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(71) Applicant: **Metacom S.A.S. Di Mucelli Angelo & C.**
30024 Musile di Piave (VE) (IT)

(72) Inventor: **Mucelli, Angelo**
30024 Musile di Piave, VE (IT)

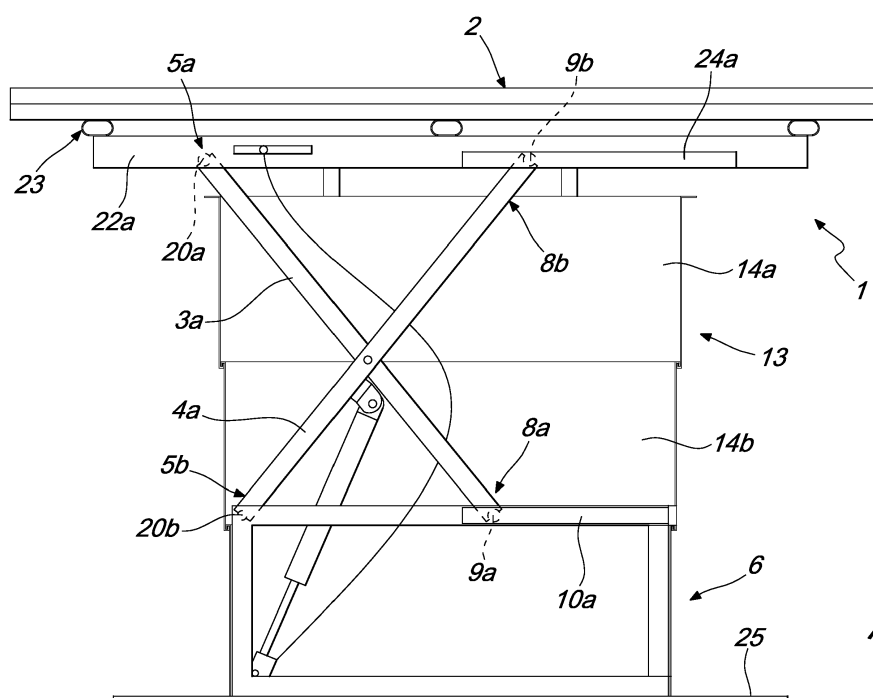
(74) Representative: **Modiano, Micaela Nadia**
Modiano & Partners (IT)
Via Meravigli, 16
20123 Milano (IT)

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(54) **Device for supporting a height-adjustable surface, particularly for tables and other surfaces to be supported and tables or surfaces thus equipped**

(57) A device for supporting a height-adjustable surface (2), particularly for tables and other surfaces to be supported, and tables or surfaces thus equipped, comprising a first pair and a second pair of legs (3a, 3b, 4a, 4b) that are configured to cross in an X-shape, characterized in that the first and second pairs of legs (3a, 3b, 4a, 4b) are, at a first end, articulated respectively in a lower region to the surface and in an upper region to a box-like frame (6) that accommodates an actuator (7)

that is connected to the second legs (4a, 4b) and, at a second end (8a), associated slidingly in an upper region to the frame (6) and in a lower region to the surface (2), below the surface there being associated a masking element (13) that can slide telescopically and is adapted to conceal temporarily the frame (6) and partially the first and second pairs of legs (3a, 3b, 4a, 4b) in the condition in which the surface (2) is raised.

*Fig. 3*

Description

[0001] The present invention relates to a device for supporting a height-adjustable surface, particularly for tables and other surfaces to be supported and tables or surfaces thus equipped.

[0002] The Italian Patent no. 1,305,725 discloses a device for supporting a height-adjustable surface, particularly for tables and other surfaces to be supported and tables or surfaces thus equipped, of the type provided by means of two mutually opposite surface supporting legs which are configured to cross in an X-shape and the lower ends of which constitute the base as ground resting feet and the upper ends of which slide in opposition in a pair of parallel mutually opposite guides, below the surface, and in which said two legs are controlled in their mutual inclination for respective opening/closing by virtue of spring means for contrasting the weight of the structure.

[0003] In this solution, the two legs configured to cross in an X-shape are controlled in an upward region in their variation of inclination, opening and closing by controlling the respective distance of their upper ends for sliding within said guides with respect to a central fixed position of the undersurface frame, where a rotating central arm or cam is rotationally pivoted and defines a substantially Z-shaped articulation with mutually opposite articulated double arm, in which the inclined portion constitutes said central arm or cam and the bases constitute the mutually opposite articulated arms.

[0004] The articulation is provided with four joints, respectively:

- two end joints of the Z-shape, which are pivoted to the top of said legs configured to cross in an X-shape;
- two intermediate joints at the elbows of said Z-shaped configuration.

[0005] The rotational pivot is located in the central arm, in a central fulcrum thereof that corresponds to the inclined portion of the Z-shape that joins said two end arms, while the rotation of the central arm is controlled by the spring means.

[0006] This solution, however, suffers severe drawbacks: the exposed arrangement of the legs forces to have, due to their dimensions, in the solution with maximum extension, a minimum size of the surface that must be equal to, or greater than, the size of the rectangle on which the legs act, in order to allow the user to move around the table without tripping.

[0007] Finally, it is noted that the legs are visible and therefore worsen considerably the overall shape of the table.

[0008] The aim of the present invention is therefore to solve the described technical problems, by eliminating the drawbacks of the cited background art and thus providing a device that allows the user to pass around the table without tripping and at the same time allows to man-

ufacture tables that have much smaller dimensions than those of the mentioned background art.

[0009] Within this aim, an object of the present invention is to obtain a device that is structurally simple, allows to achieve a good aesthetic result, has low manufacturing costs and can be provided by means of usual and known equipment.

[0010] This aim and this object, as well as others which will become better apparent hereinafter, are achieved by a device for supporting a height-adjustable surface, particularly for tables and other surfaces to be supported, and tables or surfaces thus equipped, as defined in claim 1.

[0011] Further characteristics and advantages of the invention will become better apparent from the detailed description of a particular but not exclusive embodiment, illustrated by way of nonlimiting example in the accompanying drawings, wherein:

Figure 1 is a side view of the device according to the invention in a lowered condition;

Figure 2 is a top view of the device according to the invention according to the preceding figure;

Figure 3 is a view, similar to Figure 1, of the device according to the invention in a raised condition;

Figure 4 is a top view of the device according to the invention according to the preceding figure;

Figure 5 is a front view of the device according to the invention according to the preceding figure.

[0012] In the exemplary embodiments that follow, individual characteristics, given in relation to specific examples, may actually be interchanged with other different characteristics that exist in other exemplary embodiments.

[0013] With reference to the figures, the reference numeral 1 designates an improved device for supporting a height-adjustable surface 2, particularly for tables and other surfaces to be supported and tables or surfaces thus equipped.

[0014] The structure comprises a first and a second pairs of legs 3a, 3b, 4a, 4b that are crossed in pairs in an X-shape, of which the first pair 3a, 3b is arranged inside the second pair 4a, 4b.

[0015] The first and second pairs of legs 3a, 3b, 4a, 4b are articulated respectively at a first end 5a, 5b, by means of an adapted first shaft 20a, in a lower region to said surface 2 and, by means of an adapted second shaft 20b, in an upper region to a box-like frame 6, which is substantially shaped like a parallelepiped and accommodates an actuator 7 that is connected to the second legs 4a, 4b.

[0016] The first shaft 20a is arranged transversely to a pair of first longitudinal members 22a, 22b that are integral with an overlying supporting structure 23 for the surface 2.

[0017] The first pair of legs 3a, 3b is associated slidably, at a second end 8a, by means of an adapted third

shaft 9a, above the frame 6, the third shaft 9a acting within an adapted pair of first guides 10a, 10b provided proximate to the upper perimetric edges 11a, 11b of the frame 6.

[0018] The second pair of legs 4a, 4b is, at a second end 8b, in a downward region, associated slidingly by means of an adapted fourth shaft 9b, with the surface 2 the fourth shaft 9b acting within an adapted pair of second guides 24a, 24b provided at the inner lateral perimetric edges 12a, 12b of the pair of first longitudinal members 22a, 22b.

[0019] A movable masking element 13 is associated below the pair of first longitudinal members 22a, 22b and is composed of a plurality of box-like partitions, which in the particular illustrated embodiment are two in number and are designated by the numerals 14a, 14b.

[0020] Each one of the partitions 14a, 14b is open upwardly and downwardly and the partitions are mutually coupled slidingly and telescopically.

[0021] The size of the partitions 14a, 14b is such that in the condition in which the table is fully raised they conceal the frame 2 and part of the pairs of first and second legs 3a, 3b, 3c, 3d, the partition 14b arranging itself with the lower end so as to cover slightly said frame 2.

[0022] In the condition in which the surface is lowered, the partitions are mutually packed so as to conceal completely or partially from view the frame 2 and part of the pairs of first and second legs 3a, 3b, 3c, 3d.

[0023] Advantageously, the frame 6 acts on a footing 25 of appropriate size.

[0024] In practice it has been found that the invention has achieved the aim and objects mentioned above, a solution having been obtained which allows the user to pass easily around the table without the possibility of tripping.

[0025] Moreover, this solution allows to provide tables that are much smaller than those of the mentioned background art.

[0026] Obviously, the materials used and the dimensions that constitute individual components of the invention may be more pertinent according to the specific requirements.

[0027] The various means for performing certain different functions need not certainly coexist only in the illustrated embodiment but can be present per se in many embodiments, including ones that are not illustrated.

[0028] The characteristics indicated as advantageous, convenient or the like may also be omitted or be replaced with equivalents.

[0029] The disclosures in Italian Utility Model Application No. TV2013U000030 from which this application claims priority are incorporated herein by reference.

[0030] Where technical features mentioned in any claim are followed by reference signs, those reference signs have been included for the sole purpose of increasing the intelligibility of the claims and accordingly such reference signs do not have any limiting effect on the interpretation of each element identified by way of exam-

ple by such reference signs.

Claims

1. A device for supporting a height-adjustable surface (2), particularly for tables and other surfaces to be supported, and tables or surfaces thus equipped, comprising a first pair and a second pair of legs (3a, 3b, 4a, 4b) that are configured to cross in an X-shape, **characterized in that** said first and second pairs of legs (3a, 3b, 4a, 4b) are, at a first end, articulated respectively in a lower region to said surface and in an upper region to a box-like frame (6) that accommodates an actuator (7) that is connected to said second legs (4a, 4b) and, at a second end (8a), associated slidingly in an upper region to said frame (6) and in a lower region to said surface (2), below said surface there being associated a masking element (13) that can slide telescopically and is adapted to conceal temporarily said frame (6) and partially said first and second pairs of legs (3a, 3b, 4a, 4b) in the condition in which the surface (2) is raised.
2. The device according to claim 1, **characterized in that** the first pair of legs (3a, 3b) are arranged inside said second pair of legs (4a, 4b), said first and second pairs of legs (3a, 3b, 4a, 4b) being respectively articulated at said first end (5a, 5b), by means of a first shaft (20a), below said surface (2) and, by means of a second shaft (20b), above the box-like frame (6), which is substantially shaped like a parallelepiped.
3. The device according to claim 2, **characterized in that** said first shaft (20a) is arranged transversely to a pair of first longitudinal members (22a, 22b) that are integral with an overlying supporting structure (23) for the surface (2).
4. The device according to claim 3, **characterized in that** said first pair of legs (3a, 3b) is associated slidingly, at the second end (8a), by means of a third shaft (9a), above said frame (6), said third shaft (9a) acting within a pair of first guides (10a, 10b) provided proximate to the upper perimetric edges (11a, 11b) of said frame (6) that acts on a footing (25).
5. The device according to claim 4, **characterized in that** said second pair of legs (4a, 4b) is, at a second end (8b), associated slidingly in a lower region, by means of a fourth shaft (9b), with said surface (2), said fourth shaft (9b) acting within a pair of second guides (24a, 24b) provided at inner lateral perimetric edges (12a, 12b) of said pair of first longitudinal members (22a, 22b).
6. The device according to claim 3, **characterized in**

that a movable masking element (13) is associated below said pair of first longitudinal members (22a, 22b) and is composed of a plurality of box-like partitions.

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7. The device according to claim 1, **characterized in that** it comprises two partitions (14a, 14b), each of which is open upwardly and downwardly, said partitions being mutually coupled slidingly and telescopically, the size of said partitions (14a, 14b) being such that they conceal said frame (2) and part of said pairs of first and second legs (3a, 3b, 3c, 3d) in the condition in which the table is fully raised, the partition (14b) being arranged with its lower end so as to cover slightly said frame (2).

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8. The device according to claim 7, **characterized in that** in the condition in which the surface is lowered said partitions (14a, 14b) are packed together so as to conceal completely or partially from view said frame (2) and part of said pairs of first and second legs (3a, 3b, 3c, 3d).

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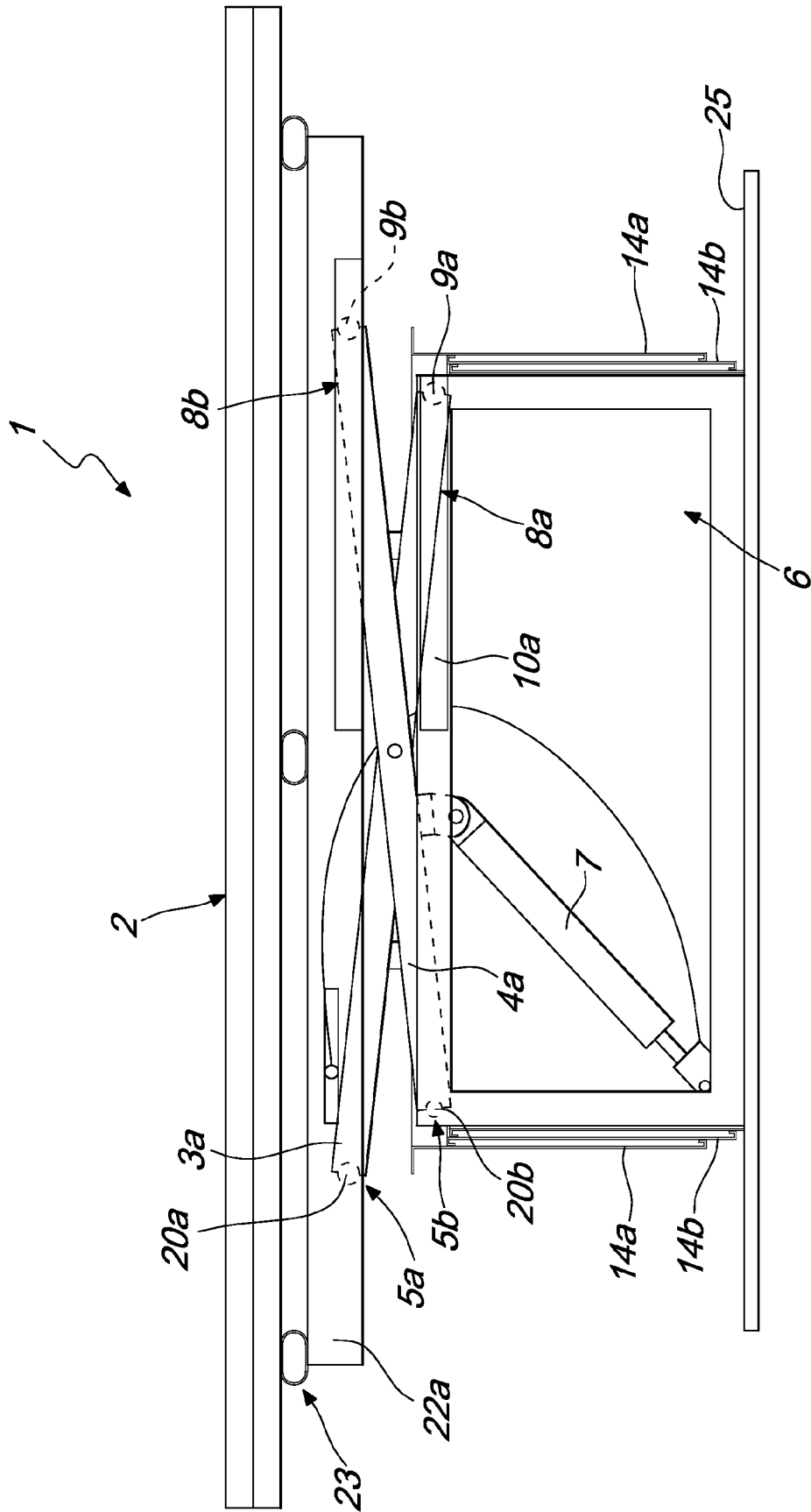
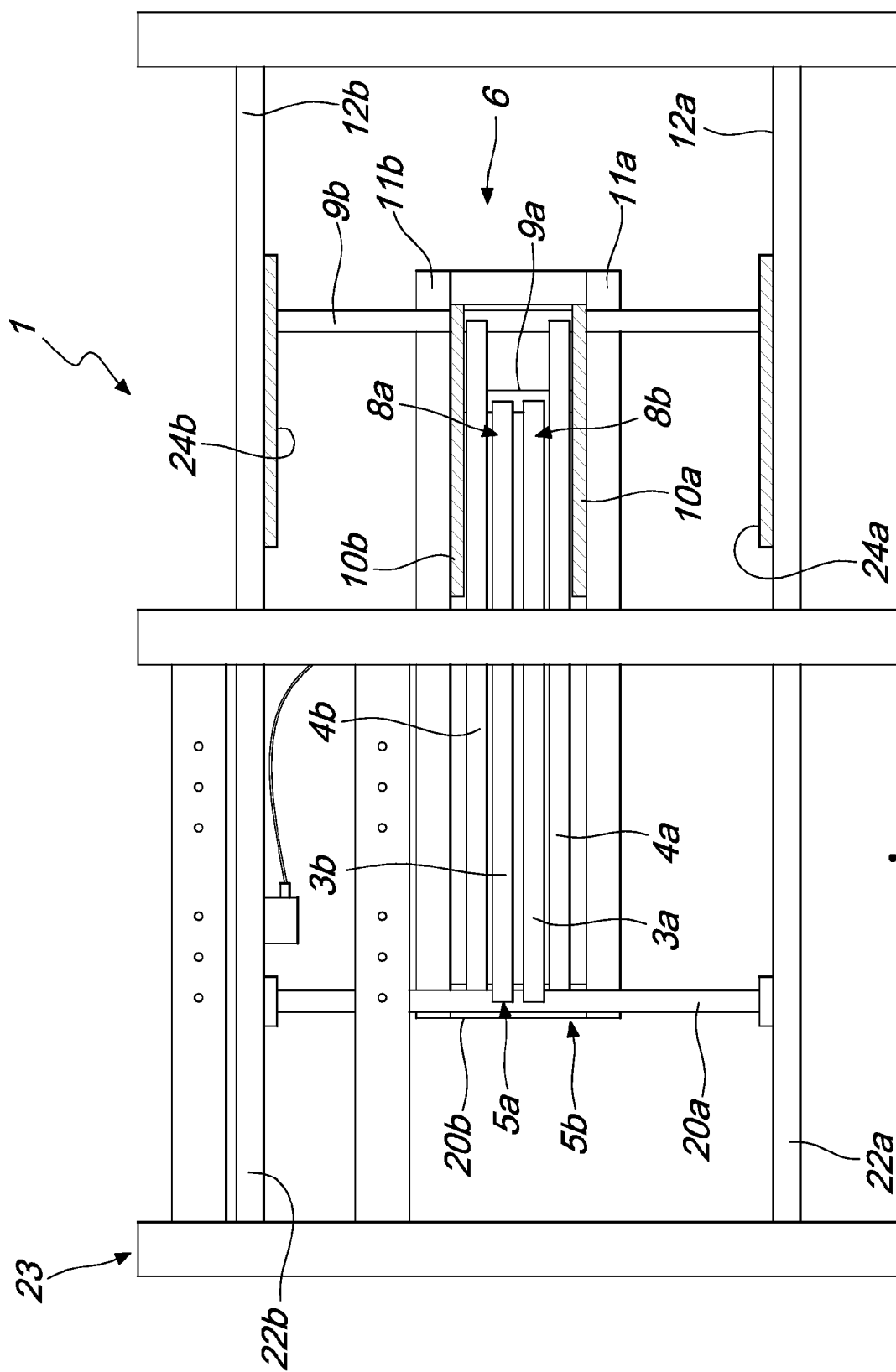


Fig. 1



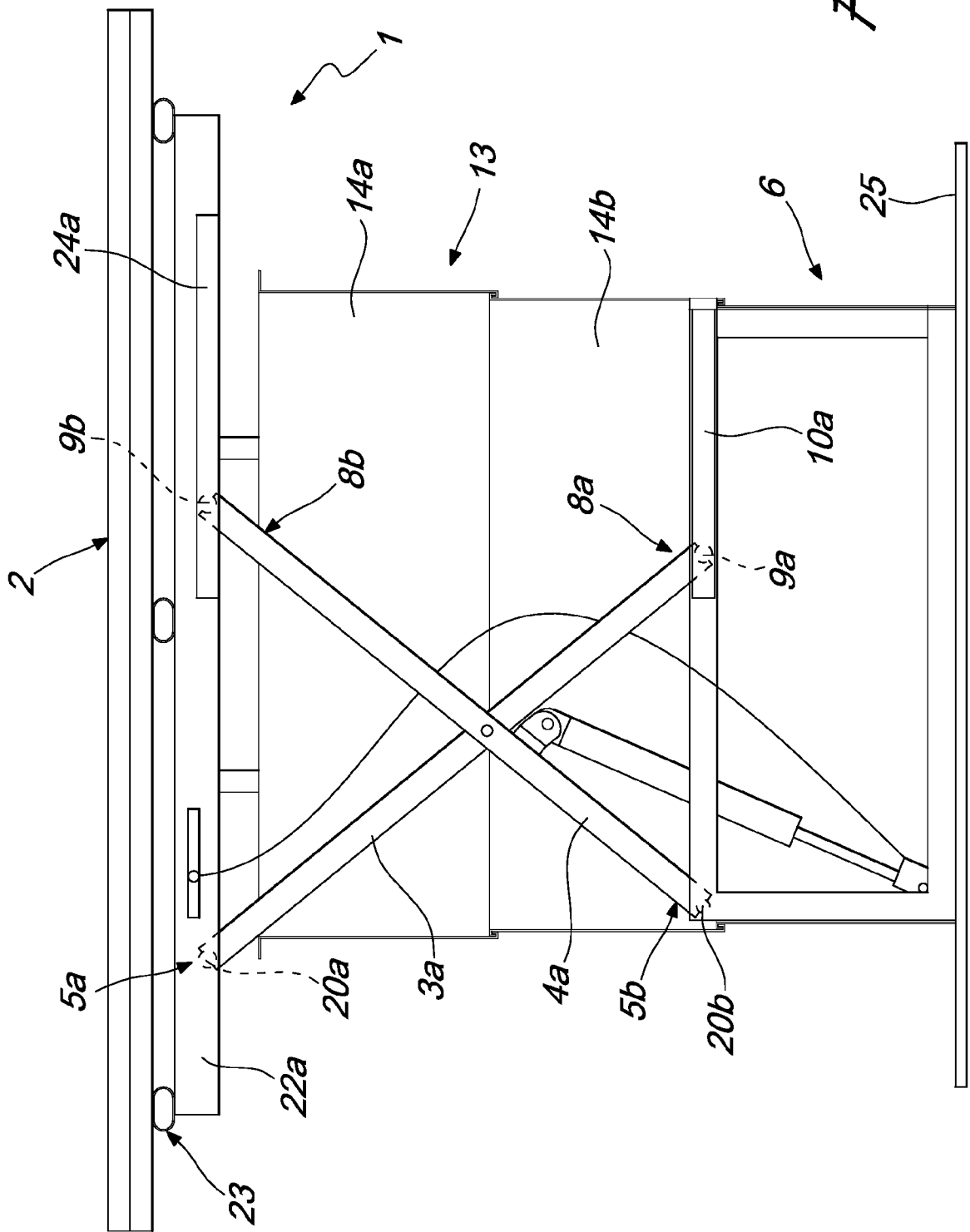


Fig. 3

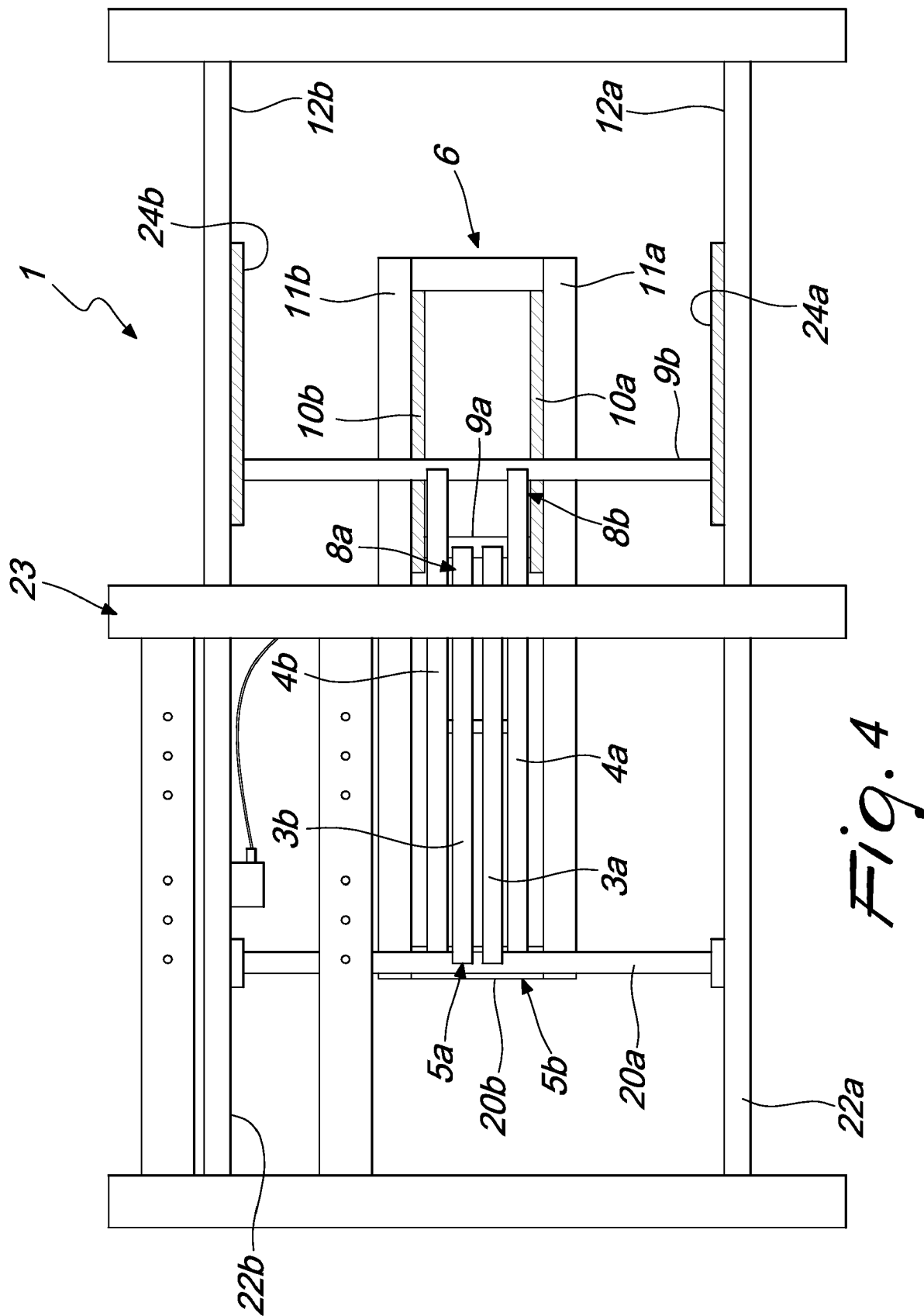


Fig. 4

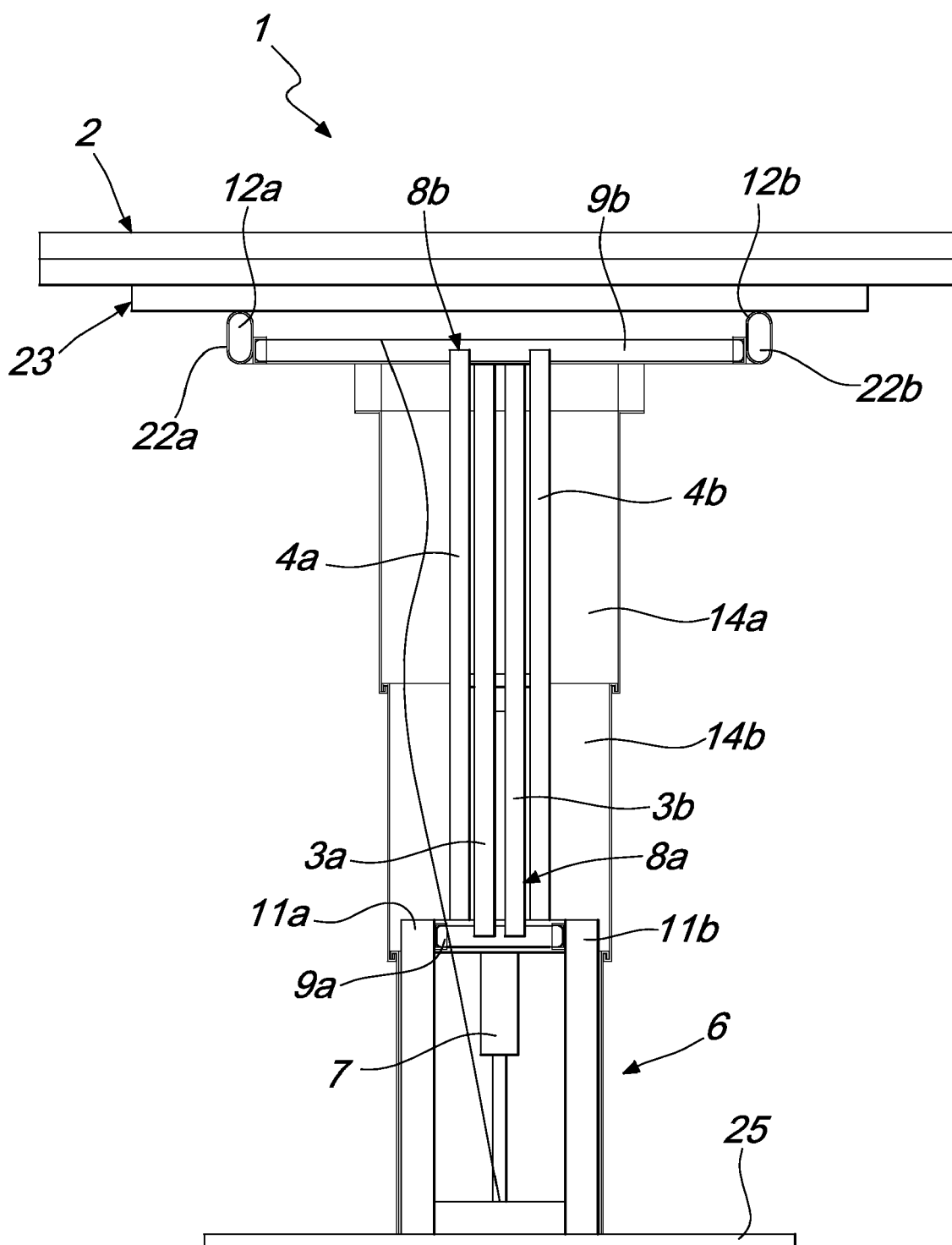


Fig. 5



EUROPEAN SEARCH REPORT

Application Number
EP 14 17 2927

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
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Y	* abstract; figures 1-10 *	4-6	
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			TECHNICAL FIELDS SEARCHED (IPC)
			A47B B66F
The present search report has been drawn up for all claims			
Place of search The Hague		Date of completion of the search 4 December 2014	Examiner Vehrer, Zsolt
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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EPO FORM 1503 03.82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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EP 14 17 2927

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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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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