P. J. DE DOES.

FOLDABLE BED FRAME.

APPLICATION FILED NOV. 8, 1916.

1,348,156. **Patented Aug. 3, 1920.**

Fig. 1.

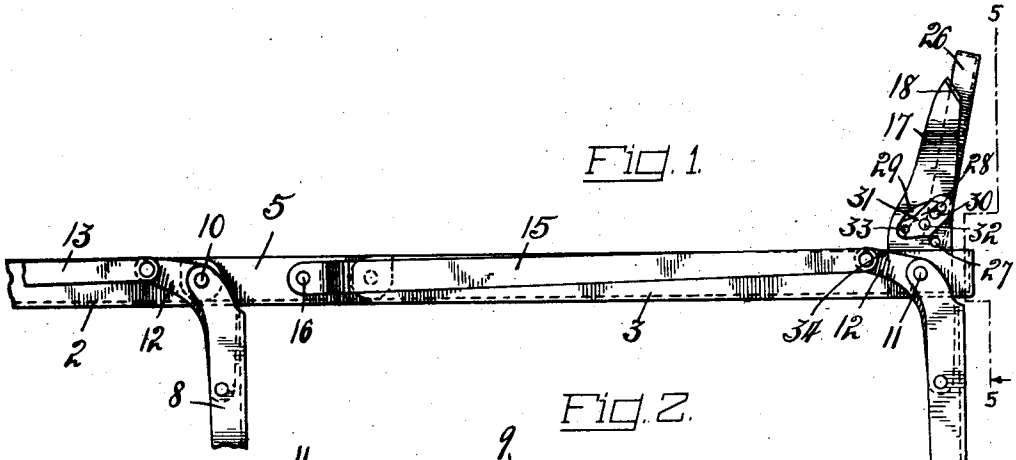


Fig. 2.

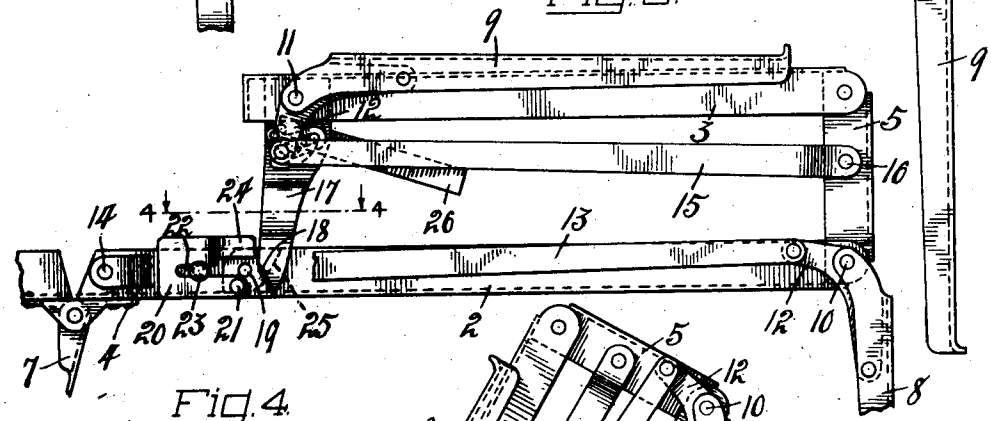


Fig. 4.

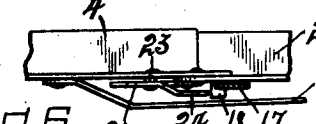


Fig. 6.

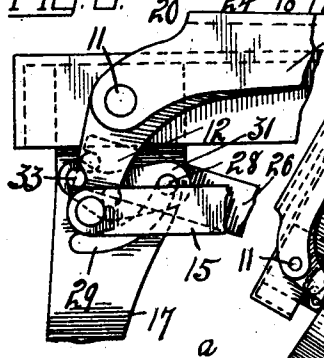


Fig. 3.

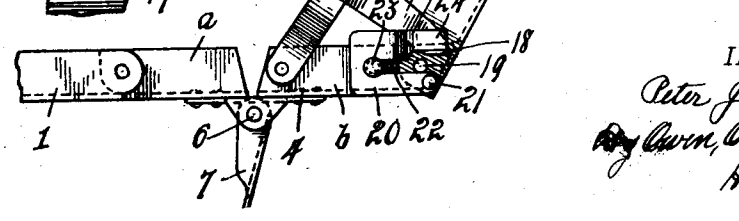
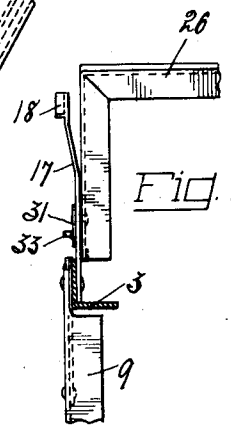


Fig. 5.



INVENTOR

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UNITED STATES PATENT OFFICE.

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FOLDABLE BED-FRAME.

1,348,156. Specification of Letters Patent. Patented Aug. 3, 1920.

Application filed November 8, 1916. Serial No. 130,269.

To all whom it may concern:

Be it known that I, PETER J. DE DOES, a citizen of Holland, and a resident of Toledo, in the county of Lucas and State of Ohio, have invented a certain new and useful Foldable Bed-Frame; and I do hereby declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the characters of reference marked thereon, which form a part of this specification.

This invention relates to foldable bed frames, and particularly to those employing a plurality of major bed frame sections foldable one over the other lengthwise of the bed and of the type commonly employed in connection with sofa beds.

The primary objects of my invention are, first, to provide improved, simple and efficient means which is automatically operable to lock certain of the bed frame sections in folded relation upon a folding of the bed frame, and to release such sections upon an unfolding of the bed frame; and, second, to provide simple and efficient means for automatically locking the foot-piece of the bed frame in folded position when the bed frame is folded and releasing the same when the bed frame is unfolded.

The invention is fully described in the following specification, and while, in its broader aspect, it is capable of embodiment in numerous forms, a preferred embodiment thereof is illustrated in the accompanying drawings, in which,

Figure 1 is a side elevation of the outer end portion of a bed frame in unfolded position embodying the foot-piece locking means of my invention. Fig. 2 is a side elevation of a bed frame embodying both features of my invention with parts broken away and with the two outer major sections folded one over the other. Fig. 3 is a similar view of the bed frame with the two outer folded major sections raised to the limit of their folding movement relative to the next adjoining minor or spacing section and with said major sections locked in folded relation. Fig. 4 is a section on the line 4—4 in Fig. 2. Fig. 5 is a section on the line 5—5 in Fig. 1, and Fig. 6 is an enlarged fragmentary view of the foot-piece locking means as it appears in Fig. 2.

The bed frame with which my invention is associated comprises, in the present instance, the inner, intermediate and outer major sections 1, 2 and 3, respectively, the jointed spacing section 4, which foldably connects the adjacent ends of the major sections 1 and 2, and the spacing section 5, which foldably connects the adjacent ends of the sections 2 and 3. The several sections are pivoted together in successive order to adapt the major sections to be successively folded one over another in spaced relation with the minor sections serving as a spacing means therefor, as is well understood in the art.

The inner section 1 of the bed frame is carried by any suitable support, which, when the bed frame is used in connection with a sofa bed, may comprise the sofa frame, or the revoluble seat frame thereof, if the sofa frame is of the revoluble seat type. As the manner of mounting the inner bed frame section forms no part of the present invention, the same is not shown or described. The spacing section 4 in the present instance, comprises the two pivotally connected parts *a* and *b*, the connecting pivot 6 of which is carried by a bearing standard 7 at each side of the frame. This standard may project from the sofa frame or other supporting means with which the bed frame is associated. When the bed frame is in unfolded position the parts of the spacing section 4 stand in alined horizontal position, and when the bed frame is folded said parts are permitted to have limited relative folding movements until the adjacent ends of their alined side flanges move into abutment, as is apparent. It makes no difference, however, so far as the operation of the section locking means of my invention is concerned, whether the spacing section 4 is of single piece or double piece jointed construction, as shown, and the spacing section 4 will therefore be hereinafter referred to the same as though it was of single piece construction.

Legs 8 and 9 are foldably attached to the outer ends of the sections 2 and 3, respectively, for supporting the outer end portion of the bed frame when in unfolded position. Said legs have the frame pivots 10

and 11, respectively, and each, when in upright position, has the arm 12 projecting from its pivot lengthwise of the bed frame toward the inner end thereof, with the arm of the leg 8 connected by a bar 13 to the spacing section 4, as at 14, and with the arm of the leg 9 connected by a bar 15 to the spacing section 5, as at 16.

It is evident that upon a folding of the respective sections 2 and 3 with relation to their respective adjoining sections 4 and 5 the control bars 13 and 15 will be operated to effect folding movements of the legs with respect to the major sections, as shown in Fig. 3. It is also evident that the legs will be automatically unfolded when the sections carrying the same are unfolded with respect to the spacing sections disposed at their inner ends.

The bed frame section 3 is provided at its outer end at each side thereof with an arm 17, which, in the present instance, rigidly projects upward from the respective side of the frame section, when such section is in unfolded position, as shown in Fig. 1, and terminates at its outer end in a transversely extending lip 18, which projects outward with respect to the associated bed frame side. The outer ends of the arm 17 are sprung outward, as shown at Fig. 5, to adapt them to extend down without the respective sides of the frame section 2 when the section 3 is folded thereover. Each lip 18 is preferably angled with respect to the angle of projection of the arm 17 from the section 3 so that the lip will stand in rearwardly inclined relation to the section 2 when the section 3 is in folded position thereover, as shown in Fig. 2. When the sections 2 and 3 are in folded relation the lip 18 on each arm 17 stands slightly forward with respect to the pivot 19 which connects the adjacent ends of the sections 2 and 4.

A catch member 20 is mounted lengthwise of the section 4, at each side thereof, and is pivoted at the forward end of its lower edge portion to the inner end of the section 2 at the outer side thereof, as at 21, and is provided with a longitudinally extending slot or recess 22, in which works a guide pin or stud 23, which projects outward from the respective side of the section 4. The pivot 21 is offset from the pivot 19 of the section 2 so that the catch member will have longitudinal reciprocatory movements imparted thereto with respect to the section 4 when the sections 2 and 4 are relatively moved upon a folding or unfolding of the bed frame, and the purpose of the stud 23 is to guide such movements of the catch member with respect to the section 4. The catch member 20 is provided at the forward end of its upper edge portion with a finger 24, which stands in position for the lip 19 of the respective arm 17 to swing upward and rearward thereunder into engagement therewith when the sections 2 and 3, which are in folded relation, are swung upward with respect to the section 4. The relative folding movements of the sections 2 and 4 also cause the finger 24 to advance over the shoulder, lip, or other coöperating catch part 18. The angle of the lip 18, in the present instance, is such that it stands in parallel contact with the under side of the catch finger 24 when the section 2 has been folded the maximum extent with respect to the section 4, as shown in Fig. 3. The limit of relative folding of the sections 2 and 4 is determined by the end angle of the section 4, as shown by dotted lines at 25, which end is intended to coact with a registering part of the frame side 2.

It is evident that when the members 18 and 24 are in engagement the frame sections 2 and 3 will be securely locked against unfolding movements. It will be understood, however, that my invention is not limited to the specific form of the parts 18 and 24 or of the members carrying the same, as these parts and members may be varied materially in form, construction and manner of mounting without departing from the spirit of the invention.

The frame section 3 is provided at its outer end with a foot-piece 26, which, in the present instance, is of U-form and has its legs disposed at the inner sides of the respective arms 17 and pivotally mounted at their free ends on studs 27 projecting inward from said arms adjacent to their inner ends. Each side leg of the foot-piece 26 has a stud 28 projecting outward therefrom into a segmental slot 29 in the respective arm 17 for backward and forward movements therein when the foot-piece is pivotally moved with respect to the bed frame section 3. The stud 28 is of sufficient length to project entirely through the slot 29 and into a slot 30 in one end portion of an angled lever 31, which is pivoted to the arm 17 below the slot 29, as at 32. A pin 33 projects outward from the end portion of the lever 31 opposed to the end thereof in which the slot 30 is provided. When the foot-piece 26 is swung rearward into its reclining or folded position with respect to the bed frame section 3 the lever 31 is swung therewith, due to the pin and slot connection 28 and 30 therebetween, and the pin 33 is placed in position, adjacent to the forward edge of the arm 17, for the arm 12 of the leg 9 to coact therewith and lock the foot-piece 26 against unfolding movements when said leg is swung into folded relation to the section 3, as shown in Figs. 2 and 6. The arm 12 of the leg is provided with a notch 34 for receiving the pin 33.

It is evident that while it is necessary to move the foot-piece 26 by hand into folded

or unfolded relation with respect to the bed frame section 3, the locking of the footpiece in folded relation to the bed frame section is entirely automatic and controlled by the relative folding movements of the sections 3 and 5, which movements cause the bar 15 to move the leg 9 into folded relation to the section 3. It is also evident that a relative folding of the sections 2 and 3 will place the catch end of the arm 17 or of both arms, if one is employed at each side of the frame, into position to be swung upward and rearward under and into catch engagement with the catch finger 24 when the sections 2 and 3 are raised with respect to the sections 4, thus providing a simple and efficient means for automatically locking the frame sections 2 and 3 in folded relation when the bed frame is folded, and for releasing said sections when the bed frame is unfolded.

I wish it understood that my invention is not limited to any specific construction, arrangement or form of the parts, as it is capable of numerous modifications and changes without departing from the spirit of the claims.

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

1. A plurality of foldably related major and minor bed frame sections, in combination with complementary catch members carried by different major sections of the bed frame and automatically operable to lock said sections in folded relation when the bed frame is folded, and vice versa, one of said members being carried by a major section for pivotal movements only relative thereto and connected to and movable with an adjoining minor section.

2. A plurality of foldably related major and minor bed frame sections, in combination with a catch member carried by one major section, and a second catch member carried by another major section and an adjoining minor section, and operable to coact to lock said major sections in folded relation when folded with respect to the adjoining minor section, said second catch member being pivoted to the respective major section and movable longitudinally but not transversely of the respective minor section.

3. A plurality of foldably related major and minor bed frame sections, in combination with separate catch members carried by two adjacent major sections at the reverse ends thereof, one of said members being also carried by a respective adjoining minor section and movable lengthwise thereof when the sections are relatively folded, said catch members being automatically operable to coact and lock the major sections carrying the same in folded relation when the major and minor sections which carry one of said catch members are relatively folded.

4. A plurality of foldably related major and minor bed frame sections, in combination with a catch member movably carried by a major and a minor section and movable lengthwise of the minor section when said major and minor sections are relatively folded and unfolded, said catch member being automatically moved into catch engagement with a part of a major section when such major section is folded over the major section with which the catch member is connected and the major and minor sections carrying said catch member are relatively folded.

5. A plurality of foldably related major and minor bed frame sections, in combination with complementary catch members carried by different major sections, one of said catch members having pivotal connection with its major section and sliding connection with an adjoining minor section, and operable to engage and release the other catch means when the major sections carrying said means are in folded position and the major and minor sections with which one of said catch means is connected are relatively folded or unfolded.

6. A plurality of foldably related major and minor bed frame sections, in combination with a catch member carried by the outer major section, a second catch member carried by an intermediate major section and having longitudinal sliding connection with an adjoining minor section, said catch members being movable into locking engagement when said outer and intermediate major sections are in folded relation and the intermediate and minor sections with which said second catch member is connected are relatively folded, and vice versa.

7. A plurality of foldably related major and minor bed frame sections, in combination with a catch member carried by a major section and a catch finger pivoted to an end of another major section and having a part extending at a side of an adjoining minor section and slidingly connected thereto, said catch member and finger being automatically operable to engage and disengage upon folding and unfolding movements, respectively, of the sections.

8. A plurality of foldably related major and minor bed frame sections, in combination with a catch member carried by one major section adjacent to one end thereof, a catch finger pivoted to the reverse end of another adjoining major section in offset relation to its spacing section connecting pivot and connected to the spacing section at such end for longitudinal movements relative thereto and swinging movements therewith relative to the major section, said finger and

catch member being movable into engagement to lock the sections carrying the same in folded relation when the bed frame has predetermined folding movements.

9. In a device of the class described, a pair of major bed frame sections foldable one over the other, and a spacing section connected to the outer end of one major section with respect to the other, in combination with complementary fastening means, one carried by one major section and the other carried by the other major section adjacent to said spacing section and for pivotal movements only relative to its major section, the latter fastening means comprising one piece connected to the spacing section for folding movements therewith with respect to its major section, said complementary means being automatically operable to engage and disengage upon folding and unfolding movements, respectively, of said sections.

In testimony whereof I have hereunto signed my name to this specification.

PETER J. DE DOES.