May 18, 1926. 1,584,978

G. F. CANE ET AL

FOLDABLE BED CONSTRUCTION

Filed Nov. 18, 1920 2 Sheets-Sheet 1

Fig. 1

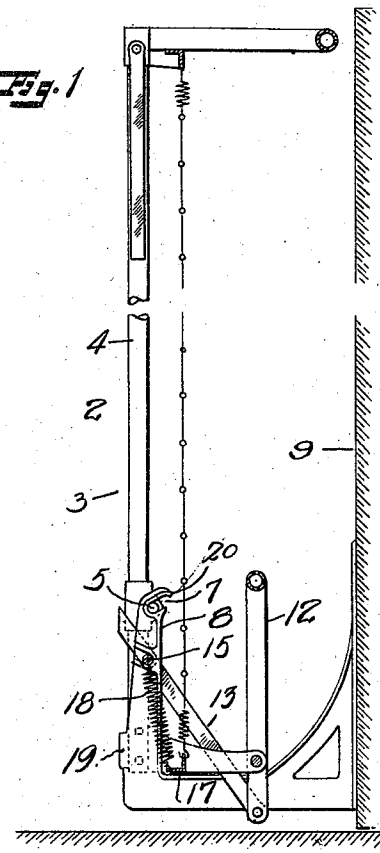
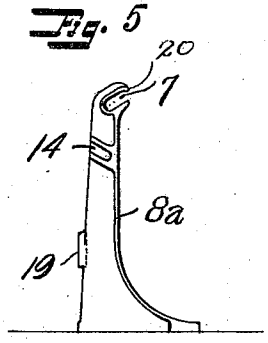


Fig. 5



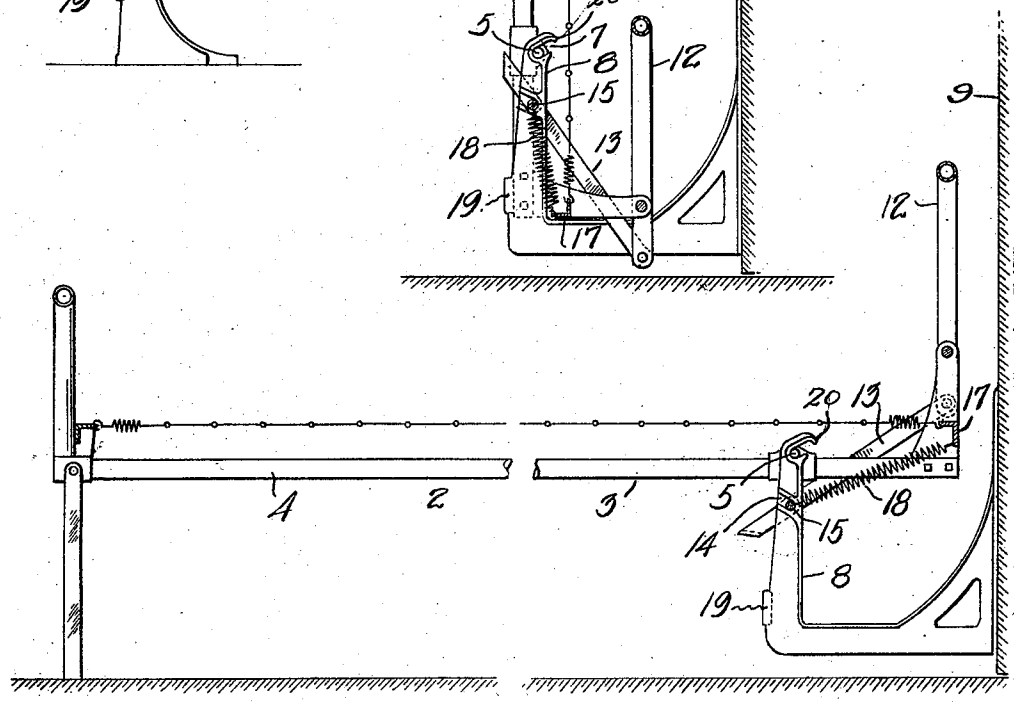


Fig. 2

WITNESS
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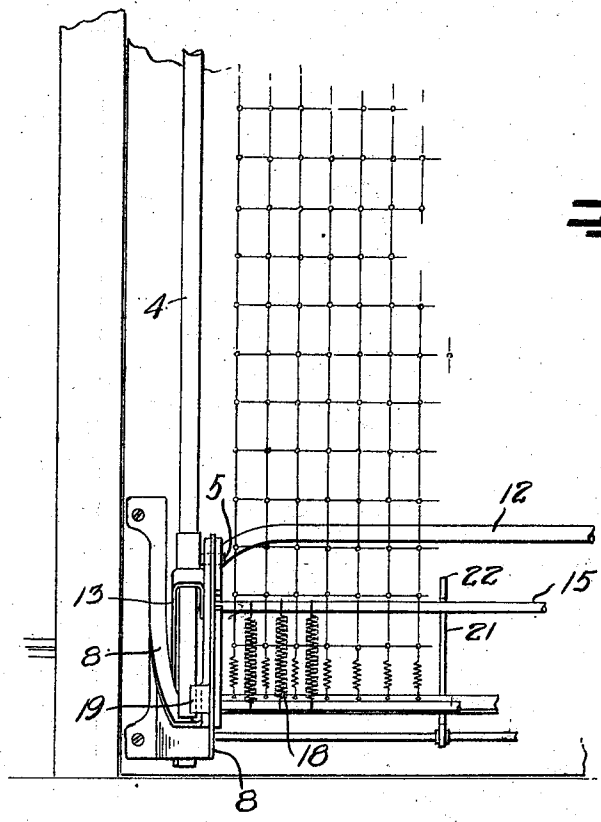


Fig. 3

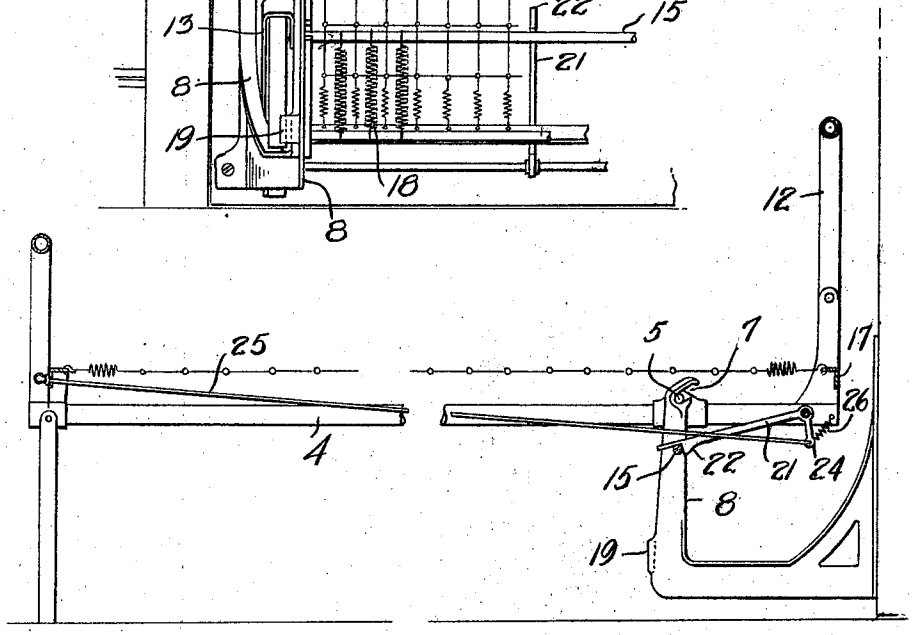


Fig. 4

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Patented May 18, 1926. 1,584,978

UNITED STATES PATENT OFFICE.

GORDON F. CANE AND ARTHUR C. WHEELOCK, OF OAKLAND, CALIFORNIA.

FOLDABLE BED CONSTRUCTION.

Application filed November 18, 1920. Serial No. 424,880.

The invention relates to the construction of foldable or wall beds and particularly to the type whose bed frame is pivoted for movement about a horizontal axis whereby the bed may be swung from a horizontally disposed position capable of being occupied, to a vertically disposed inoperative position so as to be readily concealed.

An object of the invention is to provide a foldable bed in which the head board is caused to maintain a vertically disposed position in each of the various positions of the bed.

Another object of the invention is to provide a bed of the type described in which is eliminated the danger of fracturing the main pivotal connection of the bed members such as when the bed frame is allowed to approach its inoperative position too forcibly.

A further object of the invention is to enable the various parts of the bed to be readily assembled or disassembled.

A still further object of the invention is to cause the bed to become automatically locked in its operative position so that unless the locking member is released it will be impossible to raise the bed.

The invention possesses other objects and features of advantage, some of which, with the foregoing, will be set forth in the following description of the preferred form of our invention which is illustrated in the drawings accompanying and forming part of the specification. It is to be understood that we do not limit ourselves to the showing made by the said drawings and description, as we may adopt variations of the preferred form within the scope of our invention as set forth in the claims.

Referring to said drawings:

Figure 1 is a vertical longitudinal section of the bed in its inoperative position.

Figure 2 is a similar view of the bed showing it in its operative position.

Figure 3 is a front view of one of the lower corners of the bed in its inoperative position.

Figure 4 is a view similar to Figure 1 showing the locking members, various parts of the bed structure being omitted for the purpose of clearness.

Figure 5 is a side elevation of a slightly modified form of one of the bed supports.

Briefly expressed the bed as here shown comprises a pair of supports adjacent the head end of the bed, a bed frame pivotally mounted on said supports for movement about a horizontal axis; counter-balancing means connected to said frame and supports, a head board pivoted to the frame, means for maintaining the head board in a perpendicular position in the various positions of the bed frame, means for locking the bed in its operative position, and means for enabling the bed frame to move a short distance longitudinally with respect to the supports.

A detailed description of the present embodiment of the invention follows:

As here shown the bed structure 2 comprises a bed frame 3 having tubular side rails 4 which are provided adjacent the head end of the bed with pivots 5 that are arranged to engage in open slots 7 formed in a pair of brackets or supports 8. The supports 8 may be either secured to a door or panel 9 or the like so that the bed may be concealed in a closet, or they may be simply secured to the floor, the support 8ª shown in Figure 5 being particularly adapted for the latter arrangement.

With the bed frame pivoted to the supports in the manner described, it may be readily swung from the horizontal operative position shown in Figure 2 to the perpendicular inoperative position shown in Figure 1, or vise versa. Pivotally connected intermediate its ends to the bed frame 3 is a head board 12 which in the present form of the invention is adapted to be maintained in a perpendicular position in the various positions of the bed frame. Connecting the lower end of the head board to the support 8 is a link 13 whose points of connections with said board and support is spaced equidistant from the frame pivot and the board pivot respectively. In this manner the head board will be vertically disposed regardless of which position the frame may happen to be in.

Arranged in recesses 14 formed in the supports 8, is a cross rod 15 whose axis is preferably common to that of the connecting point of the link 13. Secured at one end to the rod 15 and at the other end to the angle-iron cross member 17, are springs 18 for balancing the bed in its various positions. It will thus be noted that the various bearings and seats on the supports are formed open thereby not only enabling the bed parts to be readily assembled, but allowing the bed to be quickly taken apart if necessary.

Means are provided for allowing the bed frame to move longitudinally of the supports for a short distance when the frame reaches its normal perpendicular position, that is, in case the frame is caused to approach its inoperative position with unwarranted force or roughness—which act might cause that portion of the support adjacent the bearing for the frame pivot to break. In accordance with the foregoing the said bearing for the frame pivot as hereinbefore stated is in the form of a slot. The longest face of the slot is on the upper side and it preferably slopes upwardly in the direction of the head end of the bed. When the frame approaches its perpendicular position the springs 18 force the frame pivot against the upper face of the slot, so should the force be such that when the frame assumes its normal position the head end abuts very forcibly against the stop 19, the pivot will ride tightly against the upper face of the slot and thus produce a cushioning effect a bill 20 being formed at the outer extremity of said upper face so that the pivot will be prevented from jumping out of the slot. As soon as the tension is relieved the frame will move back and the pivot will be permitted to lie at the base of the slot.

Means are also provided for preventing the frame from being raised while it is in position for use. Preferably pivoted to the head end of the frame in a plane below the frame pivot is a bell crank lever 21 which has one of its ends 22 arranged to be supported on and pressed against an abutment here shown as the cross rod 15. On account of the positions of the frame and lever pivots, upward movement of the frame adjacent the foot portion of the bed tends to force the end 22 of the lever directly against the rod 15, thus preventing any appreciable movement of the foot end of the frame until the end 22 is raised above the rod. As here shown the other end 24 of the lever is conveniently connected to a readily accessible portion of the bed by means of a cord 25 so that when it is purposely desired to raise the frame it is merely necessary to pull on the cord. After the end 22 is raised above the rod further movement of the frame will enable the non-locking portion of the lever due to the spring 26 to rest upon the rod, so that the cord may be released; however when the frame resumes its horizontal position the lever automaically assumes its locking position.

It will be noted by referring to Figure 3 that the support 8 converges toward the foot end of the bed and that in the inoperative position of the bed the supports 8 lie within the bed structure adjacent that portion more remote from the door or panel upon which the bed may be hung, whereas the supports lie without that portion of structure in proximity to the door. This feature is of considerable importance since if the bed as a whole is mounted to swing on a vertical axis adjacent the rear of the head board a bed of maximum width may be moved through an arc of a given radius.

We claim:

1. In a bed of the class described, a fixed support at the head of the bed, a bed frame pivotally mounted intermediate its ends on said support about a horizontal axis, a vertically disposed head board pivotally connected intermediate its ends to said frame, and a link connected to said support and board and having its points of connection therewith spaced below and substantially equidistant from the frame pivot and the board pivot respectively.

2. In a bed of the class described, a support adjacent the head end of the bed provided with a slot, extending toward said end, a bed-frame provided with a pivot intermediate the ends thereof, adapted when the bed is positioned in normal horizontal or normal vertical position to engage the end of said slot most remote from said head end and capable when said frame is in its normal vertical position of being moved toward the end of said slot less remote from said head end, and a spring tending to press said pivot against the upper bearing surface of said slot.

3. A foldable bed comprising a support adjacent the head end thereof provided with upper and lower recesses sloping upwardly in the direction of the head and foot end of the bed respectively, a bed frame provided with a pivot intermediate its ends arranged in said upper recess, a cross rod engaging in said lower recess, a counter-balancing spring connected to said rod and the head end of said frame, a head board pivoted to said frame, a link connected to said board and said support and arranged to maintain said board in a vertically disposed position in the various positions of said frame.

4. In a foldable bed, a pair of supports adjacent the opposite sides of and diverging toward the head end of the bed, and a bed-frame pivoted to said supports and provided with side rails arranged to lie within the divergent ends of said supports and without the convergent ends thereof.

5. In a bed of the class described, a bed frame, a supporting frame therefor, a pivot fixed to one of said frames, a bearing surface on said other frame and with which said pivot is arranged to normally engage whereby said bed may be moved from a horizontal to up-ended position, a braking surface for cooperation with said pivot, and a spring arranged to urge disengagement of the pivot with said bearing surface and engagement with the braking surface when the bed is moved to up-ended position.

6. In a bed of the class described, a bed frame, a supporting frame having associated bearing and braking surfaces, a pivot on said bed frame arranged to rotate on said bearing surface and to move transversely from said bearing to and over said braking surface, a spring urging said transverse movement of the pivot, and means to substantially limit said movement of the pivot adjecent the outer end of said braking surface.

In testimony whereof, we have hereunto set our hands at Oakland, California, this 2nd day of November, 1920.

G. F. CANE.
ARTHUR C. WHEELOCK.