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(54)

BED PROVIDED WITH A SLAT CARRIER

(57) A bedslat carrier 1 comprises a frame 5 provided with two sides 7 spaced apart from each other and opposite to each other, which are each provided with insides 7a facing each other. A plurality of guide rollers 9 are mounted to these insides. For each of the sides 7, the guide rollers 9 are divided into three groups 11-13 of six guide rollers each. An endless flexible support element 14-16 is provided around each group of guide rollers.

The slatted bed base 3 has a plurality of parallel, spaced-apart bed slats 17 which are mutually connected by means of a flexible connecting element 19 near their ends. Spacers 21 are present between the bed slats and the carrying straps. By having endless support elements 14-16 while they are freely rotatable around the guide rollers 19, the bed slats 17 can be well adjusted to the shape of the body of the user.

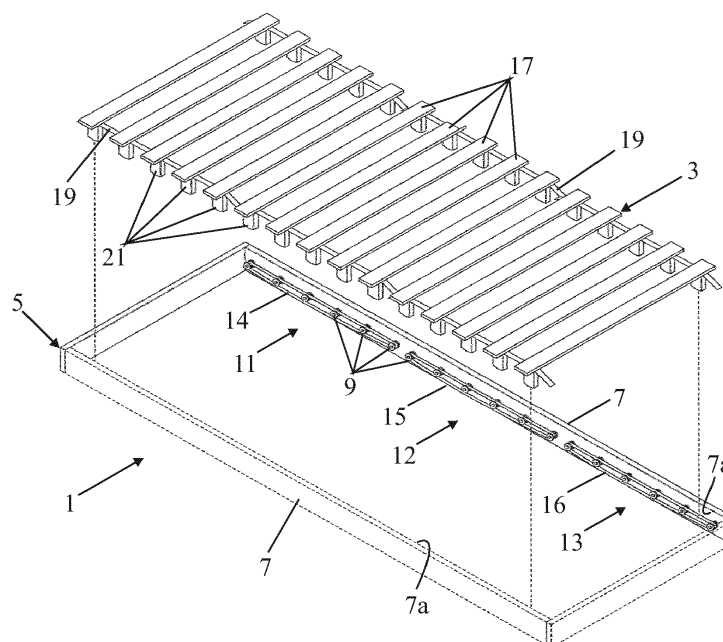


FIG. 2

Description

Technical field of the invention

[0001] The invention relates to a bed provided with a bed slat carrier, comprising:

- at least two elongated sides,
- a plurality of guide rollers connected to the sides and spread over the length of the sides,
- a plurality of endless flexible carrying straps, which are each present around a plurality of the guide rollers, so that an upper part of each carrying strap is present on the guide rollers and a lower part of the carrying strap is present underneath the guide rollers, where each guide roller supports only one carrying strap, and each carrying strap is supported by guide rollers connected to only one of the sides, and a plurality of parallel, spaced-apart bed slats, which are present each with the ends or near-ends between two neighboring guide rollers on one of the carrying straps.

Background of the invention

[0002] A bed of this type is known from CH687058A. In this known bed, the bed slats are separated and attached to the bed slats are spacers which are movable in vertical guiding elements. The position (height) of the bed slats is adjusted to the shape of the body of a user lying on the bed slats. A mattress then rests on the bed slats and this is also adjusted to the body and transfers the shape of the body to the bed slats present underneath.

Summary of the invention

[0003] It is an object of the invention to provide a bed of the type described in the opening paragraph which, in terms of sleeping comfort, is not inferior to the known bed and simpler and therefore cheaper to produce than the known bed. To this end, the bed according to the invention is characterized in that the near-ends of the bed slats are mutually connected by means of a flexible connecting element and are held in place only by the carrying straps. The bed according to the invention has no vertical guiding elements and can therefore be manufactured in a simpler and cheaper fashion. The movement of the bed slats is not impeded in any way by vertical guiding elements or otherwise, so that a mattress present on the bed slats can be adjusted in optimum fashion to the shape of the body.

[0004] Preferably, a spacer is present between each bed slat and the carrying strap present underneath, which spacer is rigidly attached to the bed slat, where the spacers are kept in place only by the carrying straps. More particularly, there are no guiding elements present that vertically guide the spacers. The spacers and bed slats

are preferably not resilient but rigid so that the interaction of shape and weight of the person lying on the bed is directly transferred to the endless flexible carrying straps.

[0005] In order to keep the bed slats in the right position in horizontal direction, the flexible connecting elements are preferably tightly tensioned between the bed slats.

[0006] Preferably, an end of one of the bed slats is present between all neighboring guide rollers, from the guide rollers supporting the same carrying strap, so as to allow the carrying strap to experience as little resistance as possible during the movement of the bed slats.

[0007] An embodiment of the bed according to the invention is characterized in that at least two groups of guide rollers are present on each of the sides, while a carrying strap is present around each group. Preferably there are three groups of guide rollers present against each side. As a result, parts of the bed slat carrier act independently of each other and they cannot influence each other, so that no what is called hammock effect may occur.

[0008] A further embodiment of the bed according to the invention is characterized in that each carrying strap is present around at least three guide rollers. Preferably, each carrying strap is present around more than three, for example six, guide rollers. Furthermore, the guide rollers are preferably mounted to the insides of said sides.

[0009] The spacers and bed slats are preferably not resilient but rigid so that the interaction of shape and weight of the person lying on the bed is directly transferred to the endless flexible carrying straps.

Brief description of the drawings

[0010] The invention will be explained in more detail below with reference to an embodiment of the bed according to the invention shown in the drawings, in which:

Figure 1 shows an embodiment of the bed slat carrier according to the invention with a slatted bed base in a perspective view;

Fig. 2 shows the bed slat carrier shown in Fig. 1 with elevated slatted bed base;

Figure 3 shows a sectional view of the bed slat carrier with slatted bed base shown in Figure 1;

Figure 4 shows a sectional view of the bed slat carrier shown in Figure 1 during use in a bed;

Figure 5 shows a part of the bed slat carrier in unloaded state; and

Figure 6 shows the part shown in Figure 5 in loaded state.

Detailed description of the drawings

[0011] Figures 1 and 2 show a bed slat carrier 1 of the bed according to the invention with a slatted bed base 3 on the bed slat carrier and with an elevated slatted bed base, respectively. The bed slat carrier 1 has a frame 5 provided with two sides 7 spaced apart from each other

and opposite to each other, which are each provided with insides 7a facing each other. A plurality of guide rollers 9 are fixed against these insides. These guide rollers 9 are designed as rollers which are rotatable about shafts fastened to the sides 7.

[0012] The guide rollers 9 on each one of the sides 7 are divided into three groups 11-13 of six guide rollers each, see Fig. 2. An endless flexible carrying strap 14-16 is provided around each group of guide rollers, where an upper part of the carrying strap is present on the guide rollers and a lower part of the carrying straps is present underneath the guide rollers. These carrying straps 14-16 are formed by ribbons having a length greater than twice the distance between outer guide rollers 9 of a group, so that the ribbon is not tightly wound around the guide rollers, but the parts of the ribbon between neighboring guide rollers may be sagging. Each of the groups 11-13 present on one of the sides 7 is present directly opposite to a corresponding group (not visible in the figures) on the other side.

[0013] The slatted bed base 3 comprises a plurality of parallel, spaced-apart bed slats 17 which are mutually connected near their ends by means of a flexible connecting element 19. These connecting elements are also formed by ribbons. Spacers 21 attached to the bed slats 17 above them are present between the bed slats and the ribbons. The spacers 21 are preferably also attached to the connecting elements 19 present below, but this is not a necessity. The bed slats 17 extend to above the sides 7.

[0014] The spacers 21 are supported only by the carrying straps 14-16 and there are no guiding elements in which the spacers are moved.

[0015] Figure 3 shows the bed slat 1 with slatted bed base 3 in a sectional view. Each bed slat 17 is present between two neighboring guide rollers 9 on one of the carrying straps 14-16. The guide rollers are present in a straight plane so that the slatted bed base 3 present thereon is also straight in unloaded state. Figure 4 shows the bed slat carrier with slatted bed base during use in a bed. On the slatted bed base 3 rests a mattress 23 on which a user 25 lies on her side. In places where greater pressure is exerted by the body on the mattress, the bed slats present underneath will be lowered, while the other bed slats attached to the same carrying strap will be raised. This Figure shows that the hip 27 exerts a load on the middle part of the bed slat carrier and the bed slats move according to the shape of the body. This movement does not affect the head-end and foot-end of the bed slat carrier. At the location of the hip 27 the bed slats are pressed down and at the location of the waist 29 they are allowed to rise so that hip and waist are supported well. Furthermore, a local load is exerted by the shoulder 31. The bed slats on the carrying strap are pushed down here, as a result of which the bed slats under the head 33 move upwards so that the head is supported better by the mattress.

[0016] The length of the carrying straps 14-16 is such

that when the carrying strap is sagging between two neighboring guide rollers 9, the bed slat 17 present there just falls short of touching the side. This is elucidated with reference to Figs. 5 and 6, in which a part of a side element 7 is shown in unloaded and loaded state, respectively.

[0017] Albeit the present invention is elucidated above on the basis of the drawings, it should be noted that this invention is not limited whatsoever to the embodiment shown in the drawings. The invention also extends to any embodiments deviating from the embodiment shown in the drawings within the framework defined by the claims.

Claims

1. A bed provided with a bed slat carrier (1), comprising:

- at least two elongated sides (7),
- a plurality of guide rollers (9) connected to the sides and spread over the length of the sides,
- a plurality of endless flexible carrying straps (14-16), each of which is present around a plurality of the guide rollers, such that an upper part of each carrying strap is present on the guide rollers and a lower part of the carrying strap is present under the guide rollers, where each guide roller supports only one carrying strap, and each carrying strap is supported by guide rollers connected only to one of the sides, and
- a plurality of parallel, spaced-apart bed slats (17), which are present each with the ends or near-ends between two neighboring guide rollers (9) on one of the carrying straps (14-16),

characterized in that the near-ends of the bed slats (17) are mutually connected by means of a flexible connecting element (19) and are held in place only by the carrying straps (14-16).

2. A bed as claimed in claim 1, **characterized in that** a spacer (21) is present between each bed slat (17) and the carrying strap (14-16) present underneath, which spacer is rigidly attached to the bed slat, where the spacers are kept in place only by the carrying straps (14-16).

3. A bed as claimed in claim 2, **characterized in that** there are no guiding elements present that vertically guide the spacers (21).

4. A bed as claimed in claim 1, 2 or 3, **characterized in that** the flexible connecting elements (19) are tightly tensioned between the bed slats (17).

5. A bed as claimed in any one of the preceding claims, **characterized in that** an end of one of the bed slats is present between all neighboring guide rollers, from

the guide rollers supporting the same carrying strap.

6. A bed as claimed in any one of the preceding claims,
characterized in that at least two groups (11-13) of
guide rollers (9) are present on each of the sides (7),
while one of the carrying straps (14-16) is present
around each group. 5
7. A bed as claimed in any one of the preceding claims,
characterized in that each carrying strap (14-16) is
present around at least three guide rollers (9). 10
8. A bed as claimed in any one of the preceding claims,
characterized in that the guide rollers (9) are
mounted to the insides (7a) of said sides (7). 15
9. A bed as claimed in any one of the preceding claims,
characterized in that the spacers (21) are fixed to
the carrying straps (14-16). 20

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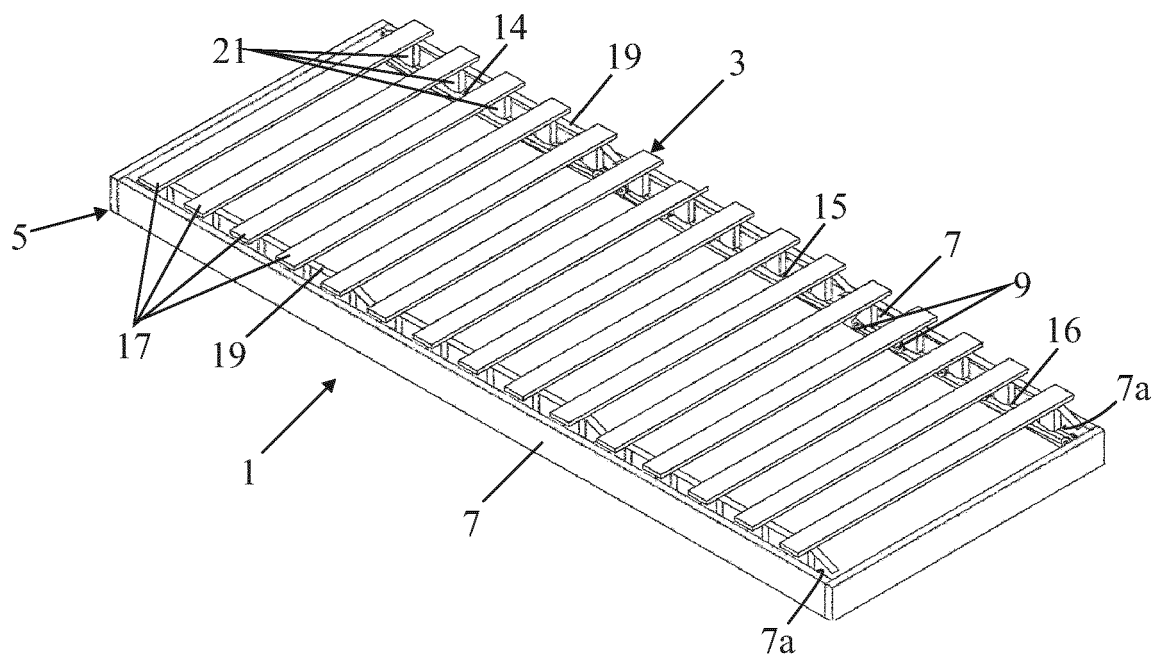


FIG. 1

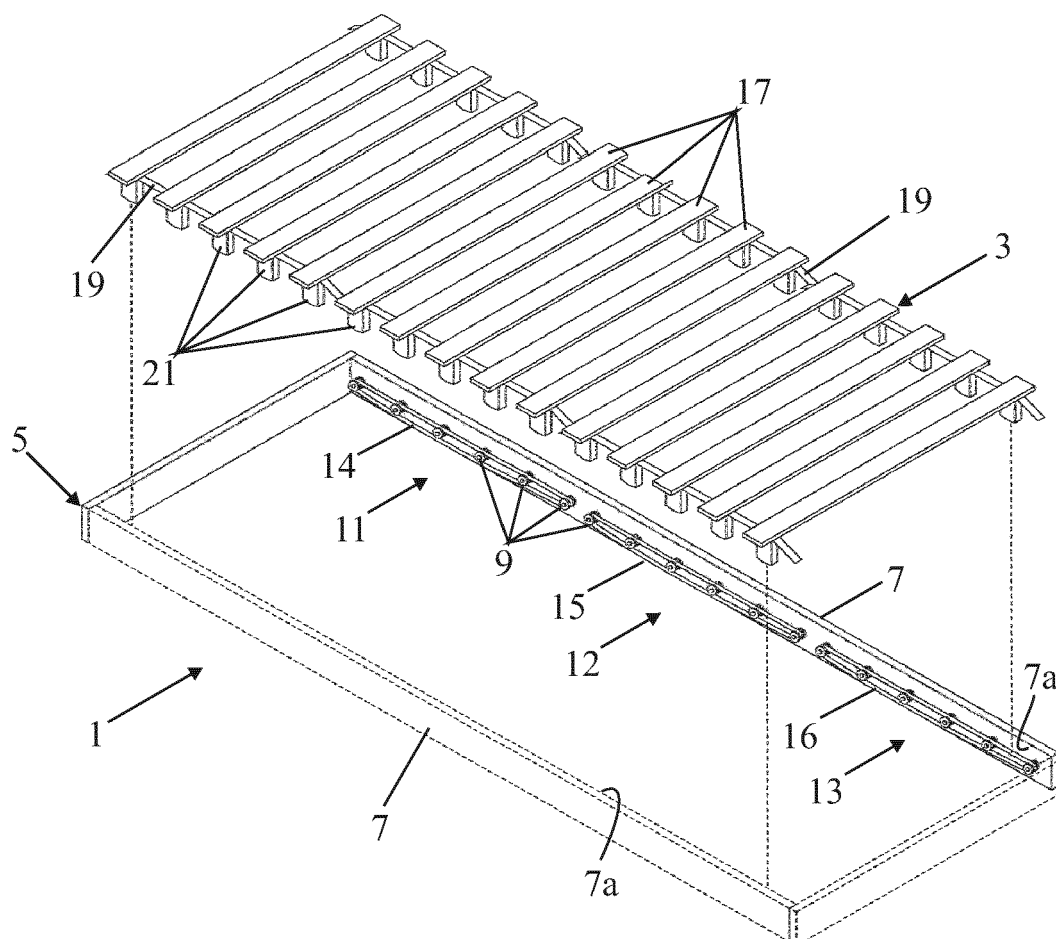


FIG. 2

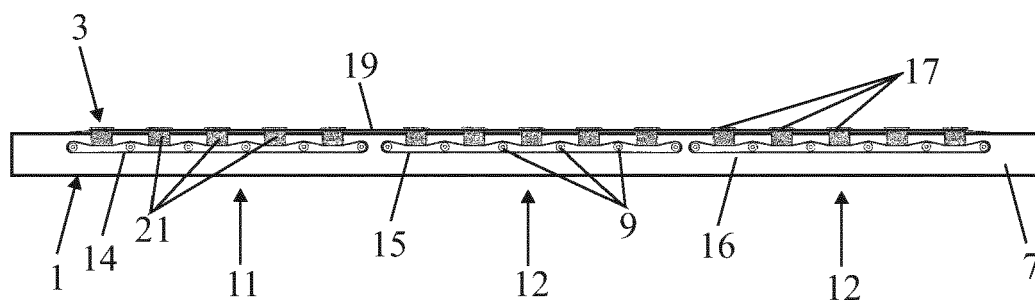


FIG. 3

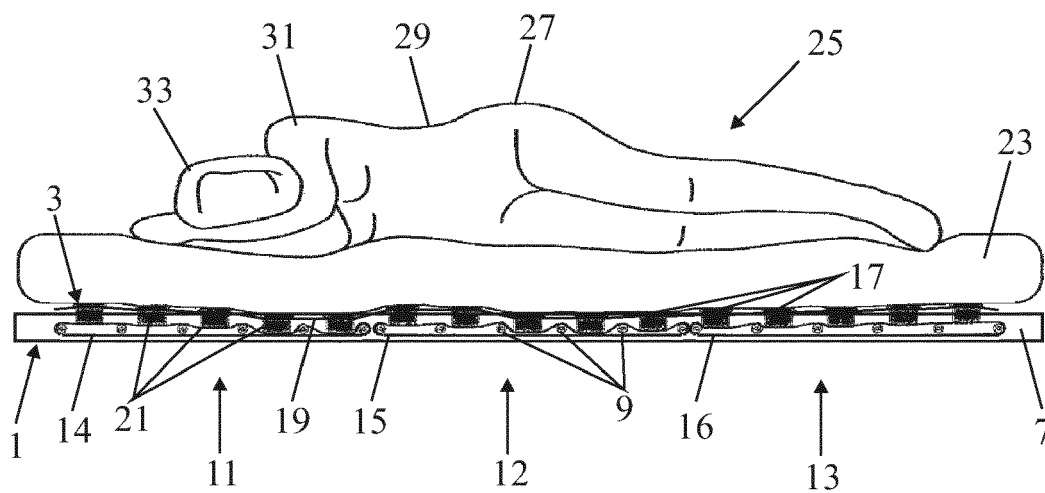


FIG. 4

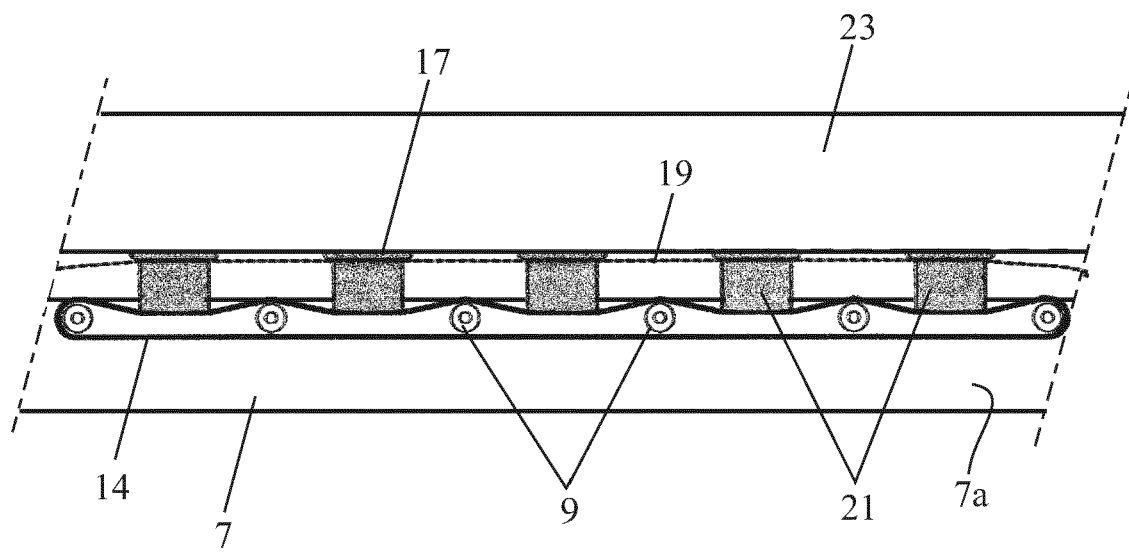


FIG. 5

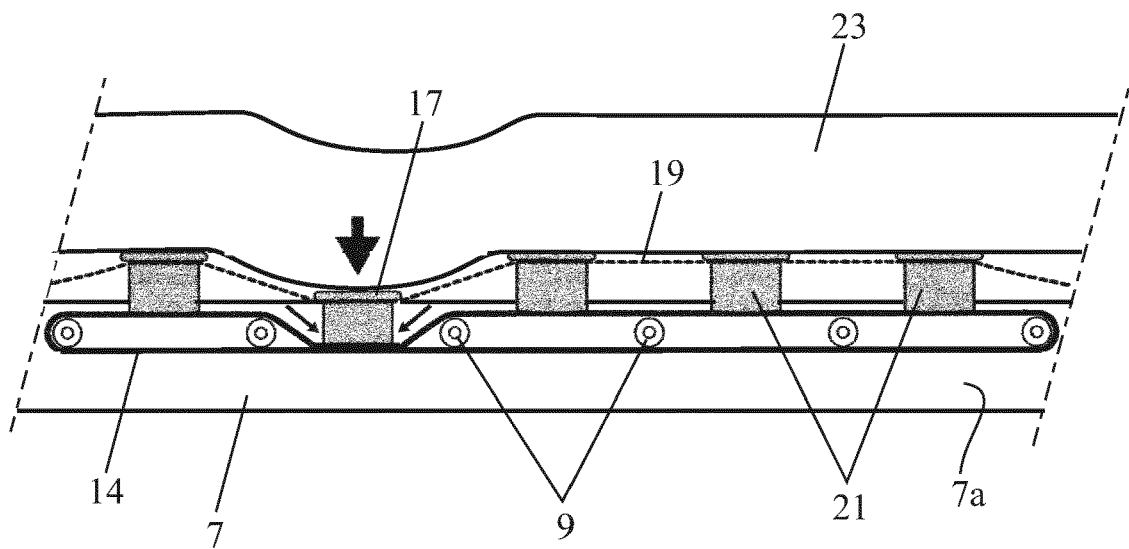


FIG. 6



EUROPEAN SEARCH REPORT

Application Number
EP 18 19 4709

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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	CH 684 779 A5 (LASZLO FERENC FEHER) 30 December 1994 (1994-12-30)	1,2,4,5,8,9	INV. A47C23/06
Y	* column 2, line 49 - column 3, line 41;	6,7	
A	figures 1-3 *	3	
Y	CH 687 058 A5 (LASZLO FERENC FEHER [CH]) 13 September 1996 (1996-09-13)	6,7	
	* column 3, line 6 - column 4, line 2; figures 1-4 *		
A	WO 2015/112023 A1 (SESTRA AS [NO]) 30 July 2015 (2015-07-30)	1	
	* page 6, line 5 - page 8, line 9; figures 1-6 *		
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (IPC)
			A47C
Place of search		Date of completion of the search	Examiner
The Hague		13 December 2018	Lehe, Jörn
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			

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**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 18 19 4709

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The members are as contained in the European Patent Office EDP file on
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CH 684779	A5	30-12-1994	NONE
CH 687058	A5	13-09-1996	NONE
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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

REFERENCES CITED IN THE DESCRIPTION

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