

Nov. 15, 1966

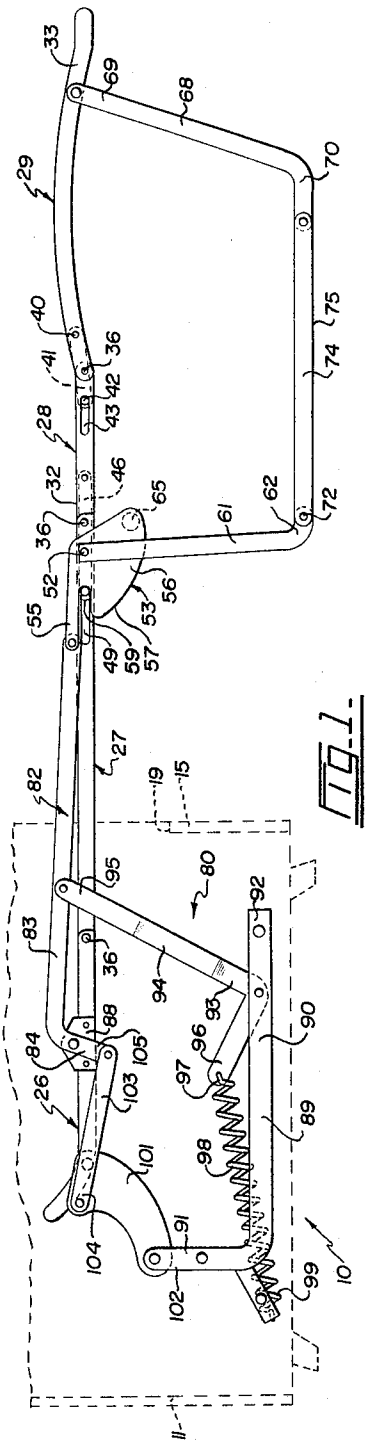
P. KOCH

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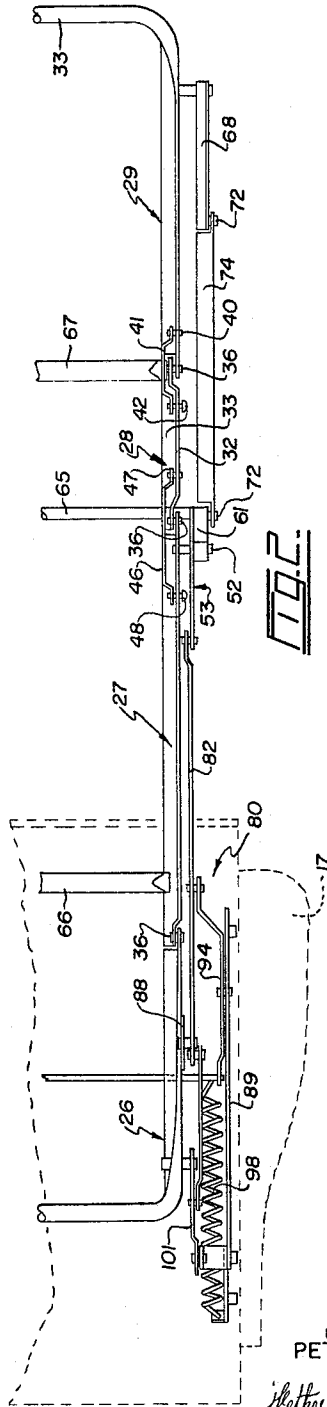
BED CHESTERFIELD

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**FIG. 1.**



**FIG. 2.**

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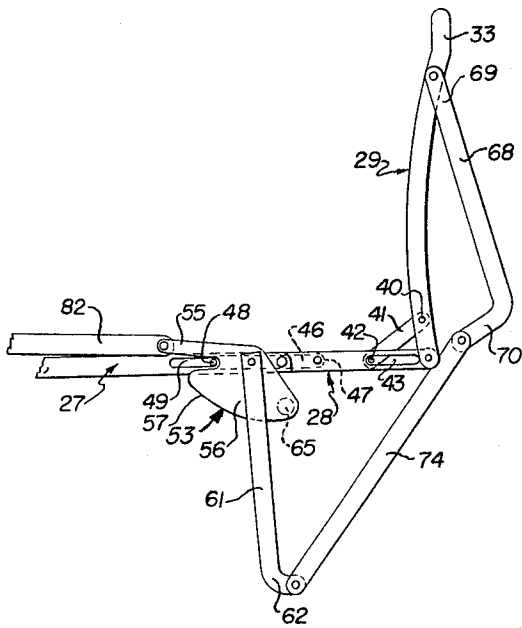


FIG. 3.

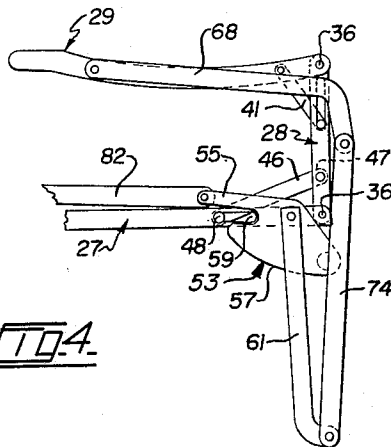


FIG. 4.

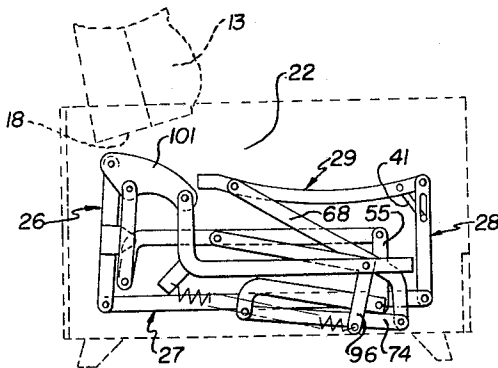


FIG. 7.

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Fig. 5.

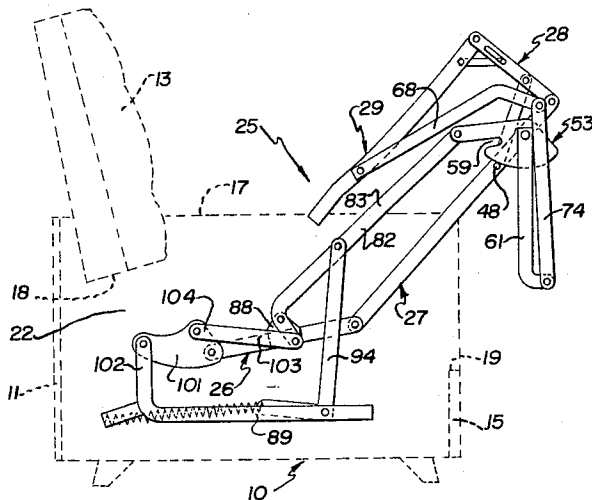
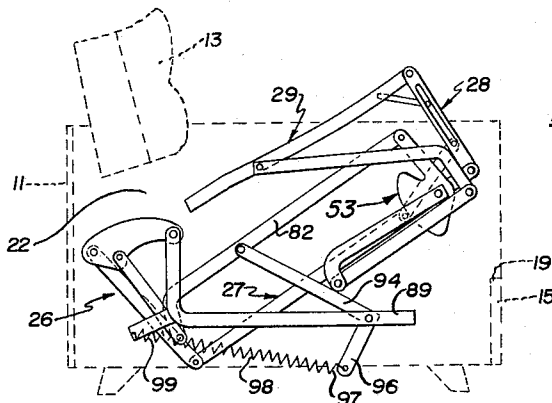


Fig. 6.



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**BED CHESTERFIELD**

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3 Claims. (Cl. 5-13)

This invention relates to articles or furniture commonly called bed chesterfields.

These bed chesterfields are in common usage today, particularly in motels, hotels and the like where floor space is at a premium and it is most essential that articles of furniture therein may be used for different purposes during different periods of a day. The bed chesterfield is ideally suited in this regard, being convertible from a chesterfield for sitting purposes during the day to a bed for use at night, thereby making available additional floor area which otherwise would not be available if separate bed and chesterfield units were used.

Bed chesterfields have heretofore been the subject of varied design and type, one of these types of which the present example is representative, comprising a plurality of bed sections hingedly connected in series so that they may be arranged in an extended position to be used as a bed and, when folded and swung into a stationary frame, may be used to form the seat of the chesterfield. Certain of the sections are provided with legs which serve to support the bed when in an extended position above the floor. This type of bed chesterfield is usually provided with an operating mechanism which permits the folded sections to be moved in a relatively horizontal plane into and out of the stationary frame, and which also automatically moves one of the legs from a supporting to a non-supporting position between movements of the bed section between their extended and folded positions.

In the main, bed chesterfields of this type are easy to operate between the bed and the seat-used position and collapse into a neat arrangement out of sight when positioned for a chesterfield or seat use. In this position too, the folded bed frames which carry springs, serve as a resilient base for seat cushions and the like.

In the operation of the bed chesterfields between their various positions, it will be appreciated that the movements of the component parts, such as bed frames, supporting legs, etc., must be fully automatic as particularly in the case of hotels, motels, and the like they will be handled by individuals having no previous experience with all types of bed chesterfields. Bed chesterfields of prior design, in order to obtain fully automatic operation of their component parts, have therefore been designed from a purely functional point of way and therefore are not of eye-pleasing appearance when used as a bed. Some of these bed chesterfields have also sacrificed strength of construction in order to provide for a fully automatic operation and, the supporting legs with which most are provided, provide very little floor bearing area which quite often results in damage to floors or carpets.

Some bed chesterfields of this type have no purely automatic provision for locking the movable components thereof so that they are immovable when the furniture is arranged as a chesterfield. It is normal to rely upon the support of a mattress with which most chesterfields are provided which, when folded, help to maintain the folded bed frames in their folded position.

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The bed chesterfield of the present invention, although being of the last-mentioned type of bed chesterfield, eliminates the objectional features of most, as outlined above, providing supporting legs which, when the furniture is arranged for use as a bed, are so connected that they are extremely strong and are able to support a person of exceptional weight. The legs also provide an exceptionally large floor bearing area and are therefore not liable to cause damage to carpets or floors as aforesaid. The interconnected legs of the present bed chesterfield also provide a means for automatically locking all the folding frames of the furniture when the latter are arranged in the folded seat-used position so that they are immovable relative to each other and provide a firm seat for the chesterfield.

Although obtaining relatively high strength and fully automatic operation, the bed chesterfield is still of eye-pleasing design.

The present invention comprises at least two bed sections, one of them being an intermediate section and the other an end section, means interconnecting said sections adjacent their ends to permit pivotal movement of one of them relative to the other between a linearly extended bed-use position and a folded seat-use position in which latter position said end section is arranged so as to extend spacedly above the intermediate section, said sections when in their folded positions being movable laterally, first and second legs hingedly connected at one end of each thereof to said intermediate end section respectively and supporting said section when the latter are arranged in their extended position, a connecting member hingedly connected to the first and second legs spaced from said one end thereof, and actuating means connected to said first leg adapted to cause the latter to swing to a folded position beside the intermediate section during said lateral movement of said sections, said first leg adapted to cause swinging movement thereof drawing the connecting member into parallel arrangement therewith so as to swingably move with said first leg.

Referring to the drawings,

FIGURE 1 is a side view of the bed chesterfield in the extended or bed-use position, the bed sections and operating components thereof being shown in solid lines and the stationary frame in dotted lines,

FIGURE 2 is a partial plan view of FIGURE 1.

FIGURES 3 and 4 are side elevations of the foot portion of the bed chesterfield, showing positions assumed by its various movable parts as the bed sections are moved from their extended to their folded positions,

FIGURE 5 is a side view similar to FIGURE 1 prior to moving the bed sections into the stationary frame,

FIGURE 6 is another side view of the invention, illustrating particularly the position assumed by the supporting legs after partial movement of the folded bed sections towards the stationary frame, and

FIGURE 7 is another side view of the bed chesterfield, showing the bed sections in their folded positions within the stationary frame.

The construction of bed chesterfields has been somewhat standardized, there being provided a stationary frame having a relatively high rear wall to which a suitably padded back rest is secured, the lower edge of the back rest being spaced substantially above the bottom of the frame, a relatively low front wall and a pair of

side walls which serve as arm rests when the bed chesterfield is to be used for sitting purposes. The side walls or arm rests and back and front walls provide a well beneath the lower edge of the back rest into which a plurality of hingedly interconnected bed sections may, in a folded condition, fit. These bed sections in their folded position, serve as a seat base for the bed chesterfield and support suitably padded and fitted seat cushions.

Referring to the drawings and particularly to FIGURES 1, 2, 5, 6 and 7 thereof, there is shown in dotted lines the outline of the stationary frame herein generally numbered 10, having a relatively high back wall 11, a back cushion 13, a relatively low front wall 15 and side arms 17. As is illustrated, the back cushion is disposed vertically, its lower edge 18 being slightly above the upper edge 19 of the front wall 15. As will be seen, the space between the front and back walls 15 and 11, respectively, forms a well 22 beneath said lower edge 18 of the back cushion. It is to be understood, of course, that the stationary frame is subject to variation and design. The frame, however, is formed of relatively heavy framing members to withstand the racking occasioned in the usage of the bed chesterfield.

In the construction of bed chesterfields, the bed portion thereof when extended into a bed-use position, takes the form of an elongated rectangularly shaped framework having side and end frame members. Each of the side frame members is of identical construction and is composed of a plurality of jointed sections which may be folded one upon the other when it is desired to use the bed chesterfield for seating use and, which may be moved into a linearly extended position, when it is desired to use the furniture for bed-use. The chesterfield is usually provided with a mattress which is supported by the springs and which is folded as the side sections are moved into their folded positions.

The construction of bed chesterfields has resulted in many and varied types. The type of bed portion herein numbered 25 with which the present invention is concerned and which has been developed in recent years, is one in which each of the side frame members thereof are comprised of four pivotally connected sections, the three at the foot end of the bed being foldable relative to each other in which the first and third sections thereof when in their folded position are disposed one above the other in spaced parallel relationship, with the center or second section of said three extending at right angles to the other two. The lowermost of the end sections of the three foot sections is pivotally connected to the frame, as hereinafter to be described, whereby all sections may be swung in their folded positions into the well 22 of the chesterfield, or swung into linearly extended position so that the bed chesterfield may be used as a bed.

In the following description, as both side frames of the chesterfield are identical but counterposed, only one of said side frame sections will be referred to, the elements or sections thereof forming said side frames being referred to as bed sections. Similarly, other duplicate operative members associated with said bed sections will be referred to in the singular. The claims will also be treated in the above manner.

Referring now to the drawings and particularly to FIGURE 1 thereof, in which the bed portion of the bed chesterfield has been arranged in its linearly extended bed-use position. The bed sections numbered from head to foot as 26, 27, 28 and 29 respectively, in which section 26 is the head end section, sections 27 and 28 the intermediate and center sections respectively and section 29 the foot end section, are formed of steel angles in order to provide structural strength, section 29 being one leg of a U-shaped member 34, the base 35 of which forms the transverse end frame of the entire bed frame and the other leg of said U-shaped member being the counterpart of bed section 29 on the other side of the

bed. The bed sections 26 to 29 are pivotally interconnected at their ends as by rivets 36.

To bed section 29, adjacent the latter's pivotal connection with section 28, is pivotally connected at one end 40 an elongated brace or strut 41. This strut extends across the pivotal point of connection between the bed sections 29 and 28 and carries at its other end a laterally extending lug 42, the latter extending through an elongated slot 43 formed internally in and extending longitudinally of bed section 28, said lug having a button 44 at its end to prevent disengagement with said section 28. The lug is slidable within the slot and the slot is of sufficient length to permit rotation of bed section 29 about its pivotal connection with bed section 28 to a position at approximate right angles thereto. This position being shown in FIGURE 3 of the drawings.

Bed section 28 is also provided with a brace or strut 46 pivotally connected at one end 47 thereto and at its other end carries a lug 48 similar to lug 42 which extends through an elongated slot 49 formed in bed section 27. This lug 48 also serves as a detent as hereinafter to be explained. The lug 48 also has a button at its end and said brace permits pivotal movement of section 28 relative to section 27 from a linearly extended position to a position perpendicular thereto. These struts 41 and 46 therefore serve to limit folding movement of both sections 28 and 29 to a position as shown in FIGURES 3 to 6 in which bed section 29 extends parallel to and above section 27, and section 28 extends perpendicular to both 27 and 29.

Pivotally connected as by a rivet 52 to bed section 27 between the slot 49 and the point of connection between said section 27 and section 28, is a locking element or member 53 and which may, by reason of one of its functions as hereinafter to be described, be termed as an obstructing member. This member is preferably formed of thick flat sheet stock and is formed having an elongated lever arm 55 and a quadrant section 56, the peripheral edge 57 of which is arcuately shaped. The lever arm 55 and quadrant section 56 are spaced apart to provide an elongated notch 59 extending parallel to said lever arm. This notch 59, when the lever arm 55 is located parallel to and above the longitudinal axis of bed section 27, lies in registry with the slot 59 and so as to slidably receive the lug 48 when the bed sections are arranged in their linearly extended position, thereby locking the locking element or member 53 immovable relative to bed section 27, and its arcuate peripheral edge 57 is so arranged that when the bed sections 29 and 28 are arranged in their folded position, said edge 57 may be moved into sliding engagement with the lug 48 so as to obstruct the return thereof, thereby locking the end 47 of the brace 46 immovable relative to bed section 27.

Bed section 27 is provided with an elongated leg 61 bent into a L-shape at its lower end 62 and pivotally connected at its upper end 63 to the rivet 52. This leg is also welded or otherwise fastened to the locking element 53 so as to be rotatable therewith. It is to be understood that this leg 61 may be fastened to the locking member 53 as outlined above, or may be formed as an integral part thereof. The lever 55 may simply be an extension of the upper end 63 of the said leg and the quadrant section 56 may likewise be an integral part thereof.

A transverse brace 65, an end section of which is shown in dotted lines, extends between the locking element 53 and its counterpart on the other side of the bed. Similar transverse braces 66 and 67 extend between bed sections 27 and 28 and their counterparts at the pivotal juncture of said section with sections 26 and 29, respectively. These transverse braces serve to maintain the bed sections on each side of the bed in fixed spaced parallel relationship when the bed portion 18 is in use as a bed or as a seat. It will be appreciated that the number and location of said braces 65, 66 and 67, may be varied, depend-

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ing upon the strength required by the manufacturer of the chesterfield.

Bed section 29 is also provided with a supporting leg 68 pivotally connected at its upper end 69 near the foot end of said last-mentioned bed section. This supporting leg 68 is also bent to a L-shape at its lower end 70 and, pivotally connected as by rivet 72 to the lower ends 70 and 62 of the legs 68 and 61 respectively, is an elongated connecting member 74. This member 74 is flattened at its undersurface 75 and the relative lengths of said legs 61 and 68 and connecting member 74 are such that when the bed is arranged in its linearly extended position with the legs in supporting position, said undersurface of the connecting member lies flush with the surface of the floor or carpeting upon which the bed chesterfield rests. It will be seen, therefore, that a relatively large bearing area is provided so as to eliminate or greatly reduce marring or scratching of the flooring surface.

The relative length and proportionment of these legs and their connecting members is of great importance as, in accordance with the invention, the legs not only serve to support the bed when the bed sections are arranged in an extended position, but serve to lock said bed sections in their folded position. The length of the connecting member is a little greater than the length of leg 61 and is arranged, when the bed sections 28 and 29 are folded over bed section 27 to fold upwardly adjacent but slightly spaced from leg 61 and when the locking member 53 and with it legs 61 are rotated in a manner hereafter to be described to a position in which said last-mentioned leg extends substantially parallel to bed section 27, to move into side by side engagement with said leg 61 and thereby prevent movement of bed section 29 out of its folded position.

The bed chesterfield is provided with a mechanism which both supports the bed sections and which actuates or operates the locking element 53 and legs, as hereinbefore described. This mechanism which is of known construction in the industry, and comprises a locking element actuating rod or bar 82 which is L-shaped having a long leg 83 and a short leg 84, being pivotally connected at the juncture of said legs and to a fish plate 88, the latter being riveted to bed section 26 intermediate of the two ends of the latter, the other end of the long leg 83 being pivotally connected to the lever arm 55.

For connecting the bed sections to the framing members 10, there is provided a substantial L-shaped frame 89, the latter having a horizontal leg 90 and a vertical leg 91. To the free end 92 of the horizontal leg is hingedly connected one end 93 of a supporting bar 94, the other end 95 of said bar 94 being pivotally connected to the long leg 83 of the actuating bar at a point spaced outwardly, i.e., toward the free end thereof of the latter's pivotal connection with the fish plate 88. This supporting bar 94 is swingable on the frame 89 from a position as shown in FIGURE 1 in which it is inclined outwardly towards the foot end of the bed to a position as shown in FIGURES 2 and 6 in which it is inclined towards the head end of the bed. It is to be noted that the end 93 of the supporting bar is formed having a laterally extending portion 96 to which one end 97 of a tension spring 98 is secured, the other end 99 of the spring being hooked to the frame 89. This spring is arranged to act as an aid in operating the bed sections between their extended and folded positions acting in an advantageous over-center manner upon the laterally extended portion 96 to urge the supporting bar to a vertical position.

Bed section 26 is pivotally connected at its free end 100 to a plate element 101, the latter being pivotally connected for rotation in a vertical plane to the free end 102 of the vertical leg 91 of the L-shaped frame. The short leg 84 of the actuating rod or bar 82, is also connected to this plate element 101 by means of a linking rod 103,

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the latter being pivotally connected at one end 104 to the plate element 101 at a point spaced from the connection of the bed section 26 with said plate element and, at its other end, pivotally connected to the free end 105 of the short leg 84 of the actuating bar.

Referring now to FIGURE 1 in which the bed sections are arranged in their linearly extended position, it will be seen that the supporting bar 94 inclines outwardly to the foot end of the bed, while the long leg 83 of the actuating bar 82 extends parallel to and above bed sections 26 and 27. It will also be observed that the locking element 53 is positioned so that its lever arm 55 is generally aligned with the long leg 83 of the actuating bar with the lug 48 engaged with its slot 59.

Upon movement of bed sections 28 and 29 to their folded position, as shown in FIGURE 3, the connecting member 74 is drawn upwardly adjacent to leg 61, but not quite into side by side engagement therewith. This movement also, as hereinbefore described, moves the lug 48 out of the notch 59 of the locking element 53.

The folded sections 27, 28 and 29 are then lifted into a position as shown in FIGURE 5. This action pivotally moves bed section 27 about its pivotal connection with bed section 26 and starts to rotate the supporting bar 94 towards the latter's vertical position. This action also causes the actuating bar 83 to rotate the locking element 53, bringing the latter's arcuately shaped peripheral edge 57 into engagement with the lug 48, thereby locking bed section 28 in its folded position. The bed sections are then moved laterally towards the well 22, as shown in FIGURE 6. This results in lateral movement inwardly of both the actuating bar 83 and bed section 26, causing the plate element 101 to rotate, an action which moves bed section 29 towards a tilted vertical position. The internal angle between bed sections 26 and 27 will consequently be reduced, an action which will result in further rotation of the locking element 53 and with it leg 61, the latter rotating upwardly about its pivotal axis so as to clear the upper edge of the front wall 15 of the stationary frame. As leg 61 rotates, it draws connecting member 74 into a position parallel to and in engagement therewith, an action which as has hereinbefore been described, serves to lock bed section 29 in its folded position. The folded bed sections may then be moved into the well 22 and lowered so that bed section 29 extends substantially in a horizontal plane, this final position being shown in FIGURE 7 of the drawings, wherein bed section 26 extends vertically beneath the back cushion 13, and bed section 27 extends substantially horizontally and at the same elevation as the upper edge of the front wall 15. Cushions, not shown, may then be placed over the folded sections to serve as a seat for the bed chesterfield.

It will be seen that the construction of the bed chesterfield as aforesaid provides a firm, stable seat base when the bed chesterfield is used for seating purposes as it is locked by means of the supporting legs against movement from their folded position. It will also be appreciated that the movements of the movable elements thereof are entirely automatic and the disposition of the bed chesterfield between its position of seat-use and bed-use may therefore be attended to by one having extremely limited knowledge of its mode of operation without in any way causing damage to the bed chesterfield itself or to the floor surface upon which it rests. Furthermore, the rigidity of the connected supporting legs provides for an extremely stable yet eye-pleasing bed when used as such.

What I claim as my invention is:

1. A bed chesterfield comprising a stationary frame, a plurality of at least three bed sections pivotally connected together in series from head to foot, constituting in order, from head to foot, an intermediate section, a center section and a foot section, the foot and center sections of said series being pivotally movable relative to each intermediate and to the other section between

a linearly extended bed-use position and a folded seat-use position in which latter position the foot section extends in a substantially horizontal plane parallel to and above said intermediate section and the center section of said series extends substantially vertically between said intermediate and foot sections, means swingably mounting the said intermediate section to the frame for swinging lateral movement of the sections in a folded condition into and out of the stationary frame, a first leg member pivotally connected at one end to the intermediate bed section for pivotal movement in a fore and aft direction between a substantially vertically depending bed supporting position to a substantially horizontally extending folded position, actuating means connected to said first leg member operable when the folded bed sections are moved toward the frame for automatically moving the first leg member from its supporting position to its folded position and for returning said leg member to its supporting position upon movement of the folded bed sections away from the frame, a second leg member pivotally connected at one end to the foot bed section for pivotal movement relative thereto in a fore and aft direction and swingably movable therewith when the sections are moved between the folded and extended positions, and an elongated rigid connecting member pivotally connected at each end to the free ends of the leg members to move the second leg member and maintain the latter in a substantially vertically depending supporting position when the sections are moved to their extended position and pivotally movable relative to the first leg member to a position of side by side engagement with said first leg member when the sections are moved into their folded positions, said second leg member maintaining said connecting member in side by side relationship with said first leg member as the latter is rotated to its folded position.

2. A bed chesterfield as claimed in claim 1 including means operable by the actuating means to lock the sections in their folded position when said sections are moved towards the stationary frame.

3. A bed chesterfield as claimed in claim 1 in which the connecting member is formed having an elongated floor-engaging undersurface extending substantially from end to end thereof.

4. A bed chesterfield comprising a stationary frame, a plurality of at least three bed sections pivotally connected together in series from head to foot, constituting in order, from head to foot, an intermediate section, a center section and a foot section, the foot and center sections of said series being pivotally movable relative to each other and to the intermediate section between a linearly extended bed-use position and a folded seat-use position in which latter position the foot section extends in a substantially horizontal plane parallel to and above said other intermediate section and the center section extends substantially vertically between said intermediate and foot sections, means swingably mounting the said intermediate section to the frame for swinging movement of the sections in a folded condition into and out of the stationary frame, a first leg member pivotally connected at one end to the intermediate section for pivotal movement in a fore and aft direction between a substantially vertically depending bed supporting position to a substantially horizontally extending folded position, an elongated strut pivotally connected at one end to the said center section and slidably connected at its other end to the intermediate section for fore and aft movement relative to the latter when the foot and center sections are moved between their folded and extended positions, said strut having a laterally extending lug at its slidably connected end for slidable movement therewith, actuating means connected to the first leg member operable when the folded bed sections are moved toward the frame for automatically moving the first leg member from its supporting position to its folded position and for returning said leg member to its supporting position upon move-

ment of the folded bed sections away from the frame, a second leg member pivotally connected at one end to the foot section for pivotal movement relative thereto in a fore and aft direction and swingably movable therewith when the sections are moved between the folded and extended positions, an elongated rigid connecting member pivotally connected at each end to the free ends of the leg members normally spaced apart said free ends to position and maintain the second leg member in a substantially vertically depending supporting position when the sections are arranged in their extended position and pivotally movable relative to the first leg member by the movement of the second leg member to a position of side by side engagement with said first leg member when the sections are disposed in their folded positions, said second leg member maintaining said connecting member in side by side relationship with said first leg member as the latter is rotated to its folded position, and a movable locking member connected to the first leg member for rotation therewith arranged to move into the path of and engage the lug so as to immobilize the strut when the bed sections in their folded position are moved towards the frame to thereby maintain said bed sections in their folded position.

5. A bed chesterfield as claimed in claim 4 in which the connecting member is formed having a flattened floor-engaging undersurface extending substantially from end to end of the latter.

6. A bed chesterfield as claimed in claim 4 in which the locking member is provided with an elongated slot arranged to extend horizontally when the first leg member is disposed in its supporting position said slot being arranged slidably to receive the lug when the center bed section is moved to its extended position to immobilize said locking member, thereby locking said first leg member in its supporting position.

7. A bed chesterfield comprising a stationary frame, a plurality of at least three bed sections pivotally connected together in series from head to foot, constituting in order, from head to foot, an intermediate section, a center section and a foot section, the foot and center sections of said series being pivotally movable relative to each other and to the intermediate section between a linearly extended bed-use position and a folded seat-use position in which latter position the foot section extends in a substantially horizontal plane parallel to and above said intermediate section and the center section of said series extends substantially vertically between said intermediate and foot sections, means swingably mounting the said intermediate section to the frame for swinging lateral movement of the sections in a folded condition into and out of the stationary frame, a first leg member pivotally connected at one end to the intermediate bed section for pivotal movement in a fore and aft direction between a substantially vertically depending bed supporting position to a substantially horizontally extending folded position, actuating means connected to said first leg member operable when the folded bed sections are moved towards the frame for automatically moving the first leg member from its supporting position to its folded position and for returning said leg member to its supporting position upon movement of the folded bed sections away from the frame, a second leg member pivotally connected at one end to the foot bed section for pivotal movement relative thereto in a fore and aft direction and swingably movable therewith when the sections are moved between the folded and extended positions, and an elongated rigid connecting member pivotally connected at each end to the leg members spaced from said one end of the latter to move the second leg member and maintain the latter in a substantially vertically depending supporting position when the sections are moved to their extended position and pivotally movable relative to the first leg member to a position of side by side engage-

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ment with said first leg member when the sections are moved into their folded positions, said second leg member maintaining said connecting member in side by side relationship with said first leg member as the latter is rotated to its folded position.

8. A bed chesterfield as claimed in claim 7 including means operable by the actuating means to lock the sections in their folded position when said sections are moved towards the stationary frame.

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