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(71) Applicant: **KONINKLIJKE AUPING B.V.**
7415 DK Deventer (NL)

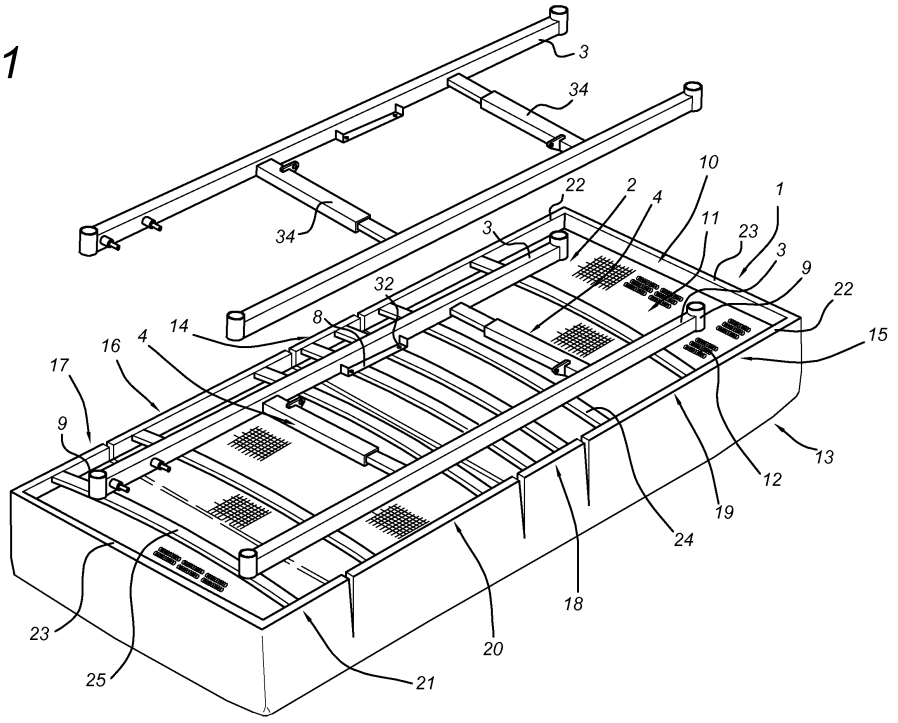
(72) Inventor: **Dijkman, Hendrik Willem**
7245 BG, Laren (NL)

(74) Representative: **Ketelaars, Maarten F.J.M. et al**
Nederlandsch Octrooibureau
J.W. Frisolaan 13
2517 JS Den Haag (NL)

(54) **Method for producing a mattress base comprising a support**

(57) Method for producing a mattress base (1) comprising a support (2), which support comprises a framework (33) of longitudinal girders (3) extending in the longitudinal direction and transverse girders (4) connecting the longitudinal girders to one another, which mattress base (1) comprises a support surface (11, 12), comprising the following steps:
- providing adjustable transverse girders (4) and/or adjustable longitudinal girders which comprise at least two girder parts (5, 6) which are in line with one another and which can be displaced relative to one another in line with one another,
- adjusting the adjustable transverse girders (4) and/or adjustable longitudinal girders in such a manner that a desired length thereof is achieved,
- attaching the support (2) to the mattress base (1) while maintaining said desired length of the adjustable transverse girders (4) and/or longitudinal girders (3).

Fig 1



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Description

[0001] The invention relates to the production of a mattress base which can be placed on the floor by means of a support. The mattress base may, for example, consist of a frame composed of longitudinal girders and traverse girders between which a wire mesh of interhooking helical springs is stretched. According to an alternative, the mattress base may, for example, be designed as a so-called slatted base. It is also possible to design the mattress base in the form of a panel which may or may not be provided with ventilation apertures.

[0002] Such mattress bases are available in many different variants, in particular concerning the length dimensions and the width dimensions, depending on the client's wishes. Since the associated support has to be adapted to the dimensions of the mattress, the support is also produced in a variety of dimensions, in particular in a variety of width dimensions. In addition to this, there are different types of supports, for example having higher or lower supporting legs. This means that a relatively large number of different parts and prefabricated supports have to be kept in stock which has adverse effects in terms of operational management and production costs.

[0003] It is therefore an object of the invention to provide a method by means of which a mattress base comprising a support can be offered in many different sizes, while still achieving a substantial degree of standardization, in particular with regard to the support.

[0004] This object is achieved by means of a method for producing a mattress base comprising a support, which support comprises a framework of longitudinal girders extending in the longitudinal direction and transverse girders connecting the longitudinal girders to one another, which mattress base comprises a support surface, comprising the following steps:

- providing adjustable transverse girders and/or adjustable longitudinal girders which comprise at least two girder parts which are in line with one another and which can be displaced relative to one another in line with one another,
- adjusting the adjustable transverse girders and/or adjustable longitudinal girders in such a manner that a desired length thereof is achieved,
- following the achievement of said desired length of the adjustable transverse girders and/or adjustable longitudinal girders, rigidly fixing the girder parts with respect to one another by attaching the support to the mattress base while maintaining said desired length of the adjustable transverse girders and/or longitudinal girders,
- dispersing with fixing the girder parts directly with respect to one another.

[0005] With the method according to the invention, it is first of all possible to supply the mattress base in many different variants with regard to the length dimensions and the width dimensions, as is usual. However, the support is designed such that the width dimensions and/or the length dimensions thereof can be varied. These dimensions are in this case chosen in such a manner that the corresponding support is exactly adapted to the mattress base to which it is to be attached. After the support has been fitted to the mattress base, the dimensions of the support have also automatically been definitely determined. This means that the support itself does not have to be fixed in a separate operation to achieve the desired set position with the correct dimensions. The respective girder parts are then attached to one another by the mattress base in a definite and non-adjustable manner. In principle, said girder parts are indirectly attached to one another via the mattress base but they are not attached to one another directly. Such a direct attachment is superfluous since the girder parts are fixed by means of the mattress base.

[0006] Thus, the advantage is achieved that the stays of the support are always at the correct distance from the periphery of the mattress base. Irrespective of the width of the mattress base, the stays always have the same desired distance to the lateral side of the mattress base. This results in the desired stable support, while also ensuring a uniform appearance. In addition, cost savings are achieved, due to the fact that initially only a single type of adjustable support has to be kept in stock, which type can be adjusted to any type of available mattress base. This results in efficient production and lower costs.

[0007] The adjustability of the girders can be achieved in various ways. Preference is given to the variant in which the girders consist of telescopic girder parts which can extend and retract with respect to one another. However, it is also possible to use other girder parts, for example displaceable girder parts which adjoin one another and mate with one another.

[0008] The mattress base can be designed in a variety of different ways. It may, for example, be formed as a single unit, without adjustable parts. Alternatively, the mattress base may comprise a fixed mattress base part as well as a mattress base part can be displaced with respect to the fixed mattress base part. In this case, the fixed mattress base part is attached to the longitudinal girders and/or transverse girders of the support, while the displaceable mattress base part rests on the longitudinal girders of the support, in the folded-down position of said displaceable mattress base part, without being attached thereto.

[0009] In particular, the method according to the invention comprises the following steps:

- selecting a difference between the width of the mattress base and the width of the support,
- suitably adjusting the girder parts of the transverse profiled sections of the support so that said difference is achieved.

[0010] The invention also relates to a support for use

with the method as described before.

This support comprises a framework of longitudinal girders extending in the longitudinal direction and transverse girders which connect the longitudinal girders to one another. These transverse girders and/or longitudinal girders are adjustable and comprise at least two girder parts which are in line with one another and can be displaced relative to one another in line with one another, as well as fastening means provided on the framework for attaching a mattress base to the framework. At least one of the girder parts, viewed in the longitudinal direction thereof, comprises only and only identical cross sections, at least across the region thereof which mates with the other girder part and/or can be brought to mate with the other girder part.

[0011] The respective girder part having only identical cross sections does not have any features, such as holes and the like, which could function as fastening means for fixing the girder parts to one another. The other girder part may likewise be designed to have only and only identical cross sections, although this is not obligatory. Thus, said girder part may have locally different cross sections at the location of the region thereof which mates with the other girder part, such as locally thickened guides. After the mattress base has been fitted to the girder parts, the two are rigidly attached to one another, so that a rigid support which is no longer adjustable is produced. To this end, each girder part is provided with, or each girder part is connected to, fastening means by means of which a rigid mattress base or one and the same rigid mattress base part is attached to these girder parts.

[0012] The fastening means provided on the framework of the support may, for example, consist of a fitting, such as a corner support which is attached to a longitudinal profiled section and to which traverse girders of the mattress base can be attached. As has already been mentioned above, the support preferably has telescopic girder parts which can be extended and retracted with respect to one another. In order to, on the one hand, support these girder parts in a stable manner with respect to one another, and, on the other hand, to be able to displace them, the telescopic girder parts are preferably guided with respect to one another by a sleeve made of friction-reducing material, such as a plastic sleeve. As an alternative or in addition, it is also possible to provide fastening means on adjustable transverse girders.

[0013] In the case of an adjustable mattress base, features are usually provided on the support from which levers and drive mechanisms for operating the mattress base can be suspended. In that case, the outer telescopic tube is preferably provided with a fitting, for example for suspending a lever or motor drive mechanism for an adjustable frame. Furthermore, the framework of the support may be provided with stays or supporting legs for supporting the framework on the floor, which stays protrude on that side of the framework which is turned away from the side for attaching a mattress base to the framework.

[0014] The invention also relates to a mattress base with support produced according to the method as described above. The support which is used in this case comprises a framework of longitudinal girders extending in the longitudinal direction and transverse girders connecting the longitudinal girders to one another. The associated mattress base has a support surface, for example a wire mesh made of interhooking helical springs, a slatted support or a panel. The support may in this case have longitudinal dimensions and/or transverse dimensions which are equal to those of the mattress base, but in a preferred variant the transverse dimensions of the support defined by the transverse girders and/or the longitudinal dimensions of the support defined by the longitudinal girders are smaller than the dimensions of the mattress base in the same direction.

[0015] In the latter case, the stays or supporting legs of the support recede slightly inwardly with respect to the mattress, which is advantageous as it is aesthetically attractive. In addition, this has the advantage that the user's hand or fingers cannot get caught, as the mattress base, in particular the longitudinal profiled sections thereof, do not come into contact with the longitudinal profiled sections of the support. This is particularly clear in the embodiment in which the mattress base comprises a frame which is provided with frame profiled sections running in the longitudinal direction, traverse girders which extend transversely between the frame profiled sections and a wire mesh of interhooking helical springs which is stretched transversely in the frame and at a distance above the traverse girders. In this variant, the traverse girders of the frame are supported on the longitudinal profiled sections of the support.

[0016] A further improvement can be achieved if at least one of the head ends of the longitudinal girders of the support has an extension which extends beyond the mattress base, for example for fitting a headboard to the support. Preferably, this extension is telescopic and accommodated in the longitudinal profiled section.

[0017] Furthermore, this mattress base may be provided with a fixed, that is to say non-adjustable, support surface. In the case of an adjustable mattress base, in which the frame comprises a fixed frame part which is provided with traverse girders as well as a frame part which can be displaced with respect to the fixed frame part and is provided with traverse girders, the traverse girders of the fixed frame part are fixedly attached to the longitudinal girders of the support and the traverse girders of the displaceable frame part are displaceably supported on the longitudinal girders of the support.

[0018] The invention will be explained in more detail below with reference to an exemplary embodiment illustrated in the figures, in which:

Fig. 1 shows a bottom view of the mattress base with the framework of the support;

Fig. 2 shows a perspective view of the framework of the support in various positions;

Fig. 3 shows a bottom view in perspective of one end of the mattress base comprising a support including extensions;

Fig. 4 shows a top view in perspective of the mattress with support including extensions and headboard;

Fig. 5 shows a bottom view of the mattress base comprising a support in a relatively long and narrow position;

Fig. 6 shows a bottom view of the mattress base comprising a support in a relatively short and wide position;

Fig. 7 shows an adjustable mattress base in the upright position on the support.

[0019] In Figs. 1, 3, 5 and 6, the mattress base 1 and the support 2 attached thereto are shown in the reversed position, i.e. upside down. The support 2 is shown separately in Fig. 2 in the same reversed position and consists of a framework 33 with longitudinal girders 3 and transverse girders 4. Each of these transverse girders consists of the outer tube 5 and inner tube 6 which can be extended and retracted inside each other in a telescopic manner. In connection with a stable positioning of the outer tube 5 and the inner tube 6 with respect to one another, the sleeve 34, which is preferably made from plastic material, is provided in the outer tube 5. This sleeve also assists the displacement of the outer tube 5 and the inner tube 6 with respect to one another in a suitable manner. The fitting 7 is attached to the outer tubes 5. Furthermore, a fitting 8 is attached to the longitudinal girders 3. By means of the latter fittings 8, the longitudinal girders 3 of the framework 33 are attached to the mattress base. Furthermore, the stays 9 which are supported on the floor during normal use are attached to the ends of the longitudinal girders 3. The normal position of use of the mattress base 1 with support 2 is illustrated in Fig. 4.

[0020] In the illustrated exemplary embodiment, the mattress base consists of a frame 10, a wire mesh 11 comprising interhooking helical springs 12 stretched in the frame 10 and a filling or box spring 13 which is attached to the frame 10 and is supported by the wire mesh 11. As is also illustrated in Figs. 1 and 7, the mattress base is furthermore divided into a fixed mattress base part 18 and the mattress base parts 19, 20 hingedly attached thereto. In addition, the mattress base part 21 is hingedly attached to the hinged mattress base part 20 and is situated at the level of the head of a person.

[0021] As is also illustrated in Figs. 1 and 7, the frame 10 in turn consists of the fixed frame part 14 and the frame parts 15, 16 which are hingedly connected thereto and form part of the mattress base parts 18, 19 and 20, respectively. In addition, the frame part 17 is also hingedly attached to the frame part 16 and forms part of the further hinged mattress base part 21. In this case, it has to be understood that a mattress (not shown) can be arranged on the mattress base on which the person ultimately rests.

[0022] The frame 10 furthermore consists of longitudinal profiled sections 22, each of which in turn consists of a corresponding fixed longitudinal profiled section part and movable longitudinal profiled section parts, transverse profiled sections 23 at the ends of the longitudinal profiled sections 22, as well as traverse girders 24, 25. The traverse girders 24 form part of the fixed frame parts 14 and are attached to the fittings 8 of the longitudinal profiled sections 3 of the support 2 by means of bolts 32. The other traverse girders 25 form part of the movable frame parts 15-17. Beforehand, fastening members 36 are welded onto the fixed traverse girders 24 at the correct distance with respect to the lateral side of the frame 10 as determined by the longitudinal profiled sections 22 thereof. When fitting the support 2 and the mattress base 1, the transverse profiled sections 4 of the framework 33 of the support 2 are extended so far that the predrilled holes 26 in the opposite fittings 8 are at the same mutual distance as the opposite fastening members 36 on the fixed traverse girders 24. By then fitting the bolts 32 optionally with nuts, the support 2 remains fixed in this extended position. In addition, the stays 9 are then at the desired mutual distance and the desired distance to the lateral side of the frame 10.

[0023] This is also illustrated in Figs. 5 and 6. In the state shown in Fig. 5, a relatively narrow mattress base 1 is used. The holes in the fixed traverse girders 24 have a predetermined distance to the lateral side of the frame 10. The longitudinal profiled sections 3 of the support 2 therefore have to be moved towards one another until they are relatively close to one another, following which the support 2 can be fitted to the mattress base. In contrast thereto, Fig. 6 shows a relatively wide mattress base 1. If the holes in the fixed traverse girders 24 have the same predetermined distance to the lateral side of the frame 10, the longitudinal girders 3 of the support 2 now have to be pushed apart over a fairly large distance in order to ensure that the holes 26 in the fittings 8 thereof are at the same mutual distance as the mutual distance of the holes in the fixed traverse girders 24.

[0024] This achieves the advantage of being able to fit one and the same support 2 to mattress bases of different widths, while the distance of the stays 9 with respect to the lateral side of the frame 10 still remains the same. This produces a uniform appearance as well as the desired aesthetic result. Furthermore, this also ensures the stability with relatively wide mattresses.

[0025] As is illustrated in the bottom view of Figs. 5 and 6, the drive elements 35 are attached to the transverse profiled sections 4 of the support 2, in particular to the fittings 7 thereof. Furthermore, these drive elements 35 are attached to the movable mattress base parts 19 and 20, as is also illustrated in Fig. 7. A drive element 35 is also fitted between the movable mattress parts 20 and 21. By operating these drive elements 35 in a suitable manner, the mattress base 1 can be moved into various modified positions.

[0026] In Figs. 3 and 4, and also in the bottom view of

Figs. 5 and 6, the extensions 27 are shown. These extensions 27 each comprise a leg 28 which can be displaced in a guide 29 which is defined by the stay 9 and the longitudinal profiled section 3. Furthermore, each extension 27 comprises a vertical stay 29. A headboard 30 can be pushed onto these stays 29, in particular on the mounting 31 thereof which is indicated by dashed lines. These extensions 27 can be pushed into the stays 9 and longitudinal profiled sections 3 to a greater or lesser degree. In the variant from Fig. 5, a relatively long mattress base is illustrated. In this case, the extensions are pushed in less far, so that the headboard 30 can be fitted to the end of the mattress base. By contrast, in the variant from Fig. 6, a relatively short mattress base is used, in which case the extensions 27 have to be pushed in further in order to be able to fit the headboard at the correct position.

List of reference numerals

[0027]

1.	Mattress base
2.	Support
3.	Longitudinal girder
4.	Transverse girder
5.	Outer tube
6.	Inner tube
7.	Fitting
8.	Fitting
9.	Stay
10.	Frame
11.	Wire mesh from helical springs
12.	Helical springs
13.	Box spring
14.	Fixed frame part
15.-17.	Movable frame part
18.	Fixed mattress base part
19.-21.	Movable mattress base part
22.	Longitudinal profiled section
23.	Transverse profiled section
24.	Fixed traverse girder
25.	Movable traverse girder
26.	Hole in fitting 8
27.	Extension
28.	Leg of the extension
29.	Stay of the extension
30.	Headboard
31.	Mounting of the headboard
32.	Bolt
33.	Framework of the support
34.	Sleeve of transverse profiled section 4
35.	Drive element
36.	Fastening member for the fixed traverse girder

Claims

1. Method for producing a mattress base (1) comprising a support (2), which support comprises a framework (33) of longitudinal girders (3) extending in the longitudinal direction and transverse girders (4) connecting the longitudinal girders to one another, which mattress base (1) comprises a support surface (11, 12), comprising the following steps:

- providing adjustable transverse girders (4) and/or adjustable longitudinal girders which comprise at least two girder parts (5, 6) which are in line with one another and which can be displaced relative to one another in line with one another, such as telescopic girder parts (5, 6),
- adjusting the adjustable transverse girders (4) and/or adjustable longitudinal girders in such a manner that a desired length thereof is achieved,
- following the achievement of said desired length of the adjustable transverse girders (4) and/or adjustable longitudinal girders (3), rigidly fixing the girder parts (5, 6) with respect to one another by attaching the support (2) to the mattress base (1) while maintaining said desired length of the adjustable transverse girders (4) and/or longitudinal girders (3),
- dispensing with fixing the girder parts (5, 6) directly with respect to one another.

2. Method according to Claim 1, comprising the following steps:

- providing a mattress base (1) provided with a frame (10) comprising frame profiled sections (22) which extend in the longitudinal direction, traverse girders (24, 25) which extend transversely between the frame profiled sections and a wire mesh (11) of interhooking helical springs (12) stretched transversely in the frame and at a distance above the traverse girders,
- attaching the traverse girders (24) of the frame to the longitudinal profiled sections (3) of the support (2).

3. Method according to Claim 2, comprising the following steps:

- providing a mattress base (1) having a fixed mattress base part (18) and a mattress base part (19-21) which can be displaced with respect to the fixed mattress base part,
- attaching the fixed mattress base part (18), such as one or more traverse girders (24) thereof, to the longitudinal girders (3) of the support (2),
- displaceably supporting the traverse girders

(25) of the displaceable mattress base part (19-21) on the longitudinal girders (23) of the support (2).

4. Method according to one of the preceding claims, comprising the following steps:

- selecting a difference between the width of the mattress base (1) and the width of the support (2),
- suitably adjusting the girder parts (5, 6) of the transverse profiled sections (4) of the support (2) so that said difference is achieved.

5. Support (2) for use with the method according to one of the preceding claims, comprising a framework (33) of longitudinal girders (3) extending in the longitudinal direction and transverse girders (4) connecting the longitudinal girders to one another, which transverse girders and/or longitudinal girders are adjustable and comprise at least two girder parts (5, 6), such as telescopic girder parts (5, 6), which are in line with one another and can be displaced relative to one another in line with one another, as well as fastening means (8, 26) provided on the framework (33) for attaching a mattress base (1) to the framework (33), **characterized in that** at least one of the girder parts (5, 6), viewed in the longitudinal direction thereof, comprises only and only identical cross sections, at least across the region of said girder part which mates with the other girder part.

6. Support (2) according to Claim 5, in which each girder part (5, 6) is provided with, or is connected to, the fastening means (8, 26) for attaching a mattress base (1) to the framework (33).

7. Support (2) according to Claim 6, in which telescopic girder parts (5, 6) are guided with respect to one another by a sleeve (34) made of friction-reducing material, such as a plastic sleeve.

8. Support (2) according to Claim 6 or 7, in which the outer telescopic tube (5) is provided with a fitting (7), for example for suspending a lever or motor drive mechanism (35) for an adjustable frame (10).

9. Support (2) according to one of Claims 5-8, in which the framework (33) is provided with stays (9) for supporting the framework (33) on the floor, which stays (9) protrude on that side of the framework (33) which is turned away from the side for attaching a mattress base (1) to the framework (33).

10. Mattress base (1) with support (2) produced according to the method of one of Claims 1-4, which support (2) comprises a framework (33) of longitudinal girders (3) extending in the longitudinal direction and transverse girders (4) connecting the longitudinal girders to one another, which mattress base (1) comprises a support surface (11,12), in which the transverse dimensions of the support (2) defined by the transverse girders (4) and/or the longitudinal dimensions of the support (2) defined by the longitudinal girders are smaller than the dimensions of the mattress base (1) in the same direction.

11. Mattress base (1) with support (2) according to Claim 10, in which at least one of the head ends of the longitudinal girders (3) of the support (2) has an extension (27) which extends beyond the mattress base (1), for example for fitting a headboard (30) to the support (2).

12. Mattress base (1) with support (2) according to Claim 11, in which the extension (27) is telescopic and accommodated in the longitudinal profiled section (3).

13. Mattress base (1) with support (2) according to one of Claims 10-12, in which the mattress base comprises a frame (10) which is provided with frame profiled sections (22) running in the longitudinal direction, traverse girders (24, 25) which extend transversely between the frame profiled sections and a wire mesh (11) of interhooking helical springs (12) which is stretched transversely in the frame (10) and at a distance above the traverse girders (24, 25), and in which the traverse girders (24, 25) of the frame are supported on the longitudinal profiled sections (3) of the support.

14. Mattress base (1) with support (2) according to Claim 13, in which the frame (10) comprises a fixed frame part (14) provided with traverse girders (24) as well as a frame part (15-17) provided with traverse girders (25) which can be displaced with respect to the fixed frame part, the traverse girders (24) of the fixed frame part (14) are fixedly attached to the longitudinal girders (3) of the support (2) and the traverse girders (25) of the displaceable frame part (15-17) are displaceably supported on the longitudinal girders (3) of the support (2).

15. Mattress base (1) with support (2) according to Claim 14, in which the frame parts (15-17) are hingedly connected to one another and the hinge axis is at a distance above the wire mesh (11).

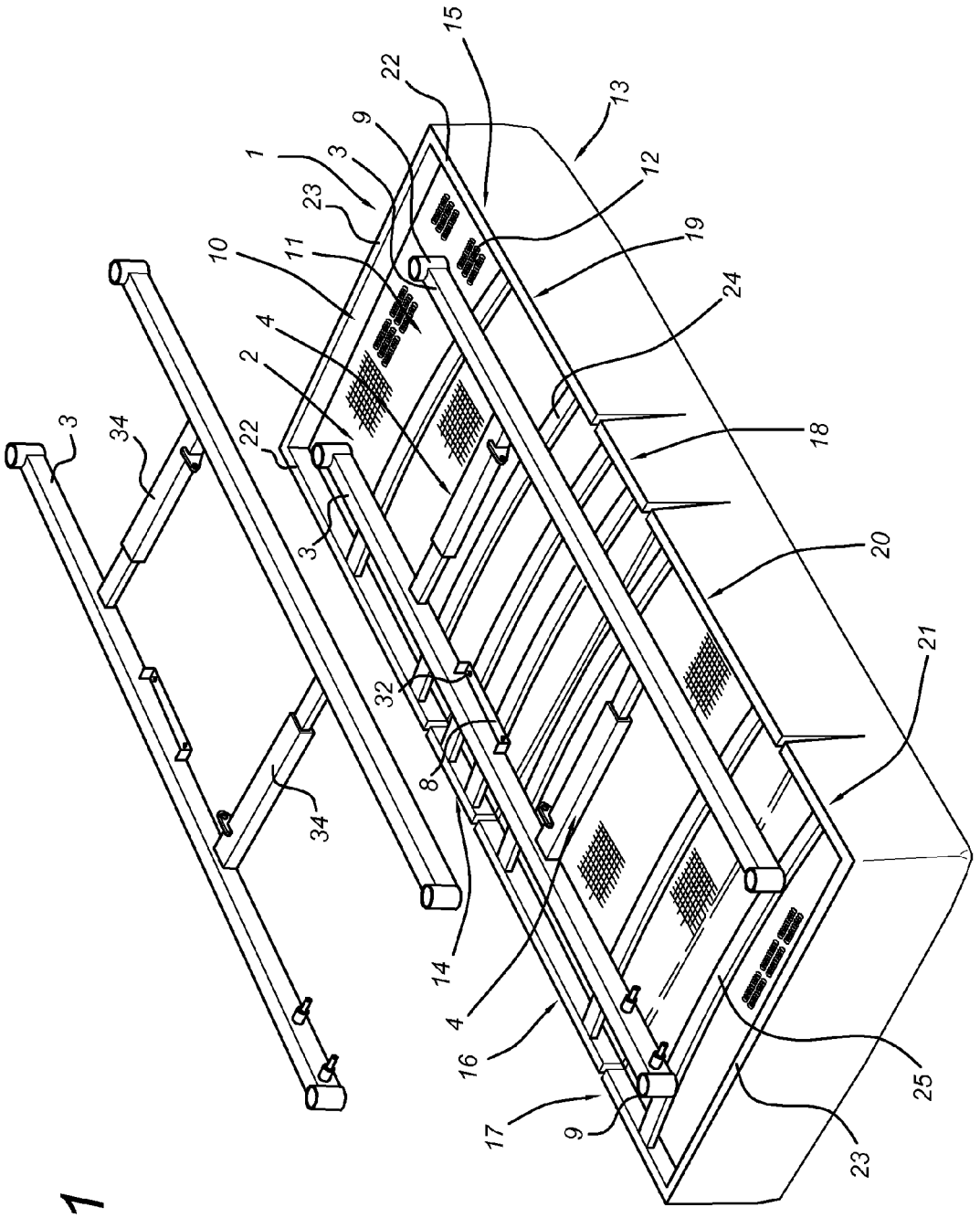
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Fig 1

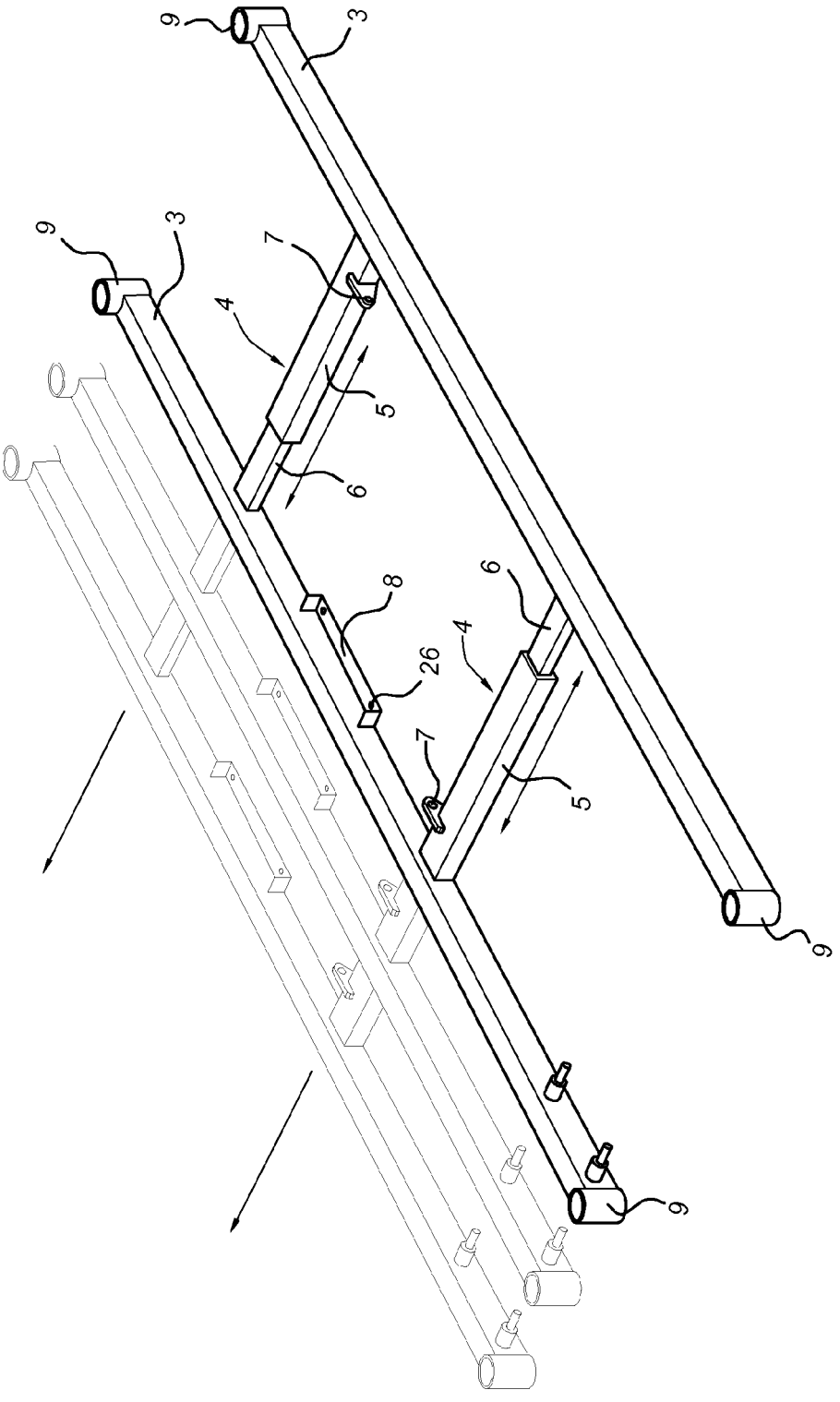


Fig 2

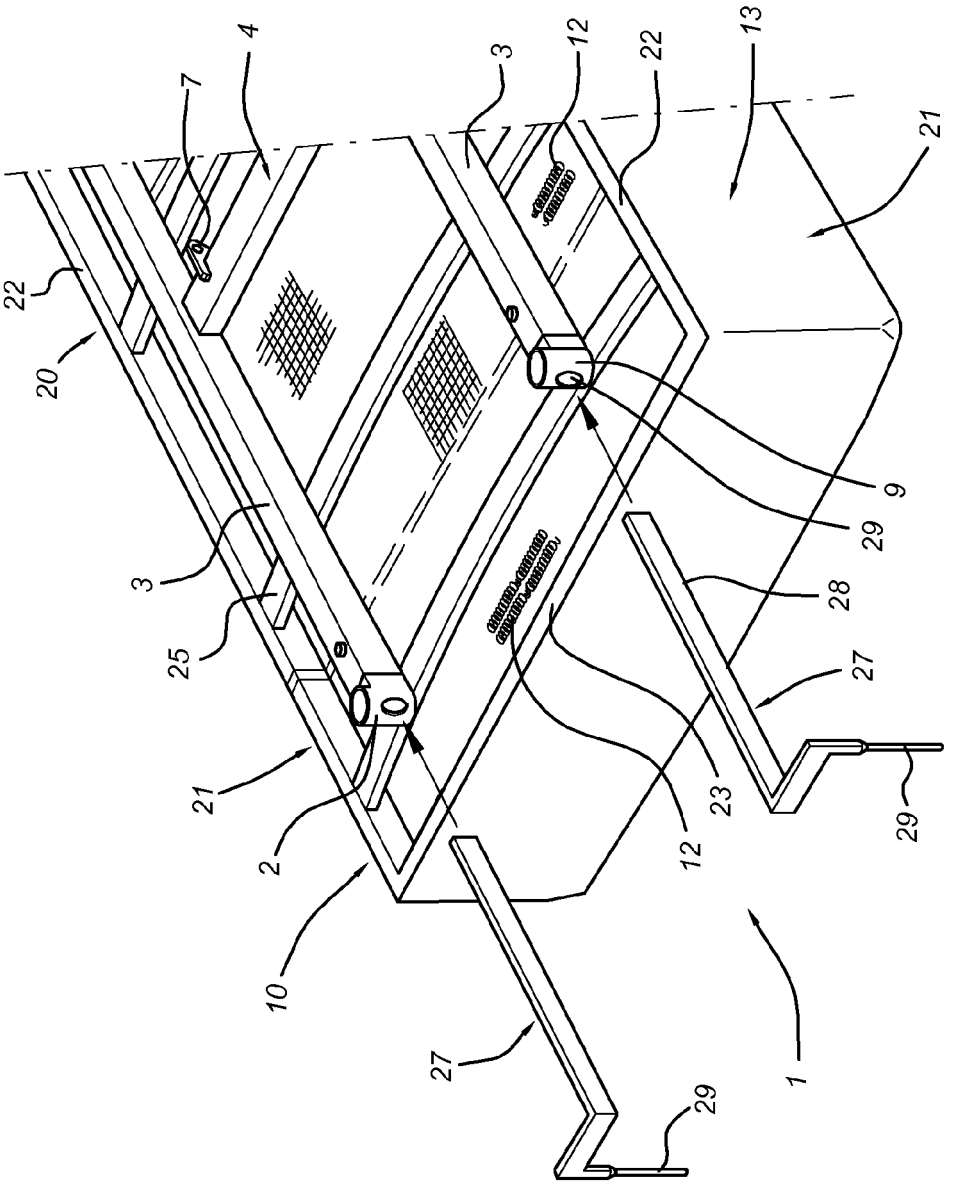
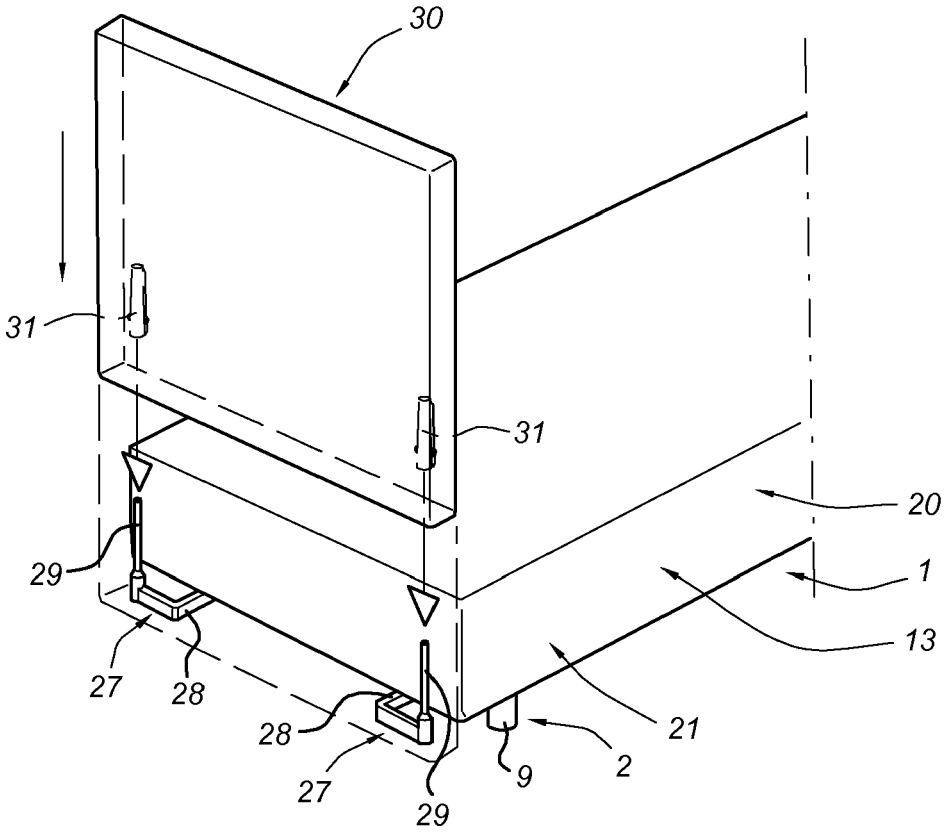


Fig 3

Fig 4



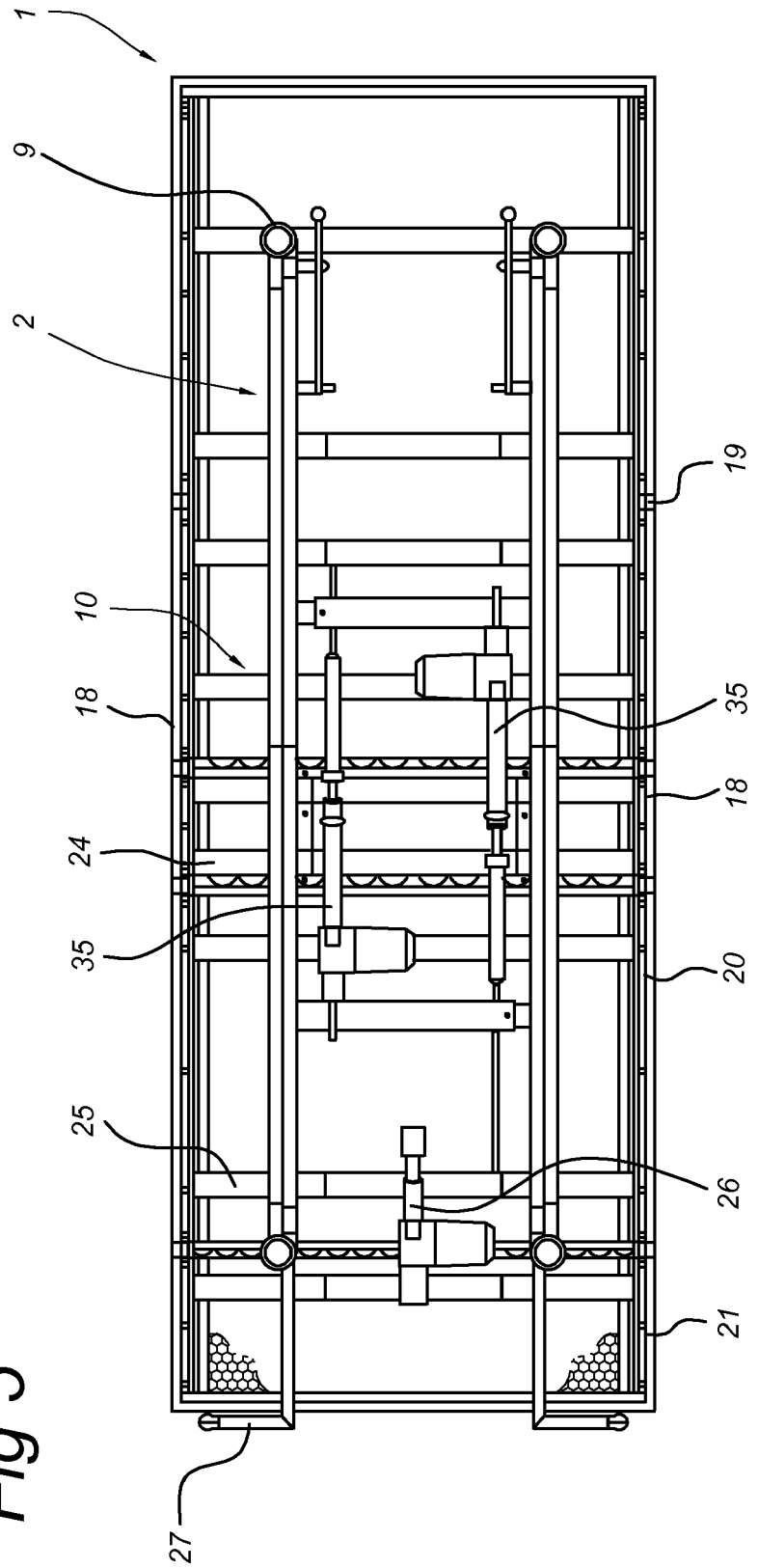


Fig 5

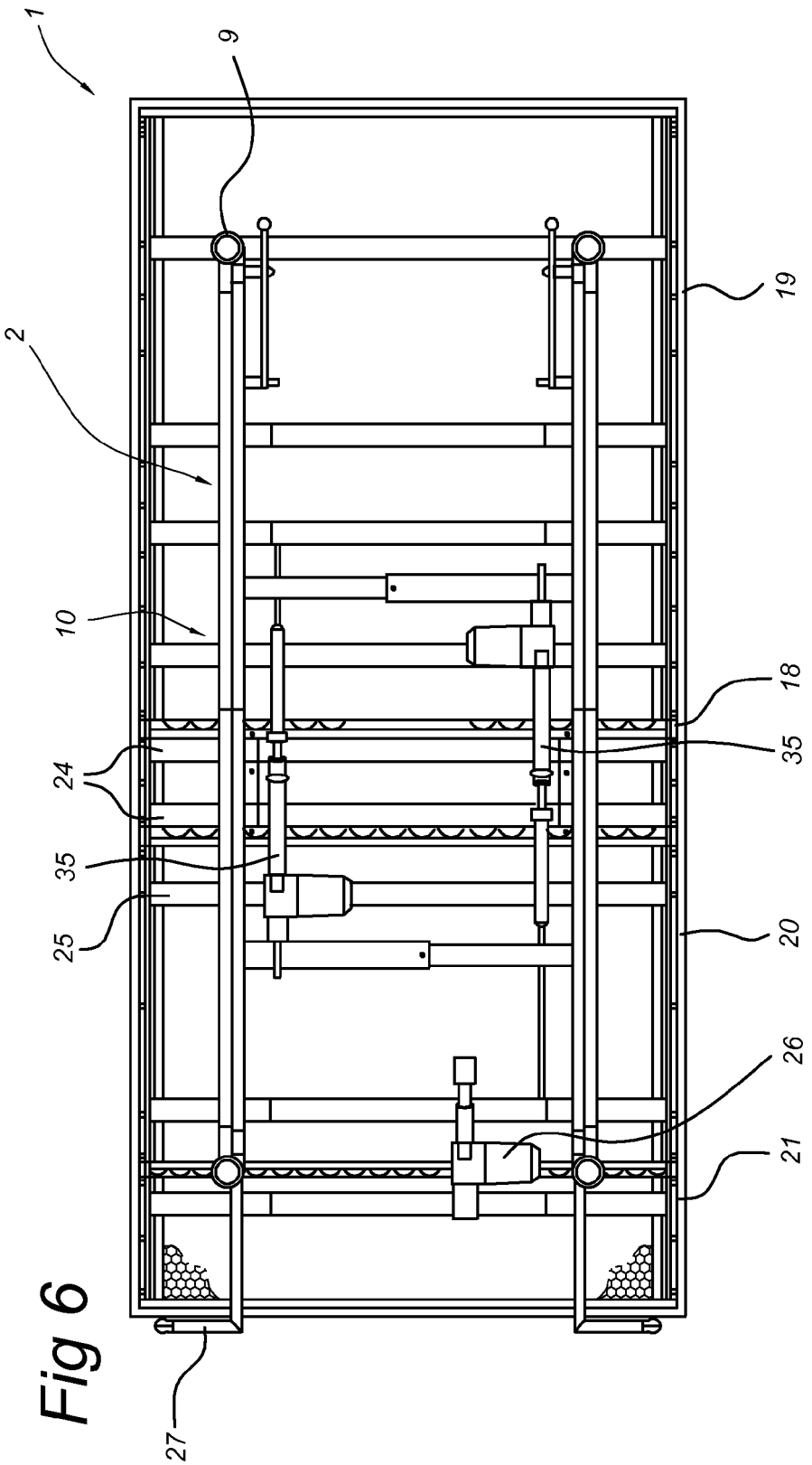
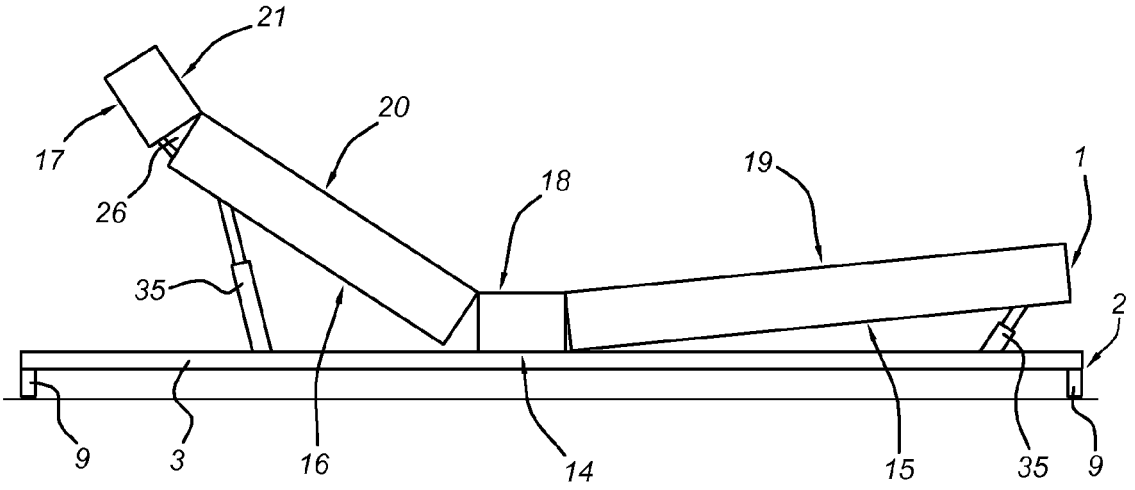


Fig 6

Fig 7



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EUROPEAN SEARCH REPORT

Application Number
EP 10 15 1040

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	BE 1 013 033 A3 (IMHOLD NV [BE]) 7 August 2001 (2001-08-07) * the whole document *	1-17	INV. A47C23/00 A47C19/04
X	US 2008/168602 A1 (DIFORIO CARL J [US]) 17 July 2008 (2008-07-17) * columns 1-4; figures 1-6 *	1-11	
X	US 5 687 437 A (GOLDSMITH AARON [US]) 18 November 1997 (1997-11-18) * columns 1-15; figures 1-8 *	1-17	
A	EP 1 774 873 A (SOMIERES MECANIZADOS GAITAN S [ES]) 18 April 2007 (2007-04-18) * the whole document *	1	
X	FR 2 525 450 A (INTERNATIONAL DISTRIBUTION AMEUBLEMENT FRANCE) 28 October 1983 (1983-10-28) * the whole document *	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	15 April 2010	Vollering, Johannes

CATEGORY OF CITED DOCUMENTS

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D : document cited in the application
L : document cited for other reasons

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