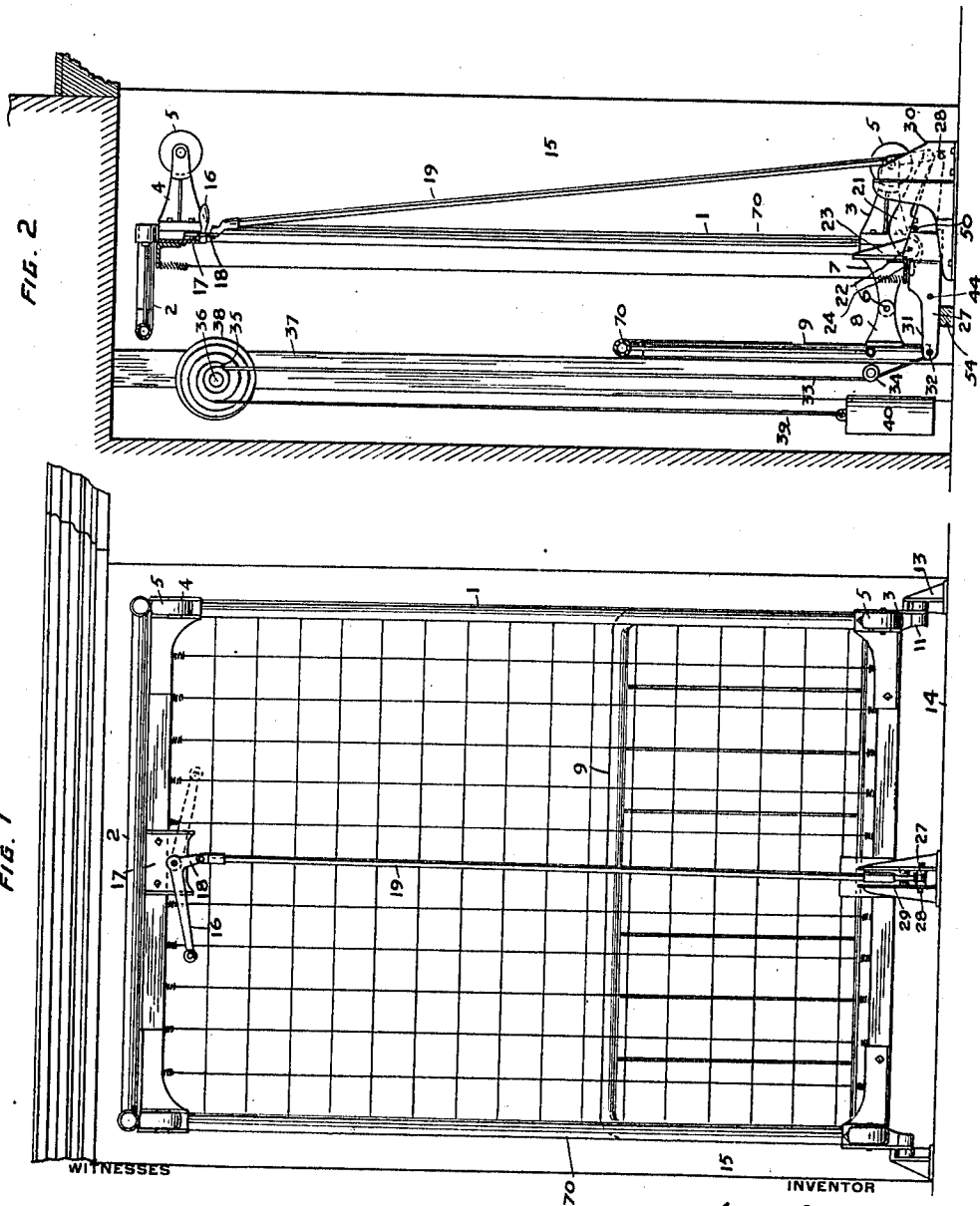


J. C. WILLIAMSON.
BED.
APPLICATION FILED DEC. 14, 1910.

992,093.

Patented May 9, 1911.

3 SHEETS—SHEET 1.



W. B. Keating
Law Office

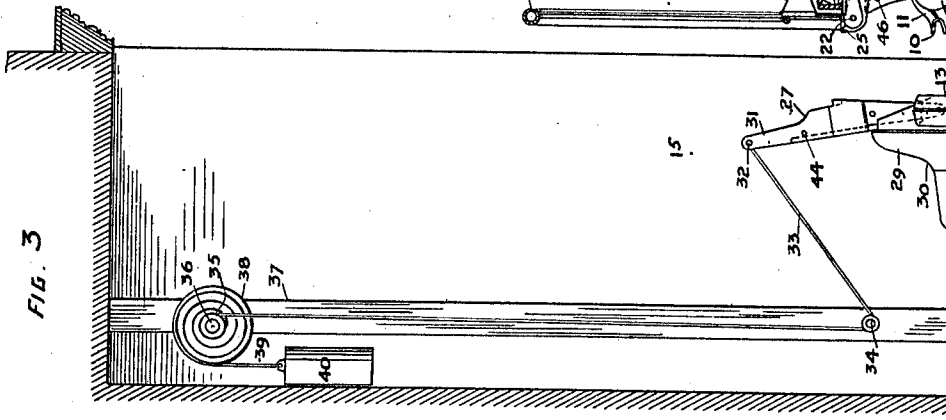
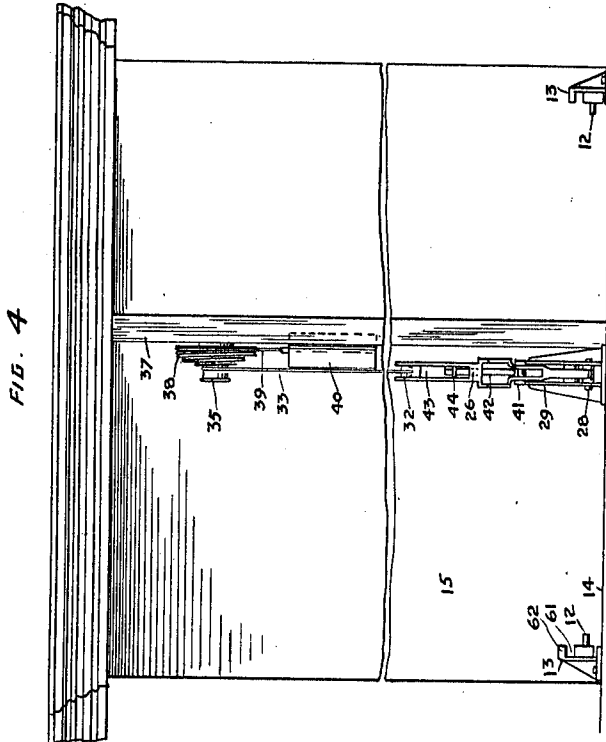
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3 SHEETS—SHEET 2.



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JOHN C. WILLIAMSON, OF SAN FRANCISCO, CALIFORNIA, ASSIGNOR TO HAMILTON MURDOCK, OF ALAMEDA, CALIFORNIA.

BED.

992,093.

Specification of Letters Patent.

Patented May 9, 1911.

Application filed December 14, 1910. Serial No. 597,351.

To all whom it may concern:

Be it known that I, JOHN COLONEL WILLIAMSON, a citizen of the United States, residing at San Francisco, in the county of San Francisco and State of California, have invented new and useful Improvements in Beds, of which the following is a specification.

The present invention relates to improvements in folding beds, one object of the invention is to provide a bed of this character which, when extended for use, can also be detached from the mechanism which is used for collapsing or folding the same, and, when so detached, can be moved to any part of the room desired.

A further object is to provide means for connecting a counterbalance weight with the bed when it is moved into the position where it is not in use.

A further object is to provide means for varying the effect of said counterbalance weight to correspond with the various angular positions of the bed.

A further object is to provide means for preventing the detachment of said balance weight when the bed is raised from off the floor.

A further object is to provide an improved form of bed frame.

In the accompanying drawings, Figure 1 is a front view of the bed collapsed; Fig. 2 is a vertical section of the same; Fig. 3 is a vertical section of the same extended for use; Fig. 4 is a broken front view of the counterbalancing mechanism; Fig. 5 is an enlarged vertical section of the locking mechanism, in its inoperative position; Fig. 6 is a similar view of the same, showing it locked; Fig. 7 is a front view of the counterbalancing lever; Fig. 8 is a rear view of the same; Fig. 9 is a perspective view of a corner of the bed frame, the bed being in its elevated or collapsed position; Fig. 10 is a detail side view of a leg of the bed; Fig. 11 is a perspective view of a standard; Fig. 12 is a front view of a pulley for the counterbalancing weight; Fig. 13 is a side view of the same; Fig. 14 is a perspective view of a releasing lever; Fig. 15 is a perspective view of a slide bolt; Fig. 16 is a vertical section of a standard; Fig. 17 is a perspective view of an end of the locking lever.

Referring to the drawing, 1 indicates the main frame of the bed, having a fixed foot rail 2, and mounted by means of legs 3, 4, on rollers 5, by which, when detached from the collapsing mechanism hereinafter described, it can be wheeled to any part of a room. Pivoted, as shown at 6, on upward extensions 7 of the head of the bed frame are brackets or lugs 8 secured to a head rail 9, so that said head rail can be turned either at right angles to the bed frame when extended or parallel therewith when collapsed.

In moving the bed from its extended to its collapsed position, the bed is first rolled upon the rollers 5, until bearings 10 in the ends of forward extensions 11 from the legs 3 at the head of the bed abut against, and engage respectively, pivot pins 12 extending laterally and inwardly or toward each other from standards 13 secured to the floor 14 of the apartment, preferably in a recess 15 therein. The operator then takes hold of a lever 16, pivoted on a plate 17 attached to the under side of the frame of the bed at the central part of its foot portion, and turns said lever about its pivot through slightly more than two right angles. A short arm 18 of said lever is connected to the rear end of a link 19, and the above movement of the lever therefore causes said link to move in the direction of the head of the bed through substantially twice the length of said short arm 18. The front end of the link is connected to a long arm 20 of a locking lever 21, pivoted at 22 on a casting 23 bolted to the angle iron 24 at the head of the bed. Said lever 21 is formed with a short arm 25, which, when the bed has been moved so that the bearings 10 engage the pivot pins 12, passes beneath a bridge 26 formed on a counterbalance lever 27, pivoted, as shown at 28, between sides 29 of a standard 30 secured to the floor of said recess 15 the pivot 28 being in line with the pins 12. When the lever 16 has been turned as aforesaid, it engages said bridge 26. Said lever 27 is formed with two vertical walls 31 which are connected at the top by a pin 32, and attached to said pin is a cord 33, which passes around a pulley 34 and then is attached to, and is wound around, a drum 35 mounted upon a shaft 36 extending from a suitable support 37 in the side of the recess 15. Secured to said drum is a

spirally grooved pulley or fusee 38, to which is attached a cord 39 wound in said groove, by which cord is suspended a weight 40. Said weight therefore tends to pull the upper end of the lever 27 in the direction away from the foot of the bed. Laterally extending lugs 41, in the lower end of a slide bolt 42, which can slide vertically between the rear wall 43 of the lever 27 and a pin 44 between the side walls thereof, when in the lower position of said slide bolt, engage notches or recesses 45 formed in the tops of the sides 29 of said standard, and thus normally limit the backward movement of said lever due to said weight.

When the link 19 has been pushed lengthwise of the bed, the short arm 25 of the lever 21 engages said bridge 26 and presses the lever 27 forward against the tension of the cord 33, and therefore removes the pressure between said lugs 41 and the notches 45, due to the weight 40 which pressure would otherwise render it difficult to raise the slide bolt bar 42. The forward movement of the lever 27 is arrested by the angle iron 24 at the head of the bed frame. Immediately after the lever 27 has moved toward the bed frame, a finger 46 on the long arm of the lever 21 engages an arm 47 of a releasing lever 48 pivoted on a pin 50 between the side walls of said lever 27, so that the other arm 51 of said releasing lever 48, which enters a groove 52 in a rear extension 53 in the slide bolt 42, raises said slide bolt, so that said lugs 41 rise above the notches 45 in the tops of the sides of the standard 30, and said lever 27 is no longer prevented from swinging rearwardly. When the short arm 25 of the lever 21 has engaged the bridge 26 as aforesaid, and the lever 27 has moved up to the head angle iron 24, the bed frame is rigidly locked to said lever 27, and the entire bed can turn on the pivot pins 12, the lever 27 likewise turning upon its pivot 28, which is in line with said pivot pins 12. The weight 40 then operates to nearly balance the weight of the bed, so that very little exertion is required to raise the same to its vertical or closed position. In the vertical position, the rear side of said lever 27 rests upon a block 54, which rests upon the floor.

The spiral or fusee form of the pulley groove is employed in order that the weight of the bed may be balanced as nearly as possible in all positions, for by this device it is provided that the force of the weight 40 is applied at a variable distance from the pivot of the drum, said distance diminishing as the bed more nearly approaches a vertical position.

In order to prevent the possibility of the bearings 10 rising from off the pivot pins 12, the extensions 11 which carry said bearings are provided with laterally extending

pins 60 (Fig. 10) which, in the rotary movement of the bed frame, move in paths 61 and beneath walls 62 formed integral with the standards 13 and are thus restrained from moving upwardly.

It is desirable to prevent any operation, accidental or otherwise, of the lever 16, after the bed has been raised even slightly, for such operation might cause the bed frame to be unlocked from the lever 25, and therefore no longer balanced by the weight 40. For this purpose, the end of the lever 21 which is attached to the link 19 is forked, as clearly shown in Fig. 17, and, on the outside of each fork member 64, is formed a locking lug 65, which, when the bed frame is raised passes beneath an arcuate wall 66 on the standard 30, and thereafter until the bed is again restored to its lower position, prevents rearward movement of the link 19, and therefore also prevents the operation of said lever 16.

An important feature of the invention is the construction of the bed frame proper. I employ for the sides of the frame, instead of angle irons, as is the custom, tubes 70. To each end of said tube are attached upper and lower clamp members 71, 72, the legs 3, 4, depending from the lower clamp members and the extension 7 being formed on the upper clamp members. Said members 71, 72 are connected to each other and to the ends of the tubes by bolts 73, 74, of which the bolts 73 are also connected to the upper extensions 7, and to the angle plates 24 which form the end pieces of the frame, said angle plates 24 being also connected by bolts 76 with plates or extensions 75 from the said extensions 7. By using two clamp members, and clamping the same to the ends of the tubes, said clamp members can be secured to said tubes with far greater rigidity, than when the tube is screwed into an elbow or other device, and since the angle irons are likewise secured to said clamp members by bolts, the result is that there is no tendency of the corner of the bed frame to be deformed or warped by the weight of the bed when raised. In other words, when a bed of my improved construction is lifted at one corner, an adjacent corner of the bed is lifted to the same extent.

I claim:—

1. The combination of a bed frame, two stationary pivotal means, said frame being provided with parts one on each side thereof adapted to engage said pivotal means, counterbalancing means, a lever having its pivot in line with the two pivotal means, said lever being operatively connected to said counterbalancing means and detachable from said frame, and means for rigidly connecting said frame to said lever, substantially as described.

2. The combination of a bed frame, rollers

upon which said frame is mounted, a counterbalance weight, a cord operatively connected thereto, a stationary lever to which one end of said cord is connected, and means for locking said bed frame to said lever, substantially as described.

3. The combination of stationary pivots, a counterbalance weight, a cord operatively connected thereto, means for supporting said cord against the force of said weight, a bed frame, and rollers upon which said frame can be moved, said bed frame having pivotal means adapted by the movement of said frame on said rollers to pivotally engage with or be disengaged from said pivots, substantially as described.

4. The combination of a bed frame, two stationary pivotal means, said frame being provided with parts, one on each side thereof, adapted to engage said pivotal means, counterbalancing means, a lever having its pivot in line with the two pivotal means, and means for connecting to said lever one end of the frame, said means being adapted to be operated from the other end of the frame, substantially as described.

5. The combination of a bed frame, rollers upon which said bed frame can be moved, extensions from said bed frame, standards, said extensions and standards having parts adapted to engage each other, whereby the bed frame can be rocked upon said standards, means for counterbalancing the weight of the bed, means for normally resisting the operation of said counterbalancing means, a lever pivoted at one end of the bed and adapted to engage said resisting means to lock the same to the bed, and means at the other end of the bed for operating said lever, substantially as described.

6. The combination of a bed frame, rollers upon which said bed frame can be moved, extensions from said bed frame, standards, said extensions and standards having parts adapted to engage each other, whereby the bed frame can be rocked upon said standards, means for counterbalancing the weight of the bed, means for normally resisting the operation of said counterbalancing means, a stationary support, a bolt for locking said resisting means to said stationary support, a lever for connecting said resisting means to the bed frame, and means carried by said lever to unlock the bolt, substantially as described.

7. The combination of a bed frame, rollers upon which said bed frame can be moved, extensions from said bed frame, standards, said extensions and standards having parts adapted to engage each other, whereby the bed frame can be rocked upon said standards, means for counterbalancing the weight of the bed, means for normally resisting the operation of said counterbalancing means, a stationary support, a bolt for locking said

resisting means to said stationary support, a lever for connecting said resisting means to the bed frame, a link connected to said locking lever and extending beneath the bed, and an operating lever connected to said link, substantially as described.

8. The combination of a bed frame, rollers upon which said bed frame is mounted, means supported upon the floor of the room upon which said bed frame can be rocked upward, means for counterbalancing the weight of the bed frame, from which the bed frame may be disconnected, means whereby the effect of said counterbalancing means may be varied corresponding to the angular position of the bed, means for maintaining said counterbalancing means operative while the bed frame is detached, means for operatively connecting said counterbalancing means to said bed frame and disconnecting it from said maintaining means, substantially as described.

9. The combination of a bed frame, rollers upon which said bed frame is mounted, means supported upon the floor of the room upon which said bed frame can be rocked upward, a weight, a cord attached to said weight, a spirally grooved pulley to which said cord is attached and on which it is wound, a drum rotating with said pulley, a cord wound on said drum, means for normally holding said cord against the force of said weight, and a lever arranged to operatively connect said latter cord with the bed frame and to disconnect it from said holding means, substantially as described.

10. The combination of a bed frame, rollers upon which said bed frame is mounted, means supported upon the floor of the room upon which said bed frame can be rocked upward, a weight, a cord attached to said weight, a spirally grooved pulley to which said cord is attached and on which it is wound, a drum rotating with said pulley, a cord wound on said drum, means for normally holding said cord against the force of said weight, a lever arranged to operatively connect said latter cord with the bed frame and to disconnect it from said holding means, and means extending beneath the bed frame for operating said lever, substantially as described.

11. The combination of a bed frame, rollers upon which said bed frame is mounted, means supported upon the floor of the room upon which said bed frame can be rocked upward, a weight, a cord attached to said weight, a spirally grooved pulley to which said cord is attached and on which it is wound, a drum rotating with said pulley, a cord wound on said drum, means for normally holding said cord against the force of said weight, a lever arranged to operatively connect said latter cord with the bed frame and to disconnect it from said holding

means, and means for preventing the operation of said lever while the bed frame is angularly elevated, substantially as described.

- 5 12. A bed frame having tubular side pieces, a pair of clamp members bolted to each end of the side pieces, one clamp member of the pair having a leg depending therefrom and the other clamp member having a
10 bracket extending laterally therefrom, and

end pieces secured to said bracket, substantially as described.

In testimony whereof I have hereunto set my hand in the presence of two subscribing witnesses.

JOHN C. WILLIAMSON.

Witnesses:

F. M. WRIGHT,
D. B. RICHARDS.

Copies of this patent may be obtained for five cents each, by addressing the "Commissioner of Patents, Washington, D. C."
