

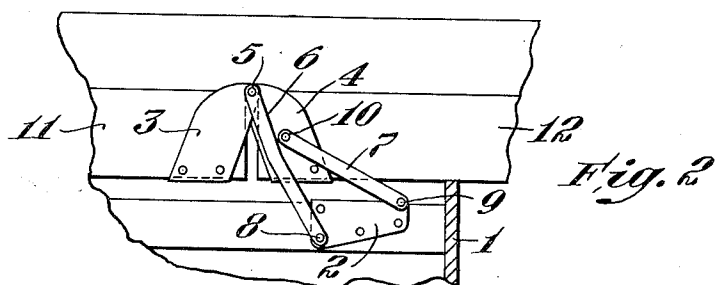
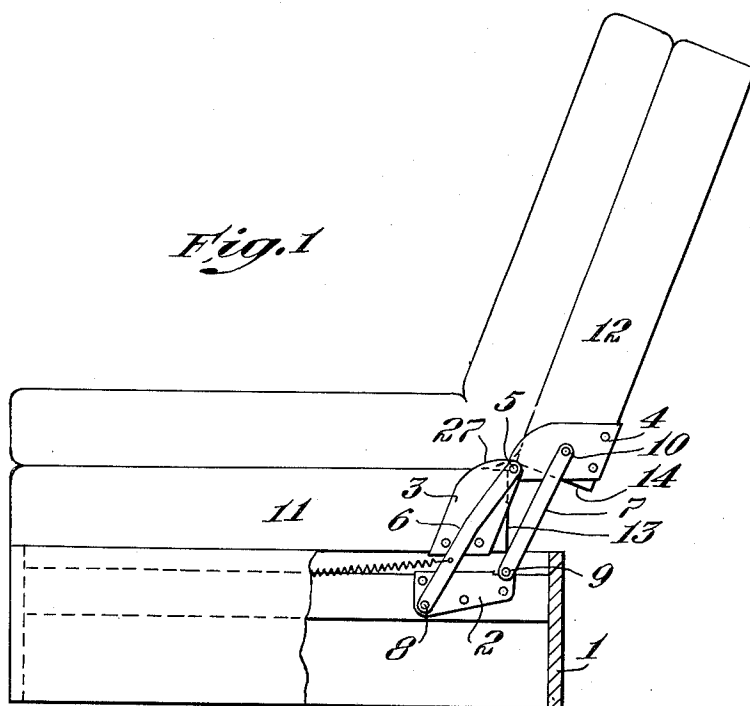
May 8, 1951

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SOFA BED

2,552,128

Filed May 23, 1950

2 Sheets-Sheet 1



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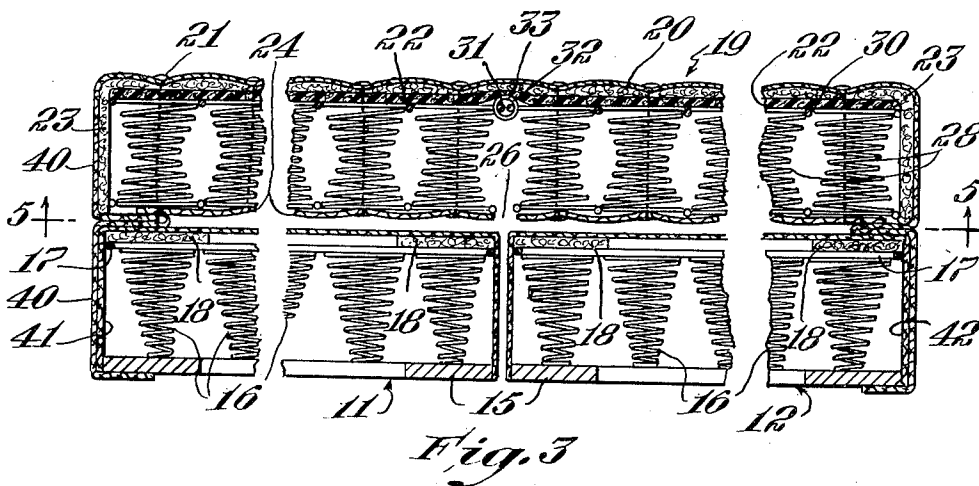
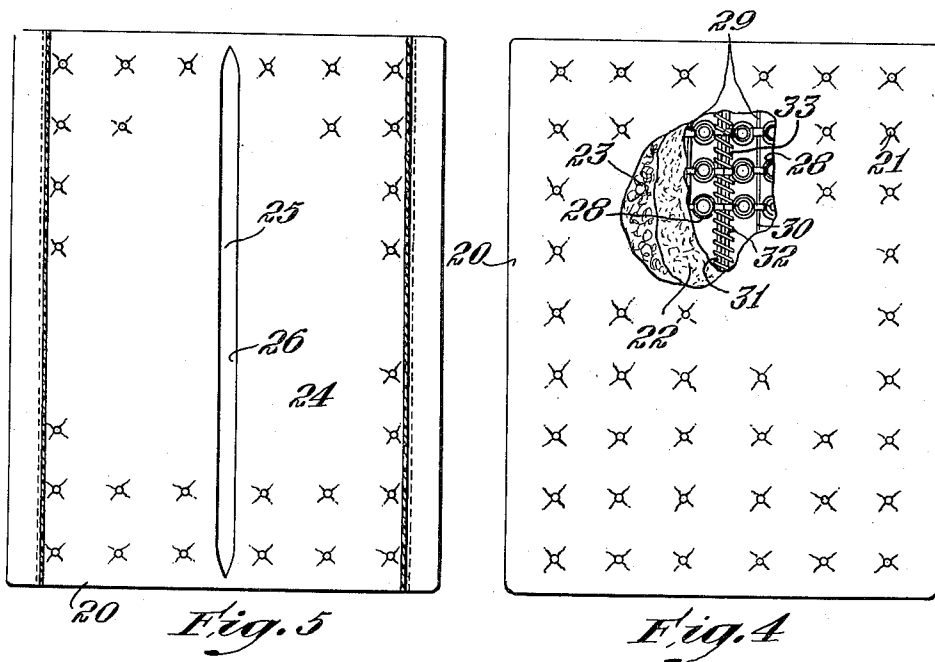
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2,552,128

SOFA BED

Filed May 23, 1950

2 Sheets-Sheet 2



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UNITED STATES PATENT OFFICE

2,552,128

SOFA BED

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Application May 23, 1950, Serial No. 163,728

5 Claims. (Cl. 5—47)

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The present invention relates to a so-called sofa bed which may be used either as a sofa or which may be opened up into a bed. The great difficulty encountered in the sofa bed type of furniture is that it is not wholly comfortable for sleeping purposes because of the fact that when the sofa is opened into a bed, there usually is a depression between the two halves of the bed, one of which forms the seat of the sofa and the other the back, which makes it uncomfortable for sleeping purposes. When the ordinary sofa bed is opened to form a bed, the center section slopes downward in the region that the two portions, the back and the seat portion, are hinged together.

In the present invention this objectionable feature of the ordinary sofa bed is entirely overcome and the bed actually presents one continuous mattress surface with the same desirable effects that the ordinary good mattress will provide. In fact, in the present invention the sofa bed at its top has a complete mattress section made with the same type of inner spring units as the ordinary mattress is made with the exception that the coils are a little shorter so that the thickness of the mattress will correspondingly be slightly less. This mattress is a single or unitary structure serving both for the seat of the sofa bed and for the back of the sofa bed when used as a sofa. The mattress sections in the present invention are backed by the ordinary box spring used like an ordinary bed box spring but made in two separable sections, one under each half of the mattress extending parallel to the direction of the pivot or the hinge. In general, standard hardware elements may be used in the construction, such for instance as the hinges and latches ordinarily used in sofa beds.

Without further describing the merits and advantages of the present invention, the invention will be more fully described in connection with an embodiment illustrated by the drawings, in which:

Figure 1 shows an end view of the sofa bed with one end of the supporting base structure removed, showing the hinging element in a sofa position.

Figure 2 shows a detail of the supporting and hinging arrangement for the sofa bed in the bed position.

Figure 3 shows a fragmentary section in elevation through a portion of the sofa bed when it is opened up into a bed position.

Figure 4 shows a plan view of the sofa bed opened looking down on it with parts shown broken away, and,

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Figure 5 shows a section taken on the line 5—5 of Figure 3.

In the arrangement illustrated in the drawings, the sofa bed is supported on a base 1 to which is attached a bracket 2 carrying the support and hinging pivots for the sofa bed. In the illustration shown in Figures 1 and 2, this is a standard support formed with two plates 3 and 4 pivoted near one end 5 and suspended by two bars or links 6 and 7 which are pivoted to the bracket 2 at 8 and 9 respectively. The arm or bar 6 is also pivoted at 5 where the two plates 3 and 4 are pivoted, while the arm 7 is pivoted at 10 in the body of the bracket, 4.

In the position shown in Figure 1, the two arms 6 and 7 are substantially parallel while in the position shown in Figure 2, this is not so. The plate 3 supports the box spring structure 11 while the plate 4 supports the box spring structure 12 forming each one half of the sofa bed.

In Figure 3 there is shown a cross section taken on the sofa bed when opened as a bed. This structure comprises the two lower independent box spring sections 11 and 12 previously mentioned which may be of the usual construction comprising a base, wood or metal frame 15 on which may be mounted cone-shaped springs 16, 16, etc., wired together by one or more elements 17 to form a unitary structure. The box spring frame so mounted may be covered with a felt padding 18 but need not be finished at the top. It will be remembered that each of the box spring sections 11 and 12 are completely separated from one another and are held and positioned by means of the hinged plates 3 and 4 which are hinged at the pivot point 5 to permit the box springs to swing apart as shown more clearly in Figure 1.

Over the box spring is mounted the mattress element 19. This is a simple mattress of the usual type and construction with a top cover 20 tufted with through tufting 21, the cover having beneath it a rubberized hair sheet 22 over which is a layer of cotton batting upholstery 23 which extends down the sides of the mattress. The bottom of the mattress is provided with an ordinary cover member 24 which must be slit as indicated at 26 along the whole bottom on a center line 25 from one end of the mattress to the other but not into the ends. The slitting is essential but may be covered over if desired by a very loose covering member which will provide sufficient excess material so that when the mattress is in the position indicated in Figure 1, the material in the angle section beneath the

mattress subtended by the side curved section 27 will not be under strain or tension and will not therefore tend to draw the top cover of the mattress down at the middle line. The tension on the middle line is relieved and the mattress will easily bend or fold along it even though it is perfectly level on top. It is preferable to slit the mattress along the center at the bottom or to leave a section of the bottom cover of the mattress open in this region, and if desired the edges of the slit may be finished off or hooked to adjacent rows of helical springs 28 on either side of the slit. The mattress 19 in its inside is constructed in the usual fashion with rows of helical springs 28 which may be fastened together by clips 29 attaching adjoining springs to wires 30 providing a complete framework for the inner spring structure. The only essential modification of the ordinary mattress structure is that along the center line 25 there are provided two adjacent longitudinally extending wires 31 and 32 (see Figures 3 and 4) which are held together by a spiral spring member 33 extending substantially the length of the mattress. The position of these elements with respect to the top covering element of the mattress is indicated in Figure 3. This spiral hinge is just below the top of the mattress structure and in line with the pivot 5 forming the imaginary line bisecting the angle between the sides 13 and 14 which defines the inner edges of the seat and back of the sofa in the sofa position indicated in Figure 1 and the central longitudinal plane of the bed as illustrated in Figure 3.

The mattress 19 covers both box spring units 11 and 12 and is held in place by the skirt or covering 40 or by any suitable means which holds the mattress in each half or section to the box spring units. The cover 40 extends around the sides of the mattress and a short distance beneath it and then covers the outer sides 41 and 42 of the box spring units. The ends of the box spring may be similarly covered.

No particular mention has been made of the base 1 and the positioning of the bracket 2 as this is substantially conventional. It will be noted that when used as a sofa the seat is directly on the base and when opened as a bed the units together straddle the base substantially symmetrically. It is evident therefore that the box spring units have both an oscillatory and translatable motion in the change of device from a sofa to a bed and vice versa. One of the advantages of the present construction as herein described is the use of a unitary mattress which is made to flex along its center line.

Having now described my invention, I claim:

1. A sofa bed of the type described comprising an inner spring, unitary, top upholstered mattress member having a longitudinally extending hinge serving as a pivot between adjacent rows of inner springs along a central line lengthwise of the mattress effectively forming the mattress into two longitudinal sections, said hinge being positioned just beneath the upholstered top of the mattress and said mattress being provided with a bottom cover having an open section substantially coextensive with the hinge, a pair of box spring structures, means for securing each effective longitudinal section of the mattress, respectively, to one of said pairs of box spring structures, and means for pivotally supporting said box spring structures for swinging the sofa bed into a sofa or bed position including pivot means between said box spring structures

aligned parallel to said first hinge and vertically beneath the same when the bed is in an open level position.

2. A sofa bed of the type described comprising an inner coiled spring, unitary, top upholstered mattress member with rows of coiled springs having a longitudinally extending hinge under the top upholstered surface of the mattress effectively hinging two adjacent rows of coils of the mattress in two longitudinal sections, a box spring structure under each mattress section, said mattress having a free open bottom region, means securing the mattress sections respectively to said box spring structures and means for pivotally supporting said box spring structures for swinging the sofa bed into a sofa or bed position including pivot means between said box spring structures at the ends of the sofa bed aligned parallel to said first hinge and vertically below the same.

3. A sofa bed of the type described comprising a coiled inner spring, unitary, top upholstered mattress member with rows of coiled springs having a longitudinally extending hinge under the top upholstered surface of the mattress effectively hinging two adjacent rows of coils of the mattress in two longitudinal sections, said mattress being covered at the ends and sides and having on its bottom side an open section extending substantially for its length directly below the longitudinal extending hinge, a pair of individual box spring structures, the covering of the mattress at the sides and ends extending down over the sides and ends of the box spring structures and yieldingly securing the longitudinally hinged sections of the mattress respectively, one to each of said box spring structures, one of said pair of box spring structures being under one section of said mattress and one under the other section of the mattress, and hinge means connecting said box spring structures at the ends thereof and having an axis parallel to the hinges in said mattress.

4. A sofa bed of the type described comprising a supporting base, a pair of box spring structures, means supporting said box spring structures for translatable movement with respect to said base and for pivoting motion with respect to one another whereby the box spring structures may be placed in a bed position or in a sofa position, a unitary, coiled inner spring, top upholstered mattress structure having the coils tied together in two sections pivoted to one another along a longitudinal line of the mattress directly under the top upholstery of the mattress and said mattress having a bottom cover with an opening directly under the line of pivot and a skirt element extending around said mattress for securing each mattress part, one to each of said box spring structures, the pivoting axis of said box spring structure being parallel and below the pivoting axes of said mattress.

5. A sofa bed of the type described comprising a supporting base, a pair of box spring structures, means supporting said box spring structures for translatable motion with respect to said base and for pivoting motion with respect to one another whereby the box spring structures may be placed in a bed position or in a sofa position, a unitary inner spring mattress structure having a continuous upholstered covered top and bottom cover with an open section extending along the middle of the mattress parallel to the pivoting axis of the box spring structures for substantially its whole length, said mattress having a

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longitudinally extending pivot directly under said upholstered covered top, pivoting said mattress in two longitudinally hinged substantially similar sections and a skirt element of fabric material covering the sides and ends of the mattress and extending over the sides and ends of said box spring structures securing each mattress part respectively to its corresponding box spring structures, the pivoting axis of said box spring structure being parallel to and below the pivoting axis of said mattress.

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