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(54) **SUPPORT FRAME MECHANISM FOR AN UPHOLSTERED FURNITURE SEAT**

(57) A support frame mechanism (M) for a seat (K) of an upholstered piece of furniture, comprising a quadrangular box support structure (Z) of said seat (K), said structure (S) being substantially defined by transverse longitudinal means (1,2) and lateral jaw means (3,4), and by elements (5,5',5",5‴) adapted to define support feet of said structure (S), said elements (5,5',5",5‴) being mounted on said lateral jaw means (3,4;); said lateral jaw means (3,4) comprising plate means (9,9') and arm means (10,10') fulcrumed together and mounted on said plate means (9,9') to form an articulated quadrilateral (QA,QA') adapted to move a set (11,11') of rod-extendable elements, said arm means (10,10') being provided with a curved profile on which means (13,13') the roller of said structure are adapted to slide in contact.

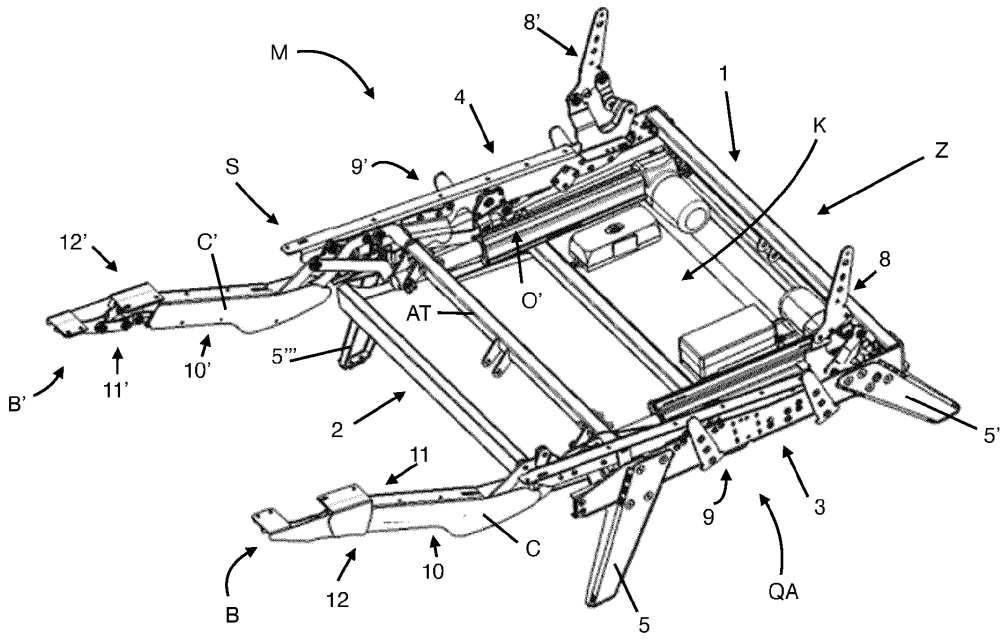

Fig.1

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Description

[0001] The present invention relates to a support frame mechanism for a seat of an upholstered piece of furniture.

[0002] In particular, present invention is advantageously used in the production and marketing of upholstered furniture such as armchairs, chairs, sofas or equivalent, to which the following description makes explicit reference without losing in general, having reclining parts thus allowing users to move the reclining parts, such as footrests and backrests, from a closed configuration to an open and reclined or resting configuration, for example a relaxation or TV configuration.

[0003] The purpose of described invention is to provide a support frame mechanism for a padded piece of furniture that allows users to obtain an easier and optimal operation for handling the reclining parts, such as footrests and/or backrests, synchronising them effectively with the seat.

[0004] Another purpose of described invention to create a support mechanism that is more compact and stable, and able to define a smaller footprint.

[0005] The structural and functional characteristics of described invention and its advantages over the known art will become even clearer and more evident from the claims below, and in particular from an examination of the following description, referring to the accompanying drawings, which show the layout of a preferred but non-limiting embodiment of a support frame mechanism, in which:

- Figure 1 is a perspective view of a preferred embodiment of the support frame mechanism iin object, in a completely open configuration (relaxation, TV, etc.);
- Figure 2 represents the mechanism of Figure 1, in a front view;
- Figure 3 is another front view of the same mechanism as Figure 1, but with some optional parts removed for clarity; and
- Figure 4 is an enlarged perspective view of a technical detail of the support frame mechanism in question.

[0006] With particular reference to Figure 1, M globally indicates a support frame mechanism for a seat K of an upholstered piece of furniture, such as an armchair, chair, sofa or the like, having reclining parts such as for example footrests and backrests, and furniture from a closed configuration erected to an open configuration extended or resting, for example relaxation or TV configuration.

[0007] The mechanism M comprises a quadrangular structure S substantially defined by two opposite main spars, 1 front and 2 rear, of the structure S itself, and two opposite lateral jaws, 3 left and 4 right, of the structure S itself.

[0008] The structure S is adapted to form, directly integrated with the jaws 3 and 4, a stable box Z for fixing the aforementioned seat K (not illustrated) of the upholstered furniture, and is equipped, at the opposite ends of the side jaws 3 and 4, with elements 5, 5' 5" and 5‴ suitable for defining feet and supporting the ground of the structure S itself, and also with at least one transverse AT rod.

[0009] According to what is better illustrated in Figures 1 and 3, each jaw 3,4 supports a relative actuating member O,O' (in Figure 1 and 3 only O') for example a gas cylinder, or a worm screw or the like.

[0010] Support members 8,8' of a backrest (known and not illustrated) are also provided mounted on said side jaws 3 and 4, at said rear spar 2 of the structure S itself.

[0011] According to what is better illustrated in Figures 2 and 3, each lateral jaw 3,4 comprises and is globally defined by a plate 9,9' to which arms 10,10' are connected fulcrum to each other to form, together, an articulated quadrilateral QA adapted to move an assembly 11,11' of front rod elements, connected directly synchronised to the aforementioned seat K, as will be better explained below.

[0012] In particular, each assembly 11,11' comprises a group 12,12' of levers or arms B,B' suitably fulcrumized with each other to support a footrest/footboard element (known and not illustrated) to then define the portion of the mechanism M openable towards the aforementioned open configuration extended or at rest, for example relaxation or TV configuration, under the thrust of the aforementioned actuator member.

[0013] These arms B of each group 12,12' are, preferably, designed to be covered closed by a special double casing C, C', specially faired, as illustrated in Figure 2, thus improving the compactness and functionality of the entire mechanism M.

[0014] The characterization C,C is however optional and can also be omitted, as can be seen in Figure 3.

[0015] According to what is better illustrated in Figure 4 on an enlarged scale, the directly synchronised connection of the arms B of each set 11,11' of arms B to the aforementioned seat K takes place by means of a roller 13,13', equipped with an appropriate bearing, adapted to move sliding in contact with the specially shaped cam profile of the relative arm 10,10' which defines each jaw 3,4.

[0016] In this way, in use, when the aforementioned actuator is actuated, the arms B,B' that support the footrest element are opened towards the open locked configuration extended (relaxation, TV), then in succession the consequent forward sliding movement of the seat K. The arms B can only return to their closed configuration when the action of returning the seat K to its normal retracted position is commanded.

[0017] It should be noted that to simplify the mechanics of each side of the aforementioned structure S, all the levers for the advancement of the seat have been eliminated, replacing them with a linear recirculation guide of balls with the possibility of advancing the seat more than a mechanics with fixed stroke levers.

[0018] In addition, the forward movement of the seat K is linked to the inclination of the backrest of the upholstered furniture, and with a greater stroke you can reach up to 180° to reach the "Bed" position.

Claims

1. A support frame mechanism (M) for a seat (K) of an upholstered piece of furniture, comprising a quadrangular box support structure (Z) of said seat (K), said structure (S) being substantially defined by transverse longitudinal means (1,2) and lateral jaw means (3,4), and by elements (5,5',5",5‴) adapted to define support feet of said structure (S), said elements (5,5',5",5‴) being mounted on said lateral jaw means (3,4;); said lateral jaw means (3,4) comprising plate means (9,9') and arm means (10,10') fulcrumed together and mounted on said plate means (9,9') to form an articulated quadrilateral (QA,QA') adapted to move a set (11,11') of rod-extendable elements, said arm means (10,10') being provided with a curved profile on which means (13,13') the roller of said structure are adapted to slide in contact.

2. Mechanism according to claim 1, **characterized in that** said assembly (11,11') comprises a group (12,12') of arms (B,B') fulcrum between them.

3. Mechanism according to claim 2, **characterized in that** said group (12,12') of arms (B,B') is provided with fairing cover casing means (C,C').

4. Mechanism according to one or more of the preceding claims from 1 to 3, **characterized in that** said structure (S) is further provided with at least one transversal rod (AT).

5. Mechanism according to one or more of the preceding claims from 1 to 4, **characterized in that** said jaw means (3,4) support actuating members (O,O').

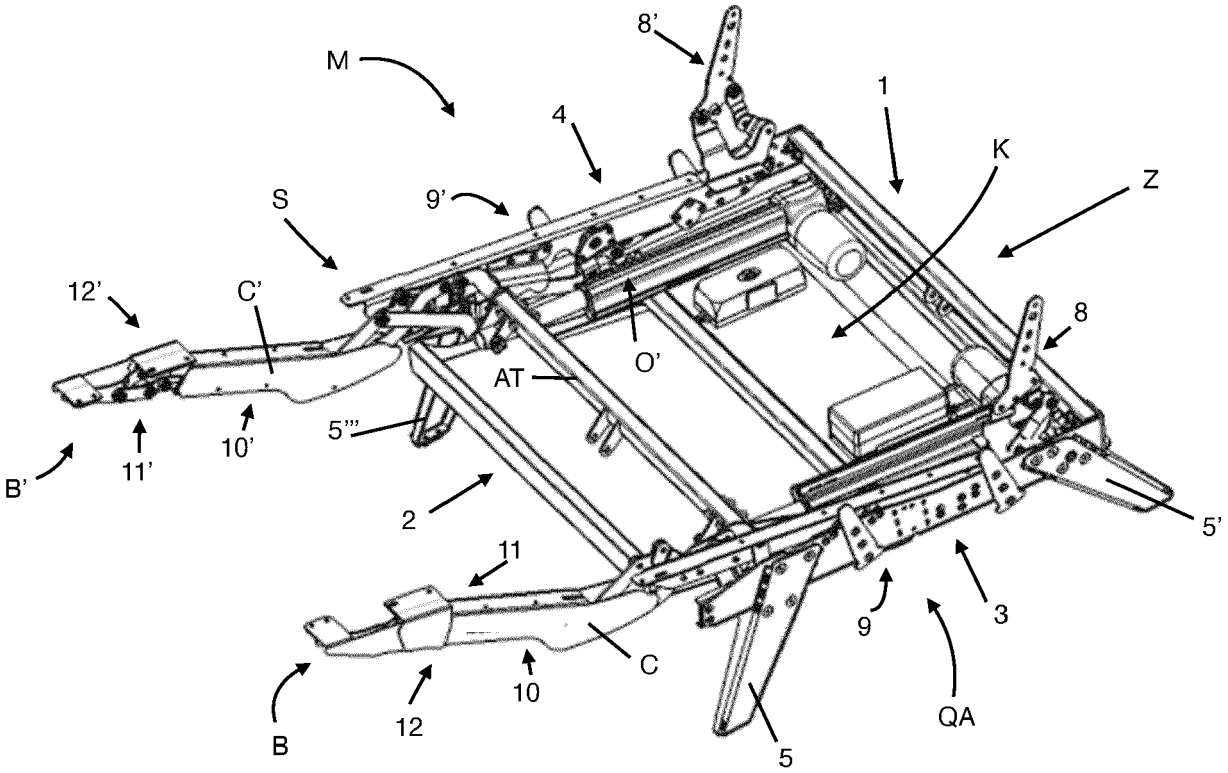
8'
M
1
4
K
Z
S
9'
12'
C'
8
O'
AT
5'''
10'
11'
B'
2
5'
11
9
3
C
10
12
B
QA
5

Fig.1

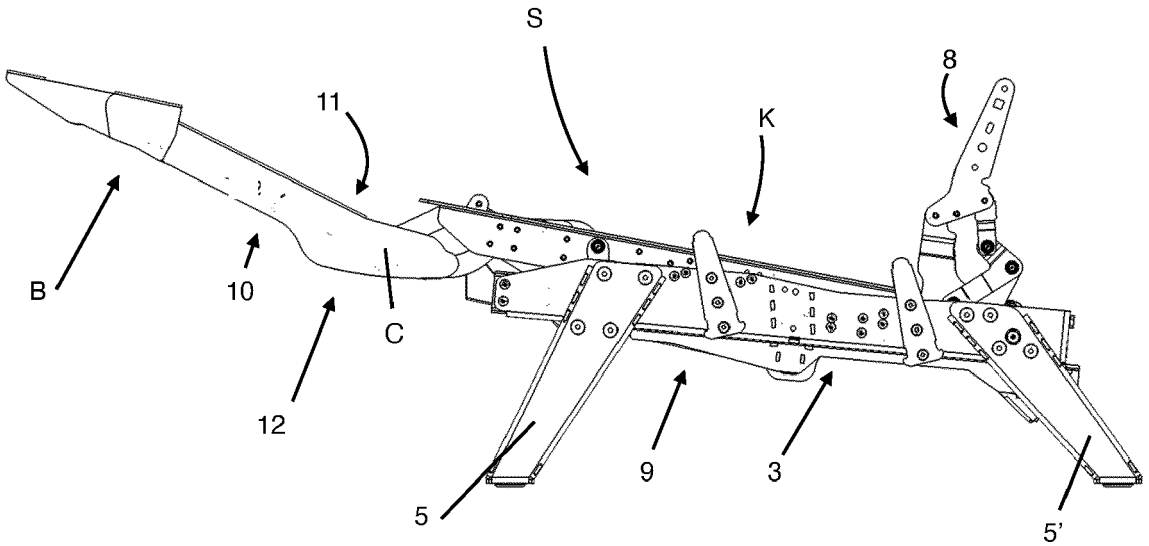
S
8
11
K
B
10
C
12
9
3
5
5'

Fig. 2

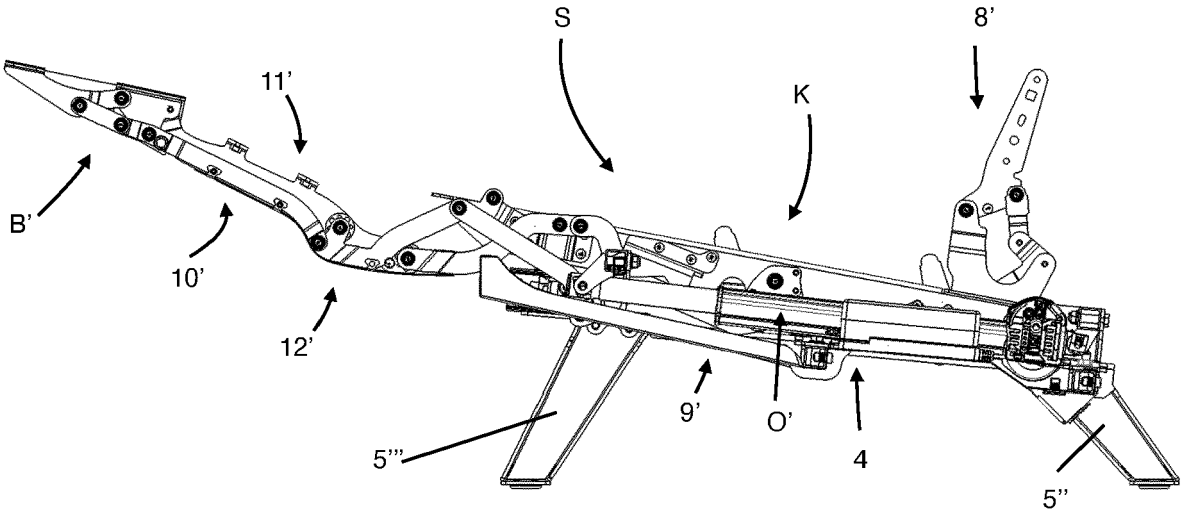

Fig. 3

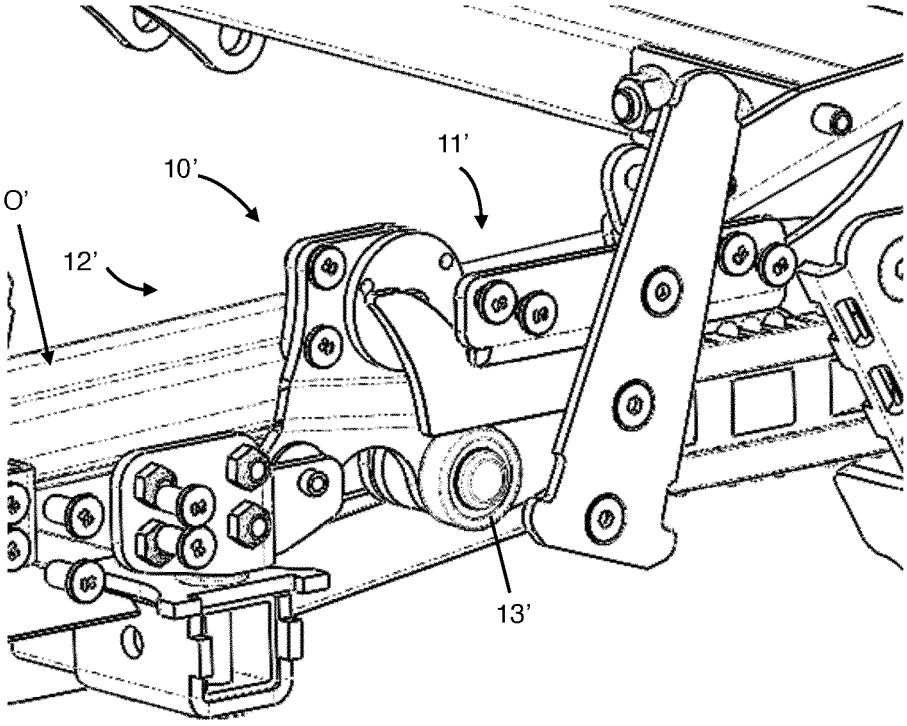

Fig. 4

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EUROPEAN SEARCH REPORT

Application Number
EP 24 17 3842

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	WO 2014/180629 A1 (KINTEC SOLUTION GMBH [DE]) 13 November 2014 (2014-11-13) * page 17, line 6 - page 34, line 9; figures 1a-10b *	1-5	INV. A47C1/022 A47C7/50
X	US 3 813 150 A (KATZ A ET AL) 28 May 1974 (1974-05-28) * column 1, line 64 - column 8, line 20; figures 1-7 *	1,2,4,5	

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	18 September 2024	Lehe, Jörn

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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18-09-2024

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