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2,654,099

ANTIPUCKERING MEANS FOR SOFA BED UPHOLSTERY

Filed April 20, 1950

2 Sheets-Sheet 1

Fig. 1

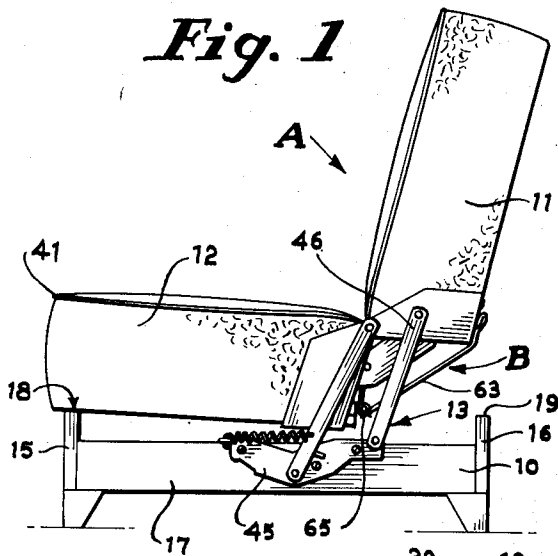


Fig. 2

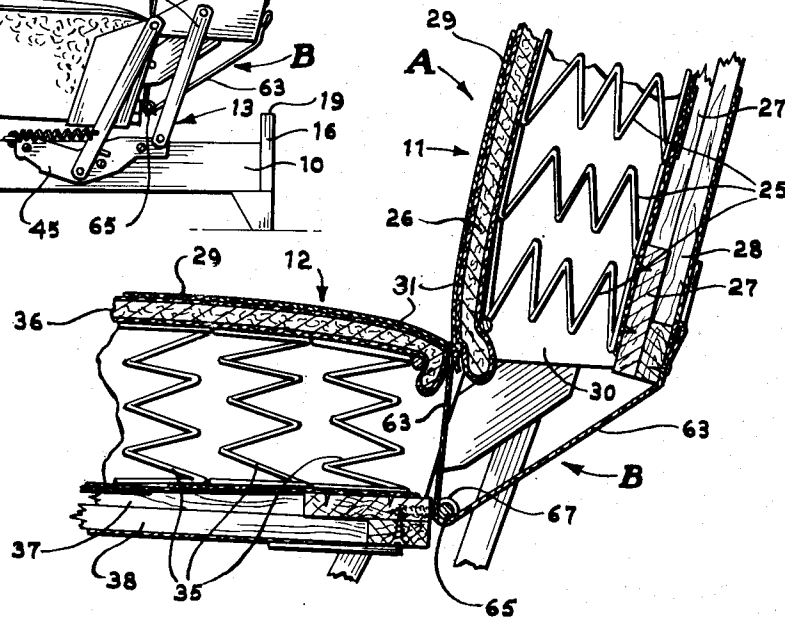
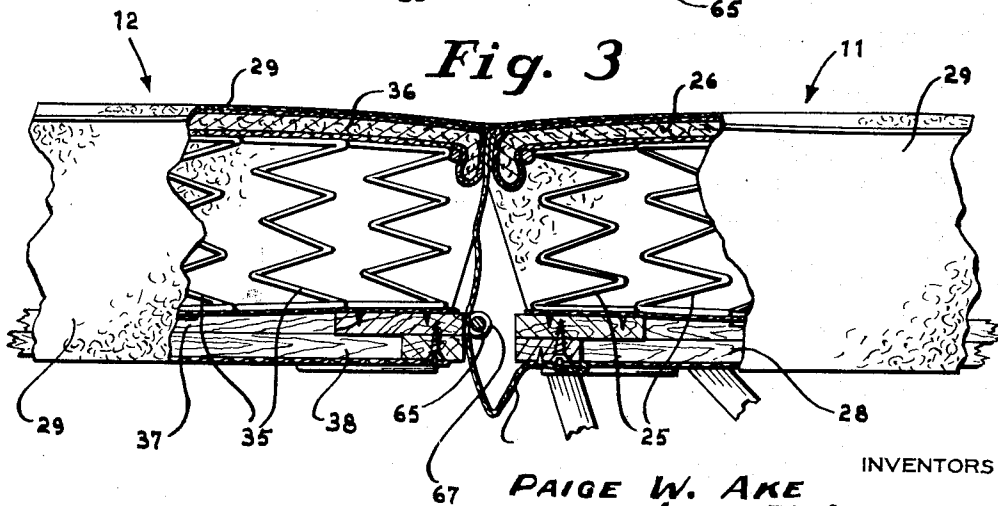


Fig. 3



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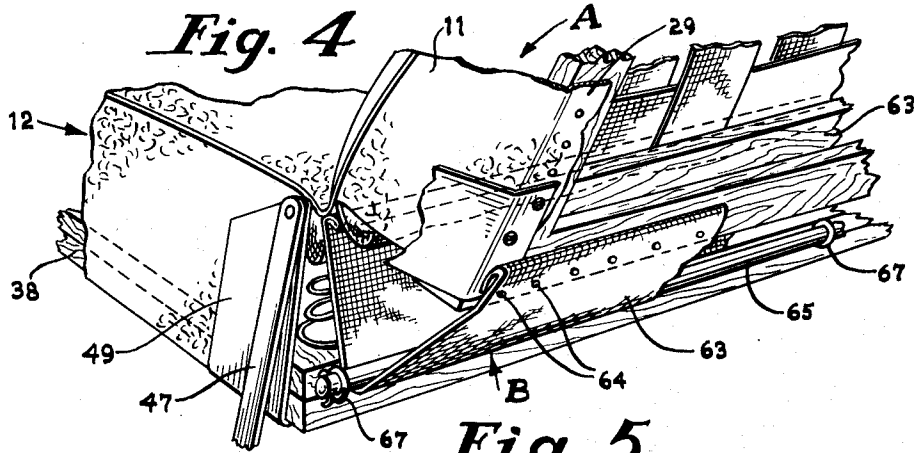
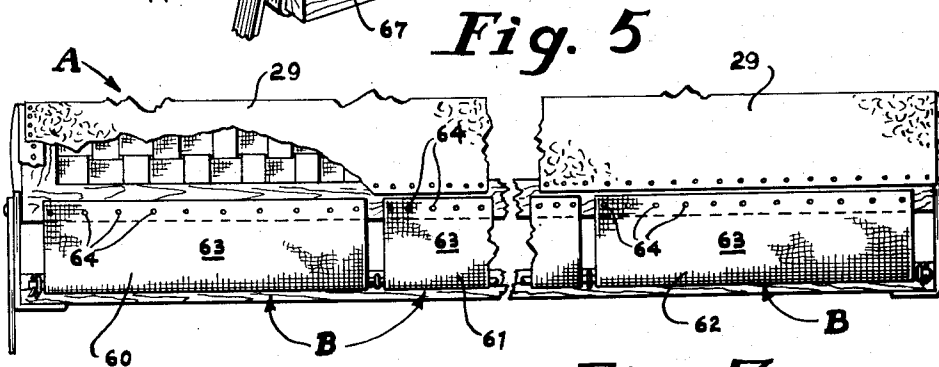
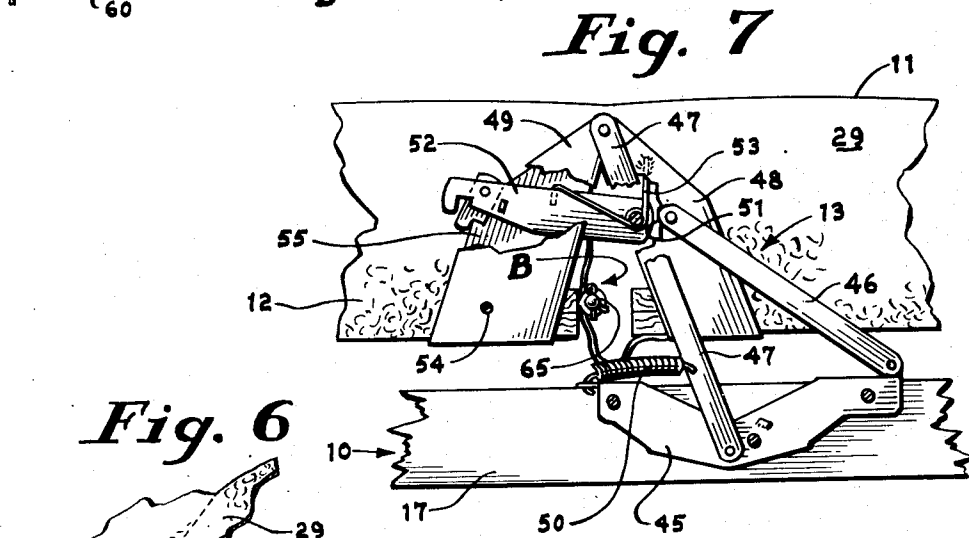
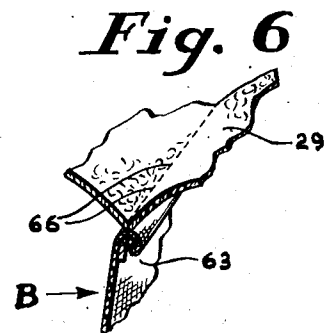
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ANTIPUCKERING MEANS FOR SOFA BED UPHOLSTERY

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2 Sheets-Sheet 2



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ANTIPUCKERING MEANS FOR SOFA BED
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6 Claims. (Cl. 5-47)

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This invention relates to convertible beds and chairs having reverting backs. One example of such is a sofa bed.

Considering the latter as an example, although the defects are not confined to it but are characteristic as well of convertible chairs, having reverting backs, manufacturers are faced with the problem that, when the sofa bed is in the back-lowered or bed position, there is a longitudinally-extending depression in or near the center, at the confronting sides of the back and seat and, when the sofa bed is converted to a sofa the upholstering material has an undesirable tendency to pucker and bunch outwardly at this juncture.

An important object of this invention is to provide a sofa bed or like structure wherein the slack in the upholstery is let out so that both the depression and the puckering and bunching are eliminated.

Another important object is to provide a sofa bed including a body-supporting surface all parts of which are substantially flat and in the same horizontal plane when the sofa bed is disposed in a bed position.

Another important object is to provide the desirable features mentioned, without weakening the structure. In fact the improvements tend to strengthen the structure of the sofa bed.

A further important object is to provide improvements which may be very readily made by the artisan so that the cost of manufacture of the sofa bed is not materially increased.

Still another important object is to provide an improvement as described which will not tend to draw the upper forward edge portion of the seat upholstery toward the back of the seat, which drawing finally causes permanent distortion of the seat structure.

Yet another important object is to provide an improvement as set out which does not interfere with the positions and functions of the conventional helical springs of the seat and back.

Other objects and advantages of the invention will be apparent during the course of the following detailed description of the invention, taken in connection with the accompanying drawings, forming a part of this disclosure and in which drawings:

Fig. 1 is an end elevation of a structure of the class described, including the improvement, parts being broken away in order to better illustrate portions of the structure.

Fig. 2 is a fragmentary transverse section of the structure of Fig. 1, with the reverting back in

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a raised position and showing the position of the improvements.

Fig. 3 is a like fragmentary section but with the back lowered and illustrating the changed position of the improvement.

Fig. 4 is a fragmentary perspective rear view of the same, with parts of the same broken away in order to reveal the parts beneath.

Fig. 5 is a fragmentary rear elevation of a sofa bed employing a plurality of the improvements.

Fig. 6 is a fragmentary perspective of upholstery and a portion of the improvement attached thereto.

Fig. 7 is a side view of the operating means of the structure of Figures 1 to 5 inclusive.

In the drawings, wherein for the purpose of illustration is shown a preferred embodiment of the invention and wherein similar reference characters designate corresponding parts throughout the several views, the letter A designates the sofa bed or like structure as a whole with the improvement designated as B.

The structure A comprises a support 10, and a reverting back 11, seat 12 and operating means 13 carried by the support 10. The back 11 and seat 12 constitute a body-supporting structure.

Referring mainly to Figs. 1 and 5, the support 10 comprises a front or side rail 15, rear or opposite, parallel side rail 16, and end rails 17 in substantial parallelism and joining the side rails. The upper edge 18 of the rail 15 provides a stop and support for the forward edge portion of the seat 12 and the upper edge 19 of the rail 16 provides a stop and support for the normally lower edge portion of the back 11.

The reverting back 11 is shown as containing conventional helical springs 25 supporting padding means 26 at one like end of each and bearing against abutment means 27, including a back-board 28. Covering the padding means 26 is suitable flexible upholstering material 29 which also covers a pair of suitable end frame members one being shown at 30 in Figure 2. It will be noted, as in Figs. 2 and 3, that the padding means 26 includes an outer flexible covering 31.

Of somewhat similar construction is the seat 12 which includes conventional helical springs 35, supporting adding means 36 at one (upper) like end of each and bearing against abutment means 37 including a bottom board 38. Covering the padding means 36 is suitable upholstering material which, in so far as the upper surface of the seat and front surface of the back are concerned may be, as shown in Figures 2 and 3, a continuation of the upholstering material 29,

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secured at the rear face of the back 11 and secured at the under face of the seat 12 after extending over the front or forward upper edge portion 41 of the seat.

It is important that, when the parts are as in Fig. 3 the upholstering material will be substantially flat and should be secured to the back and seat with that in view.

Shown mainly in Figures 1 and 7 is one of the two like operating means 13 to selectively permit conversion of the sofa bed to a sofa or a bed and retain it in such converted position. This means 13 is conventional and includes the plate 45 fixed to an end rail 17 and pivotally carrying the upwardly extending converging arms 46 and 47 with the arm 46 pivotally connected at its other end portion to a bracket 48 fixed to the back 11 as at the edge of the back board 28. The arm 47 is pivotally connected at its other end portion to bracket 49 fixed to the seat 12 as at the edge of the bottom board 38 with the axis of the pivot member connecting the arm 47 and bracket 49 above the apex of the V formed in the upholstery portions of the seat and back, when the back is in a normally raised position, all as shown in Fig. 4. A retraction spiral spring 50 connects the lower portion of arm 47 with the bracket 45. The upper end portion of the arm 46 has an edge providing an abutment 51 for the upper end portion of the arm 47 when the seat and back are in substantially the same horizontal plane. Pivotally carried by the bracket 48 is a latch member 52, resiliently urged, as by the spring 53 into engagement with a keeper 54 as a pin carried by the bracket 49 and a parallel bracket 55 also fixed to the seat 12. This structure pivotally supports the back 11 at the normally lower end of the latter.

Referring now to the improvement B, which may be termed an anti-puckering means, in Fig. 5 the same is illustrated as comprising three units 60, 61 and 62 but, obviously, one may be employed, or two, or four or more.

Each unit includes an elongated member 63 of flexible material, preferably stout material, as canvas, suitably fixedly secured along one of its edge portions, designated as its back edge portion, as by means 64, such as tacks or nails, to the back board 28. From this back board, the member 63 extends across the space between the normally lower end of the back 11 and rear end of the seat 12 over a smooth-surfaced elongated rigid member 65, such as a length of rod or tubing, forming a part of the unit, and thence upwardly to the upholstering material 29 where it is secured thereto as by suitable means 66, such as stitches, best shown in Fig. 6. Preferably, the end portion of the member 63 is doubled over and secured to the underside of the upholstery material 29. It is important that the length of the member 63 be such that it be taut, as in Fig. 2, when the back of the sofa bed is in a sofa position. Of course, when the parts are in the position shown in Fig. 3, there will be slack in the flexible member 63.

The rigid member 65 may be secured at any appropriate place. In the example shown it is carried by spaced-apart eyed members on brackets 67 secured to the rear edge portion of the bottom board 38 of the seat, as by having screw threaded shank portions screwed into this rear edge portion so that the eyed members 67 project rearwardly from this board with the axes of their eyes coincident.

From the above, it is clear that the improvement B, which embodies an anti-puckering means

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for the upholstery at the adjacent end portions of the back and seat, may be incorporated in a suitable convertible bed or chair, first by attaching one end of a suitable-lengthed flexible member 63 to the upholstery 29, attaching the eyed members 67, inserting the rigid member 65, stretching the flexible member over the rigid member and securing the opposite end portion of the former to the back 11 as described.

As may be seen in Fig. 2, the flexible member 63 might be regarded from its upper end to the rigid member 65, as a continuation, in the same direction of that portion of the upholstery 29 upon the back 11, whereby the pull normally comes upon this portion of the upholstery, rather than upon that portion of the upholstery of the seat. This tends to prevent the upholstery at the forward upper edge portion 41 of the seat from being drawn toward the back and permanently distorting this edge.

It will be noted that no special helical springs are required, nor springs set at unconventional angles, in order to accommodate the improvement B and the improvement interferes in no way with the springs and their proper functioning.

The body-supporting surface of the sofa bed, when the same is in a bed position is substantially level since the tension of the flexible member 63 is released, thus permitting the springs 25 and 35 to expand with the uppermost convolution of each in substantially the same horizontal plane, whereby the body-supporting surface becomes, as stated, substantially level and there is no perceptible depression existing at the juncture of the seat and lowered back. Conversely, as in Figs. 4 and 6, when the back 11 is in its normally raised position there is a V formed in the adjacent portions of the upholstery of the seat and back upon drawing down of the upholstery by the improvement B to prevent undesired bulging of the upholstery when the two operating means 13 are employed.

Obviously, the improvement B may be employed in sofa beds, chairs having reverting backs, automobile seats having reverting backs, and the like.

Various changes may be made to the form of the invention herein shown and described without departing from the spirit of the invention or scope of the claims.

What is claimed is:

1. In combination with the body-supporting structure of sofa beds, reverting back chairs and the like, said structure including a back presenting a body-supporting surface and having a normally lower edge, a seat presenting a body-supporting surface and having a rear edge, upholstery for the back and seat including a portion of upholstery bridging said lower edge and rear edge and being substantially taut when the body-supporting surfaces of said back and seat are in substantially the same horizontal plane, said portion forming substantially a V when said back is in a normal raised position, and means hingedly connecting said back and seat, including a pivot member with its axis above the apex of said V, anti-puckering means drawing said portion downwardly to form said V, including a flexible member, having opposite ends, secured at one end directly to said portion, a member over which said flexible member is trained and disposed below said portion, and means securing the other end of said flexible member to said back, said flexible member being taut when said back is in its raised

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position, whereby when said back is in a raised position said flexible member is drawn taut to eliminate puckering of said portion of upholstery.

2. The combination as in claim 1 characterized in that said flexible member is an integral sheet of flexible material.

3. In combination with the body-supporting structure of sofa beds, reverting back chairs and the like, said structure including a support, a back presenting a body-supporting surface and having a normally lower edge, a seat presenting a body-supporting surface and having a rear edge, upholstery for the back and seat including a portion of upholstery bridging said lower edge and rear edge and being substantially taut when the body-supporting surfaces of said back and seat are in substantially the same horizontal plane, said portion forming substantially a V when said back is in a normal raised position, and means hingedly and swingably connecting said back, seat, and support, including a pivot member with its axis above the apex of said V, and an arm pivotally connected with said support, anti-puckering means drawing said portion downwardly to form said V, including a flexible member, having opposite ends, secured at one end directly to said portion, a member over which said flexible member is trained and disposed below said portion, and means securing the other

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end of said flexible member to said back, said flexible member being taut when said back is in its raised position, whereby when said back is in a raised position said flexible member is drawn taut to eliminate puckering of said portion of upholstery.

4. The combination as in claim 3 characterized in that said arm is also pivotally connected to said pivot member.

5. The combination as in claim 3 characterized in that said support supports said seat and said arm is also pivotally connected to said pivot member.

6. The combination as in claim 3 characterized in that said flexible member is a continuous sheet of flexible material.

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