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(54) SOFA SUPPORT STRUCTURE AND SOFA THEREOF

(57) A sofa support structure (100) includes a footrest link set (10), a lumbar support set (20), a transmission rod set and a cushion bracket (40). The footrest link set (10), the lumbar support set (20) and the transmission rod set are disposed on the cushion bracket (40). The transmission rod set is configured for driving the lumbar support set (20) to be gathered and extended. The transmission rod set is a transmission rod (30), a first end of the transmission rod (30) is rotatably connected to the lumbar support set (20), and a second end of the transmission rod (30) is pivotally connected to the footrest link set (10). the lumbar support set can be driven to rotate and unfolded only by the single transmission rod, which effectively simplifies a driving process of the lumbar support set and the structure of the sofa support structure and resulting in it has better stability.

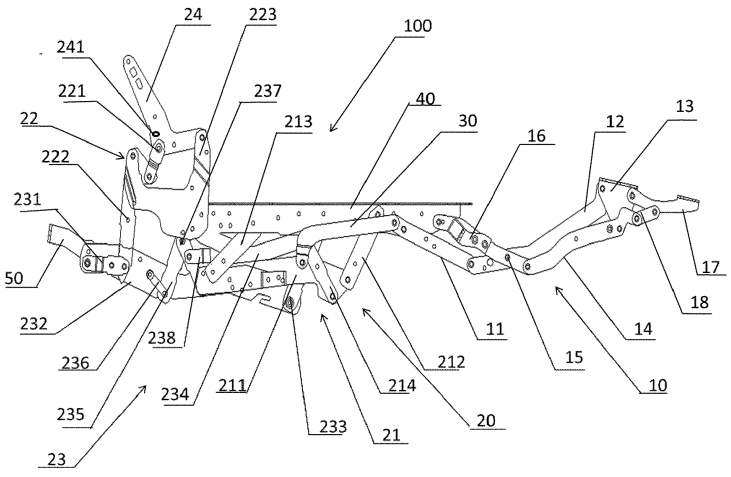


FIG.1

EP 3 718 438 A1

Description

CROSS REFERENCE TO RELATED APPLICATIONS

[0001] The present application is based on, and claims priority from, Chinese patent application number CN201910263301.6, filed on Aril 2, 2019, the disclosure of which is hereby incorporated by reference herein in its entirety.

TECHNICAL FIELD

[0002] The present disclosure relates to smart furniture and in particular to a sofa support structure and a sofa having the sofa support structure.

BACKGROUND

[0003] In daily life, a sofa has become necessary and common. An adjustable sofa can be adjusted its own inclination by an inner sofa bracket structure. However, the inner sofa bracket structure includes many elements and is more complicated, and its stability is poor.

SUMMARY

[0004] To solve the above problem, the present disclosure provides a sofa support structure and a sofa, which is simpler and has good stability.

[0005] The sofa support structure can include a footrest link set, a lumbar support set, a transmission rod set and a cushion bracket. The footrest link set, the lumbar support set and the transmission rod set are disposed on the cushion bracket. The transmission rod set is configured for driving the lumbar support set to be gathered and extended. The transmission rod set is a transmission rod. A first end of the transmission rod is rotatably connected to the lumbar support set and a second end of the transmission rod is pivotally connected to the footrest link set.

[0006] The lumbar support set can include a first link assembly, a second link assembly, a third link assembly and a lumbar bracket. The first link assembly can be pivotally connected to the transmission rod and the cushion bracket, respectively. The second link assembly is pivotally connected to the cushion bracket and the lumbar bracket, respectively. The third link assembly is pivotally connected to the first link assembly and the second link assembly, respectively.

[0007] The first link assembly can include a second link, a third link, and a fourth link. A first end of the second link can be pivotally connected to the transmission rod. A first end of the third link can be pivotally connected to the first end of the second link, and a second end of the third link can be pivotally connected to the cushion bracket. A first end of the fourth link can be pivotally connected to a second end of the second link, and a second end of the fourth link can be pivotally connected to the cushion bracket.

[0008] The footrest link set can include a fifth link, a sixth link, a seventh link, an eighth link, a ninth link, a footrest bracket, and a tenth link. A first end of the fifth link can be pivotally connected to the cushion bracket and the transmission rod. A first end of the sixth link can be pivotally connected to a second end of the fifth link. A first end of the seventh link can be pivotally connected to a second end of the sixth link. A first end of the eighth link can be pivotally connected to a second end of the seventh link. A first end of the ninth link can be pivotally connected to a second end of the eighth link. A second end of the ninth link can be pivotally connected to the cushion bracket. The ninth link can be fixedly connected to an external driving device by a first fastener. The footrest bracket can be pivotally connected to the seventh link. And a first end of the tenth link can be pivotally connected to the first end of the eighth link, and a second end of the tenth link is further pivotally connected to the footrest bracket.

[0009] The second link assembly can include an eleventh link, a twelfth link, and a thirteenth link. A first end of the eleventh link can be pivotally connected to the lumbar bracket. A first end of the twelfth link can be pivotally connected to a second end of the eleventh link by a first pivot. And a first end of the thirteenth link is pivotally connected to the first end of the twelfth link by a second pivot. A middle part of the thirteenth link can be pivotally connected to the cushion bracket. And a second end of the thirteenth link can be pivotally connected to the lumber bracket.

[0010] The lumber bracket can include a limiting element configured for limiting the eleventh link.

[0011] The third link assembly can include a fourteenth link, a fifteenth link, a sixteenth link, a seventeenth link, an eighteenth link, a nineteenth link, a twentieth link, and a twenty-first link. A first end of the fourteenth link can be pivotally connected to a second end of the twelfth link. A first end of the fifteenth link can be pivotally connected to a second end of the fourteenth link. A first end of the sixteenth link can be pivotally connected to a second end of the fifteenth link. A first end of the seventeenth link can be pivotally connected to a second end of the sixteenth link. A first end of the eighteenth link can be pivotally connected to a second end of the seventeenth link. A first end of the nineteenth link can be pivotally connected to a second end of the eighteenth link and a second end of the nineteenth link can be pivotally connected to the fifteenth link. A first end of the twentieth link can be pivotally connected to the eighteenth link and a second end of the twentieth link can be pivotally connected to the fifteenth link. A first end of the twenty-first link can be pivotally connected to the twentieth link and a second link of the twenty-first link can be pivotally connected to the seventeenth link.

[0012] The sofa support structure can further include a second fastener disposed on the fifteenth link and fixedly connected to the external driving device.

[0013] The first link assembly can further include a twenty-second link. A first end of the twenty-second link can be pivotally connected to the second link, and a second end of the twenty-second link can be pivotally connected to the sixteenth link.

[0014] A sofa including the sofa support structure is further provided.

[0015] The provided sofa support structure and the sofa have following advantages. The transmission rod set can be driven by the footrest link set, and further drive the lumbar support set to rotate through the transmission rod set. So that the sofa support structure can be adjusted to be at a folded state or an unfolded state. In addition, the lumbar support set can be driven to rotate and unfolded only by the single transmission rod, which effectively simplifies the driving process of the lumbar support set and the structure of the sofa support structure and resulting in it has better stability.

BRIEF DESCRIPTION OF THE DRAWINGS

[0016]

FIG. 1 is a perspective view of an embodiment of a sofa support structure at a total unfolded state.

FIG. 2 is a partial enlarged view of pat of the sofa support structure of FIG. 1.

FIG. 3 is a perspective view of the sofa support structure of FIG. 1 at a partial unfolded state.

FIG. 4 is a perspective view of an embodiment of the sofa support structure of FIG. 1 at a folded state.

DETAILED DESCRIPTION

[0017] Embodiments of the present disclosure will be described in detail below, and examples of the embodiments will be illustrated in the accompanying drawings. The embodiments described below with reference to the drawings are illustrative and are intended to explain the present disclosure, and not to be construed as a limitation to the present disclosure.

[0018] It should be noted that when an element is referred to as being "assembled on" another element, it may be directly or indirectly disposed on another element. When an element is considered to be "fixed" to another element, it may be directly or indirectly attached to another element.

[0019] All technical and scientific terms used herein have the same meaning as commonly understood by one of ordinary skill in the art to which this disclosure is claimed. The terminology used in the description herein is for the purpose of describing particular embodiments, and is not intended to limit the disclosure. The term "or/and" as used herein includes any and all combinations of one or more of the associated listed items.

[0020] Referring to FIG. 1 and FIG. 2, an embodiment of a sofa support structure 100 is provided. The sofa support structure 100 can be used in a sofa, a deck chair and other furniture similar to the sofa.

[0021] The sofa support structure 100 includes a footrest link set 10, a lumbar support set 20, a transmission rod set and a cushion bracket 40. The footrest link set 10, the lumbar support set 20 and the transmission rod set are disposed on the cushion bracket 40. The transmission rod set is configured for driving the lumbar support set 20 to be gathered and extended. The transmission rod set only includes a single transmission rod 30. A first end of the transmission rod 30 is rotatably connected to the lumbar support set 20. And a second end of the transmission rod 30 is pivotally connected to the footrest link set 10. The footrest link set 10 can be pivotally connected to an external driving device configured for driving the footrest link set 10.

[0022] Referring to FIG. 4, the sofa support structure 100 can be at a folded state. When the footrest link set 10 is driven by the external driving device to expand and be unfolded, the transmission rod 30 will be driven by the footrest link set 10 to make the lumbar support set 20 rotate and unfold. The lumbar support set 20 can be driven to unfold only by the single transmission rod 30, which effectively simplifies the driving process of the lumbar support set 20 and the structure of the sofa support structure 100 and resulting in it has better stability.

[0023] The lumbar support set 20 includes a first link assembly 21, a second link assembly 22, a third link assembly 23 and a lumbar bracket 24. The first link assembly 21 is pivotally connected to the transmission rod 30 and the cushion bracket 40, respectively. The second link assembly 22 is pivotally connected to the cushion bracket 40 and the lumbar bracket 24, respectively. The third link assembly 23 is pivotally connected to the first link assembly 21 and the second link assembly 22, respectively. The first link assembly 21 can move under the driving of the footrest link set 10, resulting in the second link assembly 22 and the third link assembly 23 move. Then the lumbar bracket 24 will move together under the moving of the second link assembly 22, resulting in being unfolded. The lumbar bracket 24 can be altered between the unfolded state and the folded state. The lumbar bracket 24 can have a first unfolded angle in the driving process of the footrest link set 10. The first unfolded angle and the height of the lumbar bracket 24 are adjustable.

[0024] The first link assembly 21 can include a second link 211, a third link 212 and a fourth link 213. A first end of the second link 211 is pivotally connected to the transmission rod 30. A first end of the third link 212 is pivotally connected to the first end of the second link 211. A second end of the third link 212 is pivotally connected to the cushion bracket 40. And a first end of the fourth link 213 is pivotally connected to a second end of the second link 211, and a second end of the fourth link 213 is pivotally connected to the cushion bracket 40. The transmission rod 30 can be configured for driving the first link assembly 21 and be able to move under the driving of the footrest link set 10. Under the driving of the transmission rod 30,

the second link 211, the third link 212 and the fourth link 213 will correspondingly move, resulting in the first link assembly 21 being unfolded. The first link assembly 21 can be altered between the unfolded state and the folded state.

[0025] It is understood that, a plurality of through holes (not shown) can be disposed on the second link 211, so that one skilled in the art can install other elements such as pipe fittings, if they are needed. As shown in FIG 1, the first end of the transmission rod 30 can be curved, and the first end of the transmission rod 30 is pivotally connected to the first end of the second link 211 by a pivot which is about one third from the first end of the second link 211. It is understood that, the first end of the transmission rod 30 can be pivotally connected to other parts of the second link 211 according to needs.

[0026] As shown in FIG. 1, the footrest link set 10 can include a fifth link 11, a sixth link 12, a seventh link 13, an eighth link 14, and a ninth link 15. A first end of the fifth link (11) is pivotally connected to the cushion bracket 40 and the transmission rod 30. A first end of the sixth link 12 is pivotally connected to a second end of the fifth link 11. A first end of the seventh link 13 is pivotally connected to a second end of the sixth link 12. A first end of the eighth link 14 is pivotally connected to a second end of the seventh link 13. A first end of the ninth link 15 is pivotally connected to a second end of the eighth link 14. A second end of the ninth link 15 is pivotally connected to the cushion bracket 40.

[0027] The footrest link set 10 can further include a first fastener 16. The first fastener 16 can be disposed on the ninth link 15. The first fastener 16 can be connected to an external driving device, like a motor, a pneumatic driving device. That is, the ninth link 15 is fixedly connected to the external driving device by the first fastener 16. The first fastener 16 can be driven to move by the external driving device, resulting in the ninth link 15 moves and the fifth link 11, the sixth link 12, the eighth link 14, and the seventh link 13 correspondingly moves. Thereby, the footrest link set 10 will be unfolded or folded. The footrest link set 10 can be altered between the unfolded state and the folded state. When the fifth link 11 is moved, the transmission rod 30 will move together, resulting in each link of the first link assembly 21 moves and can be folded or unfolded. The seventh link 13 can have a triangular shape. The seventh link 13 can have a third end besides the first end of the seventh link 13 and the second end of the seventh link 13.

[0028] The footrest link set 10 can further include a footrest bracket 17 and a footrest bracket 18. The footrest bracket 17 is pivotally connected to the third end of the seventh link 13. A first end of the tenth link 18 is pivotally connected to the first end of the eighth link 14, and a second end of the tenth link 18 is further pivotally connected to the footrest bracket 17. When a user uses the sofa including the sofa support structure 100, the foot can be on the footrest bracket 17. The footrest bracket 17 can be driven to move and rotate under a synergy of each link of the footrest link set 10, in order to facilitate adjusting a second unfolded angle of the footrest bracket 17. It can effectively improve the comfort of the user using the sofa having the sofa support structure 100. When the sofa support structure 100 is in the unfolded state, each link of the footrest groups 10 can cooperate with each other to support the footrest bracket 17, thereby improving the stability of the footrest bracket 17 in use.

[0029] The second link assembly 22 can include an eleventh link 221, a twelfth link 222, and a thirteenth link 223. A first end of the eleventh link 221 is pivotally connected to the lumbar bracket 24. A first end of the twelfth link 222 is pivotally connected to a second end of the eleventh link 221 by a first pivot. A first end of the thirteenth link 223 is pivotally connected to the first end of the twelfth link 222 by a second pivot, a middle part of the thirteenth link 223 is pivotally connected to the cushion bracket 40, and a second end of the thirteenth link 223 is pivotally connected to the lumber bracket 24. The lumber bracket 24 can include a limiting element 241 configured for limiting the eleventh link 221, especially a rotating angle of the first end of the eleventh link 221. That is, when the second link assembly 22 is at the unfolded state, the rotating angle of the first end of the eleventh link 221 can be limited by the limiting element 241, in order to limit the first unfolded angle of the lumbar bracket 24. The lumbar bracket 24 can be supported by the synergistic action of the limiting element 241 and the second link assembly 22.

[0030] It should be noted that, the lumbar support 24 can have an "L" shape, so that the lumbar support 24 can adapt to the structure of a sofa back of the sofa. In addition, the thirteenth link 223 has a "U" shape. The thirteenth link 223 has the first end, the second end and the middle part between the first end and the second end.

[0031] The third link assembly 23 can include a fourteenth link 231, a fifteenth link 232, a sixteenth link 233, a seventeenth link 234, an eighteenth link 235, a nineteenth link 236, a twentieth link 237, and a twenty-first link 238. A first end of the fourteenth link 231 is pivotally connected to a second end of the twelfth link 222. A first end of the fifteenth link 232 is pivotally connected to a second end of the fourteenth link 231. A first end of the sixteenth link 233 is pivotally connected to a second end of the fifteenth link 232. A first end of the seventeenth link 234 is pivotally connected to a second end of the sixteenth link 233. A first end of the eighteenth link 235 is pivotally connected to a second end of the seventeenth link 234. A first end of the nineteenth link 236 is pivotally connected to a second end of the eighteenth link 235, and a second end of the nineteenth link 236 is pivotally connected to the fifteenth link 232. A first end of the twentieth link 237 is pivotally connected to the eighteenth link 235, and a second end of the twentieth link 237 is pivotally connected to the fifteenth link 232. A first end of the twenty-first link 238 is pivotally connected to the twentieth link 237, and a second link of the twenty-first link 238 is pivotally connected to the seventeenth link 234. Further-

more, a second fastener 50 can be disposed on the fifteenth link 232 and fixedly connected to the external driving device. The first fastener 16 and the second fastener 50 can be located on two ends of the external driving device, respectively.

[0032] The first link assembly 21 further comprises a twenty-second link 214. A first end of the twenty-second link 214 is pivotally connected to the second link 211, and a second end of the twenty-second link 214 is pivotally connected to the sixteenth link 233. So that the twenty-second link 214 is driven by the second link 211 to drive the sixteenth link 233 to move, and further drive the other links of the third link assembly 23 to move. The third link assembly 23 can be altered from the folded state to the unfolded state or from the unfolded state to the folded state. Thus, the third link assembly 23 can be movable under driving of the twenty-second link 214 of the first link assembly 21 and cooperate with the second link assembly 22 to dynamically adjust the lumbar bracket 24.

[0033] It should be noted that in the above embodiments, each of the links can be connected by means of hinge, riveting or the like.

[0034] In one example, the external driving device mounted on the first fastener 16 and the second fastener 50 can be a motor, and a moving process of the sofa support structure 100 can be described as follows.

[0035] The sofa support structure 100 is initially folded (as shown in FIG. 4). Then, the motor will drive the first fastener 16, then the ninth link 15 will be driven to move, leading to the fifth link 11, the sixth link 12, the seventh link 13, the eighth link 14, and the tenth link 18 move together. That is, the footrest link set 10 will be adapted to the unfolded state from the folded state. At the same time, the footrest bracket 17 will rotate and move far away from the cushion bracket 40 when the fifth link 11, the sixth link 12, the seventh link 13, the eighth link 14, the ninth link 15, and the tenth link 18 move together. That is, the footrest bracket 17 will be adapted to the unfolded state from the folded state (as shown in FIG. 3).

[0036] When the fifth link 11 is moving, the transmission rod 30 will be driven to move and rotate by the fifth link 11, then the second link 211, the third link 212, the fourth link 213, the twenty-second link 214 will move together. The first link assembly will be adapted to the unfolded state from the folded state (as shown in FIG. 4).

[0037] The second end of the twenty-second link 214 is pivotally connected to the sixteenth link 233, so that when the twenty-second link 214 is moving, the sixteenth link 233 will be moving together. Correspondingly, the fourteenth link 231, the fifteenth link 232, the sixteenth link 233, the seventeenth link 234, the eighteenth link 235, the nineteenth link 236, the twentieth link 237, and the twenty-first link 238 will move together. The third link assembly 23 will be adapted to the unfolded state from the folded state (as shown in FIG. 1).

[0038] When the fourteenth link 231 is moving, the twelfth link 222 will be driven to move by the fourteenth link 231. Then the eleventh link 221 and the thirteenth link 223 will be driven to move together with the twelfth link 222. The lumbar bracket 24 will move together under the moving of eleventh link 221 and the thirteenth link 223. The lumbar bracket 24 can have a first unfolded angle in the driving process of the footrest link set 10 (as shown in FIG. 1). The first unfolded angle and the height of the lumbar bracket 24 are adjustable.

[0039] The present disclosure further provides a sofa (not shown). The sofa includes the sofa support structure 100.

[0040] The sofa support structure 100 and the sofa have following advantages. The footrest link set 10 can be driven by the external driving device. Then the transmission rod 30, the first link assembly 21, the second link assembly 22, the third link assembly 23, and the lumbar bracket 24 can be driven by the footrest link set 10. So that the sofa support structure 100 can be adjusted to be at the folded state or the unfolded state. In addition, the first link assembly 21 can be driven to rotate and unfold only by the transmission rod 30, which effectively simplifies the driving process of the first link assembly 21 and the structure of the sofa support structure 100 and resulting in it has better stability.

[0041] The technical features of the above-described embodiments may be in any combination. For the sake of brevity of description, all possible combinations of the technical features in the above embodiments are not described. However, as long as there is no contradiction between the combinations of these technical features, all of the combinations should be considered as within the scope of this disclosure.

[0042] Although the devices have been described and illustrated using certain embodiments, however, the disclosure is not limited by the precise details set forth above. Many variations and modifications will be evident to those skilled in the art and may be made without departing from the spirit and scope of the disclosure.

Claims

1. A sofa support structure (100) comprising: a footrest link set (10), a lumbar support set (20), a transmission rod set and a cushion bracket (40), the footrest link set (10), the lumbar support set (20) and the transmission rod set are disposed on the cushion bracket (40), the transmission rod set is configured for driving the lumbar support set (20) to be gathered and extended, **characterized in that** the transmission rod set is a transmission rod (30), a first end of the transmission rod (30) is rotatably connected to the lumbar support set (20), and a second end of the transmission rod (30) is pivotally connected to the footrest link set (10).

2. The sofa support structure (100) of claim 1, **characterized in that** the lumbar support set (20) comprises a first link assembly (21), a second link assembly

(22), a third link assembly (23) and a lumbar bracket (24),

wherein the first link assembly (21) is pivotally connected to the transmission rod (30) and the cushion bracket (40), respectively;
the second link assembly (22) is pivotally connected to the cushion bracket (40) and the lumbar bracket (24), respectively;
the third link assembly (23) is pivotally connected to the first link assembly (21) and the second link assembly (22), respectively.

3. The sofa support structure (100) of claim 2, wherein the first link assembly (21) comprises:

a second link (211), a first end of the second link (211) is pivotally connected to the transmission rod (30);
a third link (212), a first end of the third link (212) is pivotally connected to the first end of the second link (211), a second end of the third link (212) is pivotally connected to the cushion bracket (40); and
a fourth link (213), a first end of the fourth link (213) is pivotally connected to a second end of the second link (211), and a second end of the fourth link (213) is pivotally connected to the cushion bracket (40).

4. The sofa support structure (100) of claim 2, **characterized in that** the footrest link set (10) comprises:

a fifth link (11), a first end of the fifth link (11) is pivotally connected to the cushion bracket (40) and the transmission rod (30);
a sixth link (12), a first end of the sixth link (12) is pivotally connected to a second end of the fifth link (11);
a seventh link (13), a first end of the seventh link (13) is pivotally connected to a second end of the sixth link (12);
an eighth link (14), a first end of the eighth link (14) is pivotally connected to a second end of the seventh link (13);
a ninth link (15), a first end of the ninth link (15) is pivotally connected to a second end of the eighth link (14), a second end of the ninth link (15) is pivotally connected to the cushion bracket (40), the ninth link (15) is fixedly connected to an external driving device by a first fastener (16);
a footrest bracket (17) pivotally connected to the seventh link (13); and
a tenth link (18), a first end of the tenth link (18) is pivotally connected to the first end of the eighth link (14), and a second end of the tenth link (18) is pivotally connected to the footrest bracket (17).

5. The sofa support structure (100) of claim 3 or 4, **characterized in that** the second link assembly (22) comprises:

an eleventh link (221), a first end of the eleventh link (221) is pivotally connected to the lumbar bracket (24);
a twelfth link (222), a first end of the twelfth link (222) is pivotally connected to a second end of the eleventh link (221) by a first pivot (222a); and
a thirteenth link (223), a first end of the thirteenth link (223) is pivotally connected to the first end of the twelfth link (222) by a second pivot (222b), a middle part of the thirteenth link (223) is pivotally connected to the cushion bracket (40), a second end of the thirteenth link (223) is pivotally connected to the lumber bracket (24).

6. The sofa support structure (100) of claim 5, **characterized in that** the lumber bracket (24) comprises a limiting element (241) configured for limiting the eleventh link (221).

7. The sofa support structure (100) of claim 5, **characterized in that** the third link assembly (23) comprises:

a fourteenth link (231), a first end of the fourteenth link (231) is pivotally connected to a second end of the twelfth link (222);
a fifteenth link (232), a first end of the fifteenth link (232) is pivotally connected to a second end of the fourteenth link (231);
a sixteenth link (233), a first end of the sixteenth link (233) is pivotally connected to a second end of the fifteenth link (232);
a seventeenth link (234), a first end of the seventeenth link (234) is pivotally connected to a second end of the sixteenth link (233);
an eighteenth link (235), a first end of the eighteenth link (235) is pivotally connected to a second end of the seventeenth link (234);
a nineteenth link (236), a first end of the nineteenth link (236) is pivotally connected to a second end of the eighteenth link (235), a second end of the nineteenth link (236) is pivotally connected to the fifteenth link (232);
a twentieth link (237), a first end of the twentieth link (237) is pivotally connected to the eighteenth link (235), a second end of the twentieth link (237) is pivotally connected to the fifteenth link (232); and
a twenty-first link (238), a first end of the twenty-first link (238) is pivotally connected to the twentieth link (237), a second link of the twenty-first link (238) is pivotally connected to the seventeenth link (234).

8. The sofa support structure (100) of claim 7, **characterized in that** further comprising a second fastener (50) disposed on the fifteenth link (232) and fixedly connected to the external driving device.

9. The sofa support structure (100) of claim 7, **characterized in that** the first link assembly (21) further comprises a twenty-second link (214), a first end of the twenty-second link (214) is pivotally connected to the second link (211), and a second end of the twenty-second link (214) is pivotally connected to the sixteenth link (233).

10. A sofa, **characterized in that** the sofa comprises any one of the sofa support structure (100) of claims 1 to 9.

Amended claims in accordance with Rule 137(2) EPC.

1. A sofa support structure (100) comprising: a footrest link set (10), a lumbar support set (20), a transmission rod set and a cushion bracket (40), the footrest link set (10), the lumbar support set (20) and the transmission rod set are disposed on the cushion bracket (40), the transmission rod set is configured for driving the lumbar support set (20) to be gathered and extended, **characterized in that** the transmission rod set is a transmission rod (30), a first end of the transmission rod (30) is rotatably connected to the lumbar support set (20), and a second end of the transmission rod (30) is pivotally connected to the footrest link set (10);
the lumbar support set (20) comprises a first link assembly (21), a second link assembly (22), a third link assembly (23) and a lumbar bracket (24),
wherein the first link assembly (21) is pivotally connected to the transmission rod (30) and the cushion bracket (40), respectively;
the second link assembly (22) is pivotally connected to the cushion bracket (40) and the lumbar bracket (24), respectively;
the third link assembly (23) is pivotally connected to the first link assembly (21) and the second link assembly (22), respectively;
characterized in that the footrest link set (10) comprises:

a fifth link (11), a first end of the fifth link (11) is pivotally connected to the cushion bracket (40) and the transmission rod (30);
a sixth link (12), a first end of the sixth link (12) is pivotally connected to a second end of the fifth link (11);
a seventh link (13), a first end of the seventh link (13) is pivotally connected to a second end of the sixth link (12);
an eighth link (14), a first end of the eighth link (14) is pivotally connected to a second end of the seventh link (13);
a ninth link (15), a first end of the ninth link (15) is pivotally connected to a second end of the eighth link (14), a second end of the ninth link (15) is pivotally connected to the cushion bracket (40), the ninth link (15) is fixedly connected to an external driving device by a first fastener (16);
a footrest bracket (17) pivotally connected to the seventh link (13); and
a tenth link (18), a first end of the tenth link (18) is pivotally connected to the first end of the eighth link (14), and a second end of the tenth link (18) is pivotally connected to the footrest bracket (17).

2. The sofa support structure (100) of claim 1, wherein the first link assembly (21) comprises:

a second link (211), a first end of the second link (211) is pivotally connected to the transmission rod (30);
a third link (212), a first end of the third link (212) is pivotally connected to the first end of the second link (211), a second end of the third link (212) is pivotally connected to the cushion bracket (40); and
a fourth link (213), a first end of the fourth link (213) is pivotally connected to a second end of the second link (211), and a second end of the fourth link (213) is pivotally connected to the cushion bracket (40).

3. The sofa support structure (100) of claim 1 or 2, **characterized in that** the second link assembly (22) comprises:

an eleventh link (221), a first end of the eleventh link (221) is pivotally connected to the lumbar bracket (24);
a twelfth link (222), a first end of the twelfth link (222) is pivotally connected to a second end of the eleventh link (221) by a first pivot (222a); and
a thirteenth link (223), a first end of the thirteenth link (223) is pivotally connected to the first end of the twelfth link (222) by a second pivot (222b), a middle part of the thirteenth link (223) is pivotally connected to the cushion bracket (40), a second end of the thirteenth link (223) is pivotally connected to the lumber bracket (24).

4. The sofa support structure (100) of claim 3, **characterized in that** the lumber bracket (24) comprises a limiting element (241) configured for limiting the eleventh link (221).

5. The sofa support structure (100) of claim 3, **charac-**

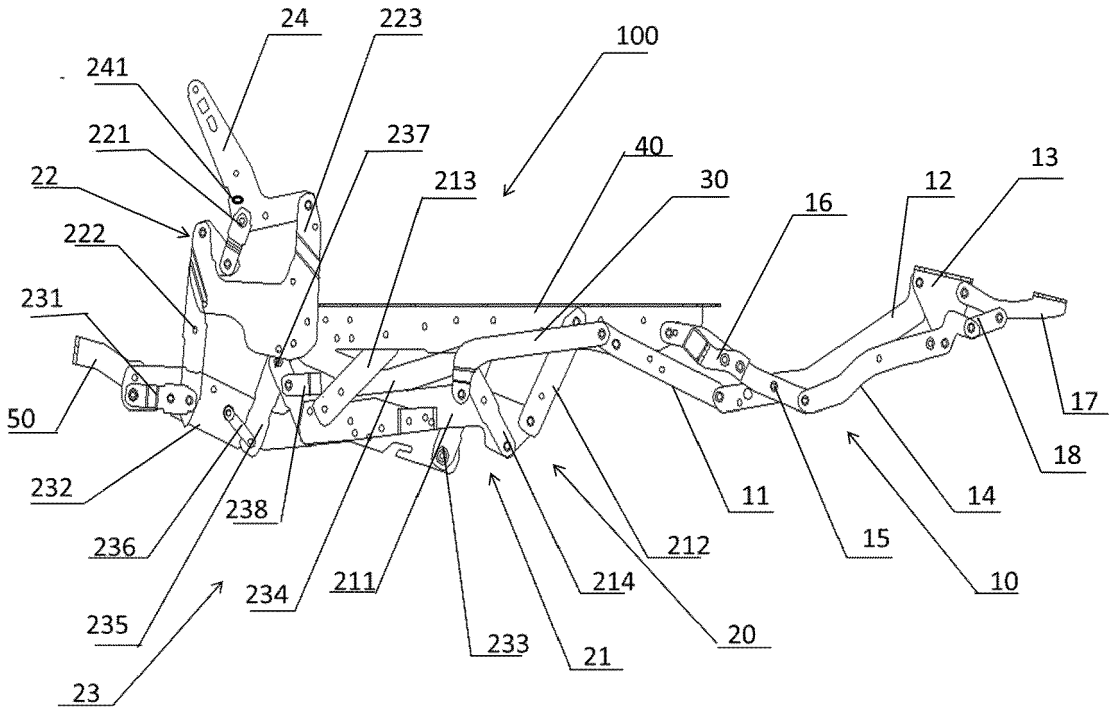
terized in that the third link assembly (23) comprises:

a fourteenth link (231), a first end of the fourteenth link (231) is pivotally connected to a second end of the twelfth link (222);
a fifteenth link (232), a first end of the fifteenth link (232) is pivotally connected to a second end of the fourteenth link (231);
a sixteenth link (233), a first end of the sixteenth link (233) is pivotally connected to a second end of the fifteenth link (232);
a seventeenth link (234), a first end of the seventeenth link (234) is pivotally connected to a second end of the sixteenth link (233);
an eighteenth link (235), a first end of the eighteenth link (235) is pivotally connected to a second end of the seventeenth link (234);
a nineteenth link (236), a first end of the nineteenth link (236) is pivotally connected to a second end of the eighteenth link (235), a second end of the nineteenth link (236) is pivotally connected to the fifteenth link (232);
a twentieth link (237), a first end of the twentieth link (237) is pivotally connected to the eighteenth link (235), a second end of the twentieth link (237) is pivotally connected to the fifteenth link (232); and
a twenty-first link (238), a first end of the twenty-first link (238) is pivotally connected to the twentieth link (237), a second link of the twenty-first link (238) is pivotally connected to the seventeenth link (234).

6. The sofa support structure (100) of claim 5, **characterized in that** further comprising a second fastener (50) disposed on the fifteenth link (232) and fixedly connected to the external driving device.

7. The sofa support structure (100) of claim 5, **characterized in that** the first link assembly (21) further comprises a twenty-second link (214), a first end of the twenty-second link (214) is pivotally connected to the second link (211), and a second end of the twenty-second link (214) is pivotally connected to the sixteenth link (233).

8. A sofa, **characterized in that** the sofa comprises any one of the sofa support structure (100) of claims 1 to 7.


24
223
100
241
221
237
40
13
22
213
30
12
16
222
231
17
50
18
232
11
14
238
236
212
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211
214
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233
20
21
23

FIG.1

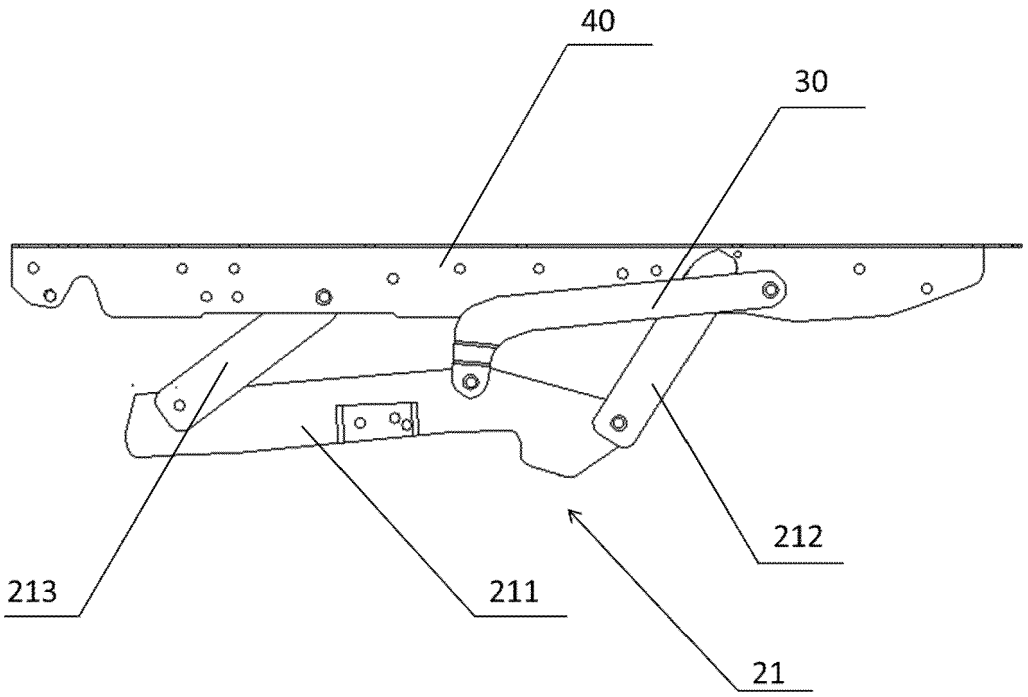

FIG. 2

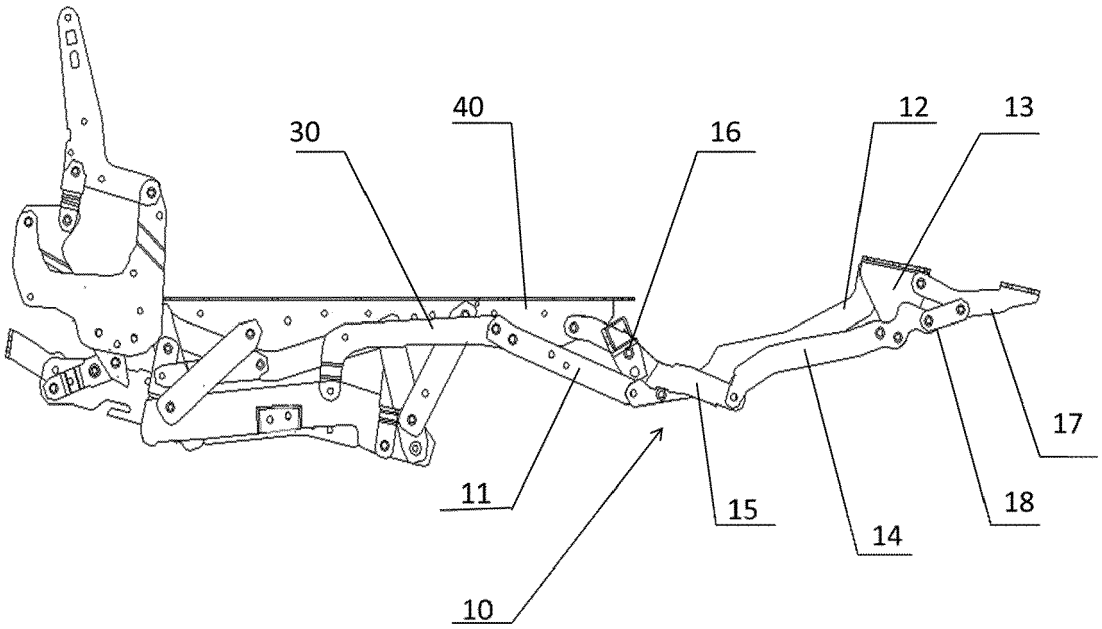

FIG. 3

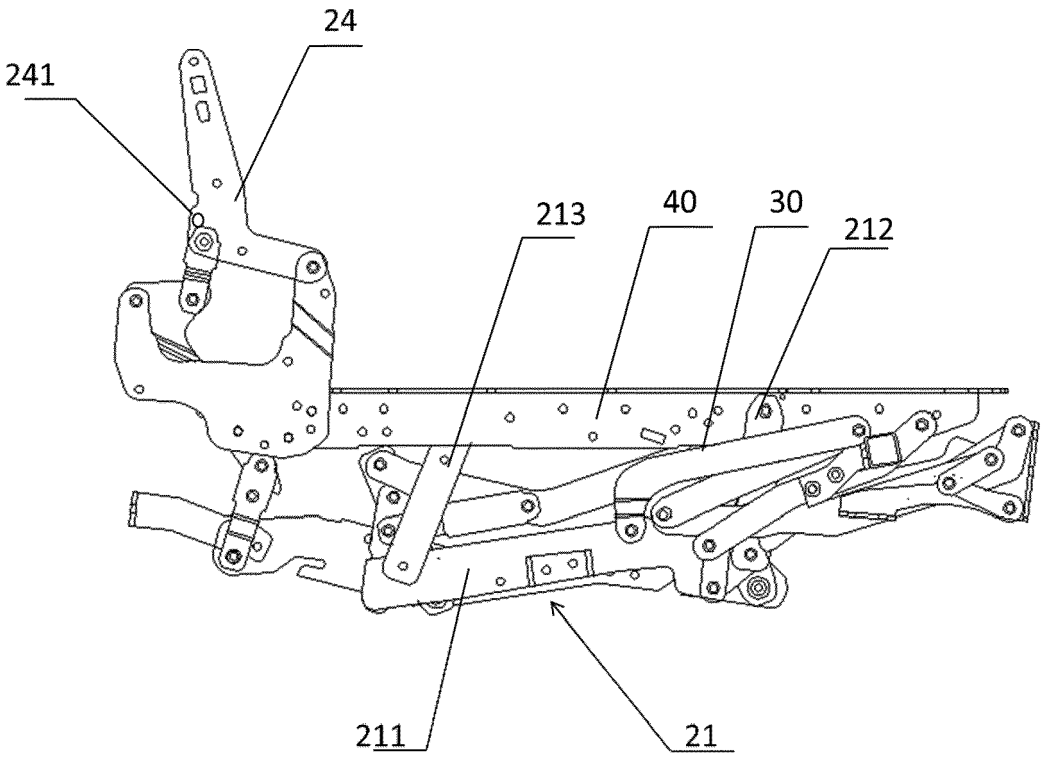

FIG. 4

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EUROPEAN SEARCH REPORT

Application Number
EP 19 02 0405

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X A	CN 103 622 360 A (LANDBOND FURNITURE GROUP CO LTD) 12 March 2014 (2014-03-12) * paragraph [0022] - paragraph [0026]; figures 1-7 *	1-3,5,6, 10 4	INV. A47C1/034 A47C7/46 A47C17/04
X A	CN 104 720 419 A (TAIZHOU AODE FURNITURE ACCESSORIES CO LTD) 24 June 2015 (2015-06-24) * claim 1; figures 1-5 *	1-3,5-10 4	

TECHNICAL FIELDS SEARCHED (IPC)

A47C

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	5 February 2020	Pössinger, Tobias

CATEGORY OF CITED DOCUMENTS

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EPO FORM 1503 03.82 (P04C01)

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05-02-2020

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
CN 103622360 A	12-03-2014	NONE	
CN 104720419 A	24-06-2015	NONE	

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

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