

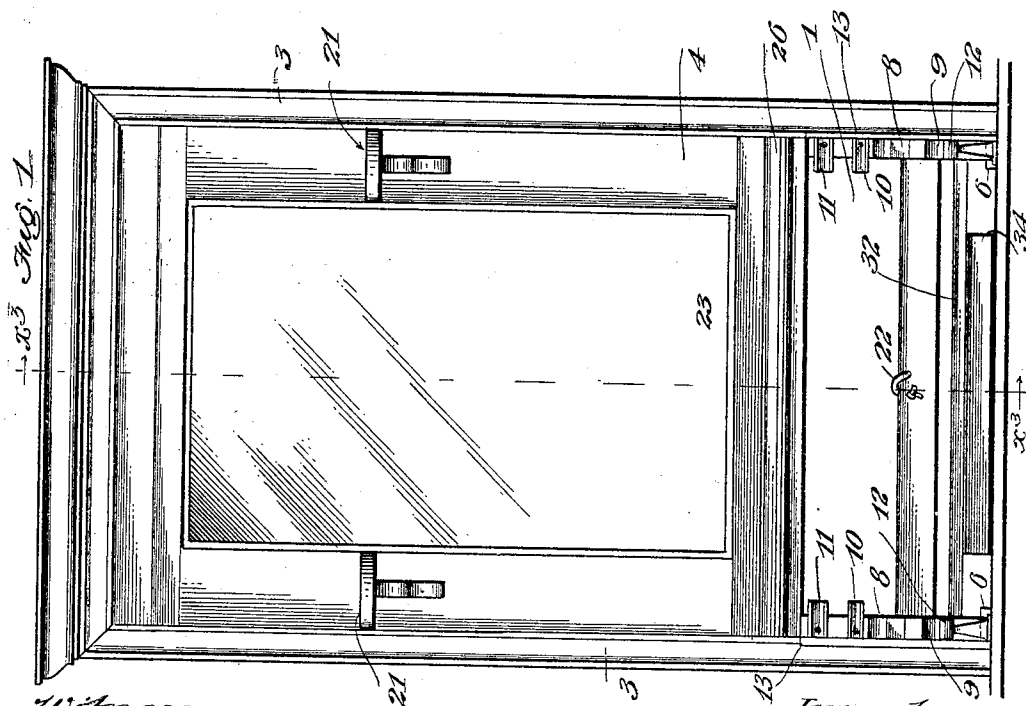
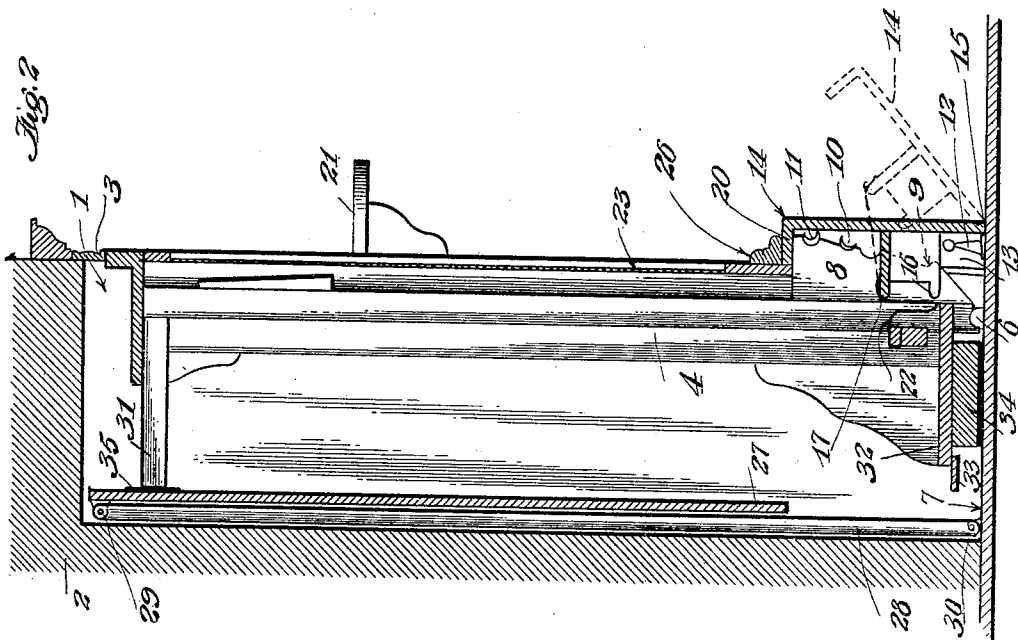
No. 823,045.

PATENTED JUNE 12, 1906.

W. C. JAMES.
FOLDING BED.

APPLICATION FILED MAR. 28, 1904.

2 SHEETS—SHEET 1.



Witnesses
Edmund G. Stowe
A. P. Knight

Inventor
W. C. James
by Townsend Bros
His attys

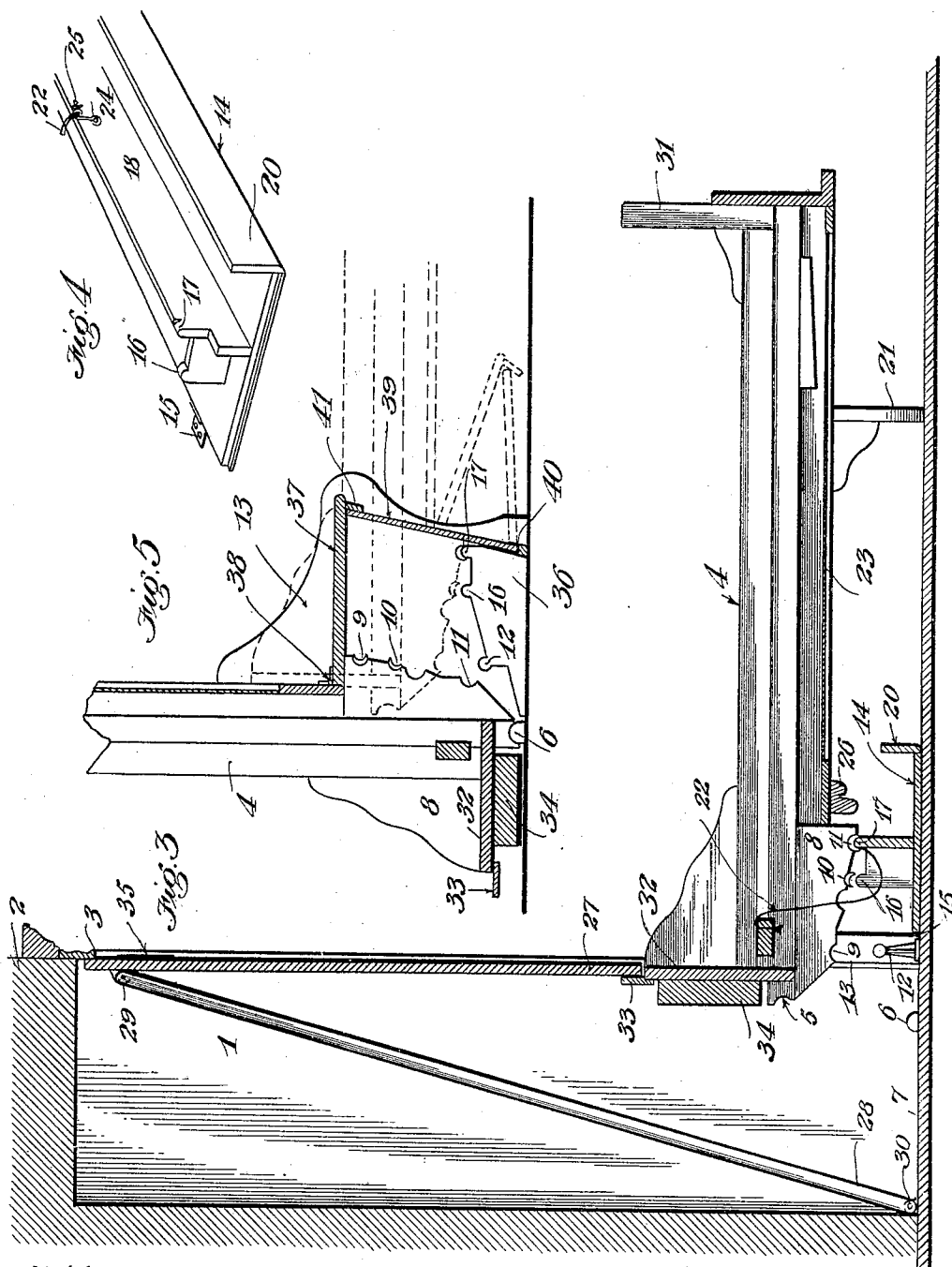
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2 SHEETS—SHEET 2



Witnesses

Edmund A. Strauss
A. P. Knight.

Inventor
William C. James
by *Townsend Bros*
His atty

UNITED STATES PATENT OFFICE.

WILLARD C. JAMES, OF LOS ANGELES, CALIFORNIA.

FOLDING BED.

No. 823,045.

Specification of Letters Patent.

Patented June 12, 1906.

Application filed March 28, 1904. Serial No. 199,668.

To all whom it may concern:

Be it known that I, WILLARD C. JAMES, a citizen of the United States, residing at Los Angeles, in the county of Los Angeles and State of California, have invented new and useful Improvements in Folding Beds, of which the following is a specification.

The primary object of the invention is to provide a folding bed that will be nearly balanced on its support in all positions, so as to require but little effort for its operation.

A further object of the invention is to dispense with any supports for the bed that will project considerably beyond the bed-frame when the latter is in raised position.

Another object of my invention is to construct the bed in such manner that the operation of turning it down into position for use will cause the bed to move forward out of its casing, thus avoiding the necessity of drawing out the bed after it is lowered.

My invention is particularly applicable to folding beds formed or built into a wall, such wall being formed with a recess into which the folding bed swings up when not in use, and in this connection further objects of my invention are to dispense with any well or depression in said recess below the floor of the room or apartment and also to enable the folding bed when closed to be substantially flush with the wall of the room and when lowered to extend out wholly into the room with its headboard flush with said wall.

The accompanying drawings illustrate the invention.

Figure 1 is a front elevation of the folding bed in closed position with the folding support removed to more clearly show the parts to the rear thereof. Fig. 2 is a vertical section on the line $x^3 x^3$ in Fig. 1, the folding support being shown in full lines as closed up and in dotted lines as partly unfolded. Fig. 3 is a section on the same plane as Fig. 2 with the folding bed in lowered position. Fig. 4 is a detail perspective of part of the folding support. Fig. 5 shows a different form of the invention.

Referring to Figs. 1 to 3, 1 designates a recess formed in the wall 2 of an apartment or room, and 3 a casing or frame around said recess. The folding bed comprises a frame 4, adapted to swing within and be received by said recess, the inner or lower end of said bed-frame being provided with seats 5, which in the closed position of the bed rest upon half-

round pivot-blocks 6, fixed on the floor 7 of the recess, which is continuous or on a level with the floor of the room. On the front or lower side of the bed-frame, preferably at or near each side rail of said frame, is provided a fulcrum-block 8, having a plurality of fulcrum sockets or seats 9, 10, and 11, the fulcrum means 5, 9, 10, and 11 being located in planes longitudinally of the bed. A fixed support or fulcrum 12 is attached to the floor 7 forward of each pivot-block 6 in position to engage the fulcrum-sockets 9. These fulcrums 12 are nearly or substantially in the plane of the front of the recess, and a comparatively narrow casing-piece or side board 13 at each side of the recess projects forwardly from the casing 3 sufficiently to extend beyond these fulcrums and also beyond the outermost projection of the fulcrum-blocks 8 when the bed is in raised position. To engage the other fulcrum-sockets 10 and 11, means have to be provided that will extend farther into the room, and in order that such means will not extend out into the room when the bed is in closed position I prefer to form them on a folding support 14, that is hinged to the floor at 15 and carries the pivotal or fulcrum parts 16 17. The board 18 may extend across the width of this hinged support 14 and be rounded at its ends to form the fulcrums 17, the fulcrums 16 being formed on the ends of blocks 19, projecting transversely from said board 18. (See Fig. 4.) The free end of the hinged support 14 is provided with a ledge, shelf, or flange 20, projecting rearwardly to cover the side plates 13, fulcrum-block 8, and fulcrums 12 when the parts are in closed position, as shown in full lines in Fig. 2, the hinge-support 14 serving as a cover for the lower end of the bed to conceal the opening thereof.

A flexible connection, such as a cord 22, is desirably provided between the bed-frame or a part attached thereto and the folding support 14, so that when the bed is raised it will partly raise the said folding support, as shown in dotted lines in Fig. 3, thereby forming a receptacle between the bed-frame and said support suitable for reception of pillows, &c. This cord may be detachably connected to support 14, as by engaging it within a hook 24 on the board, the cord having a knot 25 at the end to hold it from slipping through the hook.

The outer socket-fulcrum members 10 and 11 may be formed as metal semicircular parts

screwed to blocks 8 and projecting inwardly therefrom to engage with the respective fulcrum members 16 17, this inward projection being necessary on account of the fact that said members 16 17 are arranged inwardly of the fulcrum members 8, so as to pass between said members when the bed is folded up.

The bed-frame is provided with legs or supports 21, which when the bed is in lowered position, as shown in Fig. 3, engage with the floor to support the outer end of the bed, and which when the bed is in raised position, as shown in Figs. 1 and 2, may serve as shelves. The bottom of the bed may be formed with a mirror or pier-glass 23, which is displayed when the bed is folded up, as shown in Figs. 1 and 2, or, if desired, any other suitable ornamentation may be adopted or the bottom of the bed left open. A bead 26 at the lower end of this pier or front plate extends over the ledge 20 when the parts are in closed position to lock the bed in raised position.

I prefer to provide a swinging or movable headboard 27 to close the recess 1 when the bed is opened or lowered, said headboard being supported by suitable means, such as bars 28, pivoted at 29 30 to the floor 7 and to the headboard, so that when the bed is lowered the headboard will swing forward by gravity until it rests against the inside of the casing 3. When the bed is raised, its footposts 31 engage with the headboard and push it back into the recess. The bed-frame itself is provided with a low headboard 32, having an upward extension 33, which when the bed is lowered comes back of the swinging headboard 27 and holds its lower end firmly in position. A metal plate 35 is provided on headboard 27 where each post 31 strikes to prevent abrasion.

34 designates a counterweight at the back of the headboard portion 27, which suffices to substantially balance the bed in all positions thereof.

When the bed is in closed position, as shown in Figs. 1 and 2, the part which forms the bottom of the bed when in use will be substantially flush with the front of the casing 3 to form a continuous wall-surface with a slight projection formed by the folding member 13 and its ledge 20. The bed will rest by its pivot devices 5 on the pivot members or blocks 6, the center of gravity of the bed being slightly to the rear of said pivotal support, so as to tend to hold the bed in closed position, and the counterbalance 34 resting on the floor to prevent further back movement. The swinging headboard will be at the back of the recess, being held in that position by engagement thereof by posts 31 on the bed. The folding support 14 is in the position shown in full lines in Fig. 2, with its ledge 20 extending under the bead 26 on the bed, so as to lock the bed in raised position, and the flexible connection 22 being folded up be-

tween the bed and the said support. When the bed is to be used, the hinged member 14 is pulled forward to the position shown in dotted lines in Fig. 2, thus unlocking the bed. Any pillows, &c., that may be within said member 14 may then be removed, and the bed is then pulled forward, the frame thereof rocking or tilting on the pivot members 6 aforesaid, which can be done with little effort owing to the fact that the center of gravity of the bed is nearly over said fulcrum, and in this movement said center of gravity passes from a point a little to the rear of said fulcrum to a point forward of said fulcrum. As the center of gravity nears the vertical plane of the fulcrum-supports 12 the fulcrum devices 9 come into engagement with said supports, thus shifting the point of support of the bed from the original base to a base nearer the new position of the center of gravity. Similarly, as the bed is turned or rocked farther forward the position of gravity is moved farther out to about the plane of the fulcrum-support 16, whereupon the fulcrum members 10 and 16 will come into engagement to afford a new fulcrum-support near the plane of the center of gravity. Thus as the center of gravity of the bed advances forward in swinging the bed down the fulcrum or base of support is shifted successively from one set of pivots or fulcrum portion to a set of pivots or fulcrum portion in a plane advanced forward or located longitudinally farther along the bed. Finally, as the bed comes to a horizontal position the fulcrum members 11 and 17 will come into engagement to support the bed somewhat to the rear of the center of gravity, so that the bed will tend to rest in the lowered position. In folding up the bed it is raised and pushed back into the recess with little effort, as the fulcrum is kept nearly under the center of gravity. As the bed approaches closed position it draws on the cord 22 to pull up the folding member 14, and when the bed is fully closed this member remains in the position shown in dotted lines in Fig. 2. Pillows, &c., may be placed in the receptacle thus formed and the device 14 then closed up by hand against the bed, its top ledge coming over the members 8 and under the bead 26. The locking of the bed in upright position by member 14 not only insures that the bed will not be accidentally or unintentionally lowered, but also insuring that the pillow-receptacle will be opened, suggesting the removal of pillows before the bed is let down.

My invention may be modified in various respects without departing therefrom, provided that the general principles of operation above set forth are maintained. For example, the fulcrum devices may be formed in any suitable manner to carry out the principle set forth of shifting the fulcrum pro-

gressively outward as the bed is lowered, and other changes may be made to adapt the apparatus to special conditions, as will be obvious to one skilled in the art.

5 In the form of my invention shown in Fig. 5 the fixed fulcrum or pivot members are formed on blocks 36, fastened to the floor of the room, and as these blocks will project a short distance into the room it becomes nec-
 10 essary or desirable to provide means for concealing the same when the bed is not in use. Such means may be utilized also as a wall-seat and may also form a receptacle for pillows, &c. For this purpose a board shelf or
 15 seat 37 is hinged at 38 to the bed-frame, and a flap or board 39 is hinged at 40 to the floor and normally extends upwardly under the seat-board 37, which has a lip or flange 41 at its outer end engaging with the outer edge of
 20 the flap 39, the two members 37 39 forming a wall-seat which may be opened up by lifting the top 37 to admit of pillows, &c., into the interior space. When the bed is to be used, such articles are removed from such
 25 space, and the bed being pulled down into the position shown in dotted lines the two members 37 39 fold upon one another, as shown, and the bed-frame at the same time rocks downwardly and outwardly upon the
 30 fulcrum members 8 and 36.

What I claim is—

1. The combination with a wall-casing having a recess, and a floor in said recess, a bed pivotally movable into and out of said recess,
 35 rounded pivots on the floor of the recess forming initial pivots for the outward movement of the bed, supports located outwardly from the aforesaid initial pivots, a means on the bed engaging with the outwardly-located
 40 pivots to raise the bed in its turning movement off of the initial pivots.

2. The combination with a wall-casing having a recess and a floor, of a folding bed movable into and out of said recess, rounded pivots at the bottom of the recess, forming initial pivots in the outward movement of the bed, a hinged support resting and turning on the floor and provided with fulcrum means and fulcrum means on the bed engaging the
 50 fulcrum means on said hinged support.

3. The combination with a wall-casing having a recess and a floor, a folding bed folding into said recess, rounded pivots on the floor forming initial pivots for the downward
 55 movement of the bed, a hinged support resting and turning on the floor from the raised to the lowered position on the floor, fulcrum means on said hinged support and fulcrum means on the bed engaging the fulcrum
 60 means on the hinged support.

4. The combination with a wall-casing having a recess and a floor, of a folding bed folding into said recess, pivots on the floor forming initial pivots for the outward movement
 65 of the bed, fulcrums on the floor located out-

wardly from said pivots, means on the said bed engaging with said fulcrums to support the bed thereon and to raise the bed from the initial pivots on the further outward movement of the bed, and a hinged support resting
 70 on and hinged to the floor, fulcrum means on said hinged support, a fulcrum means on the bed, engaging the fulcrum means on the hinged support, to raise the bed from the aforesaid fixed fulcrum means.

5. The combination with a casing, pivot members at the bottom of said casing, and a folding bed adapted to be received by said casing and having pivot members resting on the aforesaid pivot members when the bed is
 80 in closed position within the casing, supplementary pivot members on the bed, respectively connected to the bed and to the casing located forwardly of the aforesaid pivot members, the casing having an extension at each
 85 side of said supplementary pivot members, and a folding closure device hinged at the bottom of the casing to swing upward and over the said casing extensions and pivot members.

6. The combination with a casing, of a folding bed provided with fulcrum means at different longitudinal portions thereof, fixed fulcrum means at the bottom of the casing for engaging a fulcrum means on the bed
 90 when the bed is in vertical position, and a support provided with fulcrum means and hinged at the bottom of the casing to fold upwardly toward the casing or to move outwardly and downwardly to carry its fulcrum
 95 means outwardly into position to successively receive the fulcrum portions on the bed as the bed is turned downwardly.

7. The combination with a casing, of a folding bed provided with fulcrum means at different longitudinal portions thereof, fixed fulcrum means at the bottom of the casing for engaging a fulcrum means on the bed
 100 when the bed is in vertical position, a support provided with fulcrum means and hinged at the bottom of the casing to fold upwardly toward the casing or to move outwardly and downwardly to carry its fulcrum means outwardly into position to successively receive the fulcrum portions on the bed as the bed is
 105 turned downwardly, and a flexible connection between said hinged support and the bed-frame.

8. The combination with a casing, of a folding bed provided with fulcrum means at different longitudinal portions thereof, fixed fulcrum means at the bottom of the casing for engaging a fulcrum means on the bed
 120 when the bed is in vertical position, a support provided with fulcrum means and hinged at the bottom of the casing to fold upwardly toward the casing or to move outwardly and downwardly to carry its fulcrum means outwardly into position to successively receive the fulcrum portions on the bed as the bed is
 125 130

turned downwardly, and a detached connection between said hinged support and the bed-frame.

9. A casing having a recess, a headboard
 5 movable rearwardly away from and forwardly
 against said casing, a folding bed mounted to
 swing in said recess, and a support for said
 headboard, one end of said support being piv-
 10 oted to the upper portion of said headboard,
 the other end of said support being pivoted
 to the rear portion of the recess at a point ad-
 jacent the floor thereof.

10. A casing, a folding bed mounted to
 swing in said casing, and a cover and fulcrum
 15 device hinged at the bottom of the casing

adapted to form a fulcrum-support for the
 bed in lowering the same and engaging a por-
 tion of the bed when raised to hold the bed in
 upright position and extending in front of the
 lower part of the bed.

In testimony whereof I have signed my
 name to this specification, in the presence of
 two subscribing witnesses, at Los Angeles, in
 the county of Los Angeles and State of Cali-
 20 fornia, this 18th day of March, 1904.

WILLARD C. JAMES.

In presence of—

A. P. KNIGHT,
 JULIA TOWNSEND.