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(54)

HINGE TO MOVE THE BACKREST OF A SOFA FORWARDS AND BACKWARDS

- (57)

Hinge to move the backrest of a sofa forwards or backwards comprising a first holding platform (1) and a second holding platform (2) arranged parallel to the first holding platform (1) and placed one after the other,
- both platforms being connected to each other by a first angular element (3) and a second connecting element (4).

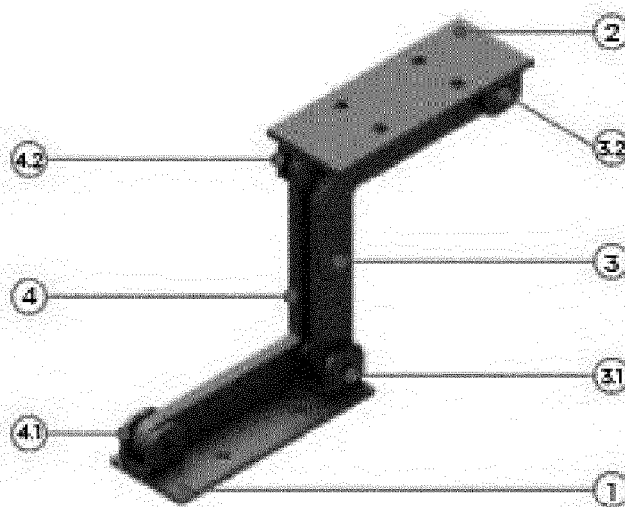


FIGURE 1

## Description

### OBJECT OF THE INVENTION

[0001] The object of this invention, as established by the title thereof, is a hinge to move the backrest of a sofa forwards and backwards in a simple manner, achieving two different sofa depths.

[0002] This invention is characterised in that the hinge is specially designed and configured in such a way that an articulation mechanism is achieved that enables a sofa to be furnished with two different depths by moving the backrest forwards and backwards, but without the need to make a cut in the seat perpendicular to the backrest.

[0003] This invention is, therefore, confined within the field of armchairs and sofas, and in particular to those equipped with mechanisms for adjusting their constructive characteristics.

### BACKGROUND OF THE INVENTION

[0004] There are different types of mechanisms or hinges on the market designed to enable a backrest to be moved forwards or backwards, thus achieving two different depths for the same sofa.

[0005] This type of mechanism is attached to the seat of the sofa and, by means of the relevant articulations, allows the backrest to be moved forwards or backwards. All the mechanisms on the market suffer from a serious disadvantage, which is the need for the seat to have a cut therein perpendicular to the backrest.

[0006] This cut in the seat constrains the design of sofa models, as well as damaging the aesthetics, and generates a hole where dirt can enter easily.

[0007] It also makes it impossible for this system to be used in many models where the seat cannot be fitted with such a cut or joint in the centre of the seat.

[0008] Therefore, the object of this invention is to overcome the disadvantages of state of the art of mechanisms that allow the backrests of sofas to be moved forwards or backwards, in particular, the fact that a cut has to be made in the seat perpendicular to the backrest, by developing a hinge such as the one described below and the essential features of which are described in the first claim.

### DESCRIPTION OF THE INVENTION

[0009] The essential features of the object of this invention are described in the independent claim and the different embodiments are described in the dependent claims.

[0010] The object of this invention is a hinge that allows the backrest of an armchair to be moved forwards and backwards without the need to make a cut in the seat of the armchair perpendicular to the backrest.

[0011] The hinge to achieve the stated purposes com-

prises a first holding platform and a second holding platform arranged parallel to the first and placed one after the other, both platforms being connected to each other by a first angular element and a second connecting element, wherein both connecting elements have a right-angle shape and are connected in an articulated manner at their ends to the respective platforms, such that the first connecting element has a first vertical section that starts from the rear end of the first platform and is followed by a horizontal section that ends in an articulated manner at the rear end of the second holding platform, while the second connecting element comprises a first horizontal section connected in an articulated manner to the front end of the first platform and said first horizontal section is followed by a vertical section that is connected in an articulated manner to the front end of the second holding platform.

[0012] Thanks to the articular joints of the two connecting elements with the respective holding platforms, the second holding platform moves in such a way that it always remains parallel to the first holding platform, producing a forwards and backwards movement of the backrest attached to said hinge.

[0013] Unless otherwise indicated, all the technical and scientific elements used in this report have the meaning usually understood by those skilled in the art to which this invention pertains. In the practice of this invention, similar or equivalent materials to those described in this report may be used.

[0014] Throughout the description and the claims, the word "comprises" and its variants are not intended to exclude other technical characteristics, additives, components or steps. To those skilled in the art, other objects, advantages and characteristics of the invention will become apparent, in part from the invention and in part from using the invention.

### EXPLANATION OF THE DRAWINGS

[0015] To supplement the description being made and in order to help better understand the characteristics of the invention, in accordance with a preferred example of a practical embodiment thereof, a series of drawings is attached hereto as an integral part of said description, in which the following is shown for illustrative and non-limiting purposes.

Figures 1 to 3 show a perspective representation of the hinge in a first position, in a transition position and in a second position respectively, enabling us to observe the movement made by said hinge.

Figures 4 to 6 show the same hinges as above but housed inside the structure of a sofa and how it can be seen that it is not necessary to make any cut in the seat perpendicular to the backrest of the sofa.

Figures 7 to 9 show the same figures as above but

with a backrest fixed to the second holding or upper platform.

#### A PREFERRED EMBODIMENT OF THE INVENTION.

**[0016]** In view of the figures, a preferred embodiment of the proposed invention is described below.

**[0017]** Figure 1 shows that the hinge that is the object of the invention comprises a first holding platform (1), or lower holding platform; a second holding platform (2) or upper holding platform both of which are arranged parallel to each other and connected by means of a first angular connecting element (3) and a second angular connecting element (4), wherein the first angular connecting element (3) has a first vertical section connected at its lower end to the first holding platform (3) by means of a first articular joint (3.1), the first vertical section being followed by a second horizontal section that is connected at its end to the rear part of the second holding platform (2) by means of a second articular joint (3.2), while the second connecting element (4) has a first horizontal section, which, at its end, is connected to the front part of the first holding platform (1) by means of an articular joint (4.1), said first horizontal section being followed by a vertical section, which, at its end, is connected to the front part of the second holding platform (2) in its front part by means of a fourth articular joint (4.2), so that the vertical sections of the first connecting element (3) and the second connecting element (4) remain in a parallel arrangement at their end positions.

**[0018]** The first, second, third and fourth articular joint, in a preferred but non-limiting embodiment, is formed by two parallel plates between which the end of the connecting element is housed and is traversed by a pin which acts as a pivot axis.

**[0019]** Figure 2 shows how the upper holding platform is moved from a backwards to a forwards position, keeping the second holding platform (2) horizontal at all times with respect to the floor.

**[0020]** Figure 3 shows how said hinge is arranged in such a way as to allow a backrest connected to the second holding platform to be moved to the forwards position.

**[0021]** Figures 4 to 6 show said hinge housed within the structure of the sofa and how, in order to be able to move the backrest of the sofa forwards or backwards, it is not necessary to have a cut in the seat that is perpendicular to the backrest of the sofa.

**[0022]** Having sufficiently described the nature of this invention, as well as the manner of putting it into practice, it is stated that, within in its essential nature, it may be put into practice in other embodiments that differ in detail to the one indicated by way of example, and to which the protection sought shall also extend, provided that it does not alter, change or modify its fundamental principle.

#### Claims

1. Hinge to move the backrest of a sofa forwards or backwards **characterised in that** it comprises a first holding platform (1) and a second holding platform (2) arranged parallel to the first holding platform (1) and placed one after the other, both platforms being connected to each other by a first angular element (3) and a second connecting element (4), wherein both connecting elements have a right-angle shape and are connected in an articulated manner at their ends to the respective platforms, wherein the first angular connecting element (3) has a first vertical section connected at its lower end to the first holding platform (3) by means of a first articular joint (3.1), said first vertical section being followed by a second horizontal section which is connected at its end to the rear part of the second holding platform (2) by means of a second articular joint (3.2), while the second connecting element (4) has a first horizontal section that is connected at its end to the front part of the first holding platform (1) by means of a third articular joint (4.1), said first horizontal section being followed by a vertical section that is connected at its end to the front part of the second holding platform (2) by means of a fourth articular joint (4.2), so that the vertical sections of the first connecting element (3) and the second connecting element (4) remain parallel at their end positions.
2. Hinge to move the backrest of a sofa forwards or backwards **characterised in that** the first, second, third and fourth articular joint, in a preferred but non-limiting embodiment, is made up of two parallel plates between which the end of the connecting element is housed and is traversed by a pin which acts as a pivot axis.

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

1. Hinge to move the backrest of a sofa forwards or backwards **characterised in that** it comprises a first holding platform (1) and a second holding platform (2) arranged parallel to the first holding platform (1) and placed one after the other, both platforms being connected to each other by a first angular element (3) and a second connecting element (4), wherein both connecting elements have a right-angle shape and are connected in an articulated manner at their ends to the respective platforms, wherein the first angular connecting element (3) has a first vertical section connected at its lower end to the first holding platform (3) by means of a first articular joint (3.1), said first vertical section being followed by a second horizontal section which is connected at its end to the rear part of the second holding platform (2) by

means of a second articular joint (3.2), while the second connecting element (4) has a first horizontal section that is connected at its end to the front part of the first holding platform (1) by means of a third articular joint (4.1), said first horizontal section being followed by a vertical section that is connected at its end to the front part of the second holding platform (2) by means of a fourth articular joint (4.2), so that the vertical sections of the first connecting element (3) and the second connecting element (4) remain parallel at their end positions.

2. Hinge to move the backrest of a sofa forwards or backwards according to claim 1 **characterised in that** the first, second, third and fourth articular joint, in a preferred but nonlimiting embodiment, is made up of two parallel plates between which the end of the connecting element is housed and is traversed by a pin which acts as a pivot axis.

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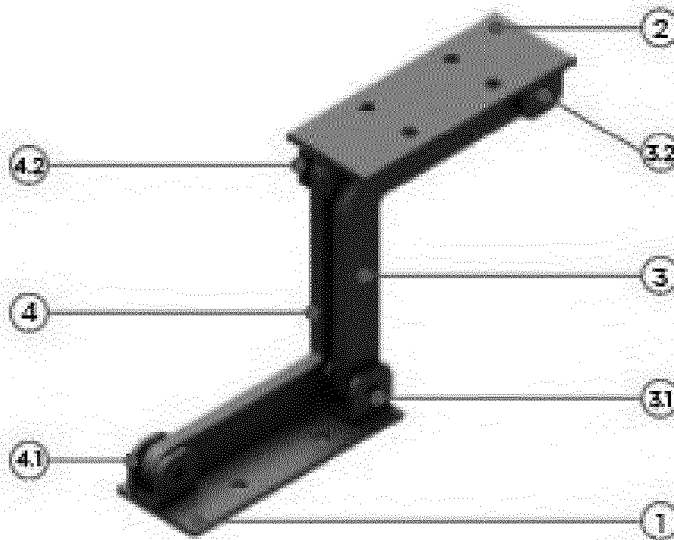


FIGURE 1

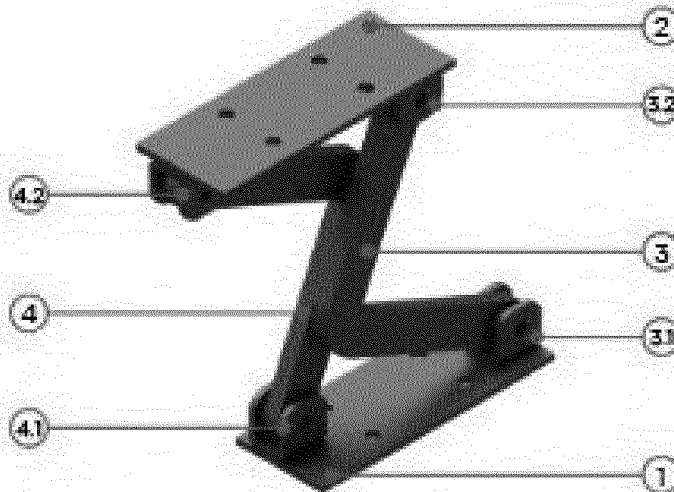


FIGURE 2

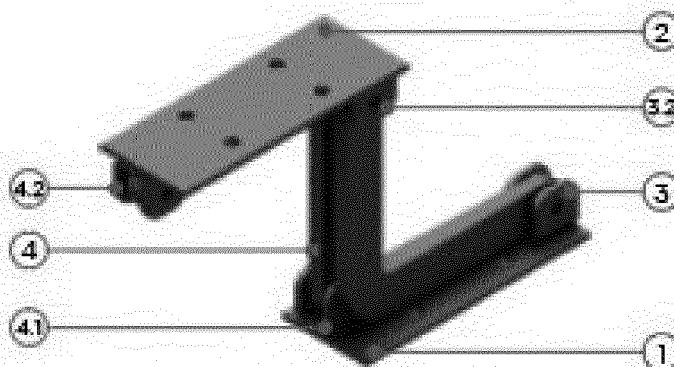


FIGURE 3

FIGURE 4

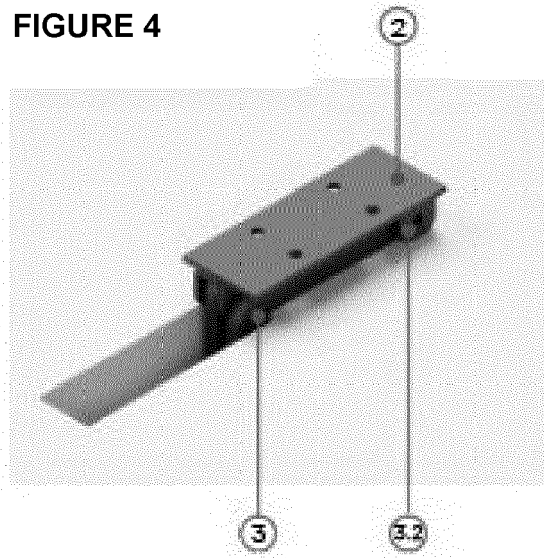


FIGURE 6

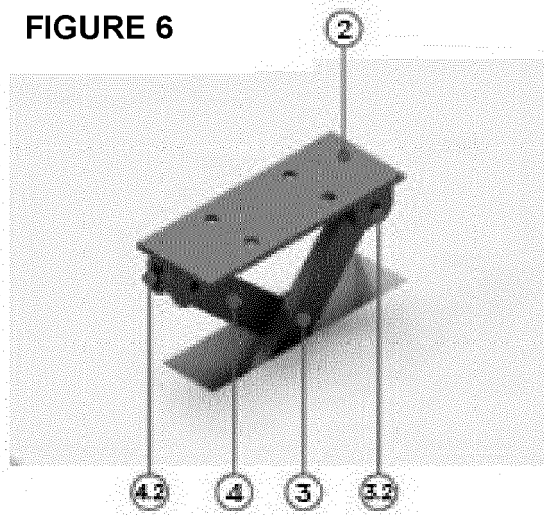
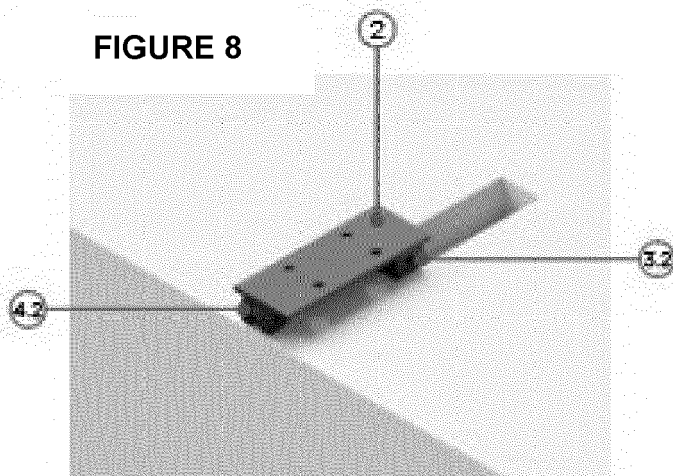


FIGURE 8



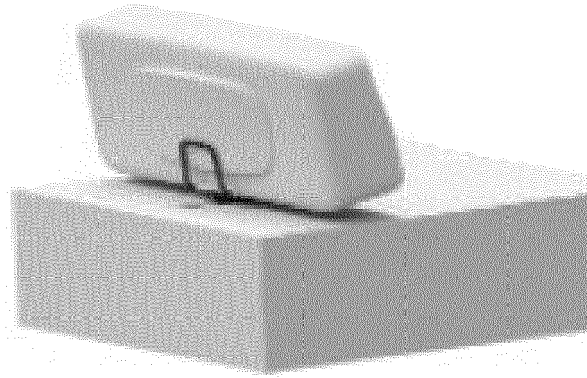


FIGURE 5

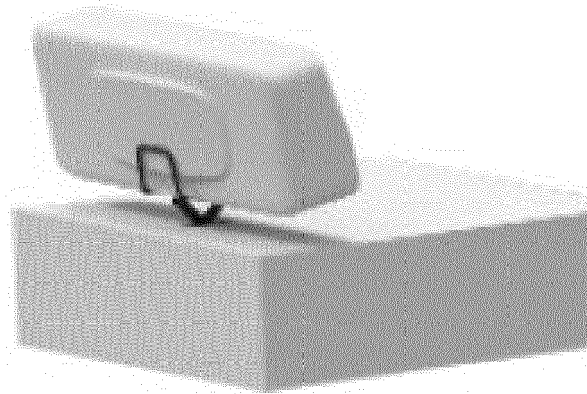


FIGURE 7

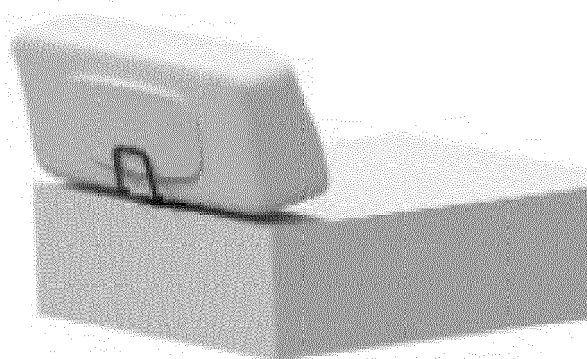


FIGURE 9



## EUROPEAN SEARCH REPORT

Application Number

EP 23 17 7062

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EPO FORM 1503 03.82 (P04C01)

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	DE 10 2013 200234 A1 (HIMOLLA POLSTERMOEBEL WERK [DE]) 18 July 2013 (2013-07-18)	1, 2	INV. A47C1/023 A47C7/40
Y	* paragraphs [0011], [0012], [0036] - [0050]; claim 4; figures 1-2 *	2	
X	KR 2011 0122001 A (OH SE HYUK [KR]) 9 November 2011 (2011-11-09)	2	
Y	* paragraph [0017] - paragraph [0036]; figures 1-7 *	2	
A	LU 102 825 B1 (SACHA LAKIC DESIGN S A R L [LU]) 8 December 2022 (2022-12-08) * figures 1-3 *	2	
			TECHNICAL FIELDS SEARCHED (IPC)
			A47C
The present search report has been drawn up for all claims			
Place of search <b>The Hague</b>		Date of completion of the search <b>2 November 2023</b>	Examiner <b>Kus, Slawomir</b>
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ..... & : member of the same patent family, corresponding document	



**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 23 17 7062

5 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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02-11-2023

10	Patent document cited in search report	Publication date	Patent family member(s)	Publication date
	<b>DE 102013200234 A1</b>	<b>18-07-2013</b>	<b>DE 102013200234 A1</b>	<b>18-07-2013</b>
			<b>DE 202012000286 U1</b>	<b>15-04-2013</b>
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	<b>LU 102825 B1</b>	<b>08-12-2022</b>	<b>NONE</b>	
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