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(54) Connection device for a backrest or footrest of a reclining chair

(57) A connection device, particularly for a ground (G) resting stirrup (S) of a backrest (B) or a footrest (P) in a reclining chair (C), comprises a shaped body (2) having an anchorage portion (3) for attachment to the frame (T) of the chair (C) and a linkage portion (4) for pivotal connection to at least one tubular end (E) of the stirrup (S). An abutment surface (5) is further formed in the shaped body (2) to restrain the stirrup (S) from pivoting relative to the frame (T), with the stirrup (S) resting on the ground (G). The abutment surface (5) proves to be particularly effective in restricting the pivoting motion of the stirrup (S) without damaging neither the frame (T) of the chair (C) nor the support.

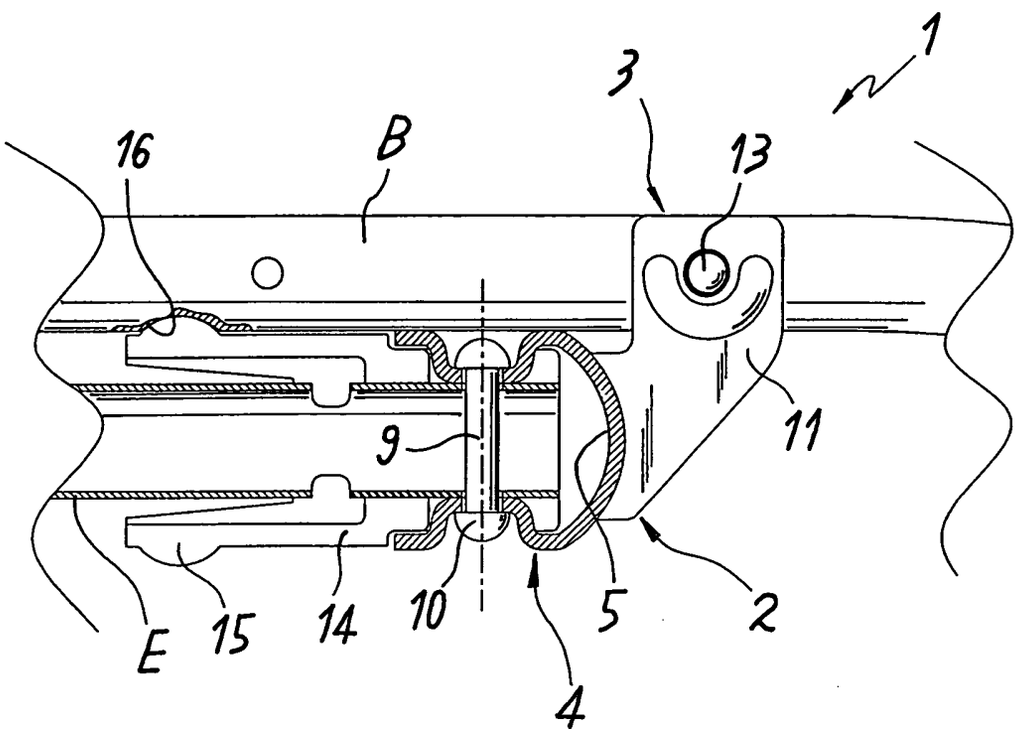

FIG. 1

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Description

Field of Application

[0001] The present invention is generally applied in the field of indoor and outdoor furniture and particularly relates to a connection device, specifically for a ground support of a backrest or a footrest of a reclining chair.

Background art

[0002] A number of junction devices are known for joining a ground support to the frame of a lounge chair and particularly to a reclining backrest or an extendable footrest.

[0003] In a known solution, the ground support consists of a bent tubular element, which is journalled, at its two ends, to the chair frame, in such a manner to be displaced from a lifted position to a ground contact position. Each end of the tubular element is elbowed and journalled to the frame by means of a rivet. This connection occurs in such a position of the frame that the frame has one or more abutment surfaces for the support when the latter is in contact engagement with the ground.

[0004] An apparent disadvantage of this solution lies in that the chair frame must have an appropriate shape to define the abutment surfaces. This feature reduces frame shaping and support positioning possibilities. Moreover, the repeated contact between the support and the frame may cause damages to the latter.

[0005] Moreover, when the support abuts against the frame, it may exert a lever action on the rivet, and overstress it , thereby weakening the junction device.

[0006] Another well-known solution provides the use of plastic plugs, to be inserted at the ends of the tubular members featuring the support. The plugs have appendices adapted to interfere with the chair frame, thereby restricting the pivoting motion of the support.

[0007] This solution is based on the contact between the chair frame and the appendices integral with the support, and therefore involves once again the disadvantage of possible damages to the frame.

[0008] In another well-known arrangement, an abutment member, adapted to lock the pivoting motion of the support is secured to the frame. Hence, any direct, repeated contact engagement between the support and the frame is prevented, but the junction manufacturing cost increases.

Summary of the invention

[0009] A primary object of this invention is to obviate the above drawbacks, by providing a cost-effective connection device.

[0010] A particular object is to provide a connection device which does not cause any damage to the chair frame, even after repeated use.

[0011] A further object of the invention is to provide a device which combines sturdiness and easy assembly.

[0012] Yet another particular object is to provide a device which may be used on chairs having frames of different shapes.

[0013] These objects, as well as other objects that will be more apparent hereafter, are achieved, according to claim 1, by a connection device, particularly for a ground support of a backrest or a footrest of a reclining chair, characterized in that it comprises a shaped body having a portion for anchorage to the frame of the chair and a linkage portion for pivotally linking at least one tubular end of the support.

[0014] An abutment surface is further formed in the shaped body to lock the pivoting motion of the support relative to the frame, with the support resting on the ground. Thanks to this particular arrangement, the support may be repeatedly moved from a lifted position to a ground contact position, without causing any damage to the chair frame.

[0015] Also, this solution allows to fit a sturdy but simply constructed connection device to chairs having variously shaped frames in a particularly easy and convenient manner.

Brief Description of the Drawings

[0016] Further features and advantages of the invention will be more apparent from the detailed description of a few preferred but non-exclusive example of a connection device according to the invention, which are described as non-limiting examples with referent to the attached drawings, in which:

FIG. 1 is a partly sectional side view of a connection device according to the invention, with the support in a lifted position;
FIG. 2 is a side view of a device of FIG. 1, with the support in a lowered, ground contact position;
FIG. 3 is a partly sectional view of a detail of the device as shown in FIG. 1;
FIG. 4 is a side view of the detail of FIG. 3;
FIG. 5 is a further partly sectional view of the detail of FIG. 3;
FIG. 6 is an additional partly sectional view of the detail of FIG. 3;
FIG. 7 is a side view of a chair comprising the device of FIG. 1, with the backrest being reclined and the footrest being extracted;
FIG. 8 is a front view of a detail of the chair of FIG. 7;
FIG. 9 is a partly sectional side view of a further junction device according to the invention, with the support in a lifted position;
FIG. 10 is a side view of the device of FIG. 9, with the support in a lowered, ground contact position.

Detailed Description of a preferred embodiment

[0017] Particularly referring to the above mentioned Figures, a connection device according to the invention is described, which is generally designated with numeral 1, particularly for connecting a stirrup S to the frame T of a reclining chair C for supporting it on the ground G.

[0018] The ground support S may be connected to the backrest B of the chair C, to at least partly support it when it is in the reclined position, or to an extractable footrest P to stabilize it and/or to keep it in an extended position.

[0019] The connection device 1 comprises a shaped body 2 having an anchorage portion 3 for attachment to the frame of the chair C and a linkage portion 4 for pivotal connection to at least one tubular end E of the support S.

[0020] The linkage portion 4 allows the support S to swivel relative to the frame T between a raised position and a lowered position in contact engagement with the ground G. Also, the shaped body 2 has an abutment surface 5 designed to restrain the relative pivoting motion of the stirrup S when the latter rests on the ground G.

[0021] The linkage portion 4 is a substantially U-shaped member having two opposite side walls 6 which are joined by a transverse wall 7. The side walls 6 are at a distance equal to or greater than the minimum width of the tubular end E of the support S. This feature allows to easily insert the tubular end E in the linkage portion 4.

[0022] The linkage portion 4 has a first pair of holes 8 formed in the side walls 6. A pivot member 9 may be inserted into these holes 8 and pass through the tubular end E of the stirrup S, to pivotally link it to the linkage portion 4, hence to the frame T.

[0023] Suitably, pivot member 9 may also pass through the backrest B, like in the embodiment of Figs. 9 and 10, and similarly, also through the footrest P, if the latter is supported by the stirrup S.

[0024] Advantageously, the pivot member 9 may comprise a first rivet 10, that is particularly suitable for this application, such as low cost and easy assembly.

[0025] The anchorage portion 3 includes a pair of opposite appendices 11, which extend from the transverse wall 7 of the linkage portion 4. Suitably, the appendices 11 are substantially flat and orthogonal to the side walls 6 of the linkage portion 4. The distance between the appendices 11 allows them to at least partly embrace the portion of the frame T on which the anchorage portion 3 is mounted.

[0026] The appendices 11 have a second pair of holes 12 formed therein, to allow the passage of a second rivet 13 or similar member for the attachment to the frame T of the chair C. The second rivet 13 exerts a force on the appendices 11, allowing them to remain rigidly secured to the frame T of the chair C. By this arrangement, the shaped body 2 may be linked to the backrest B and/or the footrest P at both the first and the second rivets 10, 13.

[0027] The transverse wall 7 of the linkage portion 4 is curved with a predetermined radius of curvature, and is shaped in such a manner as to define an abutment surface 5, on which the stirrup S may be locked.

[0028] The connection device 1 may also comprise a shield 14 fitted on the tubular end E of the stirrup S, adapted to be interposed between the tubular end E and the abutment surface 5, particularly when the stirrup S rests on the ground G. This arrangement allows to also protect the stirrup S from any indentation or other wear effects, resulting from repeated use.

[0029] The shield 14 may further comprise snap fit means 15, adapted for selective engagement in a complementarily shaped seat 16 formed on the frame T of the chair C. This allows the stirrup S to be locked in an out of engagement position with the ground G, thereby preventing it from being exposed to undesired and inconvenient movements.

[0030] From the foregoing, it clearly appears that the connection device according to the invention achieves the intended objects. Particularly, the shaped body, as well as the first and second rivets, provide a sturdy and cost-effective arrangement for pivotally linking the support thereto, and make the junction device particularly advantageous in terms of both assembly and use. Also, the abutment surface which is defined by the transverse wall of the linkage portion proves to be particularly effective in restricting the pivoting motion of the support without damaging neither the frame of the chair nor the support.

[0031] The device of this invention is susceptible of a number of modification and changes, all falling the scope of the appended claims. All the details thereof may be replaced by other technically equivalents, and the materials may vary depending on different needs, without departure from the scope of the invention.

[0032] While the device has been described with particular reference to the accompanying figures, the numerals referred to in the disclosure and claims are only used for the sake of a better intelligibility of the invention and shall not be intended to limit the claimed scope in any manner.

[0033] The instant application is based upon and claims priority of patent application no. VI2002U000029, filed on 18.10.2003 in Italy, the disclosure of which is hereby expressly incorporated here in reference thereto.

Claims

1. A connection device, particularly for a ground (G) resting stirrup (S) of a backrest (B) in a footrest (P) in a reclining chair (C), **characterized in that** it comprises a shaped body (2) having an anchorage portion (3) for attachment to the frame (T) of the chair (C) and a linkage portion (4) for pivotal connection to at least one tubular end (E) of the support (S), an abutment surface (5), formed in said shaped

body (2) to restrain the support (S) from pivoting relative to the frame (T), with the stirrup (S) resting on the ground (G).

2. Device as claimed in claim 1, **characterized in that** said linkage portion (4) is a substantially U-shaped member having two opposite side walls (6) which are joined by a transverse wall (7).

3. Device as claimed in claim 2, **characterized in that** the distance between said side walls (6) is equal to or greater than the minimum width of the tubular end (E) of the support (S).

4. Device as claimed in claim 3, **characterized in that** said linkage portion (4) has a first pair of holes (8) formed in said side walls (6) for the passage of a pivot (9) through the tubular end (E) of the support (S).

5. Device as claimed in claim 4, **characterized in that** said pivot member (9) also passes through the backrest (B).

6. Device as claimed in claim 5, **characterized in that** said pivot member (9) is formed by a firs rivet (10).

7. Device as claimed in claim 2, **characterized in that** said anchorage portion (3) includes a pair of opposite appendices (11), which extend from said transverse wall (7) of the linkage portion (4).

8. Device as claimed in claim 8, **characterized in that** said opposite appendices are substantially flat and orthogonal to said side walls (6) of said linkage portion (4).

9. Device as claimed in claim 8, **characterized in that** said anchorage portion (3) has a second pair of holes (12) formed in said appendices (11) for the passage of a second rivet (13) or similar member for anchorage to the frame (T) of the chair (C).

10. Device as claimed in one or more of the preceding claims, **characterized in that** said transverse wall (7) of said linkage portion (4) is curved with a predetermined radius of curvature, defining said abutment surface (5).

11. Device as claimed in claim 10, **characterized in that** it comprises a shield (14) which is fitted on the tubular end E of the support (S), and is adapted to be interposed between the tubular end (E) and said abutment surface (5), particularly when the support (S) rests on the ground (G).

12. Device as claimed in claim 11, **characterized in that** said shield (14) further comprises snap fit means (15), which are adapted for selective engagement in a complementarily shaped seat (16) formed on the frame (T) of the chair (C).

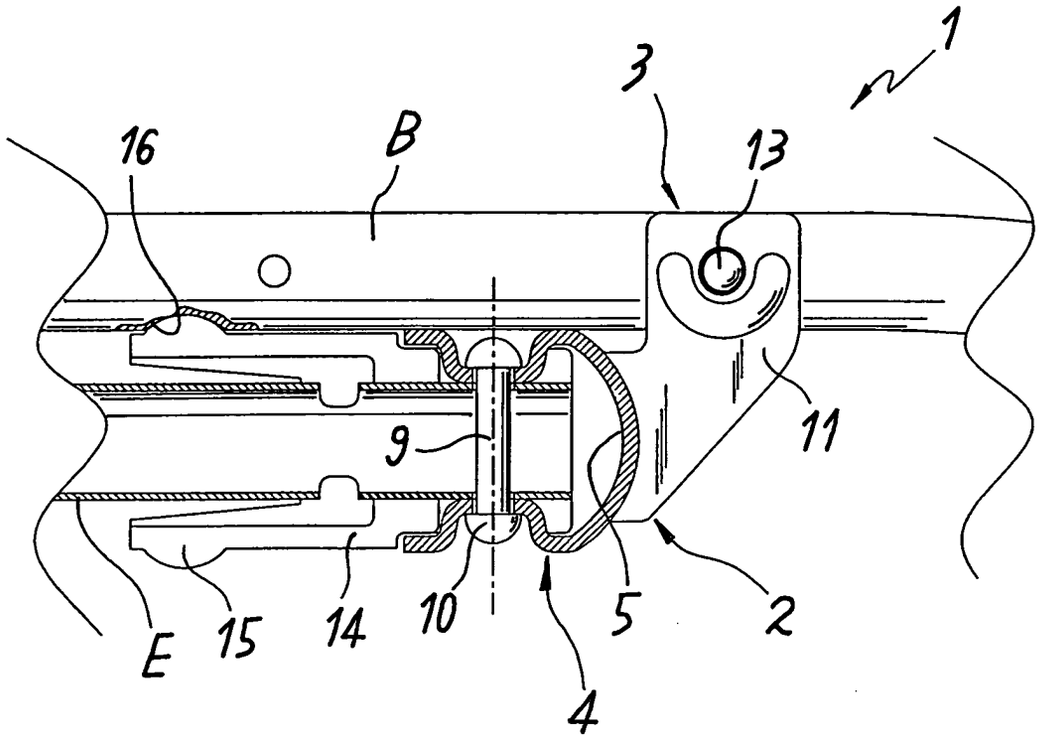

FIG. 1

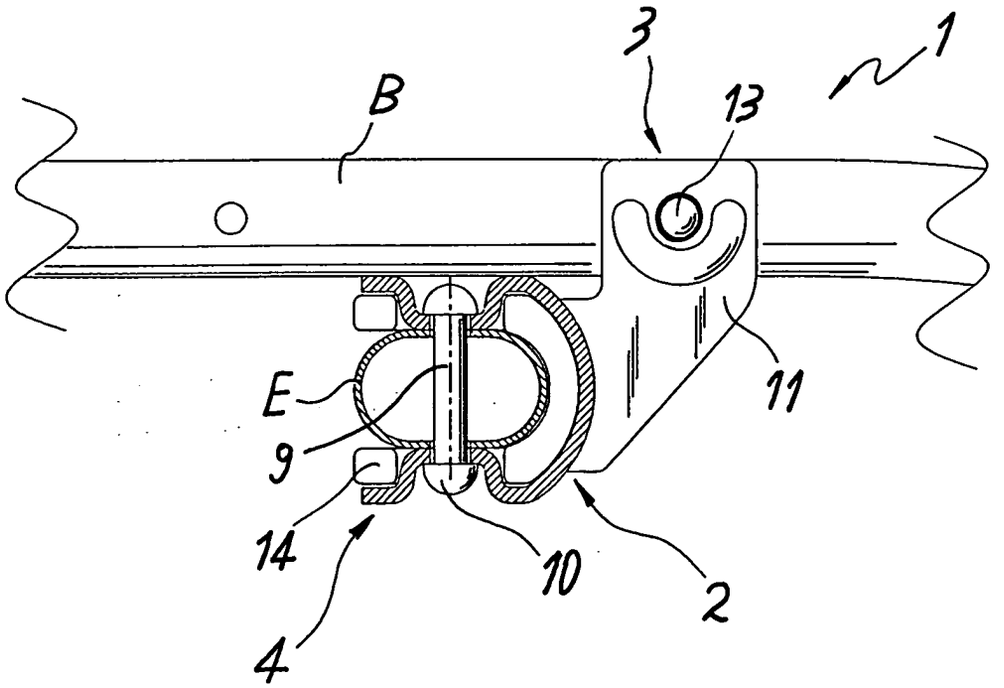

FIG. 2

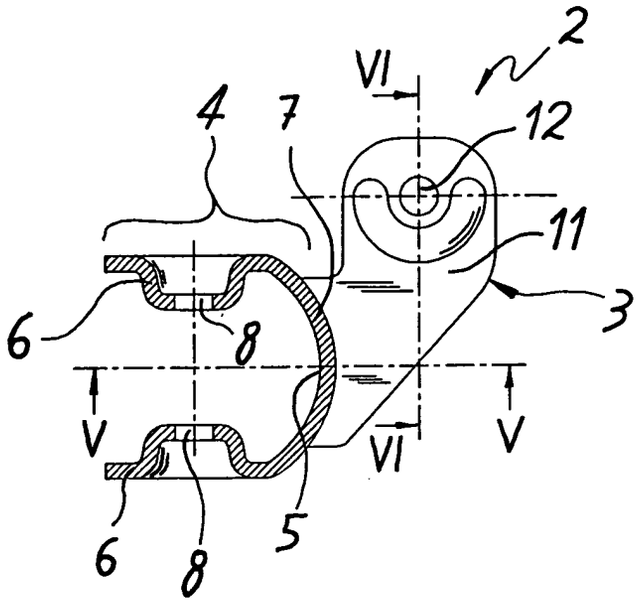

FIG. 3

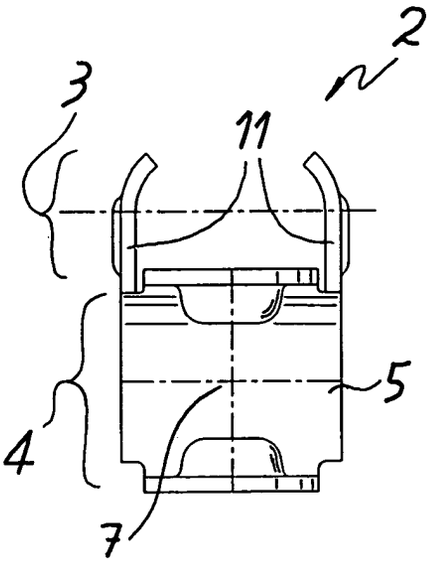

FIG. 4

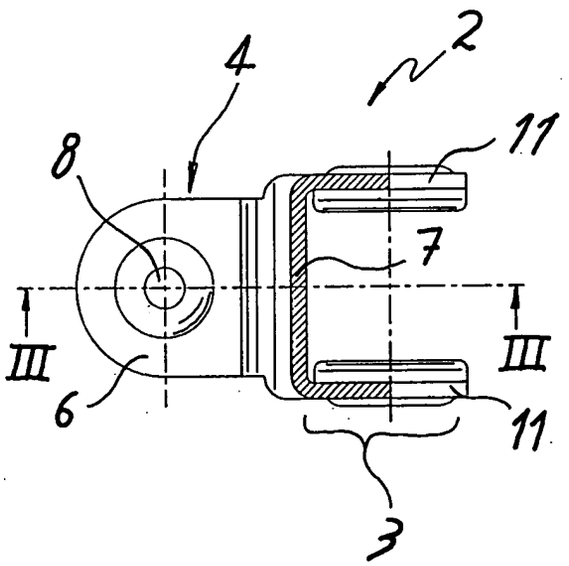

FIG. 5

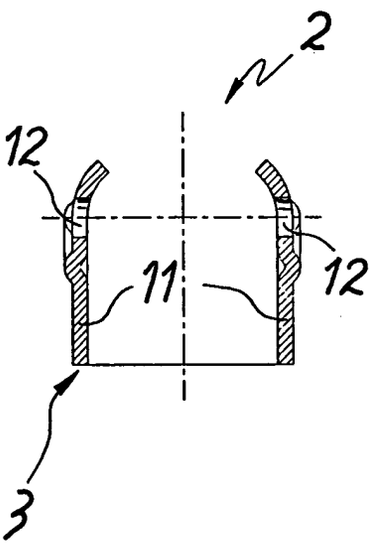

FIG. 6

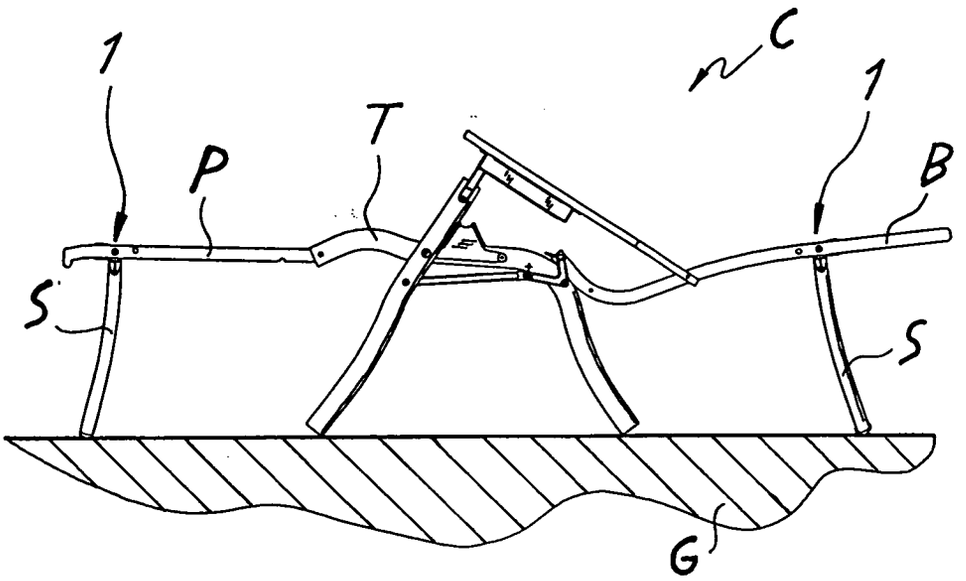

FIG. 7

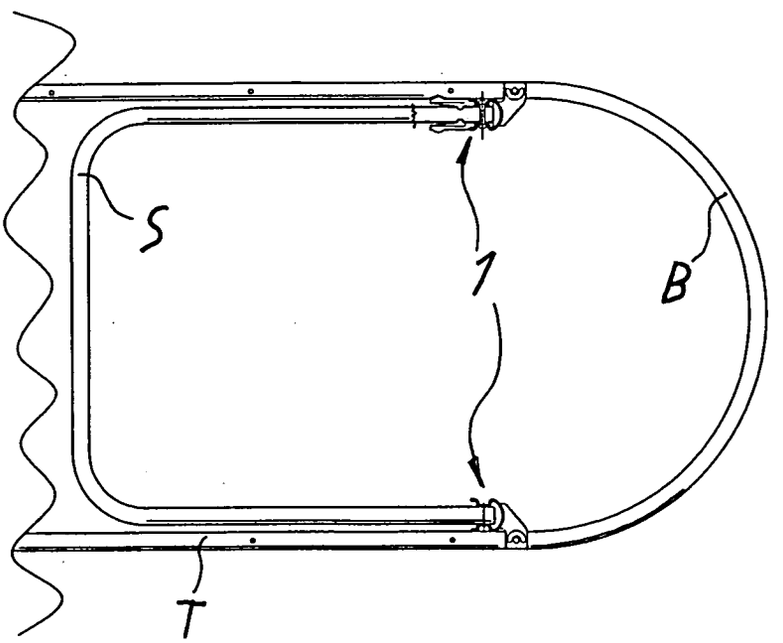

FIG. 8

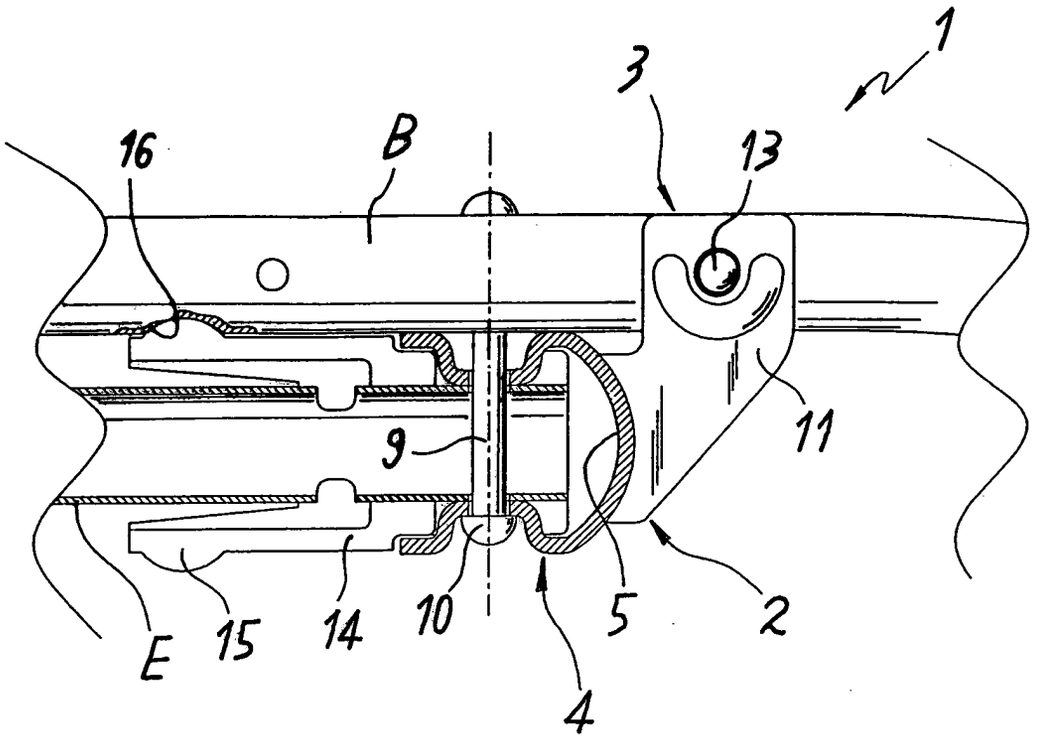

FIG. 9

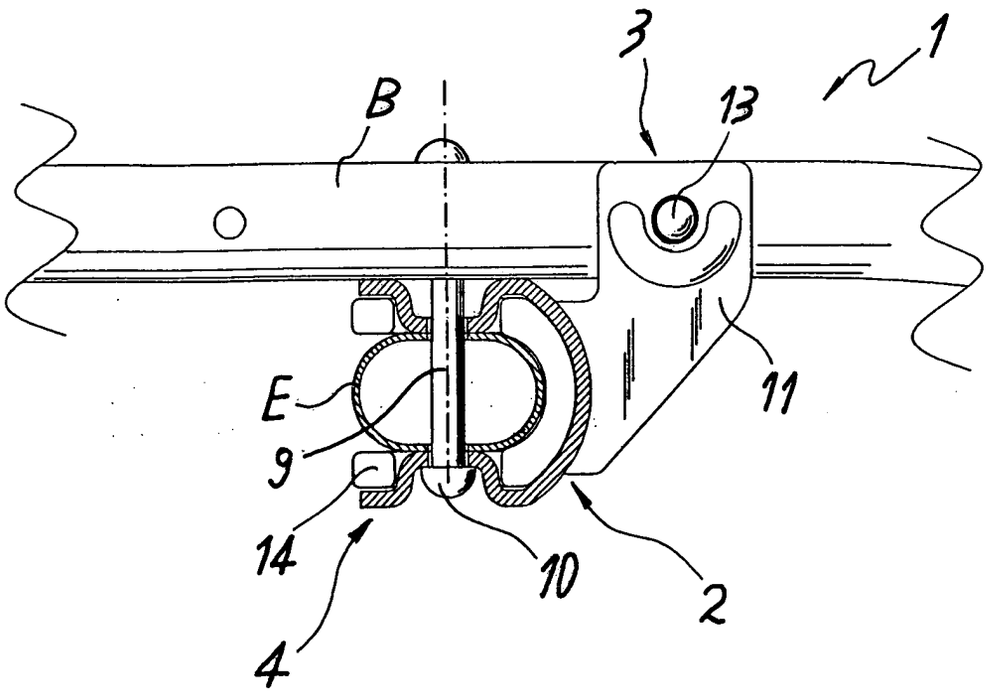

FIG. 10

European Patent Office

EUROPEAN SEARCH REPORT

Application Number
EP 03 02 3437

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The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
MUNICH	17 February 2004	Cardan, C

CATEGORY OF CITED DOCUMENTS

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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 03 02 3437

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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