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(54) A LOCKABLE BACK ON A SOFA BED

(71) We, LA-Z-BOY CHAIR COMPANY, a corporation organised under the laws of the State of Michigan, United States of America, of 1284 N. Telegraph Road, Monroe, State of Michigan, United States of America, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to a sofa convertible to a bed.

Reference may be had to United States Patent 3,525,549 and to the art which was cited therein for disclosures of slide and mounting brackets which may be locked together in somewhat the manner of the present invention.

According to the invention we provide a sofa convertible to a bed comprising an upholstered base frame, an upholstered back frame, said frames being separately upholstered, separable engagement means on facing areas of the base frame and of said back frame at both ends of the sofa, said separable engagement means including a pair of elongate slide brackets and a pair of elongate support brackets, one support bracket secured on each facing area of the base frame and one slide bracket secured on each facing area of the back frame, each slide bracket having the side edges reversely bent to form facing channels, said support brackets each being made of elongate front and rear strips, each strip having a pair of spaced conical portions at one end and a single conical portion spaced therefrom at the other end, said conical portions of respective strips being joined at their apexes, said rear strips being securable to the facing areas of the base frame with each front strip forming slides at the side edges which extend into the facing channels of the slide bracket when the latter is moved downwardly thereover, and retaining means on the slide bracket which engages and is secured to the support bracket for retaining the back frame in secured position on the base frame, the two strips of each support bracket having aligned apertures therethrough in the space

between the pair of spaced conical portions at the one end and the single conical portion at the other end for receiving screws and the like to secure the brackets to the base frame, said retaining means on the slide bracket being a pivoted cam which is movable to lock the slide bracket onto the support bracket.

A sofa frame is usually heavy as it must support a plurality of bed sections which are pivoted together to permit them to be rolled outwardly into planar relation when forming a bed and which roll up to form a compact unit which may be stored within the bottom and back of the sofa frame. While a chair may be tilted to have the back first moved through a door followed by the rest of the chair, a sofa frame may be too wide for the door height and such a manoeuvre could not occur. This difficulty can be overcome by having the back frame removed so that it and the base frame may separately be moved through the door. If the back frame is of such form that it can be placed upon the base frame between the arms thereof, then the sofa can be compactly assembled for shipment or storage. The removal of the back frame also permits the cleaning under the stored bed unit without moving the sofa in another part of the room.

The arms have support brackets secured thereto which are made of two like strips having aligned conical extending portions which are welded, riveted or otherwise secured together and screwed or otherwise attached to the arms in vertical position. The slide brackets have facing channels at side edges which receive the edges of the outermost strips of the support bracket when moved downwardly thereover. The slide brackets are mounted on the facing portion at the ends of the back frame to which they are secured by a plurality of screws. The slide bracket has a cam lever pivoted thereto which when operated moves the cam portion within a notch on the engaged part of the support bracket.

The back frame when constructed without wings may be laid upon the base frame for compact shipment. It may be removed when

the sofa is passed through a narrow door of less height than the length of the back so that the sofa may have the two pieces moved separately through the door and assembled.

The invention will now be described by way of example with reference to the accompanying drawings, in which:

FIGURE 1 is a perspective view of a sofa frame embodying features of the present invention;

FIGURE 2 is an enlarged sectional view of the structure illustrated in Figure 1, taken on the line 2—2 thereof;

FIGURE 3 is a plan view of a joined slide and mounted bracket embodying features of the present invention;

Figure 4 is a sectional view of the structure illustrated in Figure 3, taken on the line 4—4 thereof;

Figure 5 is a reduced view of the structure illustrated in Figures 3 and 4 with the slide bracket shown above the mounting bracket in separated relation; and

Figure 6 is a sectional view of the structure illustrated in Figure 3, taken on the line 6—6 thereof.

A sofa 11 is illustrated in Fig. 1 as embodying a base frame 12 and a separate back frame 13. An arm 14 is provided at each end of the base frame 12, and the arm on the righthand side of the frame has upholstery material 15 thereon. The upholstery material 15 is provided over the entire base frame and also on the back frame, the two frames being separately upholstered so that the back frame can be removed from the base frame. The ends 16 of the back frame are extended to form the decorative arm portions 17 with the area of the bottom portion 18 of the ends 16 facing an area 19 at the rear portion of the arms. A slide bracket 21 is secured to each of the areas 18 at the bottom of the ends in position to engage a supporting bracket 22 on the facing area 19 at the rear of the arms 14. When the slide brackets 21 on the ends of the back frame 13 engage the supporting brackets 22 on the arms of the base frame 12, the back frame is supported in fixed relation to the base frame.

As illustrated in Figs. 3, 4 and 5, the slide bracket 21 has a web 23 with the side edges reversely bent at 24 to form facing channels which engage the supporting bracket 22 when slid downwardly thereover. The top of the web 23 of the slide bracket is bent at an angle to provide a flange 25 which limits the downward movement of the slide bracket relative to the supporting bracket.

The supporting bracket 22 is made of two like parts 26 having a web 27 containing three pressed-out conical portions 28. The apexes of the conical portions 28 are secured together by being riveted or welded with

the webs 27 in spaced relation. The web 27 on the right, as viewed in Fig. 4, has a pair of openings 29 for receiving screws which secure the web to the facing area of the arms 14 when set by a tool which passes through aligned apertures 31 in the lefthand web of the bracket. Apertures 32 are provided in the slide bracket 21 for screws which secure the bracket to the facing area at the ends of the back frame.

The slide bracket 21 has part of the lefthand edge, as illustrated in Fig. 3, formed into a flange 33 in the plane of the web 23. A cam lever 34 is secured to flange 33 by a pivot 35. The lefthand web 27 of the supporting bracket 22 has a notch 36 in which a cam head 37 of the lever 34 enters and locks the slide bracket to the supporting bracket. The head is aligned with the notch by the flange 25 at the top of the slide bracket. It will be noted that the slide bracket 21 is cut off at the bottom to provide a sloping edge 40 to assist in aligning the slide bracket with the supporting bracket. It is to be understood that the base frame 12 and the back frame 13 are separately upholstered and that the cam lever 34 will be disposed between the upholstering material and is operated by a screw driver or other implement which will engage an angularly presenting flange 38 on the end of the lever 34.

It will be noted that at the back of the base frame there is a board or runner 39 which is aligned with a board or runner 41 on the bottom rear portion of the back frame. Plates 42 are herein illustrated as being secured to the back frame board 41 to extend downwardly into engagement with the rear face of the base frame board 39. While plates 42 are mentioned, it is to be understood that a channel member could be provided on the bottom of the board 41 of the back frame which could extend over the board 39 of the bottom frame so that neither board could warp or move out of alignment. The channel member could be extended to cover most of the length of the board.

WHAT WE CLAIM IS:—

1. A sofa convertible to a bed comprising an upholstered base frame, an upholstered back frame, said frames being separately upholstered, separable engagement means on facing areas of the base frame and of said back frame at both ends of the sofa, said separable engagement means including a pair of elongate slide brackets and a pair of elongate support brackets, one support bracket secured on each facing area of the base frame and one slide bracket secured on each facing area of the back frame, each slide bracket having the side edges reversely bent to form facing channels, said support brackets each being made of elongate front



the sofa is passed through a narrow door of less height than the length of the back so that the sofa may have the two pieces moved separately through the door and assembled.

The invention will now be described by way of example with reference to the accompanying drawings, in which:

FIGURE 1 is a perspective view of a sofa frame embodying features of the present invention;

FIGURE 2 is an enlarged sectional view of the structure illustrated in Figure 1, taken on the line 2—2 thereof;

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Figure 4 is a sectional view of the structure illustrated in Figure 3, taken on the line 4—4 thereof;

Figure 5 is a reduced view of the structure illustrated in Figures 3 and 4 with the slide bracket shown above the mounting bracket in separated relation; and

Figure 6 is a sectional view of the structure illustrated in Figure 3, taken on the line 6—6 thereof.

A sofa 11 is illustrated in Fig. 1 as embodying a base frame 12 and a separate back frame 13. An arm 14 is provided at each end of the base frame 12, and the arm on the righthand side of the frame has upholstering material 15 thereon. The upholstering material 15 is provided over the entire base frame and also on the back frame, the two frames being separately upholstered so that the back frame can be removed from the base frame. The ends 16 of the back frame are extended to form the decorative arm portions 17 with the area of the bottom portion 18 of the ends 16 facing an area 19 at the rear portion of the arms. A slide bracket 21 is secured to each of the areas 18 at the bottom of the ends in position to engage a supporting bracket 22 on the facing area 19 at the rear of the arms 14. When the slide brackets 21 on the ends of the back frame 13 engage the supporting brackets 22 on the arms of the base frame 12, the back frame is supported in fixed relation to the base frame.

As illustrated in Figs. 3, 4 and 5, the slide bracket 21 has a web 23 with the side edges reversely bent at 24 to form facing channels which engage the supporting bracket 22 when slid downwardly thereover. The top of the web 23 of the slide bracket is bent at an angle to provide a flange 25 which limits the downward movement of the slide bracket relative to the supporting bracket.

The supporting bracket 22 is made of two like parts 26 having a web 27 containing three pressed-out conical portions 28. The apexes of the conical portions 28 are secured together by being riveted or welded with

the webs 27 in spaced relation. The web 27 on the right, as viewed in Fig. 4, has a pair of openings 29 for receiving screws which secure the web to the facing area of the arms 14 when set by a tool which passes through aligned apertures 31 in the lefthand web of the bracket. Apertures 32 are provided in the slide bracket 21 for screws which secure the bracket to the facing area at the ends of the back frame.

The slide bracket 21 has part of the lefthand edge, as illustrated in Fig. 3, formed into a flange 33 in the plane of the web 23. A cam lever 34 is secured to flange 33 by a pivot 35. The lefthand web 27 of the supporting bracket 22 has a notch 36 in which a cam head 37 of the lever 34 enters and locks the slide bracket to the supporting bracket. The head is aligned with the notch by the flange 25 at the top of the slide bracket. It will be noted that the slide bracket 21 is cut off at the bottom to provide a sloping edge 40 to assist in aligning the slide bracket with the supporting bracket. It is to be understood that the base frame 12 and the back frame 13 are separately upholstered and that the cam lever 34 will be disposed between the upholstering material and is operated by a screw driver or other implement which will engage an angularly presenting flange 38 on the end of the lever 34.

It will be noted that at the back of the base frame there is a board or runner 39 which is aligned with a board or runner 41 on the bottom rear portion of the back frame. Plates 42 are herein illustrated as being secured to the back frame board 41 to extend downwardly into engagement with the rear face of the base frame board 39. While plates 42 are mentioned, it is to be understood that a channel member could be provided on the bottom of the board 41 of the back frame which could extend over the board 39 of the bottom frame so that neither board could warp or move out of alignment. The channel member could be extended to cover most of the length of the board.

WHAT WE CLAIM IS:—

1. A sofa convertible to a bed comprising an upholstered base frame, an upholstered back frame, said frames being separately upholstered, separable engagement means on facing areas of the base frame and of said back frame at both ends of the sofa, said separable engagement means including a pair of elongate slide brackets and a pair of elongate support brackets, one support bracket secured on each facing area of the base frame and one slide bracket secured on each facing area of the back frame, each slide bracket having the side edges reversely bent to form facing channels, said support brackets each being made of elongate front



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and rear strips, each strip having a pair of
spaced conical portions at one end and
a single conical portion spaced therefrom
at the other end, said conical portions of
5 respective strips being joined at their apexes,
aid rear strips being securable to the facing
areas of the base frame with each front strip
forming slides at the side edges which extend
10 into the facing channels of the slide bracket
when the latter is moved downwardly there-
over, and retaining means on the slide
bracket which engages and is secured to the
support bracket for retaining the back frame
15 in secured position on the base frame, the
two strips of each support bracket having
aligned apertures therethrough in the space
between the pair of spaced conical portions
at the one end and the single conical portion
20 at the other end for receiving screws and the
like to secure the brackets to the base frame,
said retaining means on the slide bracket
being a pivoted cam which is movable to
lock the slide bracket onto the support
25 bracket.

2. A sofa as claimed in claim 1, wherein
a pair of aligned elongated runners are pro-
vided, one on the rear of the base frame and

the other on the bottom of the back frame,
and means secured to one runner which
engages the other runner for retaining the
30 two runners in aligned relation.

3. A sofa as claimed in claim 1 or 2,
wherein the top edge of the slide bracket is
flanged over to provide a stop for locating
the slide bracket on said supporting bracket.
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4. A sofa as claimed in claim 1, 2 or 3,
wherein the slide bracket has a flange at one
side edge, said cam lever being pivoted to
said flange and having a cam head which
engages one edge of the support bracket.
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5. A sofa as claimed in claim 4, wherein
said support bracket has a notch in said one
edge in which the cam head projects to lock
the slide bracket on said support bracket
against upward movement thereon.
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6. An upholstered sofa substantially as
herein described and as shown in the ac-
companying drawings.

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