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CONVERTIBLE BED-SOFA COMBINATIONS

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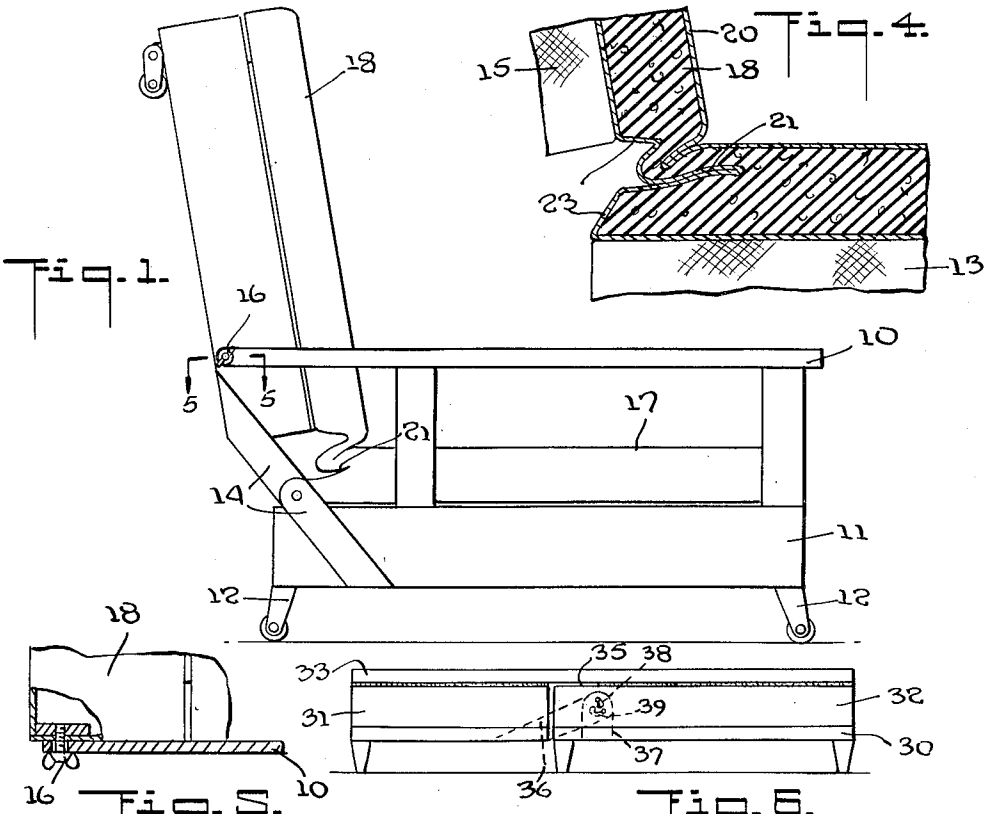

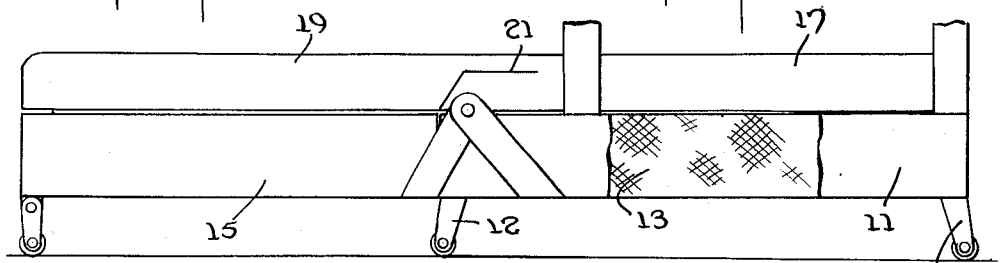

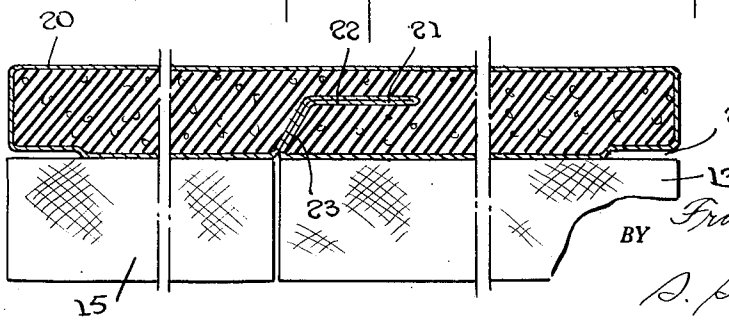

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CONVERTIBLE BED-SOFA COMBINATIONS

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3 Claims. (Cl. 5—38)

This invention relates to furniture and more particularly to a bed which converts into a sofa or the like.

Conventional bed-sofas are of various types but in general, the bed of the instant invention comprises two mutually swingable sections which may be rendered jointly planar in the bed position, and may assume a form of angularity or folding in the sofa or sitting position.

A popular form of convertible bed-sofa comprises a double or twin bed structure which is at least fifty-three inches wide. The length is generally six feet or so. It is formed into a sofa by means of a longitudinal central fold. However, inasmuch as the width of the bed is at least fifty-three inches, the seat portion of the sofa becomes about 26½ inches wide while the back portion is about the same in height. This arrangement is uncomfortable because the 26½ inch seat is tooo wide and the 26½ inch back is too high. Furthermore, the appearance is clumsy and unaesthetic.

Another pronounced defect in structures of the above type is the fold between the two sections. This fold is uncomfortable in the sleeping position as well as in the sitting position. Furthermore, in the sitting position, the weight of the occupant pulls the material of the back downwardly, rendering the sofa further uncomfortable and causing undue wear.

With the foregoing in mind, I have devised a bed which is of the normal width but which converts or transfers into a sofa having desirable dimensions which, in a large sense, are independent of the bed dimensions. Furthermore, there is no apparent or discernible fold between the two longitudinal halves. As a result, a bed is provided which is of maximum comfort and is indistinguishable from a normal one-piece bed. On the other hand, the article can be easily transferred into a sofa and the above mentioned fold objections are nevertheless eliminated.

My convertible bed-sofa comprises a mattress where the top portion is uniform and uninterrupted by any fold or cut. Accordingly, in the planar or bed position, the mattress is most comfortable. However, a special cut in the body of the mattress is provided which permits a section thereof to fold inwardly and dispense with a longitudinal mattress portion so as to provide sitting dimensions which are jointly less than the planar or bed dimensions. This arrangement provides further comfort in the sitting position as will be hereinafter shown.

The invention will be further understood from the following description and drawings in which:

Figure 1 is a side elevational view of a preferred form of the bed-sofa in the sitting position;

Figure 2 is an end view of the article in the bed or sleeping position;

Figure 3 is a transverse cross-sectional view of the article in the bed or sleeping position;

Figure 4 is a fragmentary cross-sectional view of the article in the sofa position at the seat and back junction and taken transversely of the article;

Figure 5 is an enlarged, fragmentary cross-sectional view as taken along the line 5—5 of Figure 1; and

Figure 6 is a transverse cross-sectional view of a modified embodiment.

Referring to Figure 1, the frame structure is conventional and is shown somewhat schematically. Thus, the structure comprises arms 10 connected to a base 11 to which are secured feet 12. Secured to base 11 is a conventional form of lower box-spring or coil spring section 13. To the base 11 is also connected hinged links 14 which also connect to the movable lower box-spring or coil spring section 15. Thus, the section 15 may be in horizontal alignment with the section 11 as illustrated in Figure 2 so as to provide the bed position. On the other hand, the section 15 may be raised upwardly as illustrated in Figure 1 to provide the sofa position. In order to lock the two spring sections in this position, arm 10 is provided with a set screw 16.

When the sections 13 and 15 are in horizontal alignment as illustrated in Figure 2, the bed may have a width of about fifty-three inches or more as above stated. However, when the article is in the sofa position shown in Figure 1, the seat 17 may be about twenty-two inches wide and the back 18 may be about twenty-two inches high making a total of forty-four inches. This is a comfortable and pleasing arrangement. Nine inches have been "lost" in the folding by means of structure which will now be described. As is obvious, the lower spring sections serve to support the mattress which will now be described.

The mattress 19 is illustrated as being of the foam rubber type and having a fabric cover 20. Generally, such mattresses are supplied in four inch thicknesses although this particular dimension is not important to the invention. From the top end of the mattress to the lower end at about a longitudinal center line thereof, I form an angular cut 21. One leg of the angular cut is substantially vertical or upward and the other is in a horizontal plane, parallel to the top and bottom surfaces of the mattress. The horizontal cut is about ¼ down from the top surface and, in any event, should be at least approximately ¾ of an inch or more down from the top surface in order to prevent the user from feeling the cut in the sleeping position as will be hereinafter explained.

In the embodiment of Figure 3, cut 21 is an obtuse angle with the upwardly extending leg 23 extending from the bottom surface of the mattress to a point short of the top surface thereof while the horizontal leg 22 extends from said point parallel to both the top and bottom surfaces of the mattress. In the specific form shown in Figures 1 to 5, the lower spring section 13 is 32½ inches wide while the width of section 15 is 20½ inches. Accordingly, in the bed position the combined lower spring sections have the same width as the mattress 19.

When the box-spring or coil spring section 15 is raised to provide a sitting position, a fold is produced in the horizontal angle leg 23. The extended or unfolded length of angle leg 23 is about nine inches, whereas, in the folded or looped position it is about 3½–4 inches in length, some length being lost in the folding. This fold is automatically formed in Figures 1 and 4, the fold being disposed rearwardly of the seat and back junction. It will be observed that the box-spring section 15 is caused to slightly overlap the box-spring section 13 horizontally in the sitting position. As a result, the seat 17 and back 18 have the proper widths of about twenty-two inches notwithstanding that their combined extended width is fifty-three inches.

As may be deduced from Figure 2, when the device is in the bed position, the top surface of the mattress 19 is perfectly planar and exhibits no central fold line or de-

formation. Accordingly, it is indistinguishable from a normal, unfoldable mattress. It nevertheless is foldable to the form illustrated in Figures 1 and 4. In this position, it will be observed that when one is seated on the seat 17, he would ordinarily pull downwardly on the back 18 if a single piece of fabric was applied over both surfaces. However, by virtue of the fold, a tolerance or slack is provided so that sitting on the seat 17 produces substantially no pulling effect upon the back 18 and provides considerable comfort in this position.

As illustrated in Figure 3, the bottom surface of mattress 19 is secured as by adhesive to the top surface of both box-spring sections. Accordingly, these elements are inseparable except by the folding action. Such a structure would make it difficult to apply a bed sheet over the mattress 19 and I accordingly provide a circumferential opening 24 which is about four inches wide so that the peripheral edges of the mattress are free of the box-spring sections. This permits a sheet to be tucked in all around the mattress 19. It is particularly adaptable to the so-called fitted sheets.

In Figure 6 I have shown some modification of the above principle where a conventional band or cable spring base 30 is provided. A pair of lower mattress sections 31 and 32 are disposed thereon, such mattress sections being of conventional form whether inner spring or cotton, hair or the like. A one or two inch foam rubber layer 33 which serves as a top mattress section is adhesively secured to both sections 31 and 32 so as to form a composite unit of the foam rubber layer and the lower sections as in the first embodiment. A cut 34 of substantially inverted L-shape is provided, it serving the same function as the angular cut 21. Thus, cut 34 results through the separation of the two box-spring sections 31 and 32 in addition to an uncemented section 35 forming the upper, horizontal leg of the cut. Of course, mattress layer 33 need not be of foam rubber but may be of cotton. However, the angular cut 34 produces almost the same results in the composite unit of Figure 6 as does the cut 21 in the mattress 19. In Figure 6, mattress section 31 would be raised relative to section 32 in the same manner as shown in Figure 1 when going into the seat position. Section 31 must first be raised in order to clear the top of section 32 and a simple double action cam type hinge comprising arms 36 and 37 is employed. Arm 36 is attached to section 31 and has two studs which

ride in arcuate slots 38 and 39 in arm 37. This permits the required raising action and provides rest positions for the studs.

What is claimed is:

1. A bed-sofa combination comprising a pair of mattress support sections which are normally horizontally aligned in the bed position, means to adjust and maintain the relative positions of said sections in a joint position of angularity in the sofa position, and a foam rubber mattress permanently secured to both of said sections, said mattress overlying each of said sections and having an angular cut form therein, one angle leg thereof extending from the bottom surface of the mattress and substantially upwardly to a point short of the top surface thereof and the other angle leg extending horizontally from said point and parallel to said top surface, so as to be likewise wholly short of said top surface and terminating within the material of the mattress at the same level as said point, said angular cut extending continuously down the length of the mattress, the peripheral edges of said mattress being free of said sections for a distance of approximately four inches inwardly on said sections.

2. A combination according to claim 1 and wherein said other angle leg is approximately nine inches in length.

3. A combination according to claim 2 and wherein said means to adjust and maintain the relative positions of said sections in a joint position of angularity comprises linkage means connected between said sections, said linkage means being operative to guide one of said mattress support sections to a position of angularity relative to the other mattress support sections and in a horizontal overlapping position relative thereto.

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