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(72) Inventor: **Gaitan Garcia, Jose Luis**
28912 Leganes (ES)

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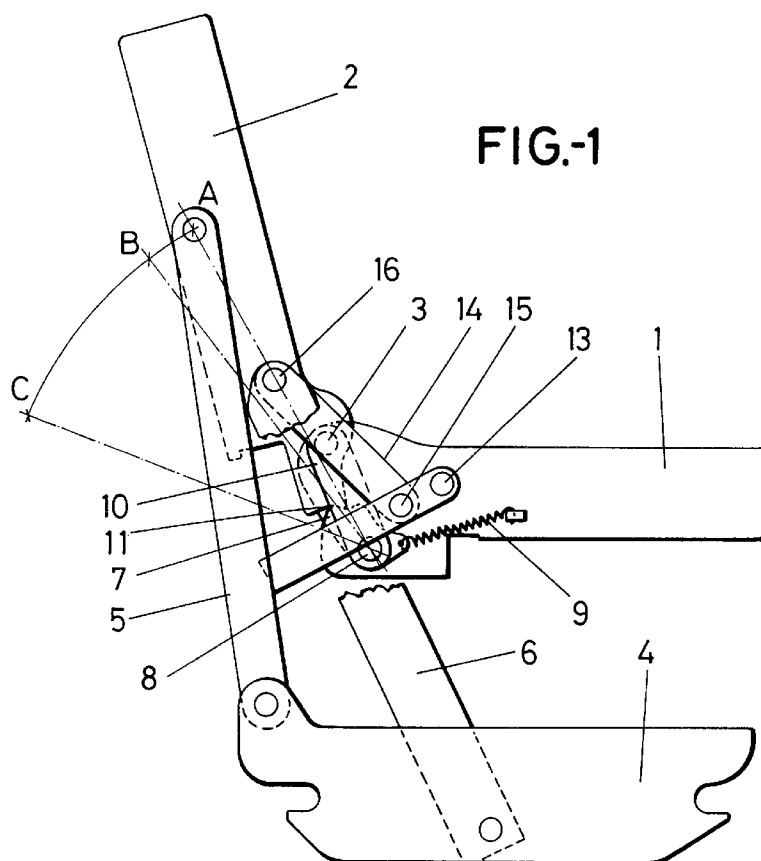
(74) Representative: **Carpintero Lopez, Francisco**
HERRERO & ASOCIADOS, S.L.
Alcalá, 21
28014 Madrid (ES)

(71) Applicant: **Arenas Diaz, Gregoria**
28912 Leganes (Madrid) (ES)

(54) Reclinable sofa positioning mechanism

(57) The mechanism comprises a seat profile and backrest profile, being articulated at bolt about which they vary their relative angular position, and articulated relative to the framework by means of two connecting arms associated at their other end to the backrest profile, including a cam (7), which is angular in shape, articulated at a bolt (8) located at its rounded vertex, which

bolt (8) also links the cam at this point to the seat profile (1), the cam (7) having a hole on one side for the insertion of a spring (9) whose other end is associated to the seat profile (1), said cam (7) being provided with a curved projection and a stepping on its other side, which are couplable to the end surface (11) of the backrest profile (2) in the various positions of the backrest.

**FIG. 1****EP 0 755 641 A1**

Description

OBJECT OF THE INVENTION

The invention proposed herein applies to sofas fitted with a mechanism that allows the backrest to be moved relative to the seat by means of a turning movement, thereby to define three positions therefor: a seated position, a relaxed position and a lying down position.

The present invention successfully optimises the functional conditions of this type of systems by including a mechanism that is structurally extremely simple, its functionality being limited to a reduced number of parts, the most significant element fitted being a cam having a special geometry adaptable to the end configuration of the backrest profile for each different position of the sofa.

BACKGROUND OF THE INVENTION

The solutions used in mechanisms to articulate sofas or sofa beds are varied and mostly lie in the integrated arrangement of a set of interrelated parts that define a functionality associated to a high structural complexity, which results in a larger number of adjustments and hence maladjustments arising from the continued use of the mechanism.

A well-known type of mechanism uses an angular part linked to the framework of the sofa, arms associated to the sofa backrest profile turning relative thereto, determining in their displacement the associated movement of the sofa seat profile, thereby allowing the angular relation between the backrest and the seat to be changed, defining several positions for the sofa.

The movement to draw the seat member and fix the various positions of the sofa is entrusted to a number of intermediate parts which are linked between both elements.

The complexity derived from using a considerable number of intermediate parts leaves room for another solution to be proposed, allowing the same function aforesaid to be achieved with a mechanism that is mechanically much simpler.

DESCRIPTION OF THE INVENTION

The present invention consists of a reclining sofa positioning mechanism with which the problems aforesaid are resolved, being essentially noteworthy due to the inclusion of a turning cam sliding in contact with the end surface of the backrest profile, defining the various positions of the sofa by coupling between the perimetric sectors of said contacting surfaces, a billet being included between the two in order to ensure a permanent contact between said surfaces.

The mechanism is fixed to the framework of the sofa by means of a plate, with two connecting arms articulated thereto that are solidly connected at their other ends

to the backrest profile, the entire assembly linked to such profile being displaced relative to said plate at the sofa extension stages. The mechanism has a contacting arm that serves as an abutment for the relaxed position, in which it establishes contact with one of the connecting arms, making it easier to fix the unit in such position.

The cam is angular in shape and its articulation to the billet lies at its curved vertex, with a hole on one side for the insertion of one end of a spring that is associated to the seat profile and is tensed in the seated and relaxed positions, and provided on the other side with a curved projection and a stepping on the perimeter, adjustable, according to the position, to the surface of the end of the backrest profile, its displacement being defined by the movement of the backrest profile which causes the cam to turn, sliding in permanent contact with said end salient of the backrest profile.

The cam is also related to the backrest by means of the billet to which it is linked at one end by means of a bolt which also associates the cam to the backrest profile, said billet being arranged above the level of the cam and end contacting surface of the backrest profile, ensuring contact between the two during displacement between the seated A and relaxed B positions. The other end of the billet houses the articulation relative to which the backrest profile and seat profile turn.

The backrest profile has an indenture-like recess at its end in which the cam projection is housed in the seated position.

When the unit is displaced to the relaxed position, the end of the backrest profile slides until one of its side salients is coupled in the cam stepping, in which position the cam spring is stretched and the contacting arm abuts against the outer arm connecting the backrest profile and the framework, the turning movement of the connecting arms being limited, the unit being thereby fixed in such position.

The contacting arm is articulated at one end to the seat profile and its other end is free, an articulation being provided close to the first articulation, to which a thrust billet is associated that is solidly connected at its other end to the backrest profile by means of a bolt. The mobility of said thrust billet is conditioned by the displacement of the backrest profile.

In the lying down position, the contacting surface of the backrest profile is disengaged from the cam and the contacting arm is separated from the arm connecting the backrest profile and the framework plate, the backrest profile lying collinearly with the seat profile.

DESCRIPTION OF THE DRAWINGS

In order to provide a fuller description and contribute to the complete understanding of the features of this invention, a set of drawings is attached to the specification which, while purely illustrative and not fully comprehensive, shows the following:

Figure 1.- Is a side view of the sofa positioning

mechanism in a seated position.

Figure 2.- Is a partial side view of the sofa positioning mechanism in a relaxed position.

Figure 3.- Is a partial side view of the sofa positioning mechanism in a lying down position.

PREFERRED EMBODIMENT OF THE INVENTION

With reference to the figures, it may be seen that the reclinable sofa positioning mechanism subject of the present invention comprises a seat profile (1) and a backrest profile (2) articulated at a bolt (3) about which they vary their relative angular position, a plate (4) being provided as an element to fix the mechanism to the sofa framework and with respect to which two arms (5) and (6) are articulated, associated at their other end to the backrest profile (2). The mechanism of the invention allows the sofa to be fixed in the seated A, relaxed B and lying down C positions, to which end it is, unlike other types of mechanisms, essentially characterised by consisting of an assembly comprising a small number of parts which allow the mechanism to be displaced and fixed in said positions, being primarily noteworthy due to the provision of a cam (7) the shape of which may be adapted to the contacting end (11) of the backrest profile (2). More specifically, the cam (7) is angular in shape and is articulated at a bolt (8) lying on its rounded vertex, which bolt moreover links the cam at such point of the seat profile (1); said cam (7) includes a hole on one side for the insertion of a spring (9) that is associated at its other end to the seat profile (1), and a curved projection and a stepping on its other side, couplable to the contacting surface (11) of the backrest profile (2) in the different positions of the latter with respect to the seat profile (1).

The mechanism includes a billet (10) connected at one end to the backrest profile (2) and the seat profile (1) by means of the articulation (3), and connected at its other end to the cam (7) and the seat profile (1) by means of a bolt (8).

The end surface (11) of the backrest profile (2) has a middle recess in which the cam (7) projection is housed in the seated A position.

In the following cam (7) position, after its turning movement, the projection slides into contact with the end surface (11) of the backrest profile (2), which latter surface is arranged on the cam (7) stepping, thereby for the relaxed B position to be fixed.

The mechanism includes a contacting arm (12) serving as an abutment, one of its ends being fixed to the seat profile (1) by means of an articulation (13) about which it turns, and its other end being free, its mobility being defined by a thrust billet (14) linked close to the articulation (13) by means of an articulation (15), its other end being associated to a bolt (16) about which the arm (6) connecting the backrest profile (2) to the plate (4) turns.

In the relaxed position, and in order to avoid sliding

between the cam (7) and the end surface (11) of the backrest profile (2), the contacting arm (12) abuts against the external connecting arm (5).

In the lying down C position, the end surface (11) of the backrest profile is no longer in contact with the cam (7).

Claims

1. A reclinable sofa positioning mechanism, of the kind comprising a seat profile and a backrest profile, being articulated at a bolt about which they vary their relative angular position, and articulated relative to the framework by means of two connecting arms associated at their other end to the backrest profile, characterised by the inclusion of a cam (7), which is angular in shape, articulated at a bolt (8) located at its rounded vertex, which bolt (8) also links the cam at this point to the seat profile (1), the cam (7) having a hole on one side for the insertion of a spring (9) whose other end is associated to the seat profile (1), said cam (7) being provided with a curved projection and a stepping on its other side, which are couplable to the end surface (11) of the backrest profile (2) in the various positions of the backrest.
2. A reclinable sofa positioning mechanism, as in the preceding claim, characterised in that the end surface of the backrest profile (2) has a middle recess where the cam (7) projection is housed in the seated A position, such projection being slidable in its turning movement in contact with the end surface (11) of the backrest profile (2), the latter surface (11) being arranged on the cam (7) stepping in the relaxed B position, and is no longer in contact with the end surface (11) of the backrest profile (2) when the cam is in the lying down C position.
3. A reclinable sofa positioning mechanism, as in preceding claims, characterised in that the mechanism includes a billet (10) connected at one end to the backrest profile (2) and the seat profile (1) by means of an articulation (3), and connected at its other end to the cam (7) and the seat profile (1) by means of a bolt (8).
4. A reclinable sofa positioning mechanism, as in preceding claims, characterised in that the mechanism includes a contacting arm (12), on a plane above that of the billet (10), serving as an abutment, one of its ends being fixed to the seat profile (1) by means of an articulation (13) about which it turns, and its other end being free, its mobility being defined by a thrust billet (14) linked close to the articulation (13) by means of an articulation (15), its other end being associated to a bolt (16) about which

the arm (6) connecting the backrest profile (2) and the plate (4) turns, the contacting arm (12) abutting against the outer connecting arm (5) when in the relaxed position, in order to avoid sliding between the cam (7) and the end surface (11) of the backrest profile (2). 5

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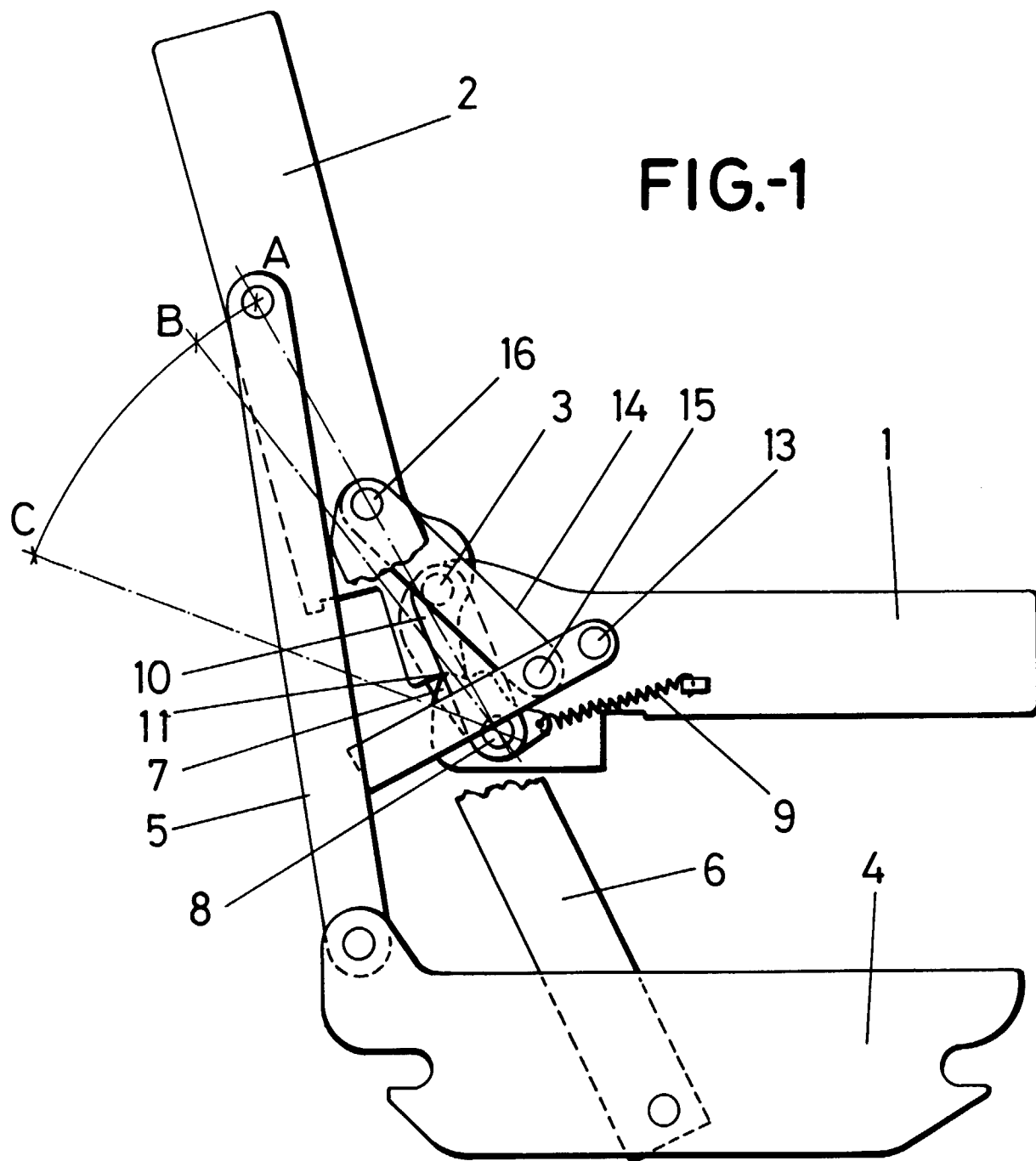
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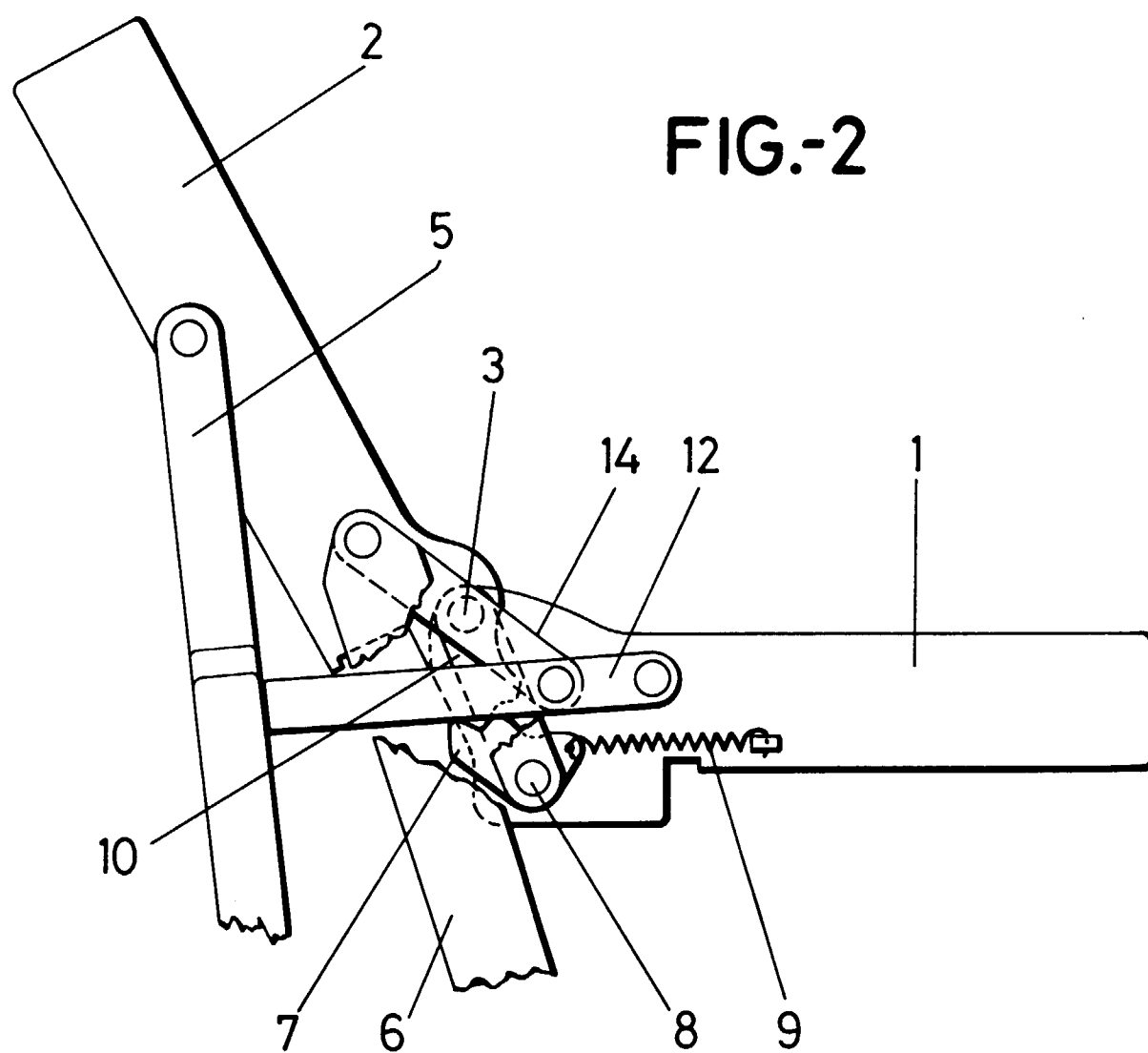
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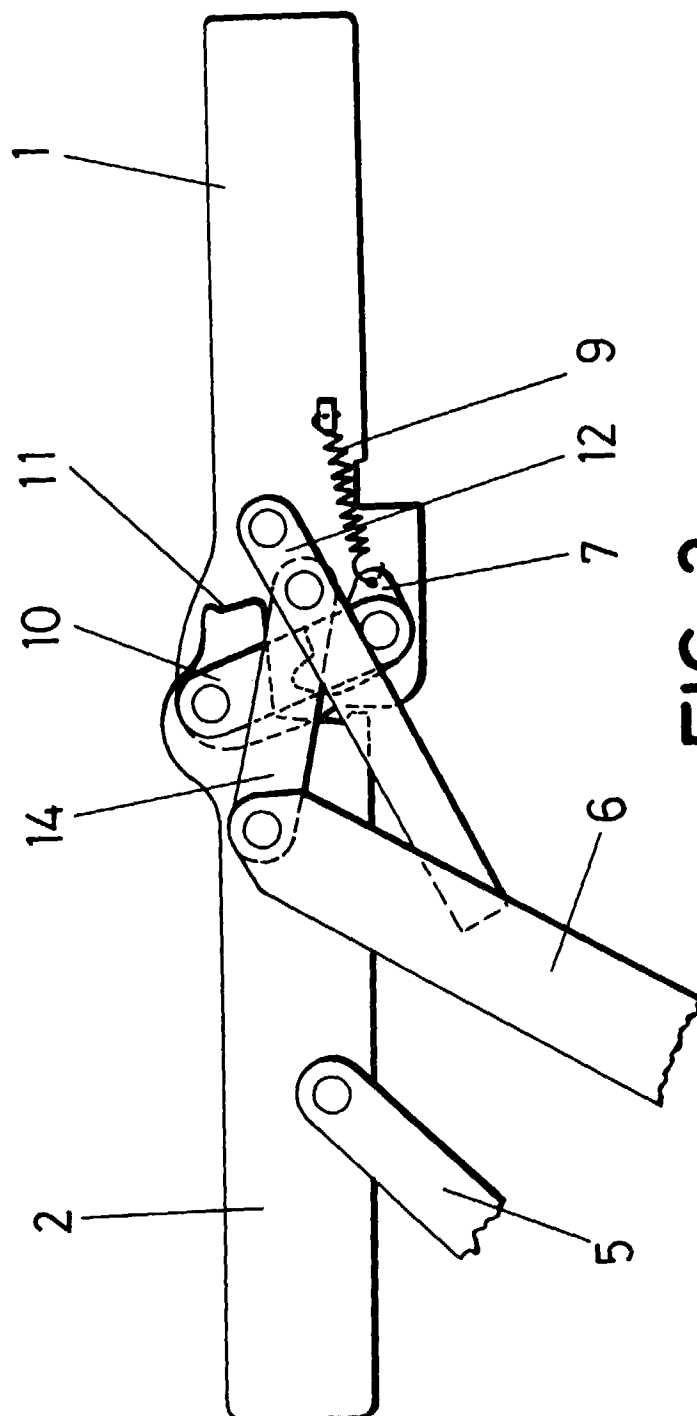
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EUROPEAN SEARCH REPORT

Application Number
EP 96 50 0105

| DOCUMENTS CONSIDERED TO BE RELEVANT | | | |
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| Category | Citation of document with indication, where appropriate, of relevant passages | Relevant to claim | CLASSIFICATION OF THE APPLICATION (Int.Cl.6) |
| A | DE-U-295 07 956 (STANZWERK WETTER SICHELSCHMIDT & CO) * page 10, line 12 - page 17, line 14; figures 1-4 * | 1-4 | A47C17/16 |
| A | US-A-2 495 413 (HARMAN) * column 2, line 40 - column 5, line 31; figures 1-12 * | 1-3 | |
| A | DE-U-86 05 100 (FA. OSKAR LIBERMANN) * page 3, line 15 - page 5, line 12; figures 1-6 * | 1-3 | |
| A | FR-A-2 534 465 (SEDAC) * page 3, line 3 - page 5, line 25; figures 1-3 * | 1-3 | |
| | | | TECHNICAL FIELDS SEARCHED (Int.Cl.6) |
| | | | A47C |
| The present search report has been drawn up for all claims | | | |
| Place of search THE HAGUE | | Date of completion of the search 23 October 1996 | Examiner Ayiter, J |
| <p>CATEGORY OF CITED DOCUMENTS</p> <p>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</p> <p>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 I : document cited for other reasons & : member of the same patent family, corresponding document</p> | | | |

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