walls terminating in a beaded upper edge and an inturned relatively short base flange, a ribbed bottom plate closing the space between base flanges and permanently secured to the underside of the flanges to form a pan, W-reinforcing members around the inside of the pan each having an upstanding upper leg paralleling and secured to an intermediate portion of the adjacent wall member and the lower leg paralleling and secured on the bottom plate inside of the wall flanges, and a false bottom plate detachably secured on the legs of the reinforcing members adjacent the upper legs.

5. A berth structure formed of relatively thin light weight metal comprising marginal walls secured together at their adjacent ends, said

walls having inturned base flanges, a bottom plate secured under the flanges forming a pan, W-reinforcing members around the inside of the pan each having an upstanding upper leg secured to the adjacent wall and a lower horizontal leg secured to the adjacent portion of the bottom plate inside of the wall flange, upstanding angle corner angles secured to the adjacent ends of the reinforcing members, and a detachable false bottom plate in the pan secured on the legs of the reinforcing members next to the upper legs.

6. In a berth structure, a pan having marginal walls and a bottom plate secured thereto, reinforcing means around the inside of the pan secured to said walls and said bottom plate, said reinforcing means having a shelf portion spaced above the bottom plate and wall flanges, a false bottom plate in the pan detachably secured on the shelf portions of the reinforcing means, a mattress securing strip having depending end portions resting on the false bottom plate, and means detachably securing the depending end portions of the strip to the false bottom plate.

7. A berth structure comprising marginal walls secured together at their adjacent ends, said walls being thicker adjacent the base, a bottom plate secured under the wall flanges and forming with the walls a pan, W-reinforcing members inside the pan each having an upper leg paralleling and secured to the adjacent wall and a lower leg paralleling and secured to the bottom plate, the upstanding lower leg above the bottom leg of the longitudinally extending reinforcing members and the thickened portion of the adjacent walls having concentric openings therethrough, a reinforcing plate secured to the inner faces of the walls adjacent the openings therethrough having openings concentric with the wall openings, pivot pins extending through the openings in the walls, reinforcing plates and reinforcing members, a head fixed on the inner ends of the pins, and means securing the heads to the reinforcing members.

8. In a berth structure, side and end marginal walls secured together at their adjacent ends,

said walls terminating in base inturned flanges, a bottom plate secured permanently against the under-faces of said flanges and forming a pan, angular reinforcing members having a portion providing a shelf above the bottom plate and another portion paralleling the adjacent wall, said members being secured to the walls and the bottom plate, two parallel walls and the parallel portion of the adjacent reinforcing members having openings therethrough with their axes in alignment, pivot pins extending through the openings, heads on the pins secured to the reinforcing members, and a detachable false bottom secured on the shelf portions of the reinforcing members above the heads of the pins.

9. In a bedroom for railroad cars, an alcove in one end of the room formed by parallel side walls extending longitudinally of the room and front transverse walls joining the outer ends of the side walls, the junction portions of the side and front walls having similar aligned openings therein, a berth pan extending into and of slightly less width than the alcove, pivot means projecting from the sides of the berth pan adjacent the lower end thereof, bearing devices for the pins adapted to project through the wall openings and behind the walls, anchor plates on the front of said devices overlying the front walls adjacent the openings therein, and screw fasteners for securing the anchor plates against the front walls in position locating the devices in accurate pin supporting position, said device being adapted to be hung on the pivot pins prior to being fastened to the walls.

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