No. 824,846. PATENTED JULY 3, 1906.

N. CLEMENT.

INVALID BED.

APPLICATION FILED DEC. 5, 1903.

4 SHEETS—SHEET 1.

Fig. 1.

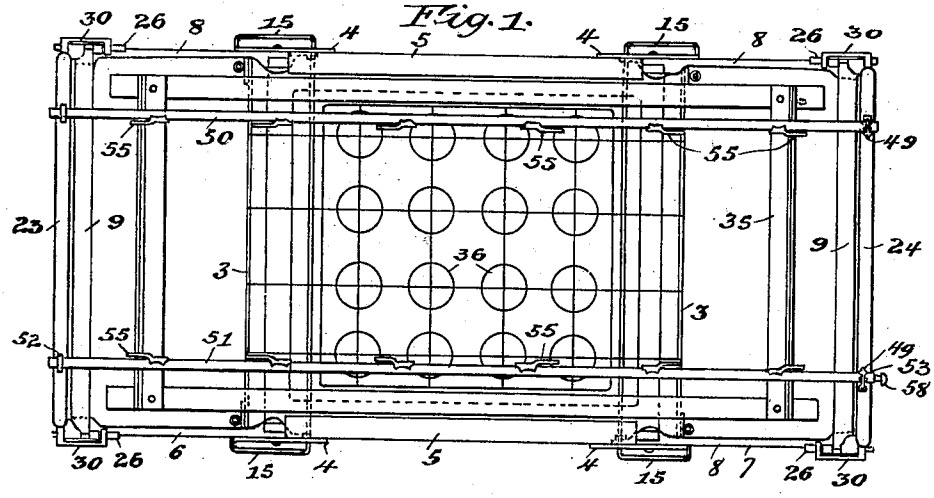
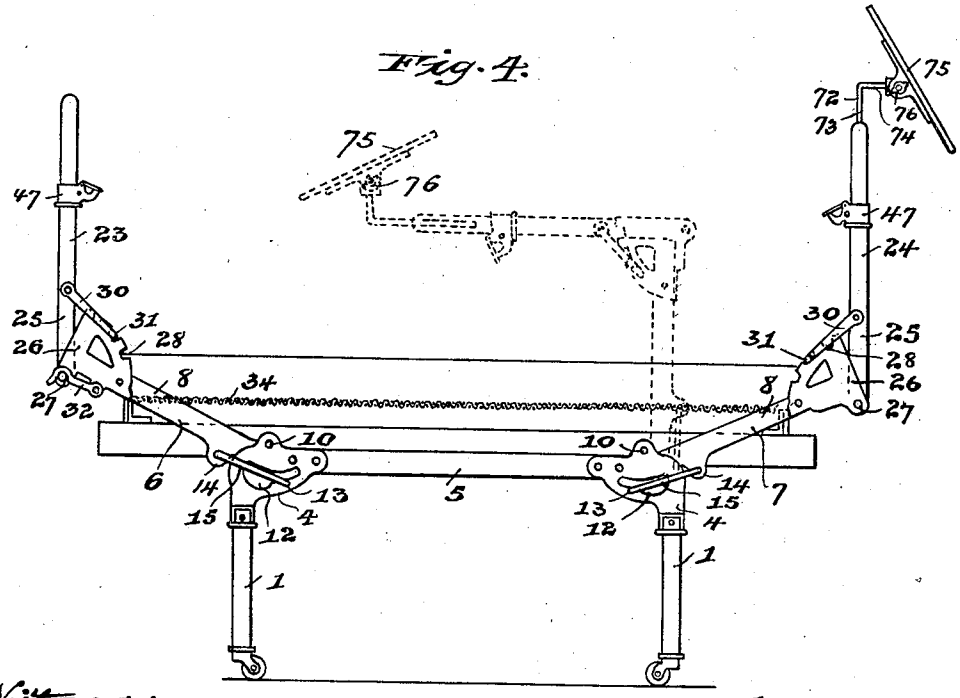


Fig. 4.



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4 SHEETS—SHEET 2.

Fig. 2.

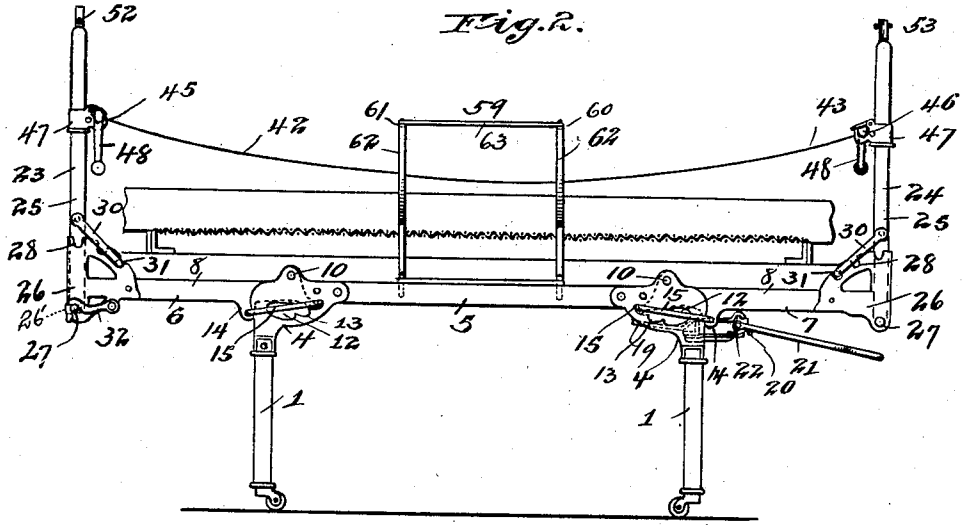
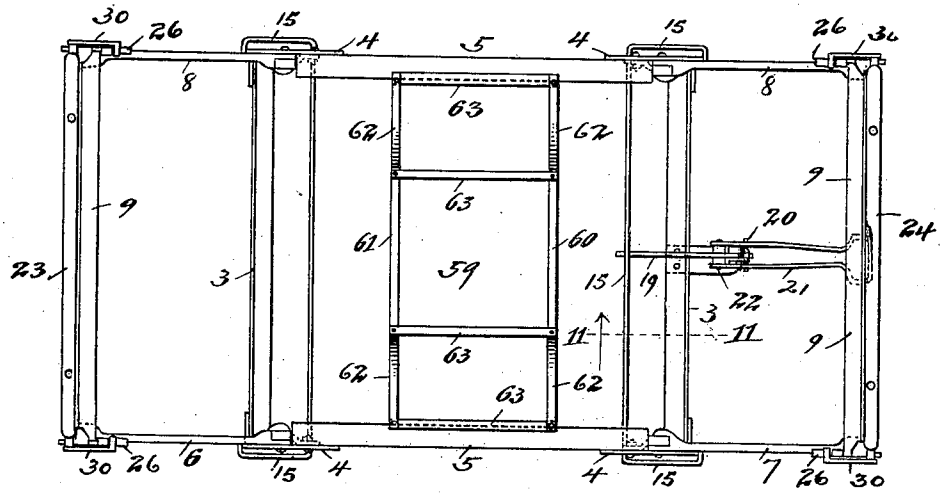


Fig. 3.



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4 SHEETS—SHEET 3.

Fig. 5.

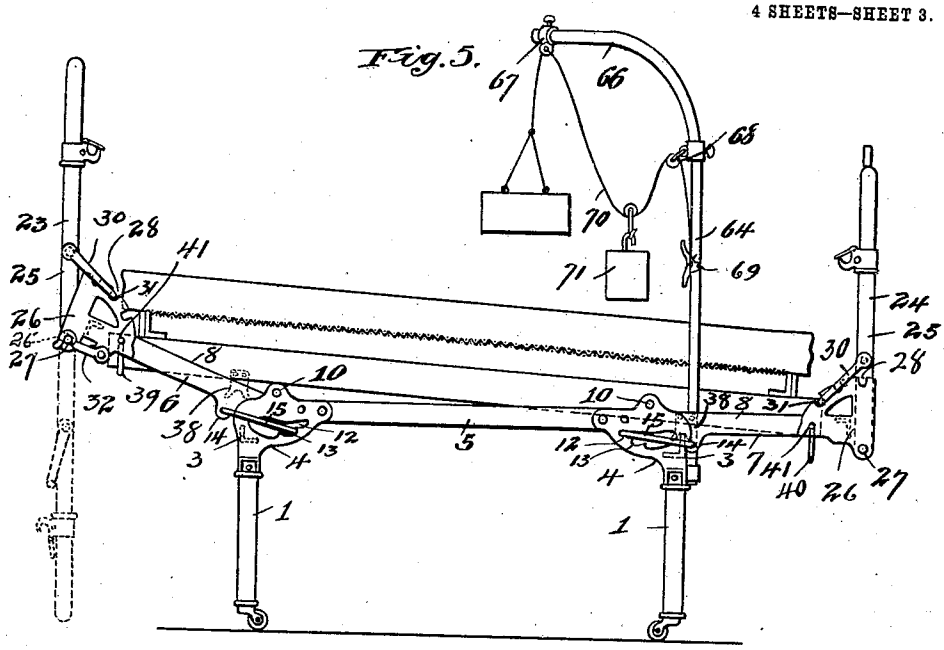
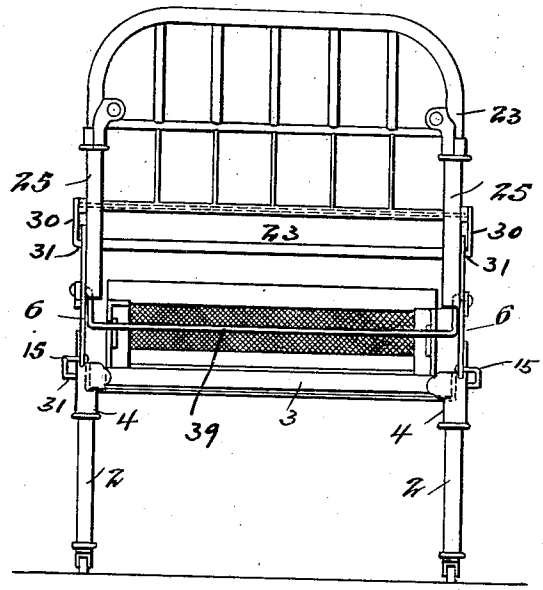


Fig. 6.



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4 SHEETS—SHEET 4.

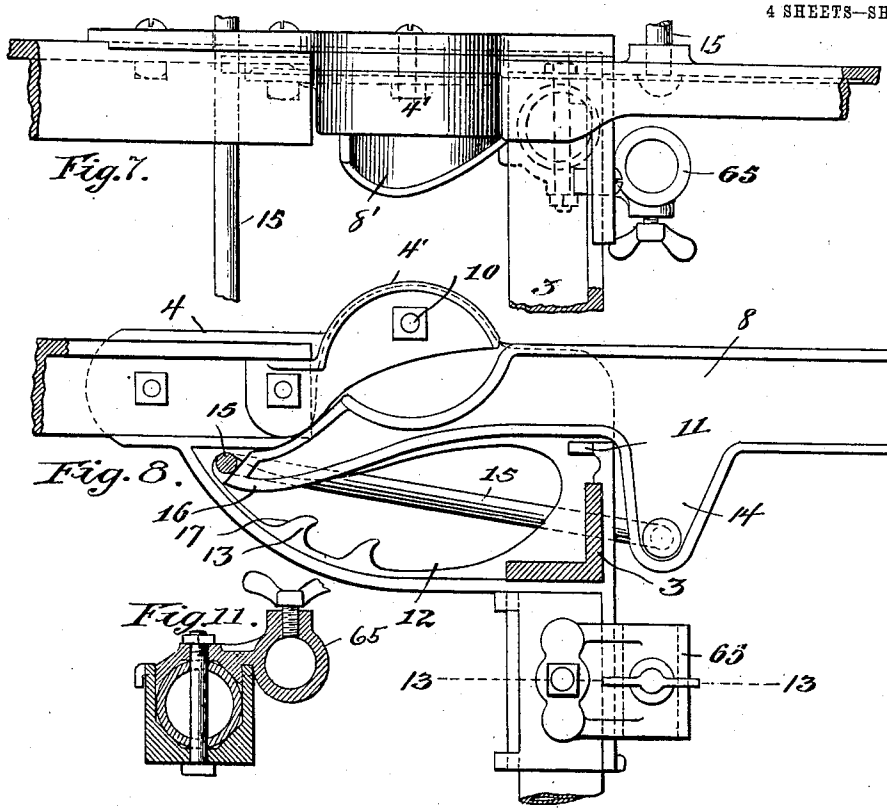

Fig. 7.

Fig. 8.

Fig. 11.

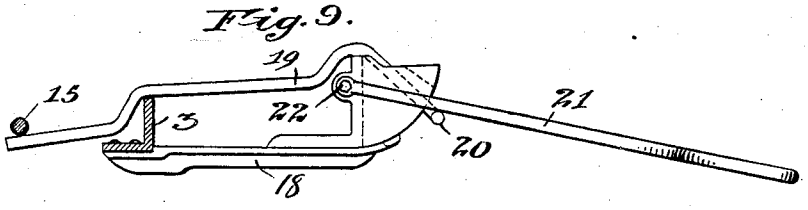

Fig. 9.

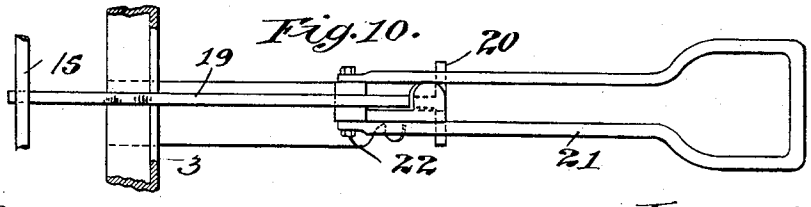

Fig. 10.

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UNITED STATES PATENT OFFICE.

NELSON CLEMENT, OF CHICAGO, ILLINOIS.

INVALID-BED.

No. 824,846. Specification of Letters Patent. Patented July 3, 1906.

Application filed December 5, 1903. Serial No. 183,951.

To all whom it may concern:

Be it known that I, NELSON CLEMENT, of Chicago, Illinois, have invented certain new and useful Improvements in Invalid-Beds, of which the following is a specification.

This invention relates to improvements in invalid-beds, and refers more specifically to a bed so constructed as to be capable of a great variety of adjustments to enable it to be so manipulated as to accommodate and facilitate the handling of invalids under all usual conditions and circumstances.

The object of the invention is to provide a simple, conveniently-manipulated, and reliable construction of the character referred to, and to provide in conjunction therewith certain detachable accessories contributing to increase the efficiency of the structure and varieties of uses to which the bed may be applied.

The invention consists in the matters hereinafter described, and more particularly pointed out in the appended claims, and may be readily understood from the following description, reference being had to the accompanying drawings, in which—

Figure 1 is a plan view of the device. Fig. 2 is a side elevation showing the bedding-support applied thereto. Fig. 3 is a plan view of the structure, as shown in Fig. 2. Fig. 4 is a side elevation showing the bed adjusted to a different position and indicating also in dotted lines still another position of the parts. Fig. 5 is a side elevation showing another adjustment of the bed. Fig. 6 is an end elevation of the bed. Fig. 7 is a fragmentary detail in plan view and showing the construction of the pivotal connections between the main stationary bed-frame and the adjustable extension. Fig. 8 is a longitudinal vertical section showing the parts seen in Fig. 7 in inside elevation. Fig. 9 is a longitudinal sectional view taken in the plane of line 11 11 of Fig. 3 and showing the foot-lever mechanism whereby the supporting-bail is manipulated. Fig. 10 is a plan view of the part shown in Fig. 9. Fig. 11 is a longitudinal vertical sectional view taken on line 13 13 of Fig. 8.

Referring to said drawings, 1 1 designates as a whole two leg-frames of the bedstead, each comprising a pair of legs 2, suitably spaced apart and made rigid with each other by means of cross-bars 3, (see Figs. 3 and 6,) said cross-bars being desirably constructed of angle-iron and united with the legs by means of suitable corner-castings 4.

5 5 designate side rails connecting the leg-frames and made rigid with the latter through the medium of the corner-castings 4, which latter are so shaped as not only to hold the legs and side bars in proper angular relation to each other, but are also extended upwardly above the side bars to form combined pivot and guide plates and are further provided with stops which serve to hold certain parts of the frame, as will hereinafter fully appear.

6 and 7, respectively, designate as a whole adjustable extensions pivotally attached to the respective ends of the main bed-body, so as to be capable of tilting upwardly on transverse axes and each comprising a pair of side bars 8, having their inner ends pivotally secured between the side plate portions of the corner-castings 4 and made rigid with each other by means of cross-frame pieces 9.

Referring more particularly to Figs. 7 and 8, the side bars 8 of the end extensions are shown as pivotally attached to the corner-castings 4, as at 10, and are supported in horizontal position or in alinement with the main bed-frame by means of inwardly-extending lugs or shoulders 11, formed upon said corner-castings and adapted to engage with the under sides of the said side bars. In order to hold said adjustable extensions in any desired position from a slightly upwardly-inclined position to a vertical position, a ratchet mechanism is provided which is constructed as follows: 12 designates elongated openings formed in said corner-castings, and upon the lower inner side of said opening are formed a plurality of ratchet shoulders or teeth 13, which teeth are arranged in transverse alinement with each other upon the transversely opposite corner-pieces. Each of the side bars 8 is provided at a point slightly beyond the end of the main bed-frame with a downwardly-extending lug 14, and to the lower ends of the two lugs of the pair of side bars is pivotally attached a bail 15, the intermediate portion of which extends through the openings 12 of the two corner-castings, so that it may be engaged with either pair of the ratchet-shoulders 13 of said castings. In order that the weight upon the end extensions may be transmitted through the side bars of the latter directly to the main bed-frame instead of through the arms of the bail 15, said side bars are provided with toe-like extensions 16, which are adapted to engage the bail when the latter are engaged with any

given pair of shoulders 13, the bail thus forming, in effect, a transverse stop-bar against which the points of the extensions 16 engage substantially in the manner shown in Fig. 8, in which figure, however, the bail is shown as occupying the extreme inner ends of the openings 12 and in which position the extension-frames rest upon the shoulders or lugs 11. In order to prevent the bedding from becoming caught in the joints formed by the pivotal connection of the end-frame extensions with the main frame, a hood-like extension 4′ is formed upon the corner-casting, so as to extend inwardly over said joint, and a somewhat similar extension 8′ is formed upon that portion of each side bar 8 which underlies the pivots 10, as shown clearly in Figs. 7 and 8.

The shape and position of the ratchet shoulders or teeth 13 are such that the supporting-bail 15 obviously will drop by gravity into engagement with either of the shoulders, and the inner sides of these shoulders are inclined or made ratchet shape, as indicated at 17, so that the extension-frames may be lifted freely, but will be automatically arrested in any one of the positions of adjustment to which they may be brought. In order to hold the bail up out of engagement with the ratchet shoulders or teeth when it is desired to lower the end-frame extensions, I provide a foot-lever mechanism, which is shown applied in Fig. 3 and is shown in detail in Figs. 9 and 10. In the preferred construction shown said foot-lever mechanism comprises a bracket 18, mounted rigidly upon the cross-frame member 3 of the main frame at a point midway of the width of the bed and arranged to extend horizontally outward therefrom, and upon the upper edge of this bracket is fulcrumed a lever 19, one end of which is arranged to overlie the central portion of the bail 15, while its opposite end is provided with a cross-bar 20, which is engaged by both arms of a double or stirrup-shaped lever 21, which is in turn pivoted to the bracket 18, as indicated at 22. The weight of the longer arm of the lever 19, combined with that of the bail, is sufficient to normally hold the bail depressed and the lever 21 correspondingly lifted; but when it is desired to disengage and hold the bail free from the ratchet-teeth the operator simply applies his foot to the stirrup-shaped end of the foot-lever 21, and thus lifts the bail and holds it uplifted during the adjustment of the end extension.

23 and 24 designate as a whole end frames, which for convenience of description will be hereinafter designated "head" and "foot" pieces, respectively, each desirably consisting of a skeleton frame, the side bars or post members 25 of which are extended downwardly some distance beyond the main body of the frame and are pivotally engaged with the outer ends of the extension-frames 6 and 7. The head and foot pieces are also adapted to be adjustably held in various positions relatively to the extension-frames upon which they are pivoted, and to this end said extension-frames are provided at their outer corners with segmental-shaped vertically-disposed ratchet plates or castings 26, between which the head and foot pieces are pivoted, as indicated at 27. The upper edges of the segmental plates 26 are provided with suitable ratchet-notches 28, and upon each corner-post at a point slightly above the corresponding ratchet-plate is pivotally mounted a holding-pawl 30, provided at its free or swinging end with a right-angled extension 31, adapted to engage the notches of the plate. These notches 28 are so shaped as to hold the pawl and through the latter the head or foot piece securely in any position of adjustment.

As a convenient construction which enables the head and foot pieces to be detached from the bed-frame at will, one of each pair of pivot-pins whereby they are united with the segmental plates engages an open slot 26′ (indicated in dotted lines, Fig. 2) in said plate, and the pivot-lug is held in engagement with said slot by means of an ordinary hook 32, (shown clearly in Figs. 4 and 5,) which is pivotally attached to the segmental plate and rests in engagement with the pivot-stud. By disengaging the hook 32 the pivot-stud may be withdrawn from the slot and the opposite pivot-stud then disengaged by a lateral movement of the end frame.

33 designates as a whole the mattress-frame or bed-support, which, as best shown in Fig. 1, comprises a main rectangular frame made of slightly smaller dimensions than the bedstead-frame, including the end extensions thereof, and provided with a wire-fabric bedding-support 34, stretched between cross-frame members 35 35, arranged at each end of the mattress-frame. The central portion of said wire fabric is desirably additionally supported by means of a set of coil-springs 36, which are interposed between the under side of the wire fabric and a suitable support 37, connected with the lower side of the main mattress-frame.

In the manipulation of the bed the end extensions 6 and 7 are adjusted into various positions, so as to sometimes elevate the mattress-frame bodily, while retaining it in horizontal position, as when both extensions are lifted an equal amount, and sometimes tilted, so as to elevate the head or foot by lifting one end extension or the other. In order to prevent endwise sliding of the mattress-frame to any considerable extent, said mattress-frame is provided upon the lower portions of its side bars with Y-shaped castings 38, which are adapted to engage the cross-bars 3 of the main bed-frame and prevent displacement of the mattress-frame. In or-

der that the mattress-frame may be engaged with either one of the adjustable extensions, so as to lift it up with the latter, each of said end extensions is provided with a swinging bail, as 39 and 40, pivotally connected with the segmental castings 26, as indicated at 41, and adapted to extend beneath and support the respective ends of the mattress-frame when the extensions are raised to any position above the horizontal. When said extensions are in alinement with the main frame, the mattress-frame rests directly upon said main frame.

I claim as my invention—

1. In an invalid-bed, the combination with a main frame provided with corner-castings and an extension-frame pivotally united with said main frame, of means for holding said extension-frame in adjusted relation to the main frame comprising ratchet loops or openings formed through said corner-castings in transversely opposite relation, ratchet-shaped teeth formed upon the inner lower sides of said loops or openings and a bail pivotally united at each end to the respective sides of the extension-frame and having its intermediate portion arranged to extend through said ratchet-loops, and means for imparting the weight of the extension-frame to the main frame comprising toe-shaped extensions upon the side bars of the extension-frame arranged to extend inwardly adjacent to the ratchet-loops and engaging the intermediate portion of said bail substantially as described.

2. In an invalid-bed, the combination with a main frame and extension-frame pivoted thereto and bail pivoted to said extension-frame and engaging the main frame for adjustably holding said extension-frame of a lever mechanim for actuating said bail comprising a bracket-like support attached to the main frame, a bail-lifting lever fulcrumed upon said bracket-support and having one end arranged to underlie the bail and a foot-lever pivoted to said bracket-support at a point intermediate the length of the fulcrumed lever and arranged to overlie and engage the opposite end of said fulcrumed lever substantially as described.

3. In an invalid-bed, the combination with a main frame provided at each end with pivotally-attached extension-frames, a mattress-frame of a length greater than the main frame so as to extend above said extension-frames at its ends and means for lifting the ends of the mattress-frame with said extension-frames comprising bail-shaped cross-bars pivoted to the extension-frames and arranged to underlie the ends of the mattress-frame.

4. In an invalid-bed, the combination with a main frame provided at each end with pivotally-attached extension-frames, a mattress-frame of a length greater than the main frame so as to extend above said extension-frames at its ends and means for lifting the ends of the mattress-frame with said extension-frames comprising bail-shaped cross-bars connected with the extension-frames and arranged to underlie the ends of the mattress-frame, said bails being pivotally united with said extension-frames, and means for preventing endwise shifting of the mattress-frame comprising forks secured to the lower side of said mattress-frame and arranged to embrace the underlying parts of the main frame.

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