

A SITTING ARRANGEMENT

The present invention relates to a chaise longue, also called long seat, and to an elastic joint suitable for the use in it.

From US Patent No. 3,974,630, it is known an adjustable base for the use in a bed, sofa or chaise longue comprising a back rest 5 being hinged to a seat 2 that is hinged to a foot part or shutter 3. The back rest is hinged in a rotatable joint at the lower part of this, just above the hinging to the seat. Likewise, the seat is hinged to a rotatable joint, where there also is a slide to receive longitudinal movement in relation to the backrest. for the same reason, the lower part of the shuttle is attached to a slide guide. The angle between the back rest and the seat is adjustable in preset levels. The angle is locked in each level.

It is an object of the present invention to provide a chaise longue being easy to readjust during use by redistribution of body mass. Furthermore, it is an object to provide an adjustable chaise longue having a basic and robust design without too many movable parts.

The structure comprises a hinged joint being easy to mount and maintain. It is an object of the present invention to provide a rotatable joint suitable for use in chaise longues and other furniture having tiltable parts exposed to moving and/or substantial loads, such as one or more moving persons.

It is a need for a joint for furniture with little wear of the joint and consequently a long durability of the joint. Furthermore it is a desire to provide a relatively simple design of the joint, in order for the production costs to be lower. It is also an object to provide a silent joint that will not creak when being loaded and rotated or tilted.

This is obtained by a chaise longue according to the attached claim 1, and a flexible joint according to claim 4.

The sitting arrangement will be further described by means of embodiments in the attached drawings where:

Fig. 1 shows a chaise longue according to the invention, in plane, longitudinal section and cross section,

Fig. 2 shows the chaise longue with the seat in a second position,

Fig. 3 shows a flexible joint being a part of the chaise longue, in perspective a and cross section b.

Fig. 1 shows a chaise longue according to the invention. It comprises a fixed back rest 3, a seat part 4 with a bottom frame 6, seat springs 7 and rotatable mounting devices 8a, b. The seat frame or bottom frame 6 of the embodiment has the shape of a quadrangle with four sides forming two mainly straight parallel side bars 9a, 9b being arranged on the sides being parallel with the longitudinal direction of the chaise longue, and two parallel cross bars 10a, 10b along the two remaining sides of the quadrangle. The seat springs 7 are stretched over the bottom frame 6 between the side bars 9a, 9b thereby forming a resilient sitting plane, whereon a cushion or the like can be placed. The sitting part is attached to the frame of the sofa 2 by means of rotatable mounting devices 8a, b. More precisely, the bottom frame comprises a third cross bar 10c being prolonged over the periphery of the bottom frame, and where the ends of the cross bar is suspended in mounting devices 8a, b of the sofa frame. The mounting devices are in the form of bearing blocks that can be made in any suitable material, such as three or metal, but which are preferably made in a plastic material, like here. The third cross bar form a further reinforcing element, but otherwise the suspension arrangement can be implemented in a simpler way, for example by welding short pipe sockets to the frame, which in return anchor the mounting devices to the sofa frame.

In the shown embodiment, the mounting devices 8a,b are attached asymmetrically to the frame in relation to a centre axis through the seat part 4, so that the fulcrum joint will be between the knee and the hip of a user sitting in an ordinary manner with parallel legs and the back resting towards the back rest of the chaise longue. The mounting device can as an example be arranged 1/3 of the distance from the front edge of the seat towards the back rest. It is an intention that the mounting device 8 is arranged in such a way that it perform a self balancing tilt. The mounting device is preferably not provided with a lock or adjustable brake, as the tilt is confined by the mounting mechanism and the placement of this, in combination with balance springs 14. However, the chaise longue can be provided with some sort of final stops limiting the swing of the seat part.

The chaise longue is provided with balance springs 14. In the shown figures, the balance springs are arranged between the bottom frame and the sofa frame below the back rest. However, the balance springs 14 can be arranged along the side panels of the sofa frame 2 instead of in the side of the sofa frame below the back

rest. A skilled person that will construct a sitting arrangement according to the invention, is free to arrange spring devices where it is the most appropriate to obtain a desired balance in the seat part and sufficient resistance against tilting in order to make the tilting of the seat part comfortable for the user. There can also
5 be used other kinds of spring devices, such as flat coil springs, leaf springs, rubber band devices or arrangements, torsional springs or others. Instead of arranging these at the end parts of the cross bars, the springs can be arranged in relation to the rotatable mounting arrangement between the seat part and the bottom frame.

At the front edge of the seat part a shutter or flap 16 is hinged in hinge points
10 17a,b. The flap is also rotatably attached to the sofa frame 2 at the opposite end of the attachment to the seat part, in rotatable mounting places 18a, b. When the seat part 4 is tilting in one direction, the flap 16 will tilt in opposite phase with this and thereby forming a "bend" or break in the sitting plane or surface and an elevation in the area by the knees of one sitting in the chaise longue provided with
15 the sitting arrangement. This will increase the sitting comfort to a user sitting in the chaise longue. If the user chooses to lie down or more than one person are sitting on the chaise longue, the seat part will tilt back in passive position, so that a straight continuous sitting surface is formed, suitable for accommodating one person lying down, more persons sitting and persons partially slung on the sofa.

20 Fig. 2 shows the chaise longue with the seat part 4 in a second position, where the seat part is tilted downwards towards the back rest 3. When the seat part is tilted the cross bar 9 closest to the back rest 3 tilt downwards, while the cross bar 9 closest to the flap 16 tilt upwards. The flap 16 thereby tilt upwards closest to the seat part 4 and will rotate around rotatable mounting member 18a,b so that flap 16
25 and seat part 4 form an angle larger than 0° in relation to each other.

Compared to other known solutions for a chaise longue or long seat, the present solution is distinguished by the seat and flap being hinged in distal points, and with a additional hinge point 17 connecting the seat and flap. The arrangement must be able to expand to allow the seat and flap to bend in relation to each other. Here,
30 this is obtained by using a longitudinally expandable hinge point 17. In a first embodiment, the hinging can be conventional, with an ordinary to-part hinge with two socket pieces for connecting to the frame. The hinge can in a first end be firmly connected to the frame while the other end is allowed to slide freely inside the tube of the frame. Both ends may also be allowed to slide freely inside the tubes.

Thereby, in the hinge point, the frame will separate to some extent when the seat is tilted upwards.

Preferably the hinge point is realized as an elastic coupling as shown in fig. 3a and b. This is made of a tubular formed sleeve or socket piece 19 of an elastic
5 polymeric material. The socket piece is conical towards both ends and is provided with a neck or collar 20 in the centre section. The socket piece is preferably completely or partly sealed with a wall 21 in the middle of the tube. To form a joint, the socket piece 19 is slid into a pipe end of each of two elements to be
10 connected in a rotatable manner in such a way that the first pipe end more or less cover one end of the socket piece and the second pipe end covers the second end of the socket piece.

This coupling is easy to mount as it is merely slid into the pipe ends of the frames. It is made in one single piece and is consequently wear proof. Furthermore, it will not creak when used. The design of the socket also allows the pipe ends to,
15 to some extent, slide longitudinally in relation to the socket piece, eliminating a source of tension or stress in the frame construction.

Even if the shown embodiment is hollow, it is also possible to make a massive socket piece, where it will form a round longitudinal element with conical ends and a collar in the middle section. However, the hollow design might provide a stiffer
20 element due to different stress distributions over the cross section of a hollow and a massive joint piece, in addition to the possibility of great flexibility in the design of the element. The partition wall in the middle section of the socket piece might provide further stiffening of the element, thereby providing durability and strength.

Even if the socket piece is presented in connection with a chaise longue, it is also
25 possible to use the element in other joints where it is a desire to obtain a rotatable flexible coupling between to parts where the connection can be made by means of two tubular elements being connected with a socket piece as shown in figure 3.

P a t e n t c l a i m s

1. Chaise longue comprising a sofa frame (2), seat part (4) and back rest (3), where the seat part (4) comprises side bars (9a, b), cross bars (10a, b) and seat springs (7),
5 c h a r a c t e r i s e d i n t h a t the back rest (3) is fixed, the seat part (4) is rotatably connected to the sofa frame (2) by means of mounting devices (8a, b) below the sitting surface of the seat part, one or more balance springs (14) are arranged between the seat part (4) and the sofa frame (2), a shutter or flap (16) is rotatably mounted to the seat part with pivotable joints (17a,b), the flap is
10 rotatably connected to the sofa frame in points (18a, b) at the opposite end from the joints (17a,b).
2. Chaise longue according to claim 1, where the rotatable joints (17a,b) are elastic.
3. Chaise longue according to claim 1, where the rotatable mounting
15 arrangements (8) are arranged at approx. 1/3 of the distance from the front frame element (2c).
4. Elastic joint (17),
c h a r a c t e r i s e d i n t h a t it comprises a tubular formed sleeve or pipe socket (19) being conical in both ends, and a collar (20) arranged at the centre of
20 the pipe socket, where the joint is produced in a suitable polymeric material.
5. Elastic joint according to claim 4, where the tubular formed sleeve comprises an internal wall (21) completely or partly sealing the sleeve.