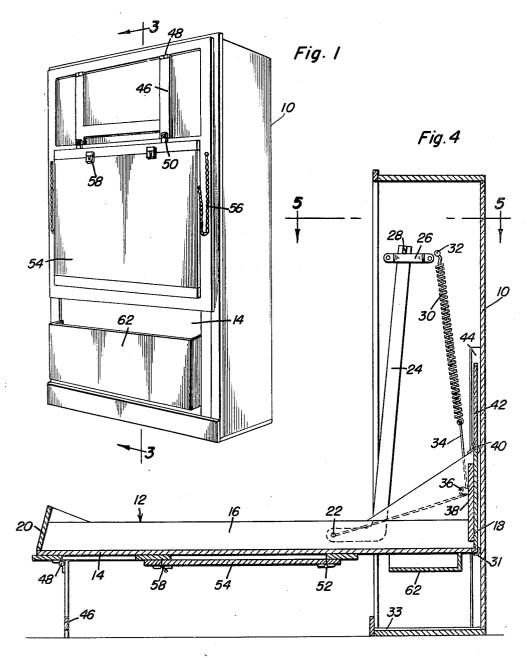
FOLDING WALL BED

Filed May 11, 1950

3 Sheets-Sheet 1

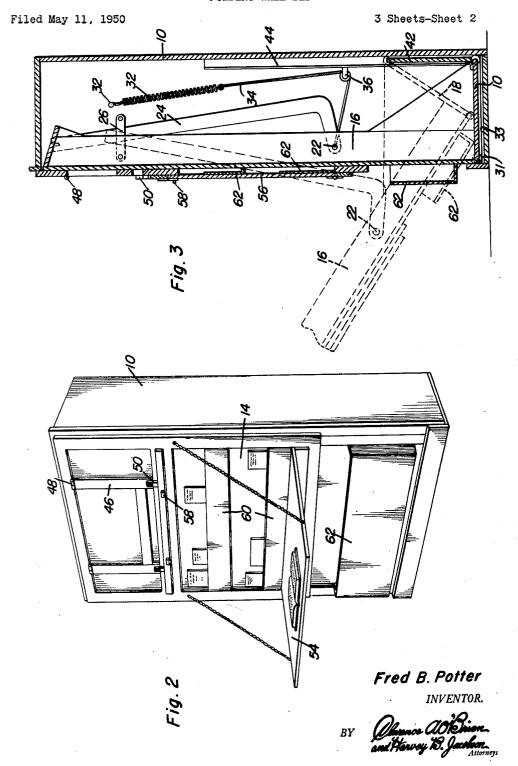


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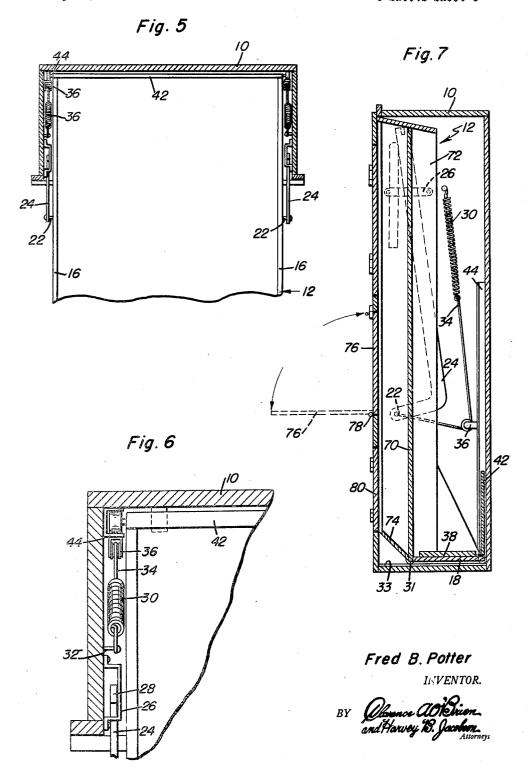
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3 Sheets-Sheet 3



## UNITED STATES PATENT OFFICE

2,671,230

## FOLDING WALL BED

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2 Claims. (Cl. 5-141)

1

This invention comprises novel and useful improvements in a student wall bed and desk, and more specifically pertains to an article of furniture combining the functions of a foldable bed and a desk or wardrobe.

The primary object of this invention is to provide an improved article of furniture which shall be capable of efficiently and compactly functioning as a folding bed in conjunction with a desk

An important object of the invention is to provide a folding bed which shall have improved means whereby a bed frame may be pivotally mounted in an enclosing housing selectively in a vertical folded position or in a horizontal open 15 position.

Yet another object of the invention is to provide an improved folding bed in conformity with the preceding object which shall have an improved and more easily actuated mechanism for 20 effecting the folding movements of the bed frame.

A still further important object of the invention is to provide a folding bed construction as set forth in the foregoing objects which shall have incorporated into the bed frame a student's 25 desk and a magazine rack.

Yet another important object of the invention is to provide an improved article of furniture which shall include a folding bed having incorporated therein provision for storing and the like 30 whereby the bed frame may function as part of a wardrobe, a desk, or the like.

These, together with various ancillary features and objects of the invention, which will later become apparent as the following description pro- 35 ceeds, are attained by the present invention, a preferred embodiment of which has been illustrated, by way of example only, in the accompanying drawings, wherein:

ment of furniture incorporating the principles of this invention therein, this figure illustrating the folding bed in its stored position and with the desk in its closed position;

Figure 2 is a perspective view of the embodi- 45 ment of Figure 1, but showing the desk in its open position;

Figure 3 is a vertical transverse sectional view taken substantially on the plane indicated by the section line 3-3 of Figure 1 and illustrating 50 essary. in full line the position of the parts in the closed arrangement of the device, and in dotted lines indicating a partially opened position of the bed frame and the associated mechanism thereof;

taken substantially upon the plane indicated by the section line 3-3 of Figure 1 but illustrating the bed in its open position;

Figure 5 is a horizontal sectional view taken substantially upon the plane indicated by the section line 5-5 of Figure 4;

Figure 6 is a fragmentary detail view upon an enlarged scale of a portion of the mechanism shown in Figure 5; and

Figure 7 is a view similar to Figure 3 but showing the bed frame having a wardrobe or storage space incorporated therein.

Referring now more specifically to the accompanying drawings, wherein like reference numerals designate similar parts throughout the various views, attention is directed first to the embediment of Figures 1-6, wherein there is disclosed, solely for the purpose of illustrating the principles of the invention applied to one satisfactory embodiment, a combination foldable bed and desk and magazine rack associated therewith.

The embodiment disclosed in the drawings includes a housing is in the form of a vertically disposed casing 10 in the form of a wardrobe chest or the like, which may either be constructed as a separate article of furniture and adapted to be independently positioned in or moved about the interior of a room as desired, in the manner of wardrobe chests, or may constitute a frame or casing which may be built into the walls or other suitable portions of buildings. In any event, the housing 10 constitutes a recess for selectively receiving in stored position or supporting in open position the foldable bed assembly.

The bed assembly consists of a bed frame indicated generally by the numeral 12 which may be of any suitable design and which includes a bottom wall 14 together with a pair of side walls 16, a headboard 18 and a foot board 29. The bottom Figure 1 is a perspective view of one embodi- 40 wall 14, in the closed position of the bed, as shown in Figure 1, constitutes a closure for the open front of the housing or casing 10, and serves to support thereon a folding desk and a magazine rack as set forth hereinafter.

Suitable springs, mattresses or the like are adapted to be mounted upon the supporting frame 12 in any desired manner, but since the same, in itself, constitutes no part of the present invention, illustration thereof is deemed to be unnec-

The supporting frame 12 is supported and mounted within the housing !0 for pivoting and swinging movement relative thereto, by means of a mechanism to be now described. Pivotally Figure 4 is a vertical transverse sectional view 55 connected to the side board 18 of the bed frame

12. intermediate the ends of the latter, as by pivot pins 22, are the extremities of a pair of L-shaped supporting links 24, the upper ends of these links being vertically and horizontally slidable between a pair of horizontally extending support brackets 26 which are secured to the inner sides of the side walls of the housing 10. At their uppermost extremities, the supporting links 24 may be provided with laterally extending portions 28 which rest upon and are supported by the upper surfaces of the brackets 26. It will thus be seen that by these supporting links 24, the bed frame 12 may be pivotally mounted and supported in either the vertical stored position of the bed, as shown in full lines in Figure 15 3, or in the horizontal open position of the bed as shown in Figure 4.

At the edge where the headboard 18 and the bottom 14 meet there are mounted, on opposite sides of the bed, castors or rollers 3! of any desired known construction which extend from the adjacent surfaces of these members and support the weight of the bed upon metallic strips 33 forming tracks in the bottom of the cabinet. The rollers and tracks thus relieve the members 22, 25 24, 26, 28 from the weight of the bed during the completely folded or substantially folded positions of the bed.

In order to facilitate the movement of the bed between its vertical, stored position and its horizontal, opened position, a resilient means is provided consisting of a pair of tension springs 30, each having its upper end secured, as at 32, to the side wall of the housing 10, and having a cable 34 attached to their lower extremities, this 35 cable being entrained over a guide pulley 36 and having its extremities secured to the above-mentioned pivot pin 22. The pulley 36 is in turn suitably mounted upon any desired portion of the housing 10, as upon the back wall of the same adjacent the sides. The arrangement is such that the springs 30 will yieldingly maintain the bed in either its completely folded and vertical position, or in its fully opened and horizontal position, as will be apparent from Figures 3, 4 and 7. 45

Secured to the headboard 18 is a counterbalance weight 38, which may be of any desired construction such as a flat metal plate of any desired mass, this counterweight being intended to balance about the pivot pin 22 the mass of 50 bedding or the like disposed upon the bed frame 12 upon the other side of the pivot pin. By this means, the supporting bed frame 12 will be more evenly balanced about its supporting pivot pins 22 so that the same may be more readily moved 55to its open or closed position.

Hingedly connected as at 40 to the upper end of the headboard 18 is a slide or guide 42 which may conveniently comprise a plate extending across substantially the entire width of the housing 10, the same being retained in vertically disposed angle iron members or the like 44 which constitute vertical slides and guides.

These guides 44, one disposed upon each side of the housing 10, and preferably being secured to the back wall of the same, retain the slide 42 and confine the same for vertical sliding and guided movement. By virtue of the hinge connection 40, the headboard 18 is thus retained in vertically guided position. The proportions of 70the parts are such that when the bed is in its closed position, as shown in full lines in Figure 3. the slide 42 will be at the bottom of the guides 44, and will thus rest upon the bottom of the hous-

the bottom wall of the housing. However, as the bed is opened by having its upper portion pulled outwardly and downwardly from the housing 10, the pivoting movement about the pivot pins 22 will cause the slide 42 to move upwardly within the guides 44, until the bed frame 12 assumes the horizontal position shown in Figure 4. At this time, the headboard 18 will be in a vertical position and abutted against the back wall of the 10 housing 10, with the frame 12 disposed in horizontal position and its weight carried by the pivot pin 22.

During this pivoting movement of the bed frame, it will of course be apparent that the supporting links 24 will be pivoted from their position entirely within the housing 10 in the closed position of the bed to a position extending slightly outwardly of the housing as shown in Figure 4 in the open position of the device.

Adjacent its upper and outer end, the bottom wall 14 of the bed frame is provided with a hinged leg assembly 46, the same being hinged, as at 48, to the bottom wall 14. By means of latches 50. the legs may be selectively retained in their folded position flat against the bottom wall 14 when the device is in its stored position, or may be selectively opened to constituted supporting legs when the device is open as shown in Figure 4.

Hinged as at 52 to the bottom wall 14 is a shelf 54 having a supporting chain 56, whereby the shelf may be firmly retained in its opened position, as shown in Figure 2. A pair of latches 59 serve to secure the shelf in folded position. As shown in Figure 2, when the foldable bed in is the stored position, the shelf may be opened to provide a student's desk or the like, and suitable racks 60 may be provided in a conventional manner upon the bottom wall 14 behind the shelf 54.

Secured to the bottom wall 14 and in a convenient position below the shelf 54 when the latter is in its opened position, is a magazine rack or the like 62 of any desired character.

Alternatively, as disclosed in Figure 7, a wardrobe or a cabinet or storage space may be provided upon the bed frame. As shown in Figure 7, the construction of the housing 10 may be identical with that previously described, as likewise may be the construction of the springs 30, the cables 34, pulleys 36, supporting links 24, guides 44, slide 42, headboard 18, counterweight 38, support brackets 26, and pivot pins 22. However, the bed frame 12 is of slightly modified construction, the same having a bottom wall 70 from which extend side walls 72 between which is defined a bed, and depending walls 74. The space between the bottom wall 70 and the depending walls 74 constitutes a cabinet, wardrobe or storage space which is disposed in a vertical position when the bed is in its folded position as shown in Figure 7. Access to this space may be obtained by folding panels 76, hinged, as at 78, to an outer or closure wall 80 which is secured to the outer ends of the depending wall 74, this closure wall 80 constituting an outer closure for the housing 10 in the closed position of the device.

From the foregoing, the construction and operation of the combination bed will be readily understood, together with its many advantages. and further explanation is believed to be unnecessary. However, since numerous modification and changes will readily occur to those skilled in the art after a consideration of the foregoing specification and accompanying drawing 10, while the headboard 18 will rest flat upon 75 ings, it is not desired to limit the invention to 5

the exact construction shown and described, but all suitable modifications and equivalents may be resorted to, falling within the scope of the appended claims.

Having thus disclosed and described the inven-  $^{5}$ tion, what is claimed as new is as follows:

1. A folding bed construction comprising a housing including side walls and a bottom, a bed frame, support means pivoted to said bed frame intermediate its ends and to said housing and 10 supporting said frame for selective vertical positioning in said housing and horizontal positioning extending therefrom, vertically extending guide members mounted on said side walls, a upper and lower ends of said headboard and engaging the bottom of said housing when the bed frame is in its vertical position and engaged in said guide members when the bed frame is in cluding links pivoted at one of their ends to the sides of the bed frame and extending upwardly adjacent and parallel to the side walls of the housing, said links having laterally extending lugs at their upper ends, guide brackets mounted 25 on the upper portions of said side walls and slidingly and pivotally receiving the upper portion of said links the laterally extending lugs on said links engaging said brackets when the bed frame is in its horizontal position, said links and brack- 30 ets constituting a supporting frame for the head of said bed frame when the same is in its horizontal position, and means for facilitating swinging of the bed frame from its vertical to its horizontal position, said last means including springs secured at one of their ends to said housing, a cable extending from the other end of each spring and being secured to the pivotal connection of one of said links to the bed frame, said springs and cables serving to counterbalance 40 the weight of the bed frame as the position of the same is changed, with the tension on the spring being greater when the bed frame is in a horizontal position than when the frame is in a vertical position.

2. A folding bed construction comprising a housing including side walls and a bottom, a bed frame, support means pivoted to said bed frame intermediate its ends and to said housing and supporting said frame for selective verti- 50

cal positioning in said housing and horizontal positioning extending therefrom, vertically extending guide members mounted on said side walls, a headboard on said bed, rollers secured to the upper and lower ends of said headboard and engaging the bottom of said housing when the bed frame is in its vertical position and engaged in said guide members when the bed frame is in its horizontal position, said support means including links pivoted at one of their ends to the sides of the bed frame and extending upwardly adjacent and parallel to the side walls of the housing, said links having laterally extending lugs at their upper ends, guide brackets headboard on said bed, rollers secured to the 15 mounted on the upper portions of said side walls and slidingly and pivotally receiving the upper portion of said links, the laterally extending lugs on said links engaging said brackets when the bed frame is in its horizontal position, said links its horizontal position, said support means in- 20 and brackets constituting a supporting frame for the head of said bed frame when the same is in its horizontal position, and means for facilitating swinging of the bed frame from its vertical to its horizontal position, said last means including springs secured at one of their ends to said housing, a cable extending from the other end of each spring and being secured to the pivotal connection of one of said links to the bed frame, guide pulleys mounted within said housing, said cables being entrained over said guide pulleys, said springs and cables serving to counterbalance the weight of the bed frame as the position of the same is changed, with the tension on the spring being greater when the 35 bed frame is in a horizontal position than when the frame is in a vertical position.

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