

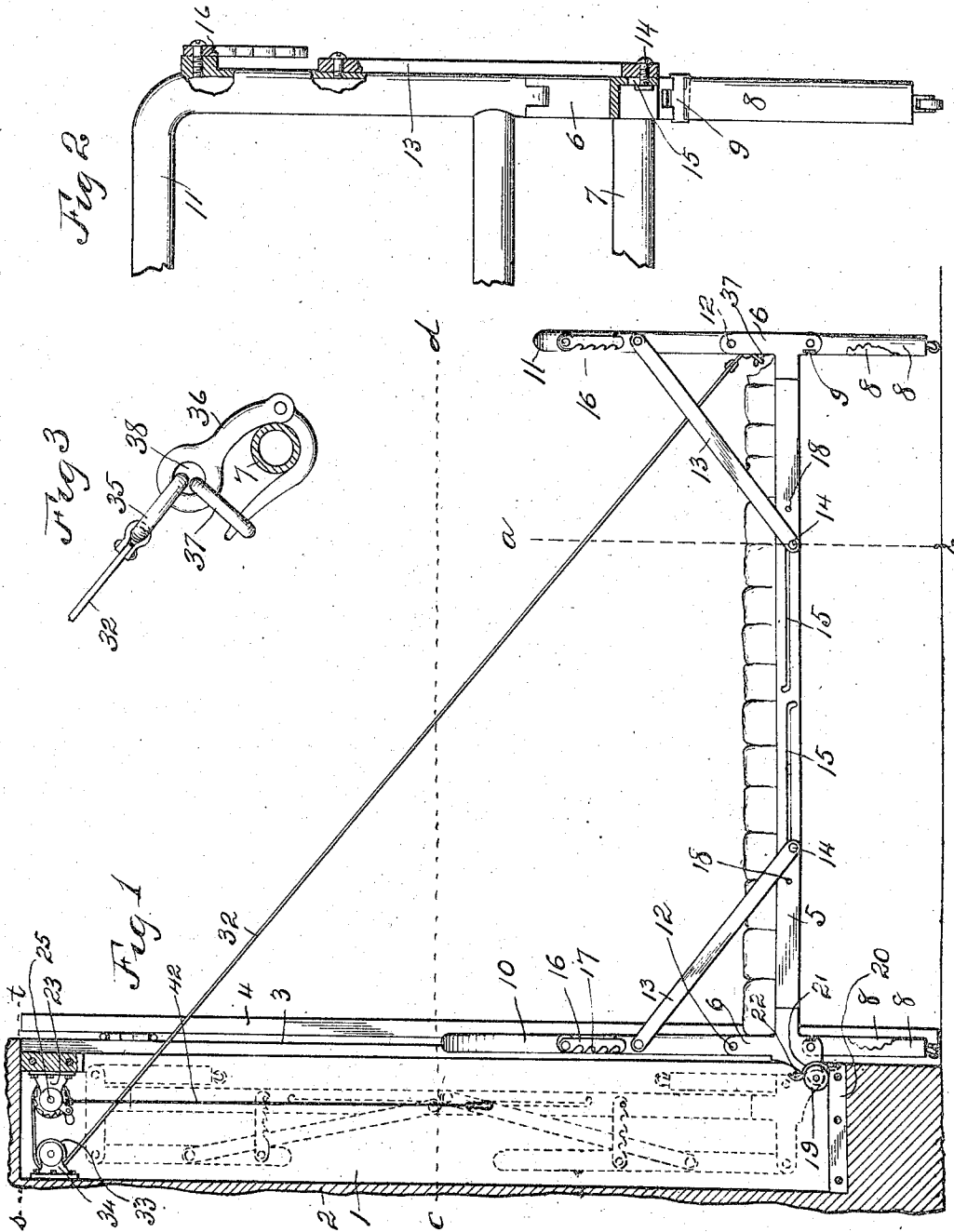
J. MAURER.
FOLDING BED.

APPLICATION FILED MAY 22, 1908.

932,626.

Patented Aug. 31, 1909.

3 SHEETS—SHEET 1.



WITNESSES.

R. Hamilton.
E. B. House

John Maurer INVENTOR.
BY *Warren D. House*
His ATTORNEY.

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3 SHEETS—SHEET 2.

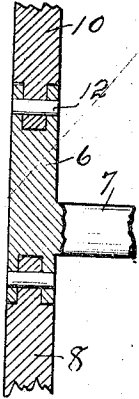
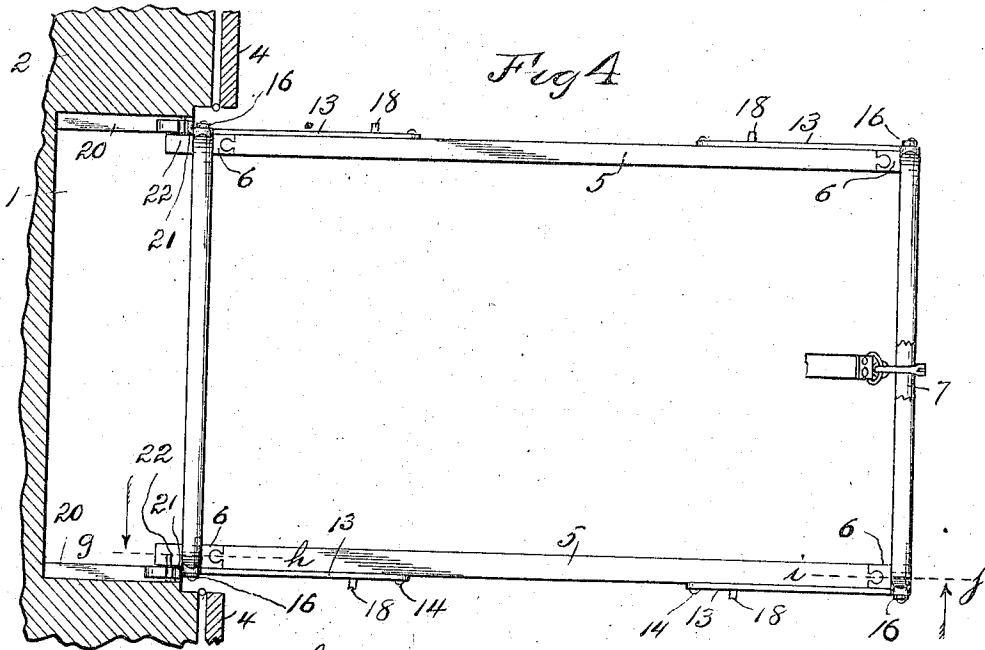


Fig 5

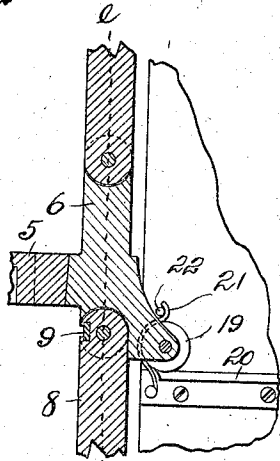


Fig 6

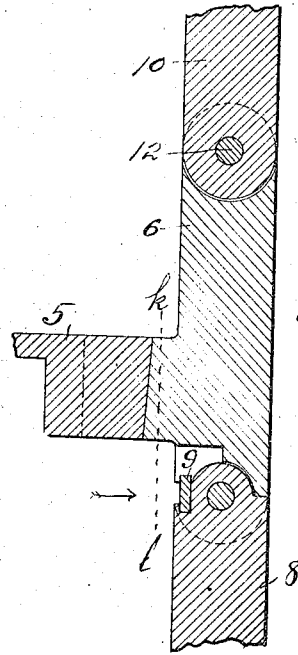


Fig 7

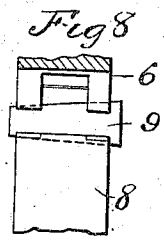


Fig 8

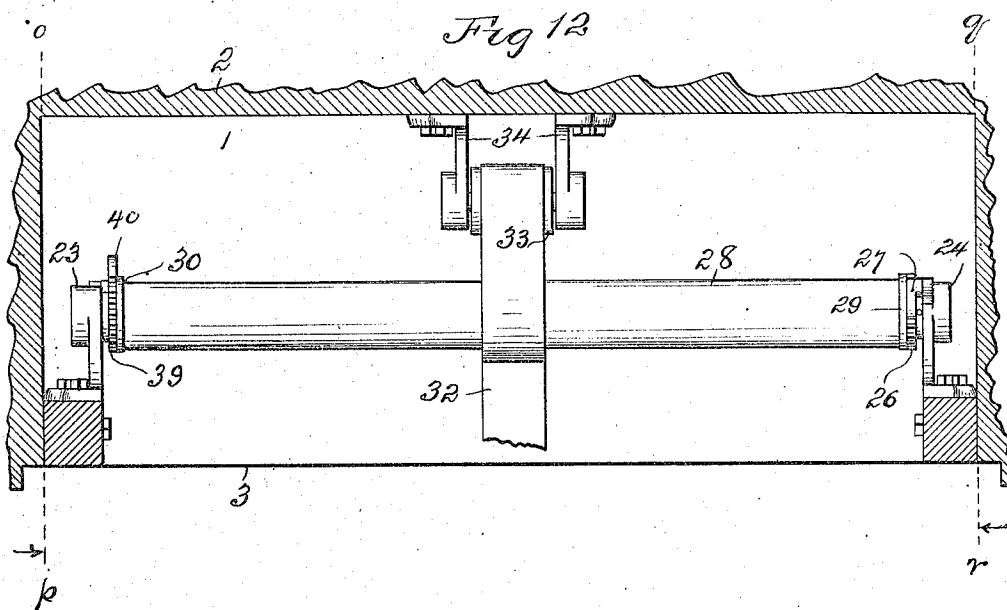
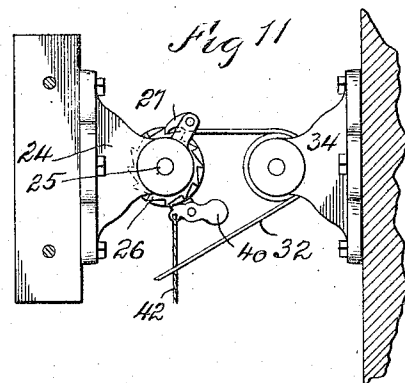
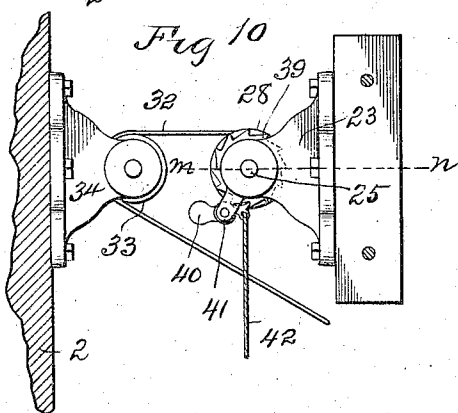
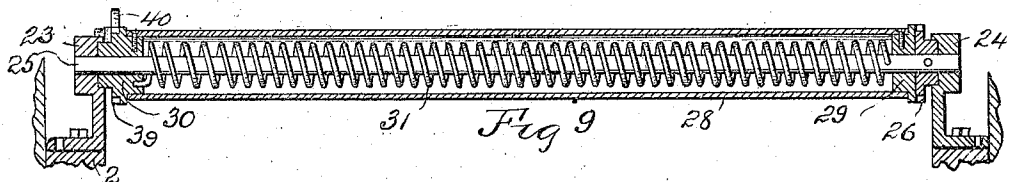
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3 SHEETS—SHEET 3.



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UNITED STATES PATENT OFFICE.

JOHN MAURER, OF KANSAS CITY, MISSOURI, ASSIGNOR OF ONE-THIRD TO MAX E. BOERNGEN, OF KANSAS CITY, MISSOURI.

FOLDING BED.

932,626.

Specification of Letters Patent. Patented Aug. 31, 1909.

Application filed May 22, 1908. Serial No. 434,302.

To all whom it may concern:

Be it known that I, JOHN MAURER, a citizen of the United States, residing at Kansas City, in the county of Jackson and State of Missouri, have invented certain new and useful Improvements in Folding Beds, of which the following is a specification.

My invention relates to improvements in folding beds.

One object of my invention is to provide a construction which permits the bed to be folded and stored in a closet or recess provided in the wall of a room, thereby economizing the space of the room and at the same time removing the bed from view.

My invention provides further, a folding bed which may be detached from the receptacle in which it is stored when in the folded condition, thereby permitting the moving of the bed to any part of the room in which it may be desirable to use it.

My invention provides further, a novel means for counterbalancing the weight of the bed.

My invention provides still further, a novel construction by means of which the bed frame may be folded in compact form.

Other novel features of my invention are hereinafter fully described and claimed.

In the accompanying drawings illustrative of my invention—Figure 1 is a side elevation of the bed frame and parts connected therewith, the frame being shown in the horizontal position, the receptacle being shown in vertical section. Fig. 2 is a vertical sectional view taken on the dotted line *a—b* of Fig. 1, portions of the mechanism being broken away. Fig. 3 is an enlarged detail of the mechanism employed to secure the strap to the bed frame. Fig. 4 is a horizontal sectional view taken on the dotted line *c—d* of Fig. 1. Fig. 5 is a vertical sectional view taken on the dotted line *e—f* of Fig. 6. Fig. 6 is a vertical sectional view taken on the dotted line *g—h* of Fig. 4. Fig. 7 is a vertical sectional view taken on the dotted line *i—j* of Fig. 4. Fig. 8 is a vertical sectional view taken on the dotted line *k—l* of Fig. 7. Fig. 9 is a horizontal sectional view taken on the dotted line *m—n* of Fig. 10, and showing the construction of the drum and portions connected therewith. Fig. 10 is an end elevation of the counterbalancing mechanism, a portion of the receptacle being shown in section, the section

being taken on the dotted line *o—p* of Fig. 12. Fig. 11 is a vertical sectional view taken on the dotted line *q—r* of Fig. 12. Fig. 12 is a horizontal section, enlarged, taken on the dotted line *s—t* of Fig. 1.

Similar characters of reference denote similar parts.

In the preferable form of my invention, the bed in its folded condition is stored in a recess 1 provided in one of the walls of the room, said wall being indicated by 2. The recess 1 in the wall 2 comprises a receptacle having an opening 3, and a closure comprising two doors 4 for closing said opening.

The bed frame comprises a rectangular body having side rails 5 connected by corner brackets 6 with the end rails 7. Pivoted to the brackets 6 so as to swing from a horizontal to a vertical position, are four legs 8, which may be rigidly locked in the vertical position at right angles to the body by detachable and preferably tapering keys 9, fitted in grooves provided therefor, as shown in Figs. 7 and 8, in the brackets 6 and legs 8. Two end members, 10 and 11 respectively, are pivoted at opposite ends of the body, by means of transverse pins 12, mounted in holes provided therefor in the bracket 6. Each end member 10 or 11, may be swung from a position at right angles to the body, as shown in solid lines in Fig. 1, to positions substantially parallel with said body, as shown in dotted lines in Fig. 1. Releasable means are provided for locking the end members in both of said positions.

Referring particularly to Figs. 1 and 4, 13 denotes brace bars pivoted two to each end member and provided each with an inwardly extending pin 14. Each side rail 5 is provided with two longitudinal slots 15 in which are located respectively the pins 14 of the brace bars 13 secured to the adjacent end member. The outer end of each slot 15 is downwardly turned so as to hold the pins 14 from lengthwise movement in the slot when the end members are in the right angled position shown in Fig. 1. By raising the lower ends of the braces 13 the end members may be swung to positions substantially parallel with the body, as shown in dotted lines in Fig. 1. Adjustable means are provided for releasably holding the end members in the latter named position. Four latch bars 16, are pivoted two to each end member at opposite ends thereof respectively.

The latch bars 16 are provided each along one edge with a plurality of notches 17, each of which is adapted to engage a horizontal projection 18, of which four are provided, two upon each rail 5, as shown in Figs. 1 and 4. A plurality of notches 17 are provided so that the mechanism can be accommodated to mattresses and bed clothing of different thicknesses. Two brackets 6, at one end of the bed, have rotatively mounted respectively thereon, two rollers 19, which normally rest upon a track comprising two horizontal rails 20, disposed respectively at opposite sides of the recess 1. The rollers 19 serve as pivots upon which the bed frame may be swung to and from the horizontal position. They serve also as a rolling support upon which the bed may be easily moved inwardly and outwardly on the rails 20.

The bed frame is detachable from the receptacle in which it is adapted to be stored and for this reason releasable means are provided for holding the rollers 19 in engagement with the rails 20. As shown particularly in Fig. 6 the rails 20 have respectively pivoted to them two curved plates 21, which respectively embrace the rollers 19 and prevent them from running off from the rails 20. The pivoted plates 21 are releasably held in position to engage the rollers 19 by two horizontal pins 22, detachably mounted in holes provided therefor in the wall 2 at opposite sides of the recess 1.

Now follows a description of the counterbalancing mechanism: Referring particularly to Figs. 9 to 12 inclusive, and also to Figs. 1 and 3, 23 and 24, denote two brackets secured to the wall 2 at opposite sides of the recess 1, adjacent the upper end thereof. A horizontal shaft or rod 25 is rotatively mounted in the brackets 23 and 24 and has rigidly secured to it a ratchet wheel 26 which is engaged by a gravity actuated pawl 27 pivoted to the bracket 24. A horizontal drum is rotatively mounted on the shaft 25 and comprises a horizontal tube 28 mounted on and rigidly secured to two end members 29 and 30 which are rotatively mounted upon the shaft 25. A coiled spring 31 encircles the shaft 25, to which one end of the spring is secured, the other end of the spring being secured to the member 30. The spring 31 is located in the drum and serves to rotate said drum in a direction such that a strap 32 having one end secured to the periphery of the drum, will be wound thereon so as to swing the bed frame to a vertical position, as hereinafter described. The strap 32 passes from the drum 28 over an idle pulley 33 rotatively mounted between supporting brackets 34, secured to the rear wall of the recess 1. The strap 32 passes from the idle pulley 33 toward the outer end of the bed frame with which it is detachably connected, as fol-

lows:—The outer end of the strap 32 is secured to a link 35, to which is secured a hook 36, preferably comprising two members pivotally connected one with the other and adapted to be swung, as shown in Fig. 3, into a position embracing the outer end rail 7. The two members of the hook 36 are releasably retained in the locked position shown in Fig. 3, by means of a link 37, which is pivotally mounted in the eye 38 of the hook and which is adapted to engage the swinging end of the hook 36 and retain the same in the locked position. Preferably the spring 31 is of sufficient power to swing the bed frame from the horizontal to the vertical position. In order to prevent such movement except at such times as it is desired to store the bed in the receptacle, the following described mechanism is provided:—Referring particularly to Figs. 10 and 11 and also to Fig. 12, it will be noted that the member 30 is provided with peripheral ratchet teeth 39, which are normally engaged by a pawl 40, pivotally mounted upon a radially projecting portion 41 of the bracket 23. The disposition of the ratchet teeth 39 and pawl 40 is such that the rotation of the drum 28 in a direction for winding thereon the strap 32 will be prevented by the pawl 40. When it is desired to elevate the bed the pawl 40 is withdrawn by means of a cord 42 from engagement with the ratchet teeth 39, thereby freeing the drum and permitting the spring 31 to rotate so as to wind thereon the strap 32.

In the operation of my invention, when it is desired to fold the bed and store it in the recess 1, the keys 9 are withdrawn from the grooves or notches in the legs 8 and brackets 6, thus permitting the legs 8 to swing to positions parallel with the side rails 5. The braces 13 are then moved in the grooves 15 to positions in which the end members 10 and 11 will also be swung parallel with the rails 5. The end members 10 and 11 in this position will compress the bedding and may be retained in the closed position by swinging the latch bars 15 into engagement with the pins 18, as hereinbefore described. The cord 42 is then pulled so as to disengage the pawl 40 from the ratchet teeth 39, upon which the drum 28 will be rotated by the spring 31 to wind on the drum the strap 32, thereby swinging the bed frame to the vertical position shown in dotted lines in Fig. 1. The doors 4 may then be moved to the closed position, thus removing the bed from view. When it is desired to again use the bed the doors 4 are opened and the bed is pulled down against the pressure of the spring 31 to the horizontal position, after which the end members and the legs 8 are swung to the vertical positions and locked in such positions in the manner already described.

If it is desired to detach the bed from its receptacle this may be readily done by with-

drawing the pins 22 and swinging downward the plates 21 and then detaching the hook 36 from the end rail 7. The bed may now be freely moved upon its legs to any desired position. To again attach the bed to its receptacle the operation just described is reversed.

Various modifications of my invention within the scope of the appended claims may be made without departing from its spirit.

Having thus described my invention, what I claim and desire to secure by Letters Patent is:—

1. The combination with a bed frame provided at one end with supporting rollers, of a receptacle having means for supporting said rollers and upon which the frame may be swung from a vertical position in said receptacle to a horizontal position outside the receptacle, and releasable locking means for detachably securing said rollers and thereby said bed frame to said receptacle.

2. The combination with a receptacle provided with a horizontal track, of a bed frame provided with rollers adapted to run on said track into and out of said receptacle and upon which the frame may be swung from a vertical position in the receptacle to a horizontal position outside the receptacle, and means for detachably locking said rollers and thereby said frame to said receptacle.

3. The combination with a support having a horizontal track, of a bed frame provided with supporting rollers adapted to run on said track and upon which the frame may be swung to and from a horizontal position, means for detachably locking said rollers and thereby said frame to said support, and counterbalancing means for swinging said frame from a horizontal to a vertical position, said counterbalancing means being detachably secured to said frame.

4. The combination with a support having a horizontal track, of a bed frame provided with rollers adapted to run on said track and on which the frame may be swung from a horizontal to a vertical position, means for detachably securing said rollers and thereby said frame to said support, counterbalancing means detachably connected with said frame and having power, when unrestrained for swinging the frame from a horizontal to a vertical position, and releasable means for holding said counterbalancing means from so swinging said frame.

5. The combination with a receptacle provided with an opening and a closure therefor, of a bed frame, means for detachably pivoting said bed frame to said receptacle so that, when said closure is in the open position the frame may be swung from a vertical position in said receptacle to a horizontal position outside of said receptacle, and counterbalancing means supported in

said receptacle and detachably connected with said frame for swinging the frame from a horizontal to a vertical position.

6. The combination with a receptacle provided with an opening and a closure therefor, of a bed frame, means for detachably pivoting the frame to said receptacle so that, when the closure is in the open position the frame may be swung from a vertical position in the receptacle to a horizontal position outside the receptacle, counterbalancing means detachably connected with said frame and having sufficient power, when unrestrained for swinging the frame from a horizontal to a vertical position, and releasable means for holding said counterbalancing means from so swinging said frame.

7. The combination with a support, of a bed frame pivoted thereto so as to swing from a horizontal to a vertical position, a rotary drum, a strap secured to said frame and to the periphery of said drum for swinging the frame, means for rotating the drum in a direction such that the frame will be swung from the horizontal to the vertical position, and releasable means for holding the drum from rotation in the said direction.

8. The combination with a support, of a bed frame pivoted thereto so as to swing from a horizontal to a vertical position, a rotary drum, a strap secured to said frame and to the periphery of the drum for swinging the frame from a horizontal to a vertical position, a spring for rotating the drum in a direction such that the frame will be swung from the horizontal to the vertical position, and releasable means for holding the drum from rotation in said direction.

9. The combination with a support, of a bed frame pivoted detachably thereto so as to swing thereon from a horizontal to a vertical position, a rotary drum, a strap secured to the periphery of the drum and secured detachably to said frame for swinging the frame from a horizontal to a vertical position, and means for normally rotating said drum in a direction such that the frame will be swung from the horizontal to the vertical position.

10. The combination with a support, of a bed frame pivoted detachably thereto, a rotary drum, a strap secured to the periphery of the drum and detachably secured to the frame for swinging the frame from a horizontal to a vertical position, means for rotating the drum in a direction such that the frame will be swung from the horizontal to the vertical position, and releasable means for holding the drum from rotation in the said direction.

11. The combination with a support, of a bed frame pivoted detachably thereto, a rotary drum, a strap secured to the periphery of the drum and secured detachably to the frame for swinging the frame from a horizontal to a vertical position, means for rotating the drum in a direction such that the frame will be swung from the horizontal to the vertical position, and releasable means for holding the drum from rotation in the said direction.

zontal to a vertical position, a ratchet wheel rotatable with said drum, a pawl engaging said ratchet wheel, and means for rotating the drum in a direction such that the frame 5 will be swung from a horizontal to a vertical position, the disposition of the pawl and ratchet wheel being such that when the pawl is engaged with the ratchet wheel the drum is prevented from rotation in the said direc- 10 tion.

12. In a bed frame, the combination with the body of the frame, of an end member pivoted to the body so as to swing from positions substantially parallel to a position at 5 right angles to the body, the body having a projection, and a latch bar pivoted to the end member and having a plurality of notches for engaging said projection when the end member is swung to positions sub- 20 stantially parallel with the body.

13. In a bed frame, the combination with the body having a longitudinal slot and a projection, of an end member pivoted to the body so as to swing from a position at right angles to positions substantially parallel 25 with the body, a latch bar pivoted to the end member and having a plurality of notches for engaging the said projection when the end member is swung to positions substantially parallel with the body, and a brace 30 pivoted to the end member and engaging said slot, for holding the end member in the right angled position.

In testimony whereof I have signed my name to this specification in presence of two 35 subscribing witnesses.

JOHN MAURER.

Witnesses:

E. B. HOUSE,

TOM K. FAULKNER.