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(19) **United States**(12) **Patent Application Publication**
LIAO(10) **Pub. No.: US 2017/0156502 A1**(43) **Pub. Date: Jun. 8, 2017**(54) **ARMRESTS ADJUSTMENT DEVICE FOR A CHAIR**(52) **U.S. Cl.**CPC *A47C 7/54* (2013.01); *A47C 7/004* (2013.01)(71) Applicant: **SHC TECHNOLOGY CO., LTD.**,
Nantou City (TW)(72) Inventor: **I-Chun LIAO**, Nantou City (TW)(73) Assignee: **SHC TECHNOLOGY CO., LTD.**,
Nantou City (TW)(21) Appl. No.: **14/961,171**(22) Filed: **Dec. 7, 2015****Publication Classification**(51) **Int. Cl.***A47C 7/54* (2006.01)*A47C 7/00* (2006.01)(57) **ABSTRACT**

An armrests adjustment device for a chair is provided. The armrests adjustment device is to be assembled on a center column of a chair and installed with two armrests. The armrests adjustment device has a joint mechanism, two horizontal arms and two adjustment mechanisms. The joint mechanism forms a fixing hole configured to be disposed around the center column. Each of the horizontal arms has a joint end and an adjustment end, the joint end is opposite to the adjustment end, and the joint end connects with the joint mechanism. One end of each of the adjustment mechanisms is mounted at the adjustment end of the horizontal arm, another end of each of the adjustment mechanisms is configured for being installed on one of the armrests.

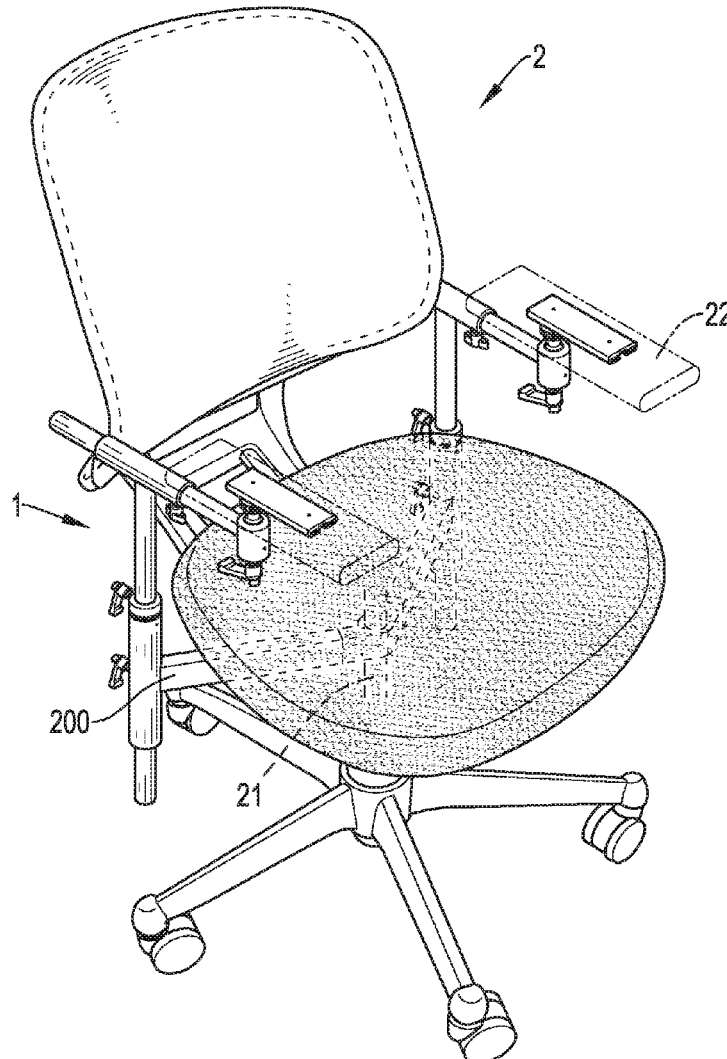


FIG. 1

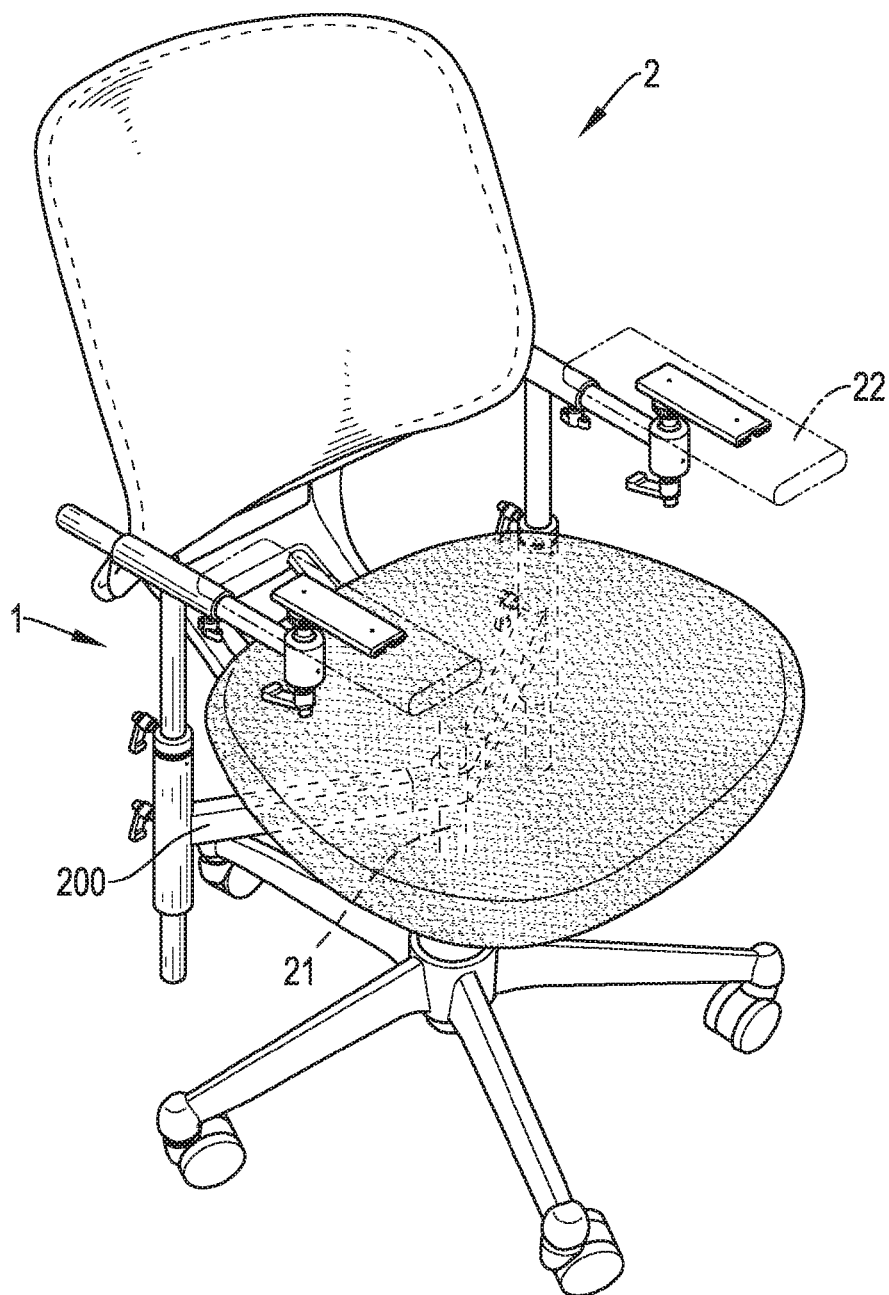


FIG.2

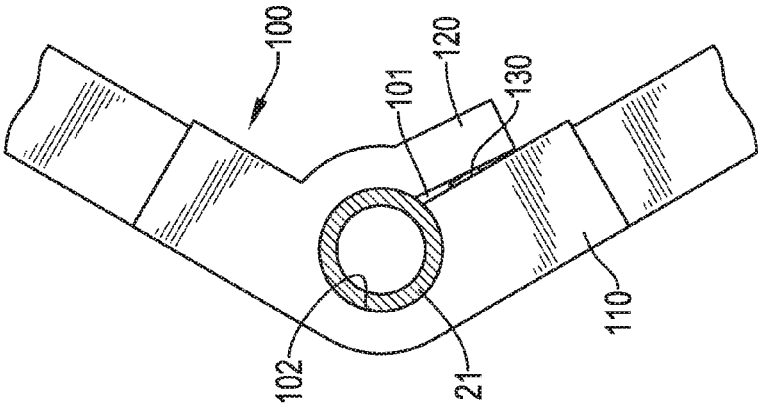


FIG.4

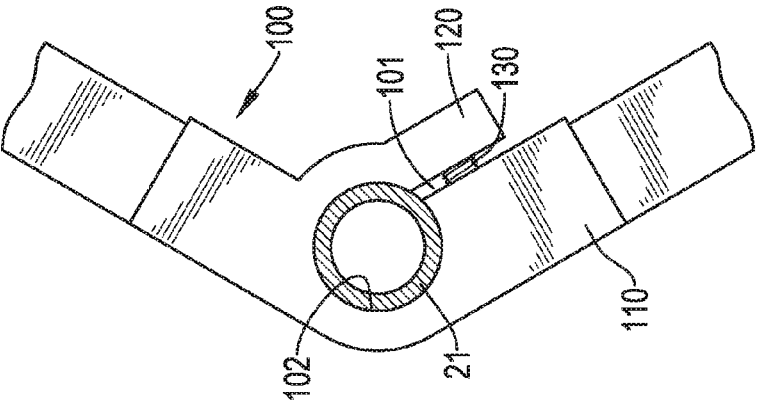
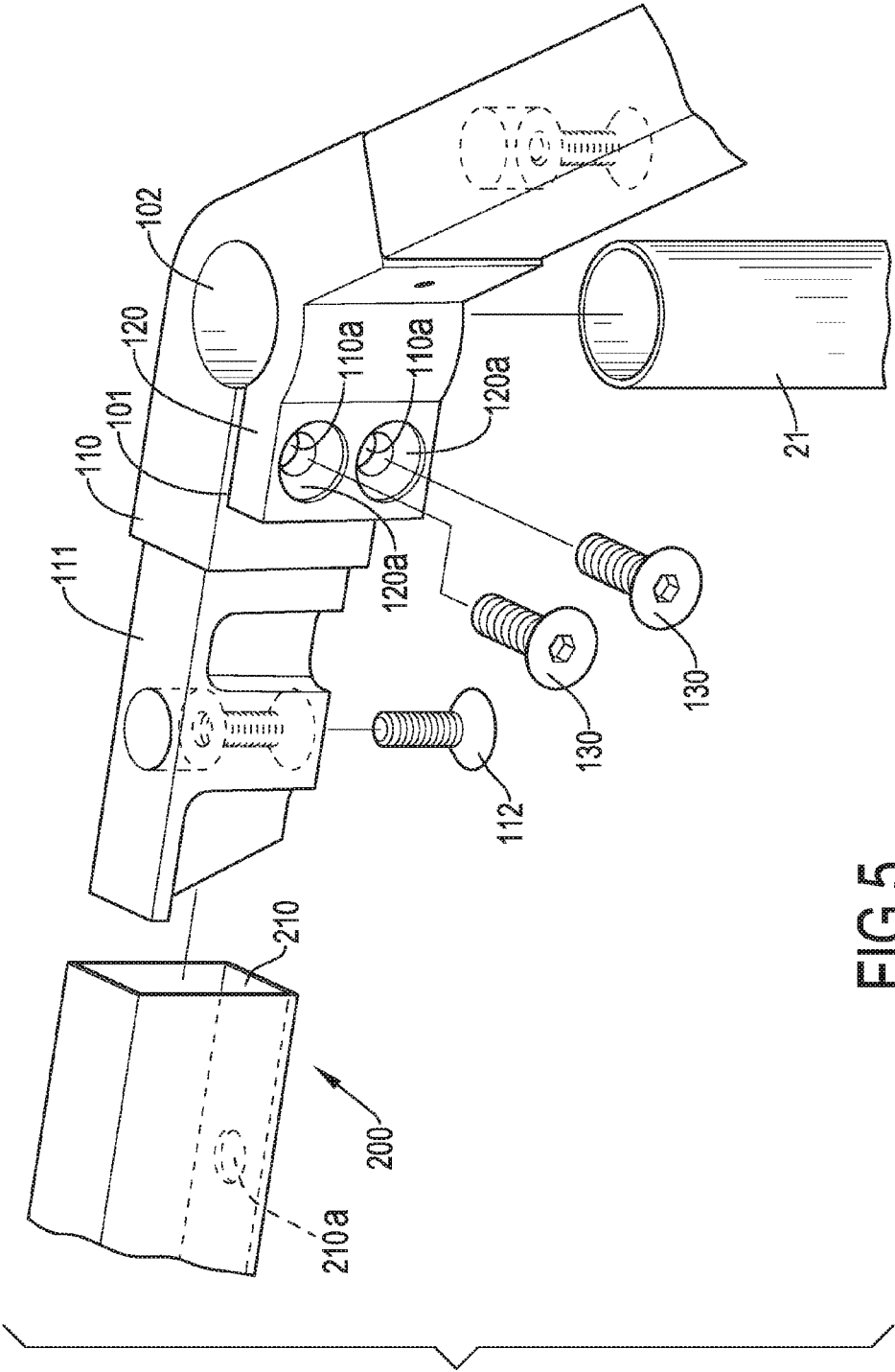


FIG.3



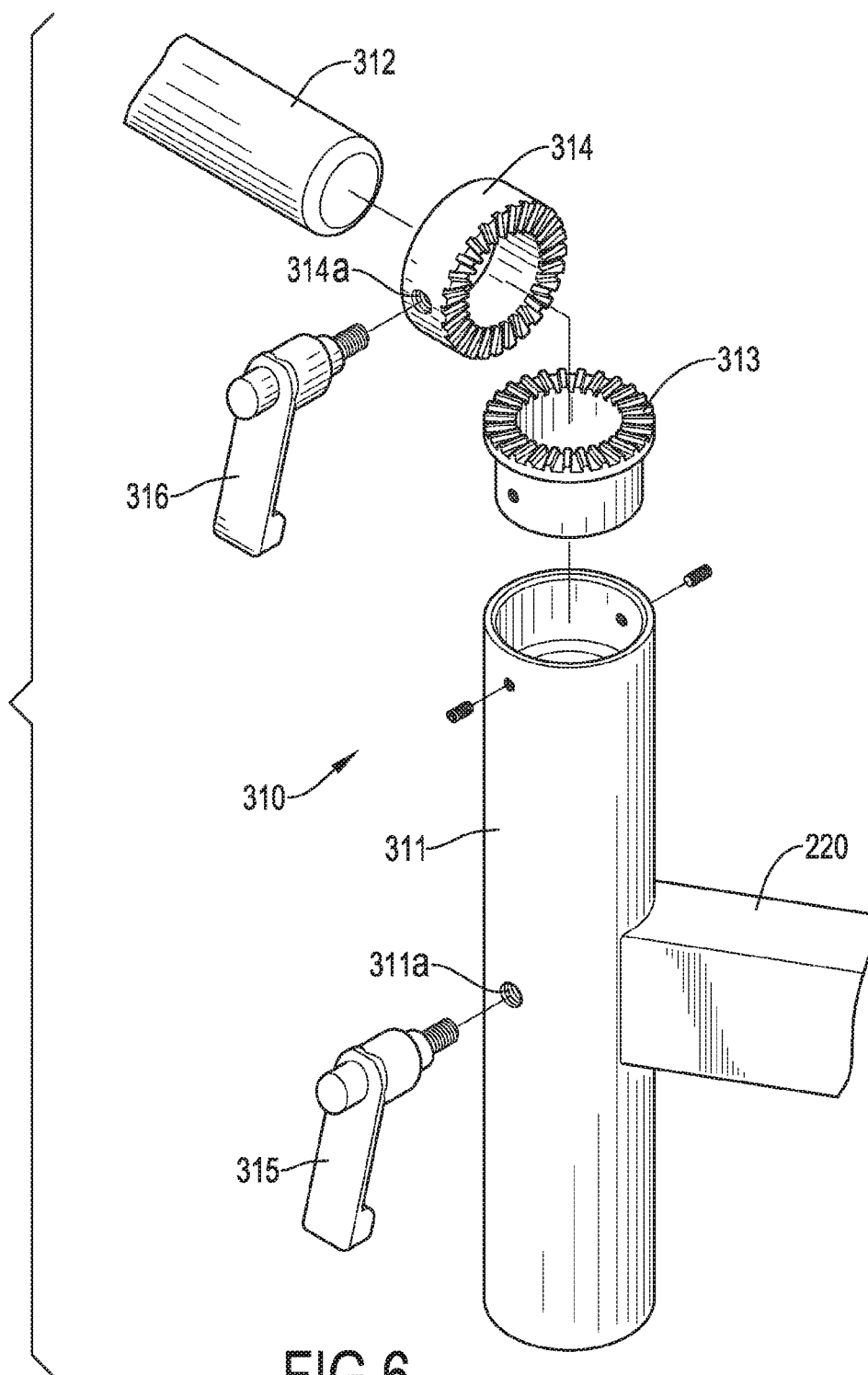
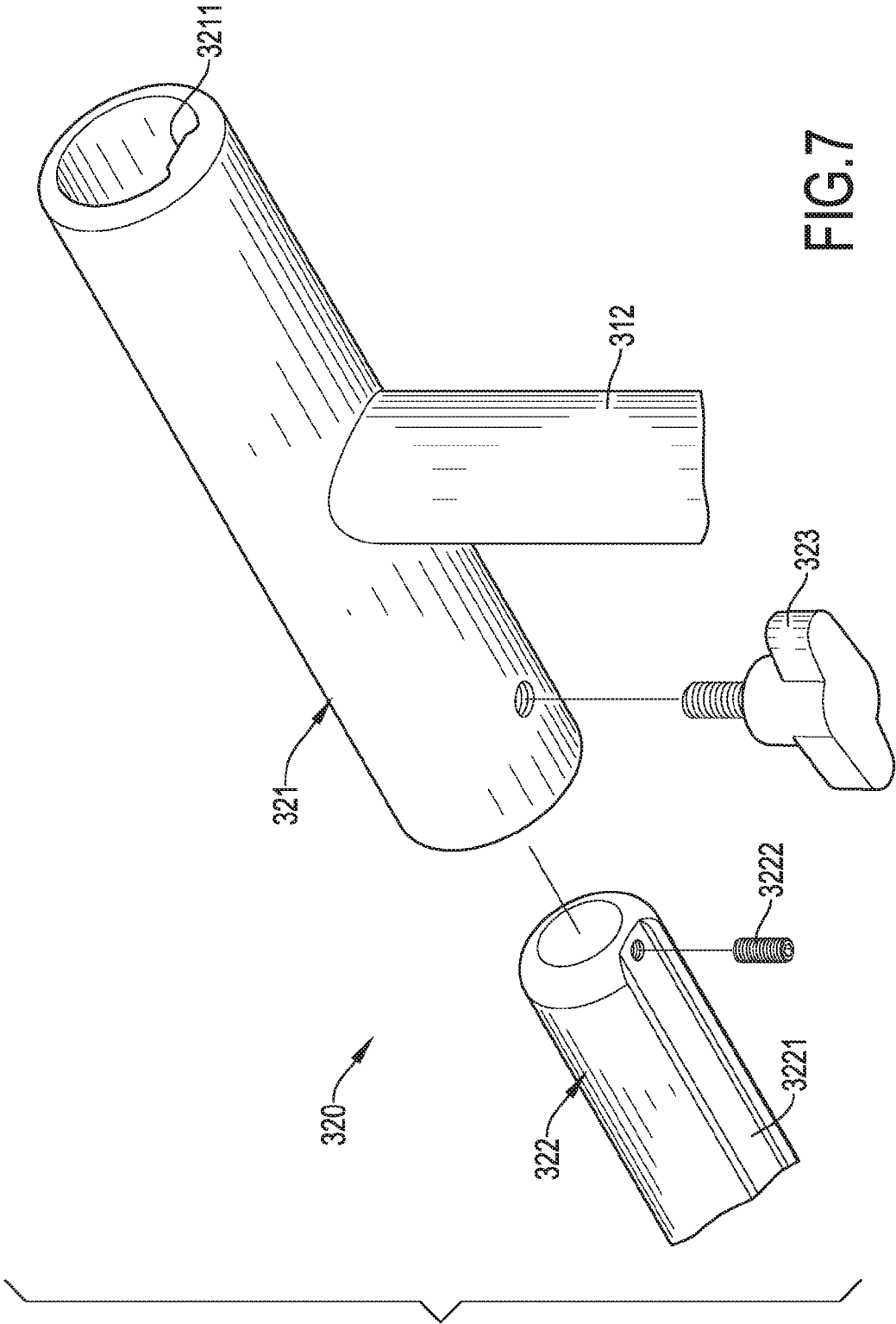


FIG.6



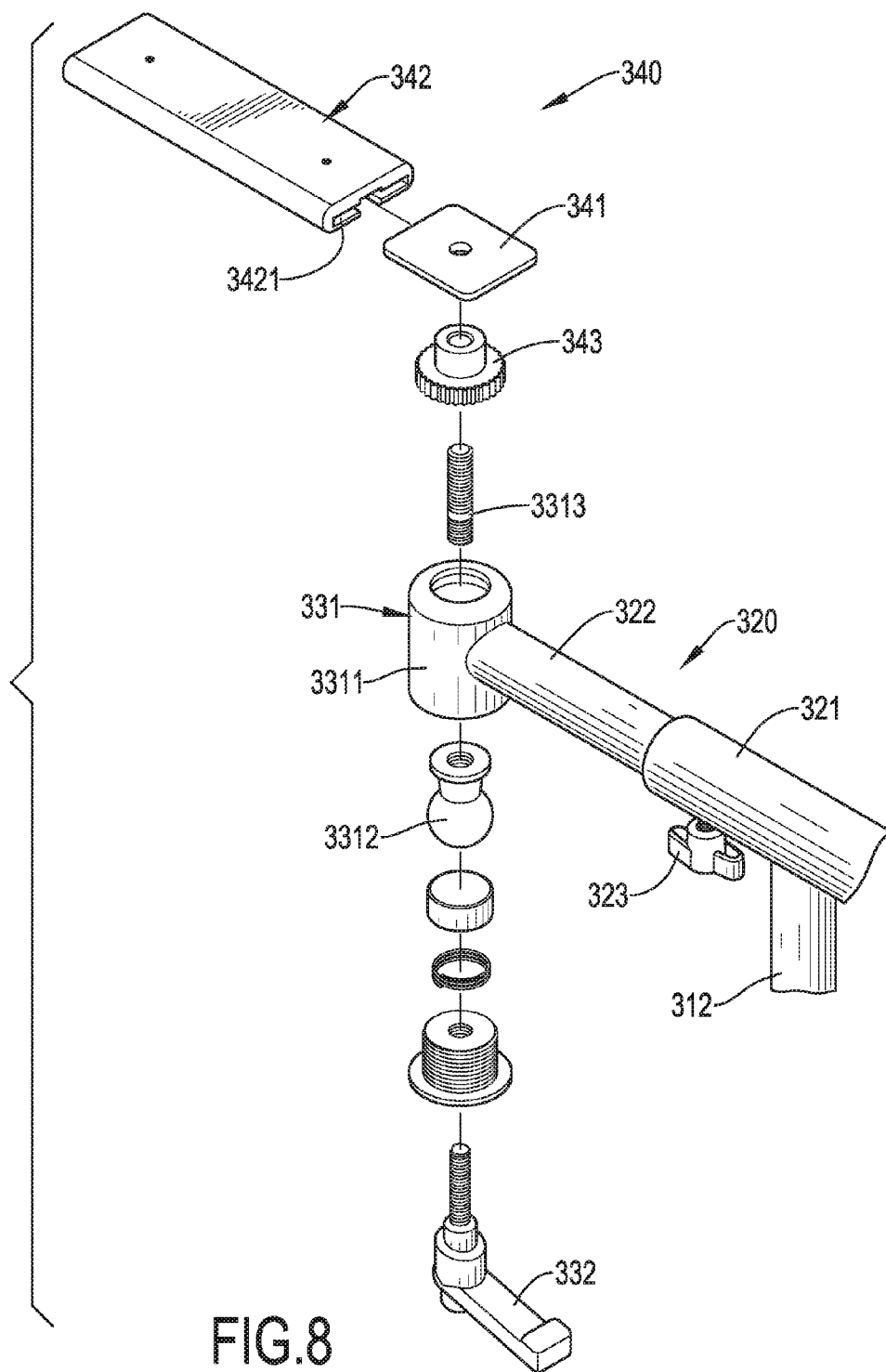


FIG.8

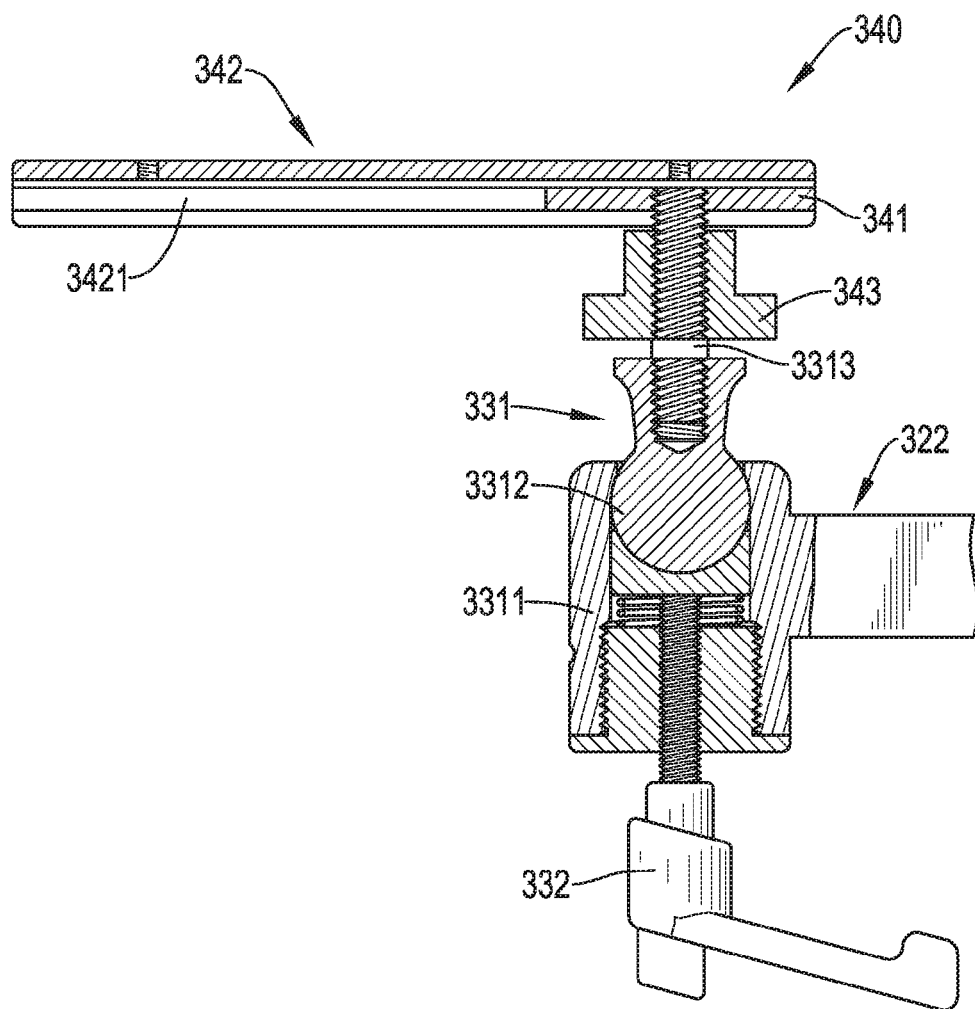


FIG.9

FIG. 10

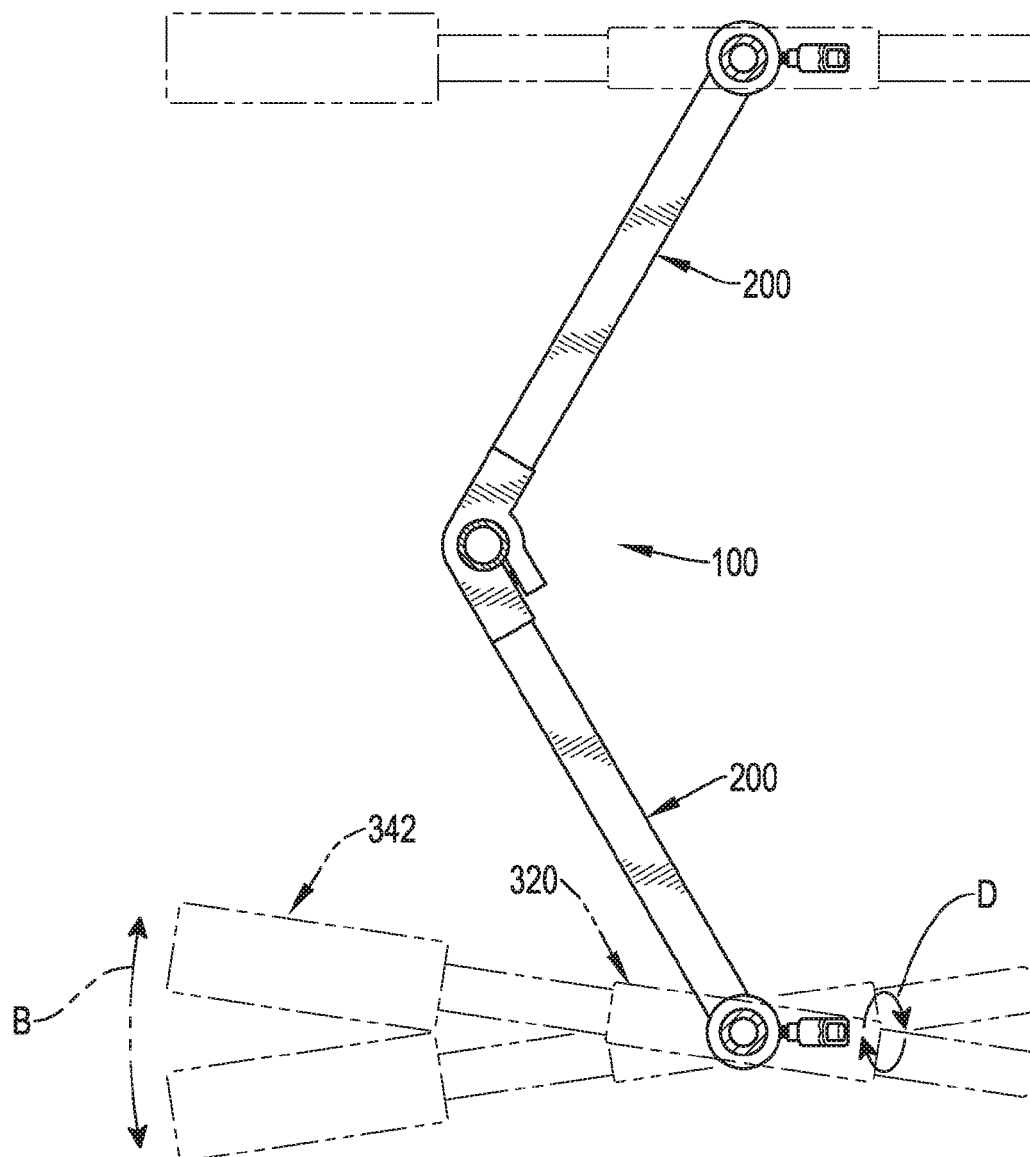


FIG.11

ARMRESTS ADJUSTMENT DEVICE FOR A CHAIR

BACKGROUND OF THE INVENTION

[0001] 1. Field of the Invention

[0002] The present invention relates to an armrests adjustment device for attaching chair, especially to an armrests adjustment device that is able to attach a center column of a chair.

[0003] 2. Description of the Prior Arts

[0004] Office chair or rotating chair is one sort of various chairs. Said chair has a center column connected between a seat and a base of the chair, and the seat is rotatable relative to the center column. Besides, an air cylinder is disposed in the center column for adjusting a height of the seat manually.

[0005] Normally, such office chair or rotating chair is assembled with armrests, and the armrests are also adjustable relative to the seat. However, how to assemble the armrests on the chair becomes a problem. The general means nowadays is assembling iron pieces on the center column of the chair, and then assembling armrests on the iron pieces. Because chairs with new design features appear on the market continuously, different manufacturers usually assemble different iron pieces to the center column, but a lot of work and time are required to design various armrests adjustment devices to suit the different iron pieces. If the armrests adjustment device is not suitable for the iron pieces, the armrests may be loosened and falling, which is dangerous especially when a user leans on the armrests.

[0006] Another common problem of the armrests adjustment devices is that the degree of freedom in adjustment is low. Most armrests adjustment devices are only able to adjust a distance between the armrests and the seat. But for some workers needing to sustain a specific pose on the chair, how to maintain the specific pose with the help of armrests is an urgent need. For instance, when a doctor performs a minor surgery or treatment to a specific part of a patient (e.g. a microscope assisted surgery or teeth scaling), the performer can complete surgery or treatment through only moving the instruments slightly by wrist. Without suitable support to the arms, the performer may be fatigued easily, and the stability of the treatment or surgery will reduce significantly.

[0007] To overcome the shortcomings, the present invention provides an armrests adjustment device to mitigate or obviate the aforementioned problems.

SUMMARY OF THE INVENTION

[0008] The main objective of the present invention is to provide an armrests adjustment device that is able to be assembled on a center column of a chair, and adjusts and fixes armrests in high degree of freedom.

[0009] The armrests adjustment device for a chair has a joint mechanism, two horizontal arms and two adjustment mechanisms. The joint mechanism has a fixing hole for being disposed around the center column. The horizontal arms each have a joint end and an adjustment end, the joint end is opposite to the adjustment end, and the joint end connects with the joint mechanism. One end of each of the adjustment mechanisms is mounted at the adjustment end of the horizontal arm, and the armrests are mounted on another end of the adjustment mechanism.

[0010] Therefore, through directly assembling the whole armrests device to the center column of a chair with the fixing hole of the joint mechanism, the invention does not need to assemble iron pieces additionally. Besides, the adjustment mechanism with high degree of freedom can adjust and fix the position and angle of the armrests, providing a more comfortable support.

[0011] Other objectives, advantages and novel features of the invention will become more apparent from the following detailed description when taken in conjunction with the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

[0012] FIG. 1 is a perspective view of an armrests adjustment device in accordance with the present invention;

[0013] FIG. 2 is a schematic view of the armrests adjustment device in FIG. 1, showing the armrests adjustment device assembled with a chair;

[0014] FIG. 3 is a schematic view of a joint mechanism of the armrests adjustment device in FIG. 1, mounted around a center column of a chair;

[0015] FIG. 4 is a schematic view of the joint mechanism of the armrests adjustment device in FIG. 1, mounted around a center column of another chair;

[0016] FIG. 5 is a perspective exploded view of the joint mechanism of the armrests adjustment device in FIG. 1;

[0017] FIG. 6 is a perspective exploded view of a first adjustment section of an adjustment mechanism of the armrests adjustment device in FIG. 1;

[0018] FIG. 7 is a perspective exploded view of a second adjustment section of the adjustment mechanism of the armrests adjustment device in FIG. 1;

[0019] FIG. 8 is a perspective exploded view of a third adjustment section of the adjustment mechanism of the armrests adjustment device in FIG. 1;

[0020] FIG. 9 is a sectional view of a third adjustment section of the adjustment mechanism of the armrests adjustment device in FIG. 1;

[0021] FIG. 10 is a side view of the adjustment mechanism of the armrests adjustment device in FIG. 1, showing the movement of the adjustment mechanism;

[0022] and

[0023] FIG. 11 is an operational top view of the adjustment mechanism of the armrests adjustment device in FIG. 1, showing the movement of the adjustment mechanism.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0024] With reference to FIGS. 1 and 2, which respectively are a perspective view and a schematic view of the armrests adjustment device for a chair 1, the armrests adjustment device for a chair 1 (hereinafter referred to as armrests adjustment device 1) in accordance with the present invention is capable of being assembled on a center column 21 of a chair 2 and is used for bearing two armrests 22.

[0025] The armrests adjustment device 1 has a joint mechanism 100, two horizontal arms 200 and two adjustment mechanisms 300. The joint mechanism 100 is configured for mounting the armrests adjustment device 1 around the center column 21. One end of each adjustment mechanism 300 is mounted on one of the horizontal arms 200; another end of each adjustment mechanism 300 is configured for being installed with one of the armrests 22.

[0026] Then refer to FIGS. 3 and 4, which are schematic views of the joint mechanism 100 of the armrests adjustment device 1 mounted around the center column 21 of a chair 2 and another chair 2. For clear and concise descriptions of the relations between the joint mechanism 100 and center column 21, FIGS. 3 and 4 are top views and omit the portions above the position where the center column 21 is mounted. The joint mechanism 100 has a joint section 110, a protrusion 120 and at least one joint screw 130. A gap 101 is formed between the protrusion 120 and the joint section 110, and a fixing hole 102 is formed from the protrusion 120 and the joint section 110. The fixing hole 102 is configured for being disposed around the center column 21.

[0027] Because a bottom of the protrusion 120 is connected with the joint section 110 and the gap 101 communicates with the fixing hole 102, the size of an aperture of the fixing hole 102 may be changed simultaneously when the size of the gap 101 is changed. When the diameter of the center column 21 equals the diameter of the aperture of the fixing hole 102, as FIG. 3 shows, the armrests adjustment device 1 is mounted around the center column 21 without changing the size of the aperture of the fixing hole 102. And as FIG. 4 shows, when the diameter of the center column 21 is smaller than the diameter of the aperture of the fixing hole 102, the size of the gap 101 has to be minimized in order to narrow the aperture of the fixing hole 102 correspondingly. On the contrary, when the diameter of the center column 21 is larger than the diameter of the aperture of the fixing hole 102, broadening the gap 101 can expand the aperture of the fixing hole 102 correspondingly.

[0028] FIG. 5 shows a perspective exploded view of the joint mechanism 100 of the armrests adjustment device 1. In order to change the size of the gap 101 manually, the adjustment mechanism 100 further has at least one blind hole 110a, at least one through hole 120a and at least one joint screw 130. The through hole 120a is disposed at the protrusion 120 and is perpendicular to the gap 101. The blind hole 110a is disposed at the joint section 110 and faced to the through hole 120a, and the blind hole 110a has internal threads (not shown in the figure). The joint screw 130 is mounted in the through hole 120a and the blind hole 110a. In other words, the joint screw 130 is passed through the through hole 120a and gap 101, and then screwed in the blind hole 110a. As the joint screw 130 is screwed tighter, the protrusion 120 is pulled toward the joint section 110 so that the size of the gap 101 is narrowed. In this embodiment, a number of the blind hole 110a and a number of the joint screw 130 are each equal to a number of the through hole 120a. In a preferred embodiment, all of the numbers are, but not limited to, two.

[0029] FIGS. 1 and 5 describe the detailed structures of the horizontal arms 200. Each horizontal arm 200 includes a joint end 210 and an adjustment end 220, and the adjustment end 220 is opposite to the joint end 210. The joint end 210 is connected to the joint mechanism 100, and the adjustment end 220 is mounted with the adjustment mechanism 300. The joint section 110 has two joint blocks 111, each joint block 111 has a locking screw 112, each of the joint ends 210 is mounted around a respective one of the joint blocks 111, and the locking screw 112 fixes the horizontal arm 200 on the joint block 111. Each of the joint ends 210 has a locking hole 210a, and the diameter of the aperture of the locking hole 210a is smaller than a diameter of a head of the locking screw 112.

[0030] Specifically, when assembling, screw the locking screw 112 into the locking hole 210a first, and then mount the joint end 210 around the joint block 111, and, finally, screw out the locking screw 112 until the head of the locking screw 112 is disposed against an edge of the locking hole 210a of the horizontal arm 200. Thus, with the friction generated from disposing the head of the locking screw 112 against the edge of the locking hole 210a, the joint end 210 may not be loosened from the joint block 111.

[0031] Besides, to make the positions of the armrests 22 comply with ergonomics, the horizontal arms 200 are not parallel to each other. In this embodiment, an angle θ between the two horizontal arms 200 may be, but not limited to, 120 degrees. With such a structure, when the armrests adjustment device 1 is assembled on the chair 2, the horizontal arm 200 extends backward with respect to the chair 2 (as shown in FIG. 2). Therefore, the user is not obstructed by the armrests adjustment device 1 and has wider active space for his/her feet.

[0032] And then refer to both FIGS. 1 and 6; FIG. 6 is a perspective exploded view of a first adjustment section 310 of the adjustment mechanism 300 of the armrests adjustment device 1. Each adjustment mechanism 300 has a first rod 301 and a second rod 302. The first rod 301 is mounted at one of the adjustment ends 220. The second rod 302 is mounted at a top end of the first rod 301 and one end of the second rod 302 is configured for being mounted with one of the armrests 22. The first rod 301 may be nonparallel with the second rod 302, and, in this embodiment, the first rod 301 is, but not limited to, perpendicular with the second rod 302.

[0033] The first rod 301 can be a first adjustment section 310, and the first adjustment section 310 has a first tube body 311, a first column body 312, an upward gear crown 313, a downward gear crown 314, a first fixing unit 315 and a second fixing unit 316.

[0034] The first tube body 311 is mounted at the adjustment end 220 of one of the horizontal arms 200, and the first column body 312 is rotatably and movably mounted in the first tube body 311. Specifically, the first tube body 311 is a round tube, the first column body 312 is a cylinder, and the first column body 312 rotates about or moves along an axis of the first tube body 311.

[0035] Middle portion of the first tube body 311 has a first perforation 311a, and the first fixing unit 315 is mounted into the middle portion of the first tube body 311 through the first perforation 311a, and is selectively disposed against the first column body 312. When the first fixing unit 315 is not disposed against the first column body 312, the first column body 312 can rotate in and move along the first tube body 311. When the first fixing unit 315 is disposed against the first column body 312, the first fixing unit 315 is configured for fixing the relative position and angle between the first tube body 311 and the first column body 312. In other words, when the first fixing unit 315 fixes the first column body 312, the first column body 312 cannot rotate in and move along the first tube body 311.

[0036] The upward gear crown 313 is mounted at a top end of the first tube body 311, and the downward gear crown 314 is rotatably and movably mounted around the first column body 312. Specifically, the downward gear crown 314 rotates about or move along an axis of the first column body 312. Besides, the downward gear crown 314 is selectively engaged with the upward gear crown 313.

[0037] A side of the downward gear crown 314 has a second perforation 314a, and the second fixing unit 316 is mounted on the downward gear crown 314 through the second perforation 314a, and is selectively disposed against the first column body 312. When the second fixing unit 316 is not disposed against the first column body 312, the downward gear crown 314 is able to rotate in and move along the first column body 312. When the second fixing unit 316 is disposed against the first column body 312, the second fixing unit 316 is configured for fixing the relative position and angle between the first column body 312 and the downward gear crown 314. In other words, when the second fixing unit 316 fixes the downward gear crown 314, the downward gear crown 314 cannot rotate about and move along the first column body 312.

[0038] And then refer to both FIGS. 1 and 7. FIGS. 7 is a perspective exploded view of a second adjustment section 320 of the adjustment mechanism 300 of the armrests adjustment device 1. The second rod 302 can be a second adjustment section 320 having a second tube body 321, a second column body 322 and a third fixing unit 323. The second tube body 321 is mounted at the top end of the first rod 301. The second column body 322 is rotatably and movably mounted in the second tube body 321. The third fixing unit 323 is mounted on the second tube body 321 and configured for fixing the relative position and angle between the second tube body 321 and the second column body 322. In this embodiment, the second tube body 321 is a round tube, and the second column body 322 is a cylinder. The movement means of the second tube body 321 and the second column body 322 is similar to the movement means of the first tube body 311 and the first column body 312, and the operation method of the third fixing unit 323 is similar to the operation method of the first fixing unit 315, so detailed descriptions thereof would be omitted.

[0039] In order to simplify the operation and reduce the redundant degrees of freedom, in another variation of this embodiment, the second tube body 321 includes a protruding rail 3211 mounted on an inner surface of the second tube body 321, and the second column body 322 includes a groove 3221 disposed on an outer surface of the second column body 322, and the groove 3221 corresponds to the protruding rail 3211 in shape. Thus, in this type, the second column body 322 is moveable only along the second tube body 321, but not able to rotate in the second tube body 321. In other words, the second column body 322 may not rotate downward spontaneously by the weight of the armrests 22.

[0040] In this type, the second column body 322 includes a stopper 3222 mounted at one end of the groove 3221. The end mounted with stopper 3222 may be both ends of the groove 3221, or the end of the groove 3221 away from the armrests 22. The stopper 3222 protrudes from the groove 3221 so that the stopper 3222 restricts a movement range of the second column 322 along the second tube body 321 and reduces the chance that the second column body 322 moves out of the second tube body 321. In detail, the stopper 3222 may be an integrated protruding part of the groove 3221 or an additional component. In this type, the stopper 3222 is, but not limited to, a locking screw at the end. The process of assembling the armrests adjustment device 1 of this type is that the second column body 322 is mounted into the second tube body 321 first and then screwed at the end of the groove 3221.

[0041] Another possible type of the embodiment is similar to the previous type, but the difference is that this type does not have any protruding rail or groove and the second tube body 321 is not a round tube and the second column body 322 is not a cylinder. Therefore, the spontaneous rotation of the second column body 322 is prevented. As this type can be realized easily for people skilled in the art, it is not illustrated in the drawings.

[0042] A basic embodiment of the present invention is as follows. Please refer to FIGS. 1, 8 and 9. FIGS. 8 and 9 are respectively a perspective exploded view and a sectional view of a third adjustment section 330 of the adjustment mechanism 300 of the armrests adjustment device 1.

[0043] The adjustment mechanism 300 further has a third adjustment section 330 and a fourth adjustment section 340. The third adjustment section 330 is mounted at an end of the second rod 302. In detail, the third adjustment section 330 includes a universal joint 331, one of the armrests 22 is rotatably mounted on the universal joint 331 via the fourth adjustment section 340 so that the armrests 22 are configured for rotating about the universal joint 331. The universal joint 331 has a shell 3311, a spherical portion 3312 mounted in the shell 3311, and a fixing screw 3313. One end of the fixing screw 3313 is screwed into the spherical portion 3312 and another end of the fixing screw 3313 is screwed into the fourth adjustment section 340. Thus, the armrests 22 are able to rotate with respect to the center of the spherical portion 3312.

[0044] The third adjustment section 330 selectively further has a fourth fixing unit 332 mounted on the universal joint 331, specifically on the outer side of the shell 3311. The fourth fixing unit 332 is configured for fixing a relative angle between the universal joint 331 and one of the armrests 22. In detail, the fourth fixing unit 332 is selectively disposed against the spherical portion 3312. When the fourth fixing unit 332 is not disposed against the spherical portion 3312, the spherical portion 3312 can rotate with respect to the shell 3311. When the fourth fixing unit 332 is disposed against the spherical portion 3312, the fourth fixing unit 332 is configured for fixing a relative angle between the shell 3311 and the spherical portion 3312. In other words, after the fourth fixing unit 332 fixes the spherical portion 3312, the spherical portion 3312 does not rotate with respect to the shell 3311. Thus, the fourth fixing unit 332 is configured for fixing the relative angle between the universal joint 331 and the armrests 22.

[0045] The fourth adjustment section 340 has a fixing board 341 and a bearing seat 342. The fixing board 341 is mounted on the fixing screw 3313 at the end that is not screwed into the spherical portion 3312. The bearing seat 342 is configured for bearing the armrests 22 and has a slide rail 3421, and the fixing board 341 is mounted in the bearing seat 342 and is capable of sliding along the sliding rail 3421. The fourth adjustment section 340 selectively further has a fifth fixing unit 343 mounted on the fixing screw 3313 at the end that is not screwed into the spherical portion 3312 and is located between the fixing board 341 and the spherical portion 3312. In this embodiment, the fifth fixing unit 343 may be a knob. The distance between the fifth fixing unit 343 and the fixing board 341 can be changed when the fifth fixing unit 343 is turned so that the bearing seat 342 can be tightened or loosened selectively. When the distance between the fifth fixing unit 343 and the fixing board 341 is decreased so that the fifth fixing unit 343 and the fixing

board 341 tighten the bearing seat 342, the bearing seat 342 cannot move along the fixing board 341. On the contrary, when the distance is increased between the fifth fixing unit 343 and the fixing board 341 so that the fifth fixing unit 343 and the fixing board 341 loosen the bearing seat 342, the bearing seat 342 can move along the fixing board 341. Thus, the fifth fixing unit 343 is configured for fixing the relative position between the bearing seat 342 and the fixing board 341.

[0046] The following is the elaboration of degree of freedom (hereinafter referred to as DOF) of this invention. Please refer to FIGS. 10 and 11, which are an operational side view and an operational top view of the adjustment mechanism 300 of the armrests adjustment device 1. In this embodiment, the first adjustment section 310 is perpendicular to the ground, so the height of the armrests 22 (not shown in the figure) can be adjusted through the first adjustment section 310 (which is DOF A shown in FIG. 10). For adjustment, loosen the first fixing unit 315 and the second fixing unit 315 at first so that the relative position between the downward gear crown 314 and the first column body 312 can be adjusted. After the relative position between the downward gear crown 314 and the first column body 312 is determined, engage the downward gear crown 314 with the upward gear crown 313 so that the relative position between the first column body 312 and the first tube body 311 is determined, i.e., the height of the armrests 22 is adjusted. Besides, the purpose of determining the height of the armrests 22 also can be achieved through determining the relative position between the downward gear crown 314 and the first column body 312 and the relative position between the first column body 312 and the first tube body 311 at the same time. And, finally, after determining the height of the armrests 22, dispose the first fixing unit 315 and the second fixing unit 316 against the first column body 312 for completing the adjustment.

[0047] Because the first tube body 311 and the first column body 312 of the first adjustment section 310 are able to rotate with respect to each other, the armrests 22 rotate in a huge range about the axis of the first tube body 311 (which is DOF B shown in FIGS. 10 and 11). In addition, with the upward gear crown 313 and the downward gear crown 314, the first column body 312 rotates in notches about the first tube body 311. Therefore, it ensures that the armrests 22 are rotated for the same angle every time even if the user asks others to rotate the armrests 22. For example, just ask others to rotate the armrests 22 three notches clockwise.

[0048] In this embodiment, the second adjustment section 320 is parallel to the ground, and hence the distance between the armrests 22 and the seat can be adjusted through the second adjustment section 320 (which is DOF C shown in FIG. 10). In the type without the protruding rail 3211 and groove 3221, or the type that the second tube body 321 is a round tube and the second column body 322 is a cylinder, a lateral angle of the armrests 22 also can be adjusted (which is DOF D shown in FIG. 11). When adjusting, loosen the third fixing unit 323 first (i.e., do not make the third fixing unit 323 disposed against the second column body 322) to begin the adjustment. After determining the distance between the armrests 22 and the seat or the angle between the armrests 22, dispose the third fixing unit 323 against the second column body 322 to complete the adjustment.

[0049] This embodiment adjusts an angle between the universal joint 331 and the armrests 22 (which is DOF E

shown in FIG. 10) through the third adjustment mechanism 330. When adjusting, loosen the fourth fixing unit 332 (i.e., do not make the fourth fixing unit 332 disposed against the spherical portion 3312, which is not shown in FIG. 10) to begin the adjustment. After determining the angle of the armrests 22, dispose the fourth fixing unit 332 against the spherical portion 3312 to complete the adjustment.

[0050] This embodiment adjusts a distance between the seat and the armrests 22 (which is DOF F shown in FIG. 10) through the fourth adjustment mechanism 340. When adjusting, loosen the fifth fixing unit 343 (i.e., increase the distance between the fifth fixing unit 343 and fixing board 341) to begin the adjustment. After determining the distance between the seat and the armrests 22, decrease the distance between the fifth fixing unit 343 and the fixing board 341 (not shown in the figure) so that the bearing seat 342 is tightened to complete the adjustment.

[0051] Consequently, the armrests adjustment device 1 assembles the whole armrest adjustment device 1 on the center column 21 of the chair through the fixing hole 102 of the joint mechanism 100 instead of assembling attached iron pieces, thereby not only minimizing the occupied space, but also simplifying the manufacture process. Besides, the armrests adjustment device 1 provides more comfortable support to the user through adjusting and fixing the height and the horizontal position.

[0052] Even though numerous characteristics and advantages of the present invention have been set forth in the foregoing description, together with details of the structure and features of the invention, the disclosure is illustrative only. Changes may be made in the details, especially in matters of shape, size, and arrangement of parts within the principles of the invention to the full extent indicated by the broad general meaning of the terms in which the appended claims are expressed.

What is claimed is:

1. An armrests adjustment device for a chair, wherein the armrests adjustment device is assembled on a center column of a chair for being installed with two armrests, and the armrests adjustment device comprises:

a joint mechanism having

a fixing hole for being disposed around the center column;

two horizontal arms, each of the horizontal arms including

a joint end connected to the joint mechanism; and
an adjustment end opposite to the joint end; and

two adjustment mechanisms, one end of each of the adjustment mechanisms mounted at the adjustment end of one of the horizontal arms, the other end of each of the adjustment mechanisms for being installed with one of the armrests.

2. The armrests adjustment device as claimed in claim 1, wherein each of the adjustment mechanisms comprises:

a first rod mounted at one of the adjustment ends; and

a second rod mounted at a top end of the first rod, an end of the second rod for being installed with the corresponding one of the armrests.

3. The armrests adjustment device as claimed in claim 2, wherein each of the first rods is a first adjustment section, and the first adjustment section comprises:

a first tube body mounted at the adjustment end of one of the horizontal arms;

a first column body rotatably and movably mounted in the first tube body;

an upward gear crown mounted at a top end of the first tube body;

a downward gear crown rotatably and movably mounted around the first column body, and selectively engaged with the upward gear crown;

a first fixing unit mounted on the first tube body for fixing a relative position and angle between the first tube body and the first column body; and

a second fixing unit mounted on the downward gear crown for fixing a relative position and angle between the first column body and the downward gear crown.

4. The armrests adjustment device as claimed in claim 2, wherein each of the second rods is a second adjustment section, and the second adjustment section comprises:

a second tube body mounted at the top end of the first rod;

a second column body movably mounted in the second tube body; and

a third fixing unit mounted on the second tube body for fixing a relative position between the second tube body and the second column body.

5. The armrests adjustment device as claimed in claim 4, wherein

the second column body includes

a groove disposed on an outer surface of the second column body; and

a stopper mounted at one end of the groove; and

the second tube body includes

a protruding rail mounted on an inner surface of the second tube body, movably engaging in the groove of the second column body, and selectively abutting against the stopper.

6. The armrests adjustment device as claimed in claim 2, wherein each of the adjustment mechanisms further comprises

a third adjustment section mounted at the end of the second rod and including

a universal joint rotatably mounted with one of the armrests.

7. The armrests adjustment device as claimed in claim 6, wherein the third adjustment section further includes

a fourth fixing unit mounted on the universal joint for fixing a relative angle between the universal joint and the armrest.

8. The armrests adjustment device as claimed in claim 2, wherein the first rod is nonparallel with the second rod.

9. The armrests adjustment device as claimed in claim 1, wherein the joint mechanism comprises:

a joint section;

a protrusion, wherein the fixing hole is formed from the protrusion and the joint section;

a gap formed between the protrusion and the joint section;

at least one through hole formed through the protrusion and disposed perpendicular to the gap;

at least one blind hole formed in the joint section and faced to the at least one through hole, and a number of the at least one blind hole equal to a number of the at least one through hole, each of the at least one blind hole including an internal thread; and

at least one joint screw mounted in the at least one through hole and screwed into the at least one blind hole, a number of the at least one joint screw equal to the number of the at least one through hole.

10. The armrests adjustment device as claimed in claim 9, wherein

the joint section includes

two joint blocks respectively mounted in the joint ends of the horizontal arms;

each of the joint ends includes

a locking hole;

the joint mechanism includes

two locking screws respectively mounted in the joint ends of the horizontal arms, respectively screwed with the joint blocks, and respectively abutting edges of the locking holes.

* * * * *