An armrest adjustment member including an armrest support, an outer sleeve, a positioning rod, a positioning part and an armrest body is revealed. The armrest support is disposed with a guide slot and symmetrical toothed bars on inner surfaces of the guide slot. The outer sleeve with an opening on one side is mounted on an upper part of the armrest support. The opening is mounted with a button. The T-shaped positioning rod arranged in the outer sleeve includes two top ends pivoted to the outer sleeve and a bottom end locked into a toothed groove of the toothed bar moveably. The bottom end is released from the toothed groove by pressing the button. The positioning part is disposed above the outer sleeve and is mounted between an armrest pad and an armrest base of the armrest body. Thus the armrest is adjusted horizontally, vertically or rotated.
Description

BACKGROUND OF THE INVENTION

[0001] The present invention relates to an armrest adjustment member, especially to an armrest adjustment member that enables an armrest moving vertically or horizontally, rotating, or moving up and down like a seesaw. Moreover, the armrest adjustment is with simple structure and multiple functions.

[0002] There are various designs of armrests available now. In order to make sitting more comfortable, the armrest can be adjusted in different directions according to figure of people sit in chairs.

[0003] Generally, an armrest includes an armrest body and an armrest support. The armrest body consists of an armrest surface and a lower seat. The armrest body is disposed on a top surface of the armrest support while the armrest support is fastened and fixed on the left side and the right side of a chair seat. The armrest adjustment involves adjusting the width of the armrest in the horizontal direction and the height of the armrest in the vertical direction. A horizontal adjustment part is for sliding the armrest forward or backward or rotating the armrest and usually is disposed on the armrest body. A height adjustment part is for adjusting height of the armrest and is arranged at the armrest support. Refer to US Pat. Pub. No.2008/0084103, an armrest for an office chair is revealed. The armrest is with a rotational, longitudinal and lateral adjustment mechanism. However, the armrest has a lot of components and completed structure. This leads to difficulty in assembly and high production cost. Thus mass production is supposed to be difficult and the competitiveness is undermined. There is great room for improvement.

SUMMARY OF THE INVENTION

[0004] Therefore it is a primary object of the present invention to provide an armrest adjustment member in which an armrest body and an outer sleeve are connected by a positioning part. The outer sleeve is mounted on an armrest support so that the armrest body can be moved forward and backward or rotated in relation to the positioning part. The armrest body can drive the outer sleeve to move vertically in relation to the armrest support. Moreover, the armrest body consists of an armrest pad and an armrest base pivoted with each other. Thus the armrest pad is moved up and down in relation to the armrest base like a seesaw. The armrest adjustment member is with simple structure, fewer components, easy assembling and multiple adjustment functions.

[0005] Furthermore, the movement among the components is smoother due to simplified structure and fewer components of the present invention. This meets users' operation requirements.

[0006] In order to achieve the above objects, a multifunctional armrest adjustment member of the present invention includes an armrest support, an outer sleeve, a positioning rod, a positioning part and an armrest body. A guide slot is disposed on an upper part of the armrest support. Two symmetrical toothed bars are respectively arranged at each of two corresponding inner surfaces of the guide slot. A lower part of the armrest support is connected to a seat. The outer sleeve is disposed around the upper part of the armrest support. An opening is arranged at one side of the outer sleeve for mounting a button. The positioning rod is set in the outer sleeve. The top end of the positioning rod is pivoted to a top end of an inner wall of the outer sleeve while the bottom end of the positioning rod is locked into the toothed bar in the guide slot. The positioning rod can be driven by the button pressed so as to be released from the toothed bar and moved along with the outer sleeve. The positioning part is fixed on the outer sleeve. The armrest body, including an armrest pad and an armrest base, is arranged at the top of the outer sleeve. The middle parts of the armrest pad and the armrest base are pivoted to each other, with the positioning part mounted therebetween. Thus the armrest can be moved forward and backward or rotated in relation to the positioning part. The armrest body drives the outer sleeve to move vertically by the positioning part and the armrest pad is moved up and down in relation to the armrest base like a seesaw. In accordance with the above structure, the armrest adjustment member of the present invention provides multiple functions including horizontal adjustment, height adjustment or rotation of the armrest body.

BRIEF DESCRIPTION OF THE DRAWINGS

[0007] Fig. 1 is a perspective view of an embodiment according to the present invention; Fig. 2 is another perspective view of an embodiment according to the present invention from another viewing angle; Fig. 3 is an explosive view of an embodiment according to the present invention; Fig. 4 is a cross sectional view of the embodiment in Fig. 1 for showing an up and down movement; Fig. 5 is a schematic drawing showing a forward and backward movement of an embodiment according to the present invention; Fig. 6 is a schematic drawing showing a rotation of an embodiment according to the present invention; Fig. 7A is a schematic drawing showing a rotation of the present invention before a vertical movement; Fig.7B is a schematic drawing showing an embodiment of the present invention after a vertical movement.
DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0008] Refer from Fig. 1 to Fig. 4, a multifunctional armrest adjustment member of the present invention includes an armrest support 10, an outer sleeve 20, a positioning rod 30, a positioning part 40 and an armrest body 50. A vertical guide slot 11 is disposed on an upper part 101 of the armrest support 10. Two symmetrical toothed bars 12 are respectively arranged at each of two corresponding inner surfaces of the guide slot 11. The toothed bar 12 has a plurality of toothed grooves 121 arranged from top to bottom. A lower part 102 of the armrest support 10 is connected to a left side or right side of a seat (not show in figure).

[0009] The outer sleeve 20 is disposed around an outer surface of the upper part 101 of the armrest support 10 with proper allowance. An opening 21 is arranged at a side surface of the outer sleeve 20 for mounting a button 60 having a fastening part 61. A top plate 22 with a post 221 is covered on the outer sleeve 20. Two corresponding limit slots 23 are mounted on an inner wall of a top end of the outer sleeve 20.

[0010] The positioning rod 30 is a T-shaped bar pivoted in the outer sleeve 20. The top two ends of the T-shaped bar are corresponding to and pivoted in the limit slots 23 of the outer sleeve 20. The positioning rod 30 includes a locking part 31 on a bottom end thereof. The locking part 31 is corresponding to the two symmetrical toothed bars 12 on the guide slot 11 of the armrest support 10 and is locked into one of the toothed grooves 121 of the toothed bar 12. Two bumps 32 are arranged at a middle part of the positioning rod 30. The bump 32 is corresponding to and fastened to the fastening part 61 of the button 60. When the button 60 is pressed, the positioning rod 30 is driven to move around the top end (as a pivot shaft) thereof. Thus the locking part 31 is released from the toothed groove 121 of the toothed bar 12 and the positioning rod 30 is able to be moved up and down in relation to the armrest support 10 along with the outer sleeve 20. Moreover, position holes 33 for mounting an elastic part 70 are disposed over the locking part 31 of the positioning rod 30. A post 34 is arranged at the positioning rod 30. The post 34 is corresponding to the elastic part 70 and used for limiting movement of the elastic part 70.

[0011] The positioning part 40 is disposed above the outer sleeve 20. The positioning part 40 includes two symmetrical projecting curved parts 41 at the middle part thereof, an insertion hole 42 at a center between the two projecting curved parts 41, a fastener 43 such as a locking screw passing through the insertion hole 42 to be fastened on the post 221 of the top plate 22 of the outer sleeve 20, and two bumps 44.

[0012] The armrest body 50 is disposed on top of the outer sleeve 20. The armrest body 50 includes an armrest pad 51 and an armrest base 52. Two pivot parts 53, pivoted and connected to each other, are respectively arranged at the middle part of both the armrest pad 51, and the armrest base 52 correspondingly. A groove 54 is disposed at an axis in the forward and backward direction of the armrest body 50. The post 221 on the top plate 22 of the outer sleeve 20 passes through the groove 54 to be fastened to the positioning part 40 by the fastener 43. Thus the positioning part 40 is moveably mounted between the armrest pad 51 and the armrest base 52. The armrest base 52 further includes two curve areas 55 on an inner surface thereof corresponding to two projecting curved parts 41 of the positioning part 40. Thus the curve area 55 can be rotated in relation to the curved part 41. Moreover, at least one elastic part 57 such as a spring is arranged at one end (the front end or the rear end) of both the armrest pad 51 and the armrest base 52. Furthermore, the shape and the structure of the positioning rod 30, the positioning part 40 and the armrest body 50 are symmetrical designs, such as fore-and-aft symmetry or mirror symmetry. Due to symmetry, there is no limit while assembling these parts. They can be switched from left to right side (or right to left side), from fore to aft, or vice versa. This helps assembly operation and materials management. In addition, the number of the components required is reduced.

[0013] Refer to Fig. 3, Fig. 4, and Fig. 5, the positioning part 40 and the armrest base 52 are respectively arranged with the bump 44 and a grid groove 56. The bump 44 is corresponding to the grid groove 56 and is able to slide forward and backward in the grid groove 56, as an arrow A indicated in Fig. 5. Or the bump 44 is rotated in the grid groove 56, as an arrow B indicated in Fig. 6. Moreover, the moved position and the position of the bump 44 are controllable. Refer to Fig. 3, the number of the bumps 44 is two. The bumps 44 are respectively disposed on the front end and the rear end of the bottom surface of the positioning part 40. As shown in Fig. 3 and Fig. 5, the grid groove 56 includes linear lines in a fore-and-aft direction (the arrow A in Fig. 5) and curved lines in a left-and-right direction (the arrow B in Fig. 6). The bump 44 is disposed on the bottom surface of the positioning part 40 so as to contact against the grid groove 56 of the armrest base 52 elastically and there is friction resistance existed between the positioning part 40 and grid groove 56. Thus the stability of the assembly and the smoothness of movement are improved.

[0014] Refer to an arrow C in Fig. 4, while applying pressure to the front end or rear end of the armrest pad 51, the armrest pad 51 is moved up and down in relation to the armrest base 52 like a seesaw and the pivot parts 53 act as the fulcrum (pivot shaft). By elasticity of the elastic part 57, the armrest pad 51 is turned back to the original position after being released from the pressure applied.

[0015] Refer to Fig. 4 and Fig. 5, while operating the armrest body 50 to move forward/backward in relation to the positioning part 40, as the arrow A indicated in Fig. 5, the positioning part 40 remains static and the bump 44 on the bottom of the positioning part 40 is against the grid groove 56 of the armrest base 52 while the groove
54 of the armrest body 50 moves forward/backward along the post 221 on the top plate 22 of the outer sleeve 20.

[0016] Refer to Fig. 4 and Fig. 6, while operating the armrest body 50 to rotate in relation to the positioning part 40, as the arrow B indicated in Fig. 6, the positioning part 40 remains static and the curved part 41 of the positioning part 40 rotates within the curve area 55 of the armrest base 52. At the same time, the bump 44 on the bottom of the positioning part 40 also rotates along the grid groove 56 of the armrest base 52.

[0017] Refer to Fig. 7A and Fig. 7B, they respectively show the armrest body 50 before and after the upward movement. While pressing the button 60, as an arrow D indicated in the Fig. 7B, the button 60 drives the positioning rod 30 to rotate around the top end of the positioning rod 30 (two ends of the T-shaped bar). Thus the locking part 31 of the positioning rod 30 is released from one toothed groove 121 of the toothed bar 12 and now the elastic part 70 is compressed. Then the armrest body 50 is moved upward to the desired height, as an arrow E indicated in the Fig. 7B. The outer sleeve 20 is moved upward by the positioning part 40 of the armrest body 50 and the positioning rod 30 is also moved upward along with the outer sleeve 20. When the button 60 is released, the positioning rod 30 is turned back to the original position by elastic recovery force of the elastic part 70. And the locking part 31 of the positioning rod 30 is locked into another toothed groove 121 of the toothed bar 12. The height adjustment of the armrest body 50 is completed. The armrest body 50 can also be adjusted to move downward in the same way.

[0018] In summary, the armrest adjustment member of the present invention can adjust horizontal and vertical movement, rotation and up and down movement (like a seesaw) of the armrest body 50, having multiple functions. While adjusting the forward and backward movement of the armrest body 50, the rotation of the armrest body 50 can also be adjusted at the same time. Moreover, due to simple structure and fewer components, the manufacturing cost is reduced. Furthermore, the assembly cost is down because of easy assembling.

[0019] Additional advantages and modifications will readily occur to those skilled in the art. Therefore, the invention in its broader aspects is not limited to the specific details, and representative devices shown and described herein. Accordingly, various modifications may be made without departing from the spirit or scope of the general inventive concept as defined by the appended claims and their equivalent.

Claims

1. A multifunctional armrest adjustment member comprising:

   an armrest support disposed with a vertical guide slot on an upper part thereof while a lower part of the armrest support is connected to a left side or right side of a seat; two symmetrical toothed bars are respectively arranged at each of two corresponding inner surfaces of the guide slot and the toothed bar having a plurality of toothed grooves arranged from top to bottom; an outer sleeve disposed around the upper part of the armrest support and having a top plate with a post, two corresponding limit slots, and an opening; the top plate is arranged at top of the outer sleeve and the post is on a top surface of the top plate; the two corresponding limit slots are mounted on an inner wall of a top end of the outer sleeve; the opening for mounting a button is on one side of the outer sleeve;

   a positioning rod whose top ends thereof are pivoted to the limit slots of the outer sleeve so as to form a pivot shaft while a bottom end of the positioning rod is a locking part locked into a toothed groove of the toothed bar moveably; a middle part of the positioning rod is locked with and connected to the button;

   a positioning part fastened on the post of the top plate of the outer sleeve; and

   an armrest body arranged on top of the outer sleeve and having an armrest pad and an armrest base; the armrest pad and the armrest base are pivoted to each other on a middle part thereof; a groove is disposed at an axis in a forward and backward direction of the armrest body and the post on the top plate of the outer sleeve passes through the groove to be fastened to the positioning part; thus the positioning part is moveably mounted between the armrest pad and the armrest base and the armrest body is able to be moved forward, and backward or rotated in relation to the positioning part;

   wherein by pressing the button, the positioning rod is driven to rotate around the top end thereof that is pivoted to the limit slots of the outer sleeve; thus the locking part on the bottom end of the positioning rod is released from one toothed groove of the toothed bar and the outer sleeve is moved upward in relation to the armrest support by the positioning part of the armrest body.

2. The device as claimed in claim 1, wherein the button includes at least one fastening part while at least one bump corresponding to the fastening part is arranged at a middle part of the positioning rod and is fastened to the fastening part.

3. The device as claimed in claim 1, wherein an elastic part is disposed over the locking part of the positioning rod so that the positioning rod is turned back to original position by an elastic force of the elastic part after being rotated.
4. The device as claimed in claim 3, wherein the positioning rod is arranged with position holes for mounting the elastic part.

5. The device as claimed in claim 1, wherein the positioning part is disposed with two symmetrical projecting curved parts while an inner surface of the armrest base is arranged with two curve areas corresponding to the two projecting curved parts of the positioning part so that the curve area is rotated in relation to the curved part.

6. The device as claimed in claim 1, wherein a pivot part for pivoting and connection is arranged at a middle part of the armrest pad and a pivot part is disposed on a middle part of the armrest base so that the armrest pad is moved up and down in relation to the armrest base like a seesaw and the pivot parts act as a pivot shaft while applying pressure to a front end or a rear end of the armrest pad.

7. The device as claimed in claim 6, wherein at least one end, a front end or a rear end, of both the armrest pad and the armrest base is disposed with at least one elastic part so that the armrest pad is turned back to original position by an elastic force of the elastic part after being released from the pressure applied.

8. The device as claimed in claim 1, wherein the positioning part and the armrest base are respectively arranged with at least one bump and at least one grid groove; the bump is corresponding to the grid groove and is able to slide forward, backward and rotate in the grid groove.

9. The device as claimed in claim 8, wherein the number of the bumps is two and the bumps are respectively disposed on a front end and a rear end of a bottom surface of the positioning part while the grid groove includes linear lines in a fore-and-aft direction and curved lines in a left-and-right direction.

10. The device as claimed in claim 8, wherein the bump is disposed on a bottom surface of the positioning part elastically so as to contact against the grid groove of the armrest base elastically.
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The present search report has been drawn up for all claims

**Place of search**
The Hague

**Date of completion of the search**
19 June 2012

**Examiner**
Kis, Pál

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**CATEGORY OF CITED DOCUMENTS**

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