

N. B. DOUGLASS.
WALL BED.

APPLICATION FILED DEC. 17, 1912

1,056,647.

Patented Mar. 18, 1913.

2 SHEETS—SHEET 1.

Fig. 1.

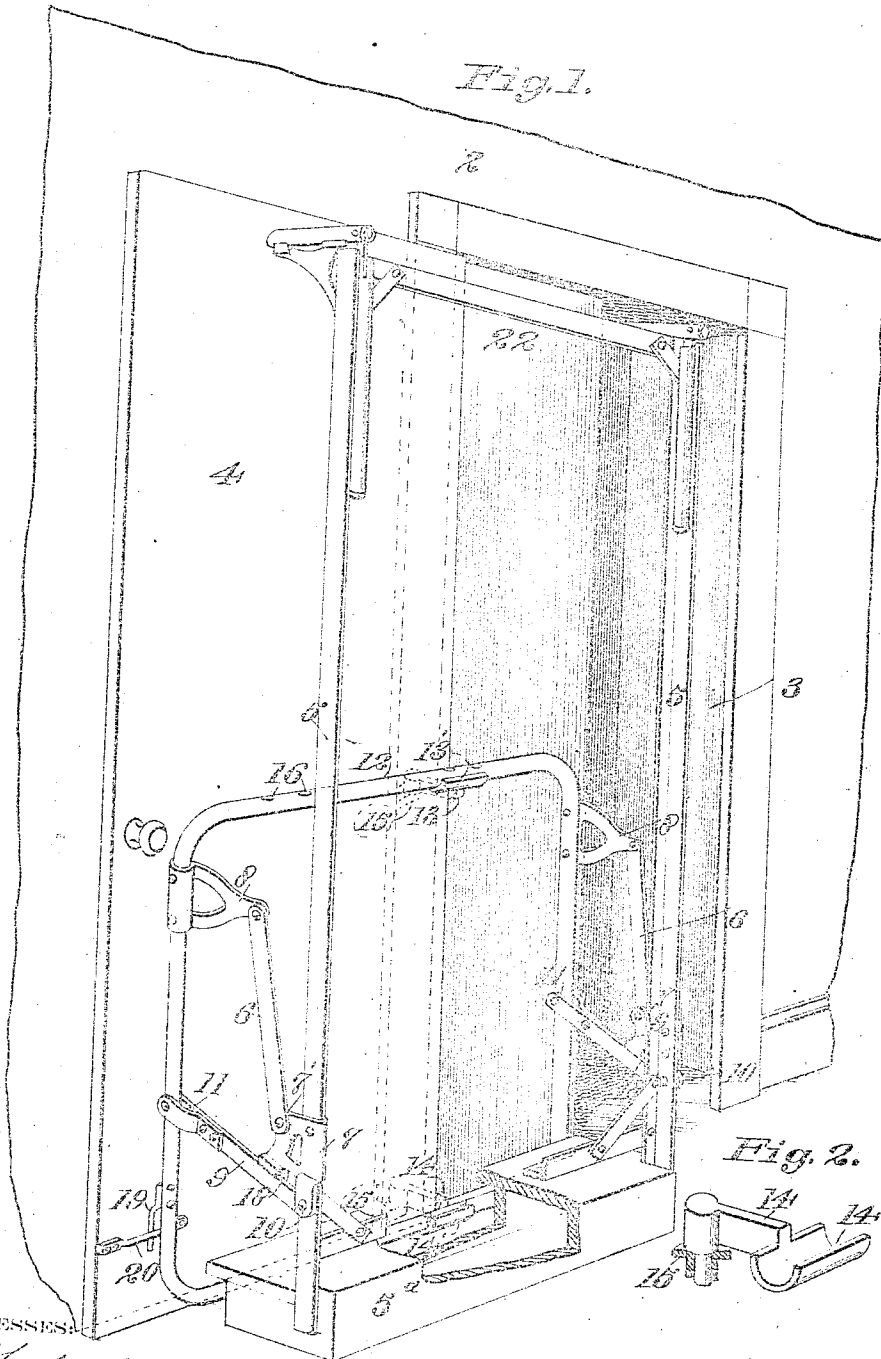
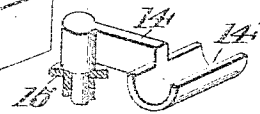


Fig. 2.



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2 SHEETS-SHEET 2.

Fig. 3.

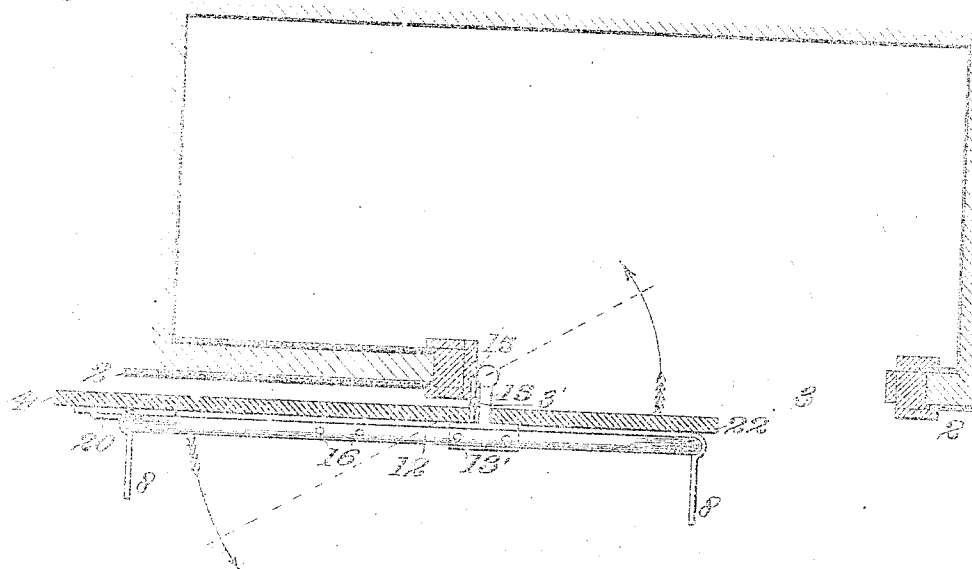
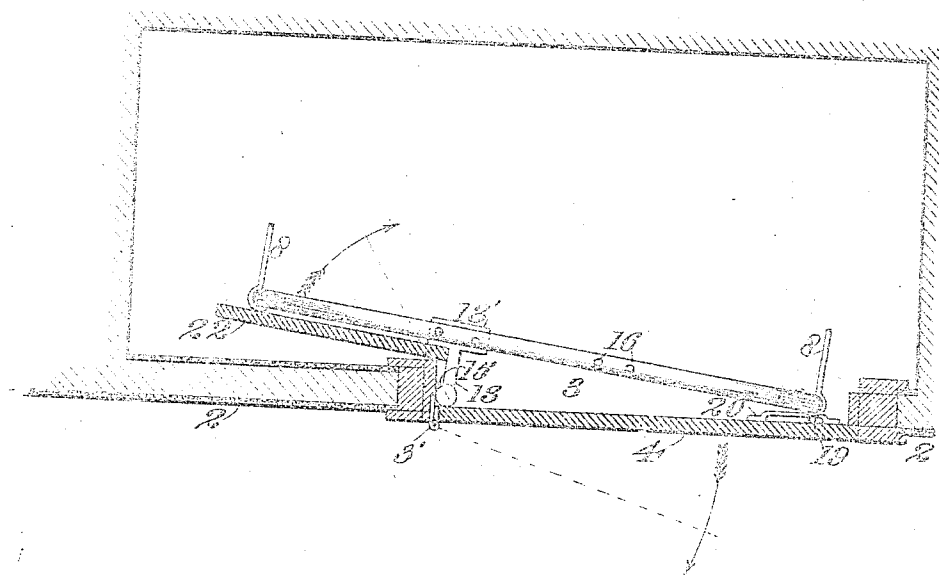


FIG. 4.



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UNITED STATES PATENT OFFICE.

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WALL-BED.

1,056,647.

Specification of Letters Patent.

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To all whom it may concern:

Be it known that I, NAPOLEON B. DOUGLASS, a citizen of the United States, residing at Berkeley, in the county of Alameda and State of California, have invented new and useful Improvements in Wall-Beds, of which the following is a specification.

This invention relates to wall beds, and pertains especially to a wall bed arrangement by which a full sized, double bed may be so mounted in a closet having a door of ordinary width, that this bed may be swung in and out of the closet without interference with or from the door or the door jambs.

One object of the present invention is to provide a wall bed designed to occupy a minimum amount of space and to eliminate as far as possible the number of parts in the bed construction and its carrying means, and in which construction no part of the weight of the bed, bed-frame or bed-supporting means is carried by the door or closet closure.

Another object is to provide a bed-carrying frame mounted upon bearings, whereby the frame may oscillate to carry a bed into or out of a closet, having a doorway of much less width than that of the bed; also to provide an interchangeable, bed-carrying frame adapted for either a right or left-hand door, and which may be readily applied in wall structures with doorways of different widths all without change of the frame or the requirement of special parts. This is a very important and novel feature.

It is a further object of the invention to provide a wall bed mounting, in conjunction with a counterweighted bed, having lever arms of short radius adapted to form a buffer and support for the bed when upright, in addition to their ordinary functions.

The invention consists of the parts and the construction and combination of parts as hereinafter more fully described and claimed, having reference to the accompanying drawings, in which—

Figure 1 is a perspective of the invention, with the bed folded upright and in the room. Fig. 2 is a detail perspective view of one of the lever arms of the carrying frame. Fig. 3 is a transverse horizontal section through a wall having a doorway, with the wall bed in front thereof. Fig. 4 is a

horizontal section showing the wall bed in reversed concealed position behind the wall.

In Fig. 1 is shown a fragment 2 of a wall, having a doorway 3, upon one of the jambs of which is hinged at 3' an ordinary stock door 4.

The present invention contemplates and provides a wall bed structure comprising a suitable type of bed-frame 5, preferably of metal, and wider than the door opening, and adapted to swing in and out of the recess. The bed-frame 5 is shown in vertical position in the several views. The bed-frame 5 is pivotally suspended by links 6, connected at one end to the bed-frame 5 by the detachable clamps 7; their other ends being connected to suitable brackets 8 which are detachably secured to the head-frame 12. Links 9 are connected at 10 to the bed-frame clamp 7, and at 11 to head-frame 12, which latter forms an important part of the present invention. Frame 12, which is pivoted on vertical pivots adjacent to the door butts or butt edge of the door, is preferably of a continuous piece of metal tubing and carries the bed-frame, and is adapted to swing about a vertical axis so as to carry the bed in and out of the closet or recess. This frame 12 and its bed-frame-hanging means are so constructed and arranged as to provide for a standardization of wall bed construction, whereby the same identical bed can be set up in openings of different widths and at either side of the opening, according to whether the bed-frame 5 and the door 4, with which it is associated, have to turn to the left or to the right. This is an entirely new idea in the wall bed business. Heretofore beds were made either right or left because in buildings it is not possible to have all doors turn the same way. Frame 12 is adjustably secured to the crank arms 13—14, having seats 13'—14' for the reception respectively of the upper and lower horizontal rail portions of the frame 12; each of these arms 13 and 14 being adapted for direct pivotal journaling in suitable bearings 15—15'. The journal 15' is preferably arranged in the floor adjacent to one of the door jambs of the wall 2. This lower journal receives and supports the lower crank arm 14, which carries practically the entire weight of the carrier frame and all of its load, while the upper crank arm 13,

with its journal 15, serves to maintain the frame 12 in a substantially vertical position; the journal 15 being in the door jamb and independent of the door 4.

In order that I may readily mount my wall bed upon either right or left-hand doors, I prefer to bolt, or otherwise detachably connect, the crank arms 13—14 to the horizontal members of the frame 12 so that I can, when necessary, adjust the frame 12 sidewise in one or the other of sets of bolt holes 16, formed in the upper and lower rails of the frame, and which sets are positioned near the opposite ends of the rails. The crank arms 13—14 are connected to frame 12 a sufficient distance to one side of the vertical center of the frame, so that the major portion of the frame beyond the arms 13—14 will just have sufficient clearance to allow the frame and bed to swing in and out of the closet opening.

The brackets 7 on the bed-frame 5 are attached a short distance from the head end of the bed to provide the right fulcrum against the counterweight 5^a. When the bed is in a vertical position, it is limited in its backward movement by a stop 18 on the underside of the brackets 7 which engage the links 9 when the bed is swung to a vertical position; with the center of gravity of the bed just inside the pivots 7'.

In order to cause the bed to turn with the door 4, I connect the carrier frame 12 with the adjacent edge of the door by suitable means, as the hook or equivalent device 19 on frame 12, and strap 20.

The crank arms 13—14, which are rigid with and at right angles to the head-frame 12, just clear the rear edge of the door 4. They are of such length that when the door is fully opened they allow the head-frame 12 to lie flat against the door 4; but as the door 4 is only approximately two-thirds the width of an ordinary double bed and its carrying frame 12, and as the frame 12 is usually less than one-half the height of the door, it is necessary to provide some sort of means for giving a finish to the back of the bed and head-frame when turned into the room, which finish shall give the appearance of a continuous panel or wall behind the bed. It is also important to make the entire structure as light and artistic as possible and avoid clumsy, cumbersome construction. To this end, I attach a panel 22 directly to the back of the bed-carrying frame 12 and toward the side edge thereof which is away from and is not against the door 4; this panel 22 gradually swinging into the plane and in continuation of and abutting edgewise against the door 4, when the latter has been opened against the wall to expose the bed ready for use. When the door 4 and panel 22 are thus brought into a common plane, they aggregate a width equal to or

greater than the overall width of the bed-carrying structure and bed, so that a neat and finished background or head structure is formed adjacent to the head of the bed when the latter is adjusted horizontally.

The door 4 is on one side of the crank arms 13—14, but no part of the bed structure is supported on door 4; while the panel 22 is on the opposite side of and abuts against the crank arms 13—14 and carried at all times on the frame 12. As the door 4 is closed, the panel 22 gradually moves out of the plane of the door 4 until, when the door is fully closed, the panel 22 stands behind the wall in the closet and in a plane nearly parallel with, but considerably removed from, the door 4. It is the cooperation of the rigid arms 13—14, frame 12, door 4, and panel 22 that forms a combination and mechanical movement novel and peculiar in the wall bed business and has resulted in increased economy of manufacture and reduction of space necessary for manipulation; two important considerations in apartment house construction.

When the bed is in the closet, as in Fig. 4, access may be had to the interior of the closet by simply opening the door 4 sufficiently to permit a person to pass into the closet. When the bed is arranged in exposed position, with the door 4 opened, as in Fig. 3, ingress and egress is provided around the edge of the panel 22 and the opposite door joist.

In practice these folding beds are made up in standard sizes, usually double width. They will go in any ordinary sized opening and with any ordinary door. If a door is hung to open from right to left, as in Fig. 1, then the bed is hung in the manner therein shown. If the door happens to be hung to swing in the opposite direction, then the head-frame 12 is simply turned around and the brackets 8 and links 9 clamped on the other side of the head-frame.

One of the great features of this invention, as far as the bed construction is concerned, is the interchangeability and its adaptability to different conditions of use. The arrangement of the stops 18 is also an important matter as it saves the marring of the door and panel by preventing the foot rail of the bed-frame from swinging back against the woodwork.

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

1. In a wall bed, the combination with a wall having an opening therethrough, of a pair of crank arms journaled at one side of the opening, a head-frame supported by said crank arms, said head-frame and crank arms constructed and arranged so that the head-frame may be connected to the crank arms at different distances from the center thereof

or can be reversed and connected thereto, and a bed-frame having suspending links and brackets, said suspending links and brackets constructed and arranged to be attached to either front or back of said head-frame, according to which side of the head-frame is outermost.

2. A wall bed having a head-frame, means for hanging it to swing from side to side about vertical pivots, a bed-frame, upper and lower links supporting the bed-frame on the head-frame to enable the bed-frame to be moved from a horizontal to a vertical position, or vice versa, and stops on the bed-frame coacting with one set of links to limit the vertical swinging movement of the bed-frame.

3. In a wall bed, the combination of a head-frame, means for mounting the head-frame to swing about vertical pivots, brackets secured to the head-frame, suspending links carried by the brackets, a bed-frame hung from said links, a second pair of links which have one end connected to the head-frame below said brackets and their other end pivoted below the first mentioned links to the bed-frame, and stops carried by and extending rearwardly of the bed-frame engageable with the second set of links when the bed is turned into upright, vertical position.

4. In a wall bed, the combination of a head-frame made of a continuous piece of metal tubing, crank arms having pintles at one end for engagement in suitable bearings, means for supporting the head-frame on said crank arms to turn about said pintles as a vertical pivot, brackets interchangeably and reversibly connected to the side members of said head-frame, a folding bed frame, suspending links pivotally connected to said brackets on the head-frame and pivoted to the bed-frame, and a set of interchangeable and reversible links detachably pivoted to the side portions of the head-frame and also pivoted to the bed-frame.

5. In a reversible wall bed, the combination with a recess having an ordinary door closure therefor, of a bed considerably wider than the closure pivoted to the side of the opening adjacent to the door butts but independent of the door, said bed including a head-frame, the pivots of said bed being intermediate the sides of the head-frame, said head-frame extending over the major portion of the door having a part projecting considerably beyond the butt edge of the door, said frame carrying a panel which is substantially the same height as the door, said panel and door constructed and arranged whereby, when the door and head-frame are swung into the room and substantially parallel with the wall, said panel and door will lie in the same plane and in substantial continuation of each other, and when the door is closed and the head-frame is in the closet, the panel and door will stand in different planes.

6. In a wall bed, the combination of a door hinged at one edge, a bed-carrying frame pivoted between its side edges on vertical pivots adjacent to the door hinges and independent of the door, one side of said frame extending over the door and the other side of the frame carrying a vertical panel, said door and panel constructed and arranged whereby, when the door is opened substantially parallel with its opening and said frame is turned into parallelism with the door, said panel will lie in substantial continuation of said door, and when the parts are reversed through an arc of 180° said panel and door will stand in different planes.

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

NAPOLEON B. DOUGLASS.

Witnesses:

W. W. HEALEY,
ZOE HARRISON.