Oct. 19, 1926. 1,603,309

R. S. BENNETT

COT HOLDING DEVICE FOR INVALID CARRIAGES

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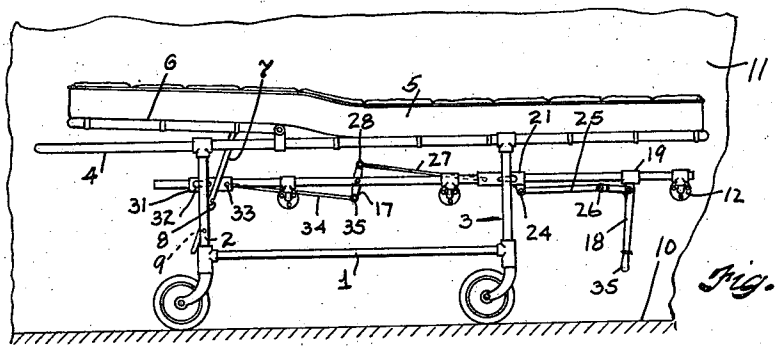


Fig. 1

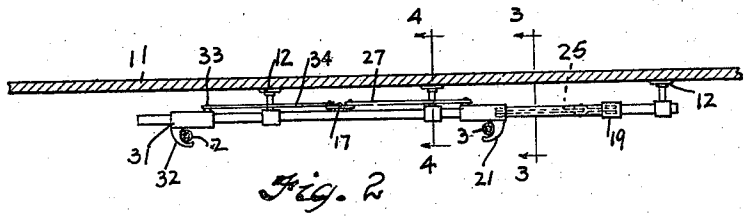


Fig. 2

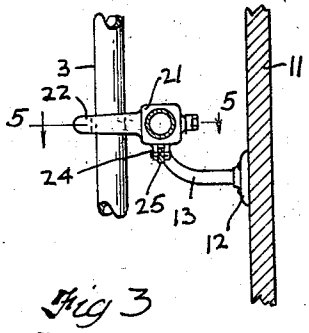


Fig 3

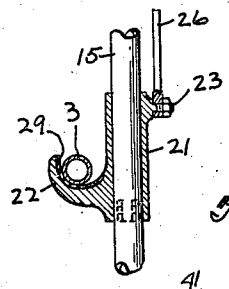


Fig. 5

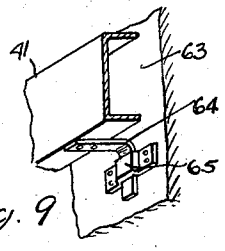


Fig. 9

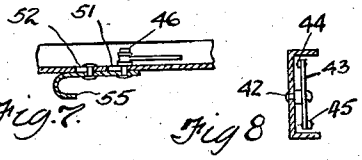


Fig. 7 Fig 8

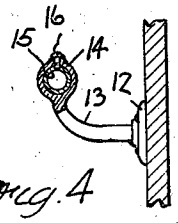


Fig. 4

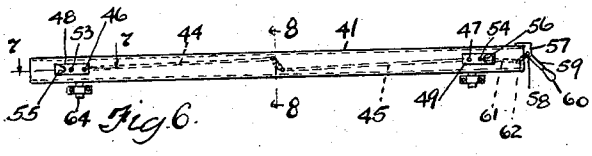


Fig. 6

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UNITED STATES PATENT OFFICE.

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COT-HOLDING DEVICE FOR INVALID CARRIAGES.

Application filed October 9, 1924. Serial No. 742,605.

This invention, as has been indicated, relates to cot holding devices for invalid carriages, etc. More particularly it comprises means which may be rigidly attached to the side wall of an ambulance or to the side wall of a ship, hospital, or other structure wherein an invalid cot is adapted to be positioned.

The device finds its largest use in connection with the securing of an invalid cot, stretcher, or similar support, within an ambulance and provides for a speedy adjustment and the simultaneous locking of the same in position from a point adjacent the rearward end of such ambulance.

Heretofore clamping devices for invalid cots have been provided, but such devices in most instances require individual adjustment to the frame members of the cot and considerable time is consumed in safely positioning the invalid within the ambulance before said vehicle can get under way to a hospital.

The principal object of the present invention is to provide a device which will serve to secure an invalid cot within an ambulance or other suitable compartment by the mere manipulation of a lever accessible from a point adjacent the rearward end of said cot and which will simultaneously position and lock said cot firmly against displacement. A further object of the invention is to provide for the ready removal of said clamping means from the side wall of the ambulance or other structure at any time when projection of such mechanism would be an obstruction. Other objects of the invention will appear in the course of the following description. To the accomplishment of the foregoing and related ends, said invention, then, consists of the means hereinafter fully described and particularly pointed out in the claims.

The annexed drawings and the following description set forth in detail certain mechanism embodying the invention, such disclosed means constituting, however, but one of various mechanical forms in which the principle of the invention may be used. In said annexed drawings:—

Fig. 1 is a side elevation showing an invalid cot and the clamping device therefor, secured to the side wall of an ambulance, said side wall being indicated in fragmentary outline; Fig. 2 is a top plan view of the cot holding device; Fig. 3 is a side elevation of a cot holding device taken along the line 3—3 shown in Fig. 2 looking in the direction of the arrows; Fig. 4 is a side elevation partially in section of one of the bracket members taken along the line 4—4 shown in Fig. 2; Fig. 5 is an enlarged detail view partially in section of one of the sliding clamps taken along the line 5—5 shown in Fig. 3; Fig. 6 is a side elevation of a modified form of cot holding device; Fig. 7 is a longitudinal sectional detail view showing the sliding hook member taken along the line 7—7 shown in Fig. 6 looking in the direction of the arrows; Fig. 8 is a transverse sectional view taken along the line 8—8 looking in the direction of the arrows; and Fig. 9 is a fragmentary perspective view showing the method of mounting the casing upon a side wall.

As is clearly shown in Fig. 1 of the drawing, a movable cot 1 for invalids is provided, with a tubular metal framework having pairs of upright frame members 2, 3, at the front and back, respectively, and having an extension upper section 4 for supporting a mattress 5. The head supporting end of said mattress may be adjusted to any desired inclination by means of a pivoted accessory frame 6 having a supporting bar 7 pivotally connected with its under side and having a plurality of notches 8 adjacent its lower end to engage a cross bar 9 secured to the adjacent upright members of the frame.

At a spaced distance above the floor 10 of the ambulance or other compartment within which said cot is to be positioned, there are secured to the wall 11, a plurality of brackets shown as having circular bases 12 and upwardly turned arms 13. The outer ends of said bracket arms terminate in sleeves 14 of a size to receive a tubular supporting rod 15 and rigidly hold the same in fixed position by means of a set screw 16 engaged within an aperture formed in the upper side of each of said sleeves. At an intermediate point of said supporting rod a centrally pivoted cross arm 17 is mounted and adjacent one of the ends of said supporting bar a bell crank lever 18 is pivotally secured to a pivot support 19 fixed to said supporting rod.

On said supporting rod at a point between said bell crank lever and said pivoted cross bar a slidable sleeve 21 is provided, said sleeve carrying an integral clamping hook 22 upon its outer side and having a projecting stud 23 upon its inner side. Upon

the under side of said sleeve a pair of ears 24 project downwardly and are connected by means of a link 25 with the adjacent end of the bell crank lever to which it is secured by means of a pivot pin 26. A link 27 is journaled upon said stud 23 and has its opposite end 28 pivotally connected with the upper end of the cross arm 17.

The hook 22 of said sleeve is preferably covered with a cushioning material 29 such as rubber, and said hook is directed forwardly toward said pivoted cross arm. A second sleeve 31 is engaged upon the supporting rod upon the opposite side of the cross arm 17 from the first described sleeve 21 and carries a similar hook 32 and stud 33. A link 34 is pivotally mounted upon said stud and has its opposite end 35 pivotally connected with the lower end of said cross arm. Said hook 32 may be similarly lined on its under side with rubber or suitable cushioning material and is turned in a direction opposite to the hook 22 and also facing the pivoted cross arm.

In the form of construction shown in Figs. 6 to 9, inclusive, the cot holding mechanism is enclosed within a casing 41 of channel-like form. The position of the cross arm is clearly shown in Figs. 6 and 8 wherein a pin 42 projects inwardly from the central portion of said channeled casing and serves as a pivot for the cross arm 43 which is journaled centrally thereon. The ends of the cross arm are connected by means of links 44, 45, with pins 46, 47, secured to plates 48, 49, slidingly mounted upon the outside of said casing. Said pins project inwardly through longitudinal slots 51, formed in said casing, as is shown in Fig. 7, and the links are journaled upon the inner ends of said pins. Outside of the slots 15 additional longitudinal slots 52 are provided and headed studs 53, 54, are secured to said respective plates with their shanks slidingly engaged within said slots. The outer ends of said plates are provided with hooks 55, 56, which are directed inwardly toward each other.

Adjacent one end of the casing a bracket 57 is provided with a pivot pin 58 upon which a bell crank lever 59 is mounted. Said bell crank lever is provided with a handle 60 at the end of its longer arm and is pivotally connected with the stud 54 of the adjacent sliding plate 49 by means of a link 61 connected at its other end with the shorter arm 62 of the bell crank lever.

As is more clearly shown in Fig. 9, the casing is adapted to be secured to a side wall 63 by means of a pair of angle brackets 64. Each of said angle brackets has one end riveted to the under side of the channel-shaped casing and has its free end turned downwardly so that it may be engaged behind a suitable shaped strap 65, the ends of which are firmly secured to the side wall upon which the casing is supported.

When the device is mounted in an ambulance the bell crank lever is preferably disposed toward the rearward portion thereof, with the handle 35 at the lower end thereof located at a convenient position for the use of the attendant standing upon the steps at the rearward end of the ambulance.

The operation of the device it is believed will be apparent from the description of its construction. The cot or stretcher carrying the invalid is rolled or carried to a position adjacent the ambulance and is then lifted to the floor level of the ambulance and moved inside of said vehicle. As the cot passes into the forward end of the vehicle the handle of the bell crank lever is lifted and the hooks on the sliding sleeves thereof are thus drawn apart. When the cot is moved to the proper position within the ambulance so that its upright frame members 2, 3, on one side are disposed at approximately equal distances to either side of the cross arm, the bell crank lever is lowered and the clamps are brought more closely together with the cot centered and clamped between the hooks thereof. As the bell crank lever reaches its lowermost position the pivot pin 26 connecting the shorter arm of said lever with the link 25 will be drawn to a position past dead center and thus will automatically serve to lock the invalid cot against release through pressure upon the clamping hooks.

While the cot illustrated is of the conventional type of wheeled hospital cot, it is obvious that the device will serve to clamp and position any type of cot, stretcher, or similar support for an invalid which is supported upon a frame-work having upright supporting members.

The fact that the device has been shown and described in connection with an ambulance is not intended to in any way restrict the application of the device to said use, inasmuch as it is of much advantage for use upon shipboard and may also be found useful in certain hospital wards where it is desired that a wheeled cot be free from danger of being shifted from position under certain circumstances.

The provision of a plurality of socket members to receive the supporting ends of a series of brackets supplies a construction which is of much advantage in places where the permanent mounting of the clamping device upon a wall would form an obstruction when other use was to be made of the compartment. Through this type of separable fastening means an ambulance may be readily converted for other use than the carrying of a cot or stretcher of the type described, and temporary wards in hospitals or sick bays on shipboard may be established with-

out rendering difficult the restoration of such compartments to their customary use.

Other modes of applying the principle of my invention may be employed instead of the one explained, change being made as regards the mechanism herein disclosed, provided the means stated by any of the following claims or the equivalent of such stated means be employed.

I therefore particularly point out and distinctly claim as my invention:—

1. A detachable device adapted to be secured to a fixed support for rigidly clamping an invalid cot against motion, comprising a support adapted to be attached to a side wall, a pair of clamps slidably mounted thereon, links connecting said clamps, and lever-actuated means for drawing said clamps toward each other and automatically locking the same against separation.

2. A detachable device adapted to be secured to a fixed support for rigidly clamping an invalid cot against motion, comprising a support, a pair of members mounted for longitudinal movement upon said support and carrying hooks directed toward each other, a cross arm pivotally mounted on said support between said sliding members, links connecting the respective ends of said cross arm with said respective members, and means for moving one of said sliding members toward its companion member and locking the same in position.

3. A detachable device adapted to be secured to a fixed support for rigidly clamping an invalid cot against motion, comprising a support, a pair of members mounted for longitudinal movement upon said support and carrying hooks directed toward each other, a cross arm pivotally mounted on said support between said sliding members, links connecting the respective ends of said cross arm with said respective sliding members, and a bell crank lever having one of its arms connected by a link with one of said members and adapted to move to a position past dead center when said sliding members have been drawn toward each other.

4. In a device of the character described, the combination of a plurality of sockets adapted to be secured to a side wall, a plurality of brackets adapted to be engaged in said respective sockets, a longitudinally extending casing secured in rigid relation with the outer ends of said brackets, a cross arm pivoted at its center to said casing at an intermediate point, a bell crank lever pivotally mounted adjacent one end of said casing, a pair of members mounted for longitudinal movement upon said opposite sides of said cross arm and carrying a pair of hooks directed toward each other, and a link connecting one of said sliding members with said bell crank lever and a pair of links connecting the opposite ends of said cross arm with the adjacent ends of said respective sliding members for moving said members toward and away from each other.

Signed by me, this 30th day of September, 1924.

ROBERT S. BENNETT.