SEATING STRUCTURE WITH A CONTOURED FLEXIBLE BACKREST

[0001] This application claims the benefit of U.S. Provisional Application No. 61/390,903, filed October 7, 2010, and U.S. Provisional Application No. 61/323,635, filed April 13, 2010, the entire disclosures of which are hereby incorporated herein by reference.

FIELD OF THE INVENTION

[0002] The present invention relates generally to a seating structure, and in particular, to a seating structure, such as chair, having a contoured flexible backrest, together with methods of use and assembly.

BACKGROUND

[0003] Seating structures may be configured with flexible backrest members, such as polypropylene sheets and woven elastomeric membranes. Typically, the flexible members are put in tension in various ways so as to provide the flexible member with a three-dimensional contour. For example, a peripheral frame may surround and hold the flexible member. In other devices, various portions of the flexible member are held at spaced apart locations, with an intermediate member pushing on the flexible member to form the flexible member and to put portions thereof in tension. Such systems may provide undesirable hard contact points, whether by contact with the frame or by contact with the intermediate member.

SUMMARY

[0004] The present invention is defined by the following claims, and nothing in this section should be considered to be a limitation on those claims.

[0005] In one aspect, ~~one embodiment of~~ a seating structure includes an upper support structure~~member~~ having an upper mounting portion; a lower support structure vertically spaced relative to the upper~~a lower~~ support structure~~member~~. The lower support structure~~member~~ includes a pair of spaced apart side mounting portions positioned forwardly of the upper mounting structure~~portion~~ and an

intermediate mounting portion positioned rearwardly of the side mounting portions. A flexible member has an upper portion connected to the upper mounting portion and a lower portion ~~fixedly~~ connected to the side mounting portions and to the intermediate~~middle~~ mounting portion. The flexible member has a forwardly facing concave shape taken along a horizontal plane at a lumbar region of the flexible member and a forwardly facing convex shape taken along a vertical plane at a centerline of the flexible member. The flexible member includes side edges extending and tensioned between the upper mounting portion and the side mounting portions. A tension vector directed away from the upper portion and taken along any point of either~~each~~ of the side edges has a forwardly extending component.

[0006] In another aspect, ~~one embodiment of~~ a seating structure includes a backrest member having an upper edge, opposite side edges and a lower edge. The backrest member has a forwardly facing convex shape formed along a vertical centerline thereof between the upper and lower edges. The lower edge has a forwardly facing concave shape. The lower edge is longer than the upper edge and the lower edge has outer portions positioned forwardly of an entirety of the upper edge. The backrest member comprises a molded component having a molded three-dimensional shape.

[0007] In yet another aspect, a seating structure includes a flexible member made of an elastomeric material having an upper edge portion, opposite side edges and a lower edge portion. The flexible member has a forwardly facing convex shape formed along a vertical centerline thereof between the upper and lower edges portions and a forwardly facing concave shape taken along a horizontal plane at a lumbar region of the flexible member. The flexible member is tensioned along the upper edge portion from side-to-side, along the lumbar region from side-to-side, and diagonally from end portions of the upper edge portion to opposite end portions of the lower edge portion. The flexible member comprises openings arranged so as form at least one band extending laterally between the opposite sides edges and at least one band extending diagonally from the upper edge, and wherein the at least one band extending diagonally comprises at least a pair of bands extending diagonally from the upper edge portion on opposite sides of a centerline of the upper edge portion.

[0008] In another aspect, ~~one embodiment of~~ a seating structure includes a backrest member having a cutout formed in a lower region thereof and defining a pad portion coupled to opposite side portions with a pair of connectors laterally spaced on opposite sides of the pad portion. The pad portion is pivotable about the pair of connectors relative to the opposite side portions. A body supporting

substrate is disposed along a front of the backrest member and covers the pad portion.

[0009] In another aspect, a backrest kit includes a backrest member and a body supporting substrate disposed along a front of the backrest member. An auxiliary support member is disposed between the backrest member and the body supporting substrate. A handle is configured to be coupled to the auxiliary support member and gripped to move the auxiliary support member between and relative to the backrest member and the body supporting substrate. A lock component is configured to be coupled to the auxiliary support member and prevent movement of the auxiliary support member between and relative to the backrest member and the body supporting substrate.

[0010] In another aspect, ~~one embodiment of~~ a seating structure includes a backrest member having a front body-facing surface, a central, spine region and side regions positioned on opposite sides of the spine region. The backrest member has a plurality of openings formed in at least one of upper, middle and lower portions of the side regions on opposite sides of the spine region. The spine region has a greater rigidity than the side regions. An auxiliary support member is moveably coupled to the backrest member and is moveable in front of the front body-facing surface of the backrest member. A body supporting substrate is disposed along the front body-facing surface of the backrest member and covers the auxiliary support member.

[0011] In another aspect, ~~one embodiment of~~ a seating structure includes a backrest member having a front body-facing surface and an auxiliary support member moveably coupled to the backrest member. The auxiliary support member is vertically moveable in front of the front body-facing surface of the backrest member between first and second vertical positions. The auxiliary support member is moved forwardly relative to the backrest member from a first position to a second position as the auxiliary support member is moved from the first vertical position to the second vertical position. A body supporting substrate is disposed along the front body-facing surface of the backrest member and covers the auxiliary support member.

[0012] In another aspect, a seating structure includes a frame and a flexible backrest member coupled to the frame at upper and lower locations of the flexible backrest member. A brace is directly connected to the flexible backrest member at vertically spaced locations positioned vertically between the upper and lower locations. A support member is coupled to the brace and engages a rear of the flexible backrest member.

[0013] The various embodiments of the seating structure may provide significant advantages over other seating structures. For example and without limitation, the backrest member is provided with a flexible member having a three-dimensional contour that is shaped to hold and support the body of the user. This contour is introduced, in some embodiments, without a peripheral frame and without an intermediate member engaging and forcing a shape change of the flexible member. At the same time, the unique set of saddle shapes created by the geometry of the supporting structure provides a soft initial support to the user, yet provides firm support as the user deflects the backrest rearwardly. The unique structure also provides an improved aesthetic.

[0014] The foregoing paragraphs have been provided by way of general introduction, and are not intended to limit the scope of the following claims. The various preferred embodiments, together with further advantages, will be best understood by reference to the following detailed description taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0015] FIG. 1 is a front perspective view of a first embodiment of a seating structure.

[0016] FIG. 2 is a rear perspective view of a first embodiment of a seating structure.

[0017] FIG. 3 is a side view of a first embodiment of a seating structure.

[0018] FIG. 4 is a front view of a first embodiment of a seating structure.

[0019] FIG. 5 is a rear view of a first embodiment of a seating structure.

[0020] FIG. 6 is a top view of a first embodiment of a seating structure.