UNITED STATES PATENT OFFICE

CONVERTIBLE PULLMAN SEAT BED

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2 Claims.

1. This invention has to do with that type of furniture known as convertible seat beds and more particularly to what is sometimes called a love seat, by which is meant a sofa having the appearance of a davenport but much shorter and usually just long enough, like a Pullman car seat, to accommodate a seated couple and, therefore, much too short to be used as a comfortable bed, it ordinarily having a length about equal to the width of a full-size bed, which is about 5’.

The object of the present invention is to provide a love or Pullman seat type sofa having the usual upholstered seat, back and arms but which may be readily and easily converted into a full-length bed with a full-sized mattress in length, width and depth or thickness as compared with this type of furniture now on the market, and requiring no separate handling of the mattress, and which is simple and durable in construction and economical to manufacture.

As is well known to manufacturers and users, convertible upholstered sofas and davenports or other structures of this type usually present an attractive appearance as an article of furniture and useful to sit upon but when converted into a bed, have little to recommend them for sleeping qualities because of the impracticability of providing them with comfortable mattresses. Aside from this, in order to convert them from one type to another requires considerable work in the removal and replacement of the mattresses or the lifting of heavy sections, the depth of the seat usually limiting the width of the structure when converted into a bed so that many unsuccessful attempts have been made to overcome these disadvantages or else they are so expensive that they are not within the means of the average householder.

As is also well known, a full-length davenport is too large an article of furniture for the average department store today, giving it a crowded appearance. Therefore, it has become necessary to shorten it, thus providing what is called a love seat which, however, is too short for a full-length bed.

The present improvement which I have designated a “Pullman bed,” while having only the usual length of such seat, nevertheless is so constructed that it may be readily converted into a full-length bed transversely of the seat or back and having the width of a full-sized bed with comfortable inner spring mattresses of the proper thickness for comfort, and which requires no special handling, displacement or removal of the mattresses to convert the article from a seat to a bed or vice-versa and, therefore, I believe I have provided the most practicable and easily handled low-cost convertible seat-bed that has ever been placed upon the market.

5 In the drawings accompanying and forming a part of this specification,

Fig. 1 is a perspective view of this improvement in the form of a love seat.

Fig. 2 is a perspective view thereof in the form of a full-length and width bed, the two illustrations being somewhat foreshortened to enable them to be placed upon the same sheet of drawings.

5 Fig. 3 is a transverse sectional view of this convertible seat-bed illustrating the spring mattress sections partly pulled forward from under the back.

Fig. 4 is also a transverse sectional view of this convertible seat-bed illustrating the spring mattress sections fully pulled forward from under the back with the sections raised and the swinging top section in position to form a full-length double bed, the dotted lines illustrating the swinging section in upright position.

Figs. 5 and 6 are detail views of the automatic latch or lock for maintaining the structure in bed position, Fig. 6 being a section of Fig. 5 looking in the direction of the arrows in Fig. 5.

Similar reference characters indicate corresponding parts in the several views.

Before explaining in detail the present improvement and its mode of operation, I desire it understood that the invention is not limited to the details of construction and arrangement of parts illustrated in the accompanying drawings since the invention is capable of other embodiments, and that the phraseology employed is for the purpose of description and not of limitation.

The love seat shown in Figs. 1 and 2 comprises a suitable framework or main frame having a back and a pair of arms, usually upholstered, and which framework is provided with legs having casters if desired.

Since, in order to form a bed transversely of the seat or back, the two mattress sections, when extended, must be over six feet in length, it follows that, when folded, one upon the other, each section would be more than 35” long which would be much too great a depth for a comfortable seat and would present an unwieldy appearance, therefore, the back 2, in the present instance, is shortened in its height to provide a space 3 into which the inner ends of the spring mattress sections extend when the structure is in the form of
a seat, thus giving the proper depth to the seat.

To transfer the structure into a double bed, these sections are first slid forward to free the inner ends thereof from the back and then the top or outer section is swung over to form a full length double bed (see Fig. 2) and since the width of the sections from arm to arm is about 53" and 10 the ordinary love seat and as this is usually the width of a full-size bed, it follows that the structure thus provides a full-width and full-length bed for sleeping purposes. Not only this, but the stuffed mattresses A and B of full height or depth, usually provided with inner springs, are carried permanently in position, one, as A, on top of the inner or lower spring mattress section 4 and the other, as B, under the top of the swinging or upper or outer spring mattress section 5 when the two are folded and thus are always in position when the structure is extended, without any separate handling thereof. The top side of the upper or swinging spring top section 5 is provided with the usual upholstered seat or cushion C conforming to the style of the back.

If the top or upper section 5 is swung outward and over to form the full-length bed, the connections are such that the lower section is simultaneously and automatically raised to bed height and, of course, lowered to give seat height when the upper section is folded upon the lower section.

In the preferred form herein shown and described, in addition to the usual framework hereinbefore referred to, the structure comprises two spring mattress sections 4 and 5 preferably made of suitable angle iron, the end irons of which are suitably connected by lengthwise extending bars. Each has a suitable spring or link fabric carrying, as before stated, the usual stuffed mattresses A and B, the upper mattress B usually being so connected with the link fabric that it will not be displaced during the swinging movement of the upper section 5.

These two spring mattress sections 4 and 5 are link or lever connected for simultaneous sliding movement and to permit the top or upper section 5 to swing over from its seat position to bed position, the lower section 4 is connected with a sliding under frame 6 having rolls 7 traveling on tracks 8 formed by angle iron cross end bars fixed to the ends of the main frame. This forward sliding movement is, however, a limited one and, as shown in Fig. 4, is only substantially equal to the depth of the back 2 so that even when the bed is open or extended, it takes up much less space in the room than would be the case if the mattress sections had to be shifted to the front edge of the supporting frame before they could be swung open. As the two mattress sections are slid only substantially the depth of the back, and then only after this partial sliding movement swing open, it follows that the bed, even when extended, takes up much less room space than many forms of folding beds, yet it is a full-length and full-width bed made up of but two spring mattress sections while the seat still has the proper depth, usually about 23" to sit upon in comfort. Attempts to swing the mattress sections open without this partial sliding movement have only resulted in impractical cumbersome structures. This partial sliding movement is limited in any suitable way as by having the rolls, such as the rear rolls 1 of the underslung frame 6, engage any suitable projection or stop which may be in the form of a guide roll carried by the angle bars or track 8. This sliding under frame 6 has its cross end bars 9 carrying the rolls 7 suitably connected by lengthwise extending bars 10. Pivot ed to these cross bars 9, as at 12, each end of the bed, the lower or levers 13 and 14, each having a pin or roll 15 and 16 moving in slots 17 and 18 of the ends of the mattress section 4. The opposite ends of these levers 13 and 14 are forwardly bent or curved and are connected by a link 18 to which is pivotally connected a raising and lowering lever 20, the opposite end of which is pivotally connected to a T-shaped plate or iron 21 secured to and forming a part of the top or upper swinging mattress section 5 and located at the inner side thereof when the section is extended.

This iron 21 is also pivotally connected to a bar 22 fixed in the front of the lower section 4.

The lever 14 is extended to form a supporting leg 14' having a roller or caster 14" to support the mattress section 4 when extended into a bed approximately midway thereof and it will be observed that, while this leg supports the two mattress sections substantially midway of their width, the linkage connection through the medium of the links 20, 21 and 22 supports the outer bed section at its front by suspension.

As before stated, the upper side of the top or swinging spring mattress section 5 is upholstered or provided with a seat cushion C to form the seat.

From the foregoing, it will be seen that, without the removal of the seat C or of the two stuffed mattresses A and B, the sections may first be slid forward a sufficient distance to clear the lower edge of the back 2 and then the seat or upper section 5 may be readily thrown over into position to extend the lower section and thus form a full length bed. At this time, a folding leg 24, link connected as at 25 by a pin or slot connection with the leg, is shifted or thrown into position to support the outer end of the bed section 5, this foot being folded up when the reversal of this operation takes place to fold the outer section 5 on top of the lower section 4. The front legs of the swinging section 8 have a dog or catch 24' for preventing collapse of the legs and are released and fall into position by gravity.

To facilitate manipulation of the structure and render it easy to operate, the link or lever 13 has attached thereto a pair of coiled springs 35 connected at one end to an extension or upwardly bent end 28 of the link 13 while at the other end they are connected to a rigid lug 26" carried by the main frame.

To this lug 26" a link 33 is pivoted, the opposite end of which is pivoted to the underside of the section 4 as at 34. Connecting the two links or levers 13 is a lengthwise extending cross bar 37 and, also, to these levers 13 are attached coiled springs 35, the opposite ends being connected to a cross bar 10 of the sliding under frame 6. Stops 38 are secured to the tracks 8 (see Figs. 4, 5 and 6) which, when the bed sections 4 and 5 are slid out, are engaged by the ends of pivoted latches 40 carried by upstanding arms 41 secured to the roll carrying bars 9 and are used to prevent the bed sections 4 and 5 from being prematurely slid back. This latch works automatically for, when the top bed section 4 is folded over on the bottom bed section 4 and the two sections are lowered into seat position, a projection 42 on the lever 13 strikes the end 43 of the latch and disengages it from the stop to permit the bed sections 4 and 5 to slide backward into place under the back 2.
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Since the two bed sections 4 and 5 are spaced apart a suitable distance necessary to provide for the superposed mattress A and B, it follows that when arranged as a sofa or seat, it is necessary, in order to provide an attractive appearance to the front of the seat comprising the front edges of the mattress sections 4 and 5 and the stuffed mattresses carried thereby, that they be covered and, for this purpose, I have provided a panel 27, upholstered if preferred, which is so connected with the mattress sections 4 and 5 so that it will automatically position itself to accomplish this purpose.

As shown, this panel 27 is linked as at 28 and 29 to the mattress sections 4 and 5, consequently, when the upper or top section is thrown over into bed position, this panel automatically assumes the suspended position shown in Fig. 4 below the two sections but, when the two sections are folded, one upon the other, it automatically assumes the vertical position shown in Fig. 3. As shown, it is of substantially U-shape so as to overlap the outer edges of the link fabric mattress sections 4 and 5 to be seen in Fig. 4, the panel 27 is hinged to the underside of both spring mattress sections 4 and 5 so that it is suspended in a substantially horizontal position when the sections are extended but when the spring mattress sections are closed, as in Fig. 3, the hinged connection of this panel is at the top side of the top spring mattress section 4 and at the under side of the bottom spring mattress section 5.

Thus, when the structure is in the form of a love or Pullman seat, it is first merely necessary to pull or slide the two spring mattress sections together forward to free them from under the back, then swing over the top section 5 to form a full length bed with the stuffed mattress sections A and B in position for use. During this swinging movement, the lower section 4, through the medium of the linkage connections hereinbefore described, is automatically raised to bed height so that the two sections will be level at such height. When it is desired to convert the bed into a seat, it is merely necessary to swing the top or outer section 5 upon the lower section, thereby lowering the two sections 4 and 5 into seat position and permit the same to be slid back with their rear edges under the back 3 whereby, as stated, the structure is then in seat height position.

It will be observed that when the top or upper mattress section 5 is swung into bed position, the opposed lengthwise edges thereof are in juxtaposition, the structure being so proportioned as to accomplish this and, in practice, since it is desirable to prevent a space between the adjoining stuffed mattress sections A and B, these two stuffed mattresses are flexibly connected together and, for this purpose, they are hinged together to form a continuous sleeping surface when the structure is extended to form a bed. This also assists in maintaining the position of the stuffed mattresses on the spring fabrics, preventing movement of one away from the other as well as eliminating any space therebetween and, providing, as stated, a continuous comfortable mattress to sleep upon.

From the foregoing, it will be seen that one of the great advantages of the present improvement is that, instead of sleeping, as is usually necessary, lengthwise of the seat, the structure permits one or two sleepers to rest crosswise of the seat while, at the same time, the seat is very much shorter than the ordinary davenport and obviously, since there are many advantages resulting from the construction of the present improvement, the same operating mechanism could, if desired, be used with other forms of furniture to make single, double, or even triple-width beds by merely shortening or lengthening the seats.

Furthermore, it will be observed that this improved bed is so simply constructed that the entire bed structure comprising the two spring mattress sections and the sliding under frame 6 may, as a whole, be readily withdrawn from the main frame comprising the back and the ends or assembled therewith in a simple and expeditious manner whenever this is desired.

It is to be understood that, by describing in detail herein any particular form, structure or arrangement, it is not intended to limit the invention beyond the terms of the several claims or the requirements of the prior art.

It will be understood, of course, that the upholstered seat C may be replaced by separate cushions if desired and also some suitable means may be provided to prevent the seat section from moving forward on its rails when the structure is in the form of a sofa. A simple means for this purpose may consist of a spring catch or merely a pivoted latch button which may be secured to the inner side of the part 27 so that when the seat is pushed into place under the back, turning of this button will engage the inner end of the fixed arm frame and thus prevent the seat from inadvertently sliding forward when the user reclines against the back.

Having thus explained the nature of my said invention and described a way of constructing and using the same although without attempting to set forth all of the forms in which it may be made or all of the modes of using it, I claim:

1. A convertible seat bed having a supporting frame including a back, a pair of spring mattress sections having a length to form a full width double bed, one shiftable from a seat position on top of the other into position to form a full length double bed transversely of the back and of the seat and apart for the reception of a two-part full-sized stuffed mattress, one part carried by each section, in opposed relation when the structure is in the form of a seat, both of said spring mattress sections slidably together relative to the framework to carry the inner ends thereof under or free of the back, the top spring mattress section swingable relative to the bottom section into position to form a full length bed or a seat and simultaneously elevate the bottom spring mattress section out of bed height position or lower it into seat position and including means connecting the spring mattress sections with each other and with the framework and comprising a pair of bars slidable on the framework, a pair of bent-ended parallel links pivoted to each of said bars and having a pin and slot connection with the bottom spring mattress section, a link pivotally connected to said parallel links, and a raising and lowering link pivoted to said connecting link and to an iron rigidly carried by the top mattress section, said iron having a pivoted connection with an arm rigid with the bottom spring mattress section of said bent-ended links forming an automatically operative foot at the front of the bottom mattress section.

2. A convertible seat bed having a supporting
frame including a back, a pair of spring mattress sections having a length to form a full width double bed, one shiftable from a seat position on top of the other into position to form a full length double bed transversely of the back and spaced apart for the reception of a two-part full-sized stuffed mattress, one part carried by each section, in opposed relation when the structure is in the form of a seat, both of said spring mattress sections slideable together relative to the framework to carry the inner ends thereof under or free of the back, the top spring mattress section swingable relative to the bottom section into position to form a full length bed or a seat and simultaneously elevate the bottom spring mattress section into bed height position or lower it into seat position and including means connecting the spring mattress sections with each other and with the framework, and an automatically operative latch shiftable with the sections and positioned to engage a fixed part of the frame for holding the spring bed sections in bed extended position and means also shiftable with the sections for releasing said latch on the folding of said spring bed sections and located at the rear of the bottom bed section.

PERCIVAL P. BEBRY.

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