Feb. 4, 1930. J. W. STERBENZ 1,745,459

CHAIR BED

Filed June 30, 1927 2 Sheets-Sheet 1

Fig. 2.

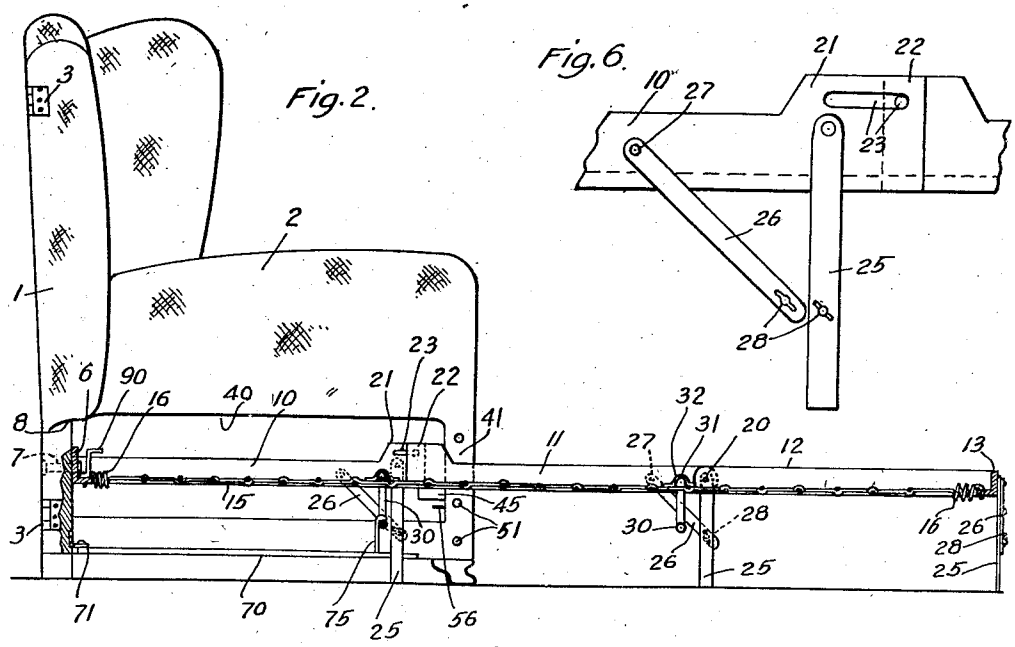
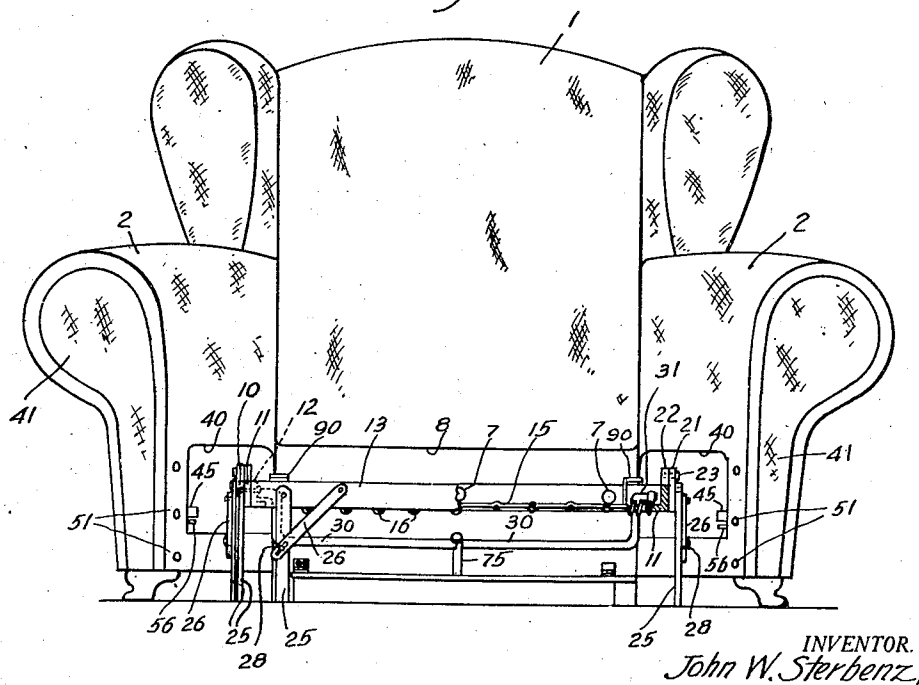


Fig. 6.

Fig. 1.



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Fig. 7.

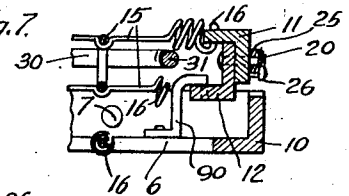


Fig. 3.

Fig. 4.

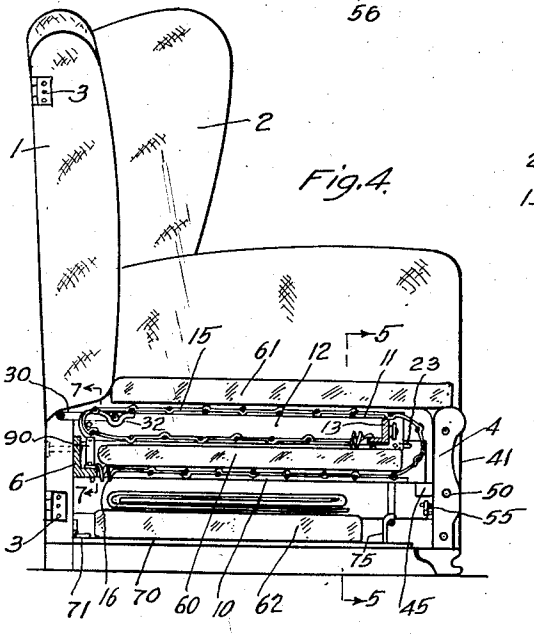
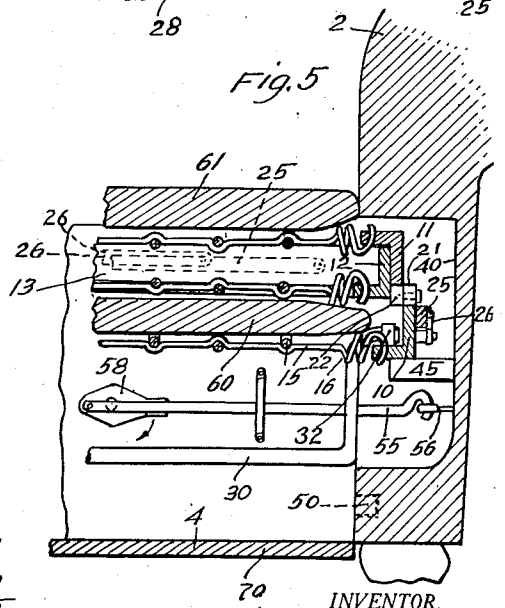


Fig. 5



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UNITED STATES PATENT OFFICE

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CHAIR BED

Application filed June 30, 1927. Serial No. 202,603.

This invention relates to convertible furniture adapted to form either a bed or a chair, and it is the object of the invention to provide an article of furniture which when the bed is not in use will present exactly the appearance of a usual upholstered chair but which is adapted for convenient conversion to position the bed ready for use, the invention being particularly applicable and hereinafter described with reference to a combined chair and single-width bed although the same construction might readily be incorporated in a structure adapted to form a convertible davenport and a double-width bed, and it therefore being understood that reference to a chair is meant to include any article of furniture such as a chair, davenport, etc. forming a seating medium.

One feature of the invention is the provision of a bedstead which may be folded within the chair frame or may be extended to form a full-length bed, the folding arrangement providing for concealment of the bedstead, mattress and bedclothes entirely within the chair frame without in any way distorting its usual appearance, with a portion of the mattress forming the seat cushion so as to simulate exactly the appearance of a usual chair structure.

A further feature of the invention is the mounting of the bedstead in a chair frame which is adapted for swinging movement of its arms so that when the bed is to be used the chair arms may be swung outwardly to permit unobstructed use of the full width of the bed, and also permitting the chair arms to be swung toward one another and locked in normal position when the bed is folded so as to form a rigid chair structure completely concealing the bed and retaining it in inoperative position.

A still further feature of the invention is the simplified arrangement whereby sections of the bedstead may be folded upon one another and securely held in folded position when concealed in the chair frame or may be readily extended and suitably supported in braced relation to form a sturdy and rigid bedstead.

All these and further features of the invention will be readily understood from the following description of the accompanying drawings showing a preferred embodiment of the invention and in which:

Fig. 1 is a front elevation of the construction partly in transverse section, showing the bedstead in position for use.

Fig. 2 is a vertical medial section through the structure shown in Fig. 1.

Fig. 3 is a plan view partly in horizontal section showing the bedstead in position for use.

Fig. 4 is a view similar to Fig. 2 but showing the bedstead folded for use of the structure as a chair.

Fig. 5 is a detail section on the line 5—5 of Fig. 4.

Fig. 6 is a detail elevation of one of the supporting legs for the bedstead.

Fig. 7 is a detail section on the line 7—7 of Fig. 4.

The chair structure cooperating with the folding bedstead to form a convertible article of furniture may comprise a usual upholstered type of chair having back 1 and side arms 2, and the bedstead is fixed at one end to back 1 and is adapted for folding of its various sections upon one another between side arms 2 so as to form the seat of the chair, or the sections of the bedstead may be extended one beyond another to form a full-length bed projecting forwardly from back 1.

The side arms 2 are hinged to back 1 as shown at 3 so that when the bed is to be extended the side arms may be swung outwardly as shown in Figs. 1 and 3 to permit convenient access to the entire length of the bed, and when the bedstead is folded between the side arms the latter are swung toward one another to normal position projecting substantially at right angles from back 1 and are locked in such position supporting the folded bedstead, preferably by means of a transverse panel 4 which may be suitably upholstered and which detachably connects the front ends of the side arms at their lower portions so as to conceal the folded bedstead in its seat forming position and present the appearance of the usual spring-cushioned seat portion of a chair.

The bedstead is a usual rectangular structure adapted to form a full-length, single-width bed as shown in Fig. 3, and is preferably constructed of angle-iron with its transverse head bar 6 bolted at 7 to the back 1 just below the usual seat level of the chair where the back is rearwardly recessed by termination of the usual cushioned backing 8. The side bars of the bedstead comprise hinged sections adapted for folding upon one another so that the folded bedstead terminates short of the front ends of side arms 2 as shown in Fig. 4, and in the present instance the desired restricted length of the folded bedstead is obtained by forming its side bars of hinged sections 10, 11 and 12. The angle-irons 10 are rigid with head bar 6 to form a head section for the bed, and angle-irons 12 are similarly rigidly connected to the transverse foot-bar 13 to form a foot section, while the intermediate angle-irons 11 which are hinged at their respective ends to sections 10 and 12 form an intermediate section of the bed. A suitable bedspring structure is supported in the rectangular bedstead and is of a type permitting it to readily fold when the sections of the bed are folded upon one another, and for this purpose the spring structure may comprise crossed supporting wires or the like shown at 15, preferably resiliently connected at their ends to the angle-irons forming the bedstead, as for example by coil springs 16, thereby providing a usual comfortable spring frame for the bed.

Angle-irons 11 and 12 may be hinged at their vertical webs as shown at 20 so as to fold one within another as shown in Fig. 4 and thereby permit the spring frame to follow the fold without being stretched, but the angle-irons 10—11 are preferably hinged at vertical extensions 21—22 of their vertical webs so that the folded sections 11—12 overlie the section 10 as shown in Fig. 4, and to permit the spring frame to follow this last fold without being stretched the hinge connections for extensions 21—22 are preferably pin and slot connections 23 permitting limited longitudinally shifting of folded sections 11—12 relative to section 10.

The sections of the bedstead when in operative position are supported by suitable legs 25 which are adapted to fold alongside the frame of the bedstead when the latter is folded, the said legs being shown as pivoted to the forward ends of angle-irons 10 and 11 and to the end portions of angle-iron 13 so as to provide a rigid support for the bedstead, with the legs preferably releasably held in operative position by braces 26 which are pivoted at one end to the respective angle-irons 10, 11 and 13 as shown at 27, and which are provided at their opposite ends with quick-releasable means shown as pin and slot connections 28 for detachably engaging the corresponding legs so that by manually releasing the said connections both the legs and their braces may be folded alongside the angle-irons.

The bedstead is preferably transversely braced when in operative position to insure a rigid construction, and for this purpose braces may be provided at the forward ends of sections 10 and 11 where they will cooperate with the end braces formed by the head and foot bars 6 and 13 to rigidly brace the entire frame. The braces are shown as rods 30 having offset crank ends 31 journaled in bearings 32 on the horizontal webs of the forward ends of angle-irons 10 and 11, the crank ends being turned in their bearings so as to space the transverse rods 30 below the spring structure of the bed when the latter is in operative position, so that the transverse rods will brace the bedstead but will not hinder the usual sagging of the springs to conform to the weight placed thereon.

The bedstead is preferably of somewhat greater width than the chair back 1 so as to permit the bed being of standard width for a single-bed without distorting the usual proportions of the chair, and the side arms 2 are recessed at their inner sides as shown at 40 for reception of this excess width of the bed when the latter is folded, with said recesses preferably terminating short of the forward ends of the arms as shown at 41 so that when the chair is in use the non-recessed forward ends of the arms present the appearance of a usual chair structure and lie in front of the excess width of the folded bed. The forward end of the folded bed may be supported by side arms 2, and for this purpose suitable shoulders 45 are provided at the forward ends of recesses 40 so that the forward ends of angle-irons 10 are adapted to rest thereon.

The panel 4 which locks the side arms 2 in closed position extends from the base of the chair to the usual seat level and thereby cooperates with the forward ends of side arms 2 to completely conceal the folded bed. The panel 4 may be provided with end guide pins 50 adapted for reception in cooperating recesses 51 in the inner sides of the forward non-recessed ends of side arms 2 so as to retain the panel in proper position, and the panel may be releasably locked in operative position by suitable concealed but accessible locking means shown as hooks 55 longitudinally projectable and retractable beyond the ends of the inner face of the panel and adapted to engage cooperating eyes 56 at the forward ends of recesses 40. The hooks when in projected position engage the eyes and are then retracted so as to draw side arms 2 tightly against the ends of panel 4, with the operating connections for the hooks adapted to automatically lock the same in retracted position. As an instance of this arrangement the inner

ends of the hook rods may be connected to operating levers 58 which are pivoted to the inner face of panel 4 and which are adapted for manual engagement to swing the same so as to retract or project the hooks, the operating levers being arranged for swinging beyond dead center when retracting the hooks so as to provide a locking connection, which, however, is readily manually released.

The mattress for the bed comprises separate mattress sections for the respective folding sections of the bedstead, and these mattress sections 60, 61 and 62 are placed one beyond another on the spring frame of the bedstead when the latter is in operative position, and are adapted for concealment along with the folded bedstead when the structure is arranged for use as a chair. As an instance of this arrangement the mattress sections 61 and 62 may be removed from the foot and intermediate sections of the bedstead when the latter is to be folded, and the foot section of the bed is then folded onto the intermediate section with these folded sections then folded onto the head section, the extensions 21—22 for pivots 23 providing for this last fold with folded sections 11—12 supported on head bar 6 and vertically spaced from head section 10 so that mattress section 60 may be left in place on this head section of the bed.

The intermediate mattress section 61 is adapted to form the seat cushion for the chair and for this purpose may be provided with an ornamental cover conforming to the chair covering so that when the bedstead is folded with its intermediate section turned uppermost, the mattress section 61 may be placed upon the spring frame of this intermediate section as shown in Fig. 4, in order to provide a usual seat for the chair. As previously stated the mattress section 60 is removed when the bed is folded, and this mattress section, together with the bedclothes may be concealed in the space between the base of the chair and the under side of the folded bedstead. As an instance of this arrangement a supporting base 70 may be hinged to back 1 as shown at 71 with the forward end of this supporting base adapted to be releasably held in horizontal position to provide a support for the mattress section and the bedclothes. The releasable engagement for the supporting base 70 may comprise a hook 75 adapted to engage the base rod 30 which extends across the bedstead at the forward end of its head section, the hook 75 being readily accessible for manual release or engagement when panel 4 is removed so that the supporting base 70 may be held in position forming storage space, or may be allowed to drop to the floor to permit bedclothes and the like being placed thereon in the storage space.

By the arrangement as thus described the sections of the folded bedstead are positively supported by resting upon one another with the lowermost head section of the bed held in place in the chair frame by its fixed connections 7 and the supporting shoulders 45, and the spring frame of the intermediate section of the bed which is turned uppermost when folded, forms a spring seat structure at the proper height so that the mattress section 61 when mounted thereon completes a cushioned chair construction having exactly the same appearance as a similar usual chair lacking the dual utility of the present invention. The folded sections of the bedstead may be fixed against any tendency to accidentally unfold by swinging the brace rod 30 which is positioned at the forward ends of angle-irons 11 upwardly over the foot section of the bed when the latter is folded upon the intermediate section, so that when sections 11—12 are folded on section 10 this brace rod may be hooked beneath the cushioned portion 8 of back 1 as shown in Fig. 4, and the folded sections 11—12 may be also held in folded position on section 10 and in fixed relation in the chair frame by suitable releasable retaining means shown as clips 90 pivoted to head bar 6 so that they may be manually turned to engage or disengage the angle-irons 12.

The entire structure is thus rigidly locked in chair forming position when panel 4 is in place connecting side arms 2 and completely concealing the bed structure, and the panel is adapted for ready release and removal to permit disengagement of angle-irons 10 from shoulders 45 so that side arms 2 may be swung open and the bedstead unfolded and supported by its legs 25 in operative position.

I claim:

1. A chair frame comprising a back and side arms, a bedstead fixed to the back at one end and comprising hinged sections adapted for folding of said sections upon one another between the side arms of the chair frame to form a chair seat or adapted for projection of said sections one beyond another so as to extend forwardly from the chair frame and form a bed, and a transverse panel adapted to connect the forward ends of the side arms of the chair frame and project upwardly in front of the folded sections of the bedstead so as to conceal the bedstead in its folded position, the said panel being detachably connected to the side arms to permit removal of the panel for projection of the hinged sections to the bed forming position.

2. A chair frame comprising a back and side arms, a bedstead fixed to the back at one end and comprising hinged sections adapted for folding of said sections one upon another between the side arms of the chair frame to form a chair seat or adapted for projection of said sections one beyond another so as to extend forwardly from the chair frame and form a bed, a supporting base hinged to and projecting from the back of the chair frame between the side arms

and below the bedstead, and means for removably supporting said base in horizontal position so as to form a storage space between the base and the underside of the bedstead, the said supporting means when released permitting downward swinging of the base for convenient access to the storage space.

3. A chair frame comprising a back, and side arms hinged thereto, a bedstead fixed to the back at one end and comprising hinged sections adapted for folding of said sections one upon another between the side arms of the chair frame to form a chair seat terminating short of the forward ends of the side arms when the latter are in normal chair-forming position or adapted for projection of said sections one beyond another so as to extend forwardly from the chair frame and form a bed, and a removable transverse panel adapted to connect the forward ends of the side arms of the chair frame so as to project upwardly immediately in front of the folded bedstead for fixing the side arms of the chair relative to one another and concealing the folded bedstead.

4. A chair frame comprising a back, and side arms hinged thereto, a bedstead of greater width than the chair back fixed thereto at one end and comprising hinged sections adapted for folding of said sections one upon another between the side arms of the chair frame to form a chair seat terminating short of the forward ends of the side arms when the latter are in normal chair-forming position, the side arms of the chair being recessed for reception of the side edges of the folded bedstead with said recesses terminating short of the forward ends of the side arms so that said nonrecessed forward ends of the side arms are adapted to extend in front of the side edges of the folded bedstead, and a removable transverse panel adapted to connect the forward ends of the side arms of the chair frame so as to fix the side arms relative to one another and cooperate therewith for concealing the folded bedstead.

5. A chair frame comprising a back, and side arms hinged thereto, and a bedstead of greater width than the chair back fixed thereto at one end and comprising hinged sections adapted for folding of said sections one upon another between the side arms of the chair frame to form a chair seat, the side arms of the chair being recessed for reception of the side edges of the folded bedstead.

6. A chair frame comprising a back, and side arms hinged thereto, and a bedstead of greater width than the chair back fixed thereto at one end and comprising hinged sections adapted for folding of said sections one upon another between the side arms of the chair frame to form a chair seat terminating short of the forward ends of the side arms when the latter are in normal chair-forming position, the side arms of the chair being recessed for reception of the side edges of the folded bedstead with said recesses terminating short of the forward ends of the side arms so that said non-recessed forward ends of the side arms are adapted to extend in front of the side edges of the folded bedstead.

In testimony whereof he has affixed his signature to this specification.

JOHN W. STERBENZ.