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(71) Applicant: **R.G. S.r.l.**
22050 Perego (Lecco) (IT)

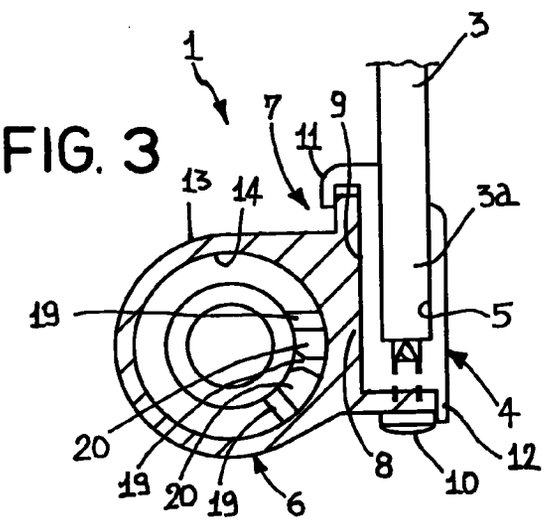
(72) Inventor: **Giussani, Roberto**
22053 Costa Masnaga (Lecco) (IT)

(74) Representative: **Sutto, Luca**
Bugnion S.p.A.,
Via Carlo Farini 81
20159 Milano (IT)

(54) Hinging device in particular for covering elements of cooking surfaces

(57) A hinging device is disclosed, in particular for covering elements of cooking surfaces, which comprises a support body (4) consisting of a U-shaped section member and defining a first housing seating (5) adapted to receive a perimetric edge (3a) of a covering element (3), and a pivoting member interposed between the support body (4) and the cooking surface. The pivoting member is provided with a grip portion (8) to be inserted into a second longitudinal seating (9) defined on the support body (4), at a plurality of operating positions.

FIG. 3



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Description

The present invention relates to a hinging device, in particular to be used for oscillatably linking a covering element to a cooking surface.

Obviously, the device in reference can be commonly employed each time it is necessary to hinge an element of substantially flat conformation at a fixed structure.

It is known that, reference being made by way of example to kitchen ranges or stoves for domestic use, the cooking surfaces currently utilized are provided with a covering element, made of glass or metal for example, or another appropriate material, which is oscillatably movable between a first operating position in which it is disposed parallelly over the cooking surface, and a second operating position in which it is disposed perpendicularly to the cooking surface to enable free access to cookers.

For the purpose of ensuring the above described oscillatory movement, hinging devices are presently employed that are operatively interposed between a perimetric edge of the covering element and an attachment portion of the cooking surface usually situated at a rear region of said cooking surface.

In more detail, traditional hinging devices are comprised of a tubular body arranged to extend along the perimetric edge of the covering element and having a longitudinal housing adapted to receive said lower edge in engagement. Inserted at the end of the tubular body, at both ends thereof and torsionally linked thereto, is a casing arranged to receive a rotating pin which is then fastened, by means of a small metal base for example, to the corresponding attachment region arranged on the cooking surface.

Also operatively interposed between the pin and casing is then a torsion or compression spring of such a stiffness that a predetermined return force of the covering element towards its second operating position perpendicular to the cooking surface is ensured.

Although traditional hinging devices briefly described above are widely used, they however have some drawbacks and operating limits.

It is in fact to point out that, taking into account the structural conformation of the described hinging devices and, in particular, the presence of the tubular body, the actual hinging points can be located exclusively at the ends of the tubular body itself and not at intermediate regions of the latter, for example. As a result of this, traditional hinging devices are practically unable to adapt themselves to all possible sizes of the cooking surfaces that, obviously, can have attachment regions for the hinging device differently spaced apart depending on the various models.

In this connection it is to note that the only way for varying the distance between the hinging points is that of milling the tubular body at the end so as to adapt sizes thereof to the different requirements, as they occur.

However, this involves an additional working operation and a non-negligible material waste that can have a rather important percent incidence on the overall cost of the hinging device, due to the fact that the tubular body is usually made of a metal material, and preferably aluminium.

A further adverse aspect of traditional hinging devices is the great structural weight and bulkiness that these devices have, mainly due to the presence of said tubular body.

Under this situation, the main object of the present invention is to overcome all drawbacks and operating limits mentioned above by providing a hinging device that is such shaped that easy adjustment of the position of the hinging points is made possible, while at the same time being of great structural simplicity and, as a result, of easy accomplishment at greatly contained production costs as compared with traditional devices.

The foregoing and further objects that will become more apparent in the progress of the following description are substantially achieved by a hinging device in accordance with the description set forth in the appended claims.

Further features and advantages will be best understood from the detailed description of a preferred but non-exclusive embodiment of a hinging device in particular for covering elements of cooking surfaces in accordance with the present invention. This description is given hereinafter by way of non-limiting example, with reference to the accompanying drawings in which:

- Fig. 1 is a fragmentary side view relating to a cooking surface with which a covering element is rotatably associated by a hinging device in accordance with the present invention;
- Fig. 2 is an exploded view of the hinging device in accordance with the invention;
- Fig. 3 is a sectional view taken along line III-III in Fig. 2;
- Fig. 4 is a sectional view taken along line IV-IV in Fig. 2; and
- Fig. 5 is a fragmentary front view showing a cooking surface with which a covering element is rotatably associated by the hinging device in accordance with the invention.

With reference to the accompanying drawings, a hinging device in particular for covering elements of cooking surfaces in accordance with the present invention has been generally identified by reference numeral 1.

As shown in particular in Figs. 1 and 5, the hinging device 1 is operatively interposed between a cooking surface 2 and a covering element 3 that in this case has a planar conformation and can be made of glass, metal material or another appropriate material.

The hinging device 1 ensures an oscillatory move-

ment of the covering element 3 relative to the cooking surface 2 and, in more detail, enables the covering element to be moved from a first operating position, in which this covering element is disposed parallelly over the cooking surface, to a second operating position in which the covering element 3 is disposed at right angles to the cooking surface to enable access to cookers as shown in Figs. 1 and 5.

More specifically, the hinging device 1 comprises a support body 4 having at least one first housing seating 5 to receive a perimetric edge 3a of the covering element 3 in engagement. As clearly shown in Figs. 1 and 3, the first seating 3a extends longitudinally along the support body 4. During the assembling step, to conveniently link the covering element 3 to the support body 4, a predetermined amount of adhesive material, silicone material for example, is usually interposed between seating 5 and the perimetric edge 3a, so as to create the desired connection.

The hinging device 1 further comprises a pivoting member, generally denoted by 6, which is operatively interposed between the support body 4 and an attachment portion 2a of the cooking surface 2.

Advantageously, interconnection means 7 is provided for removable engagement of the pivoting member 6 along the support body 4 at a plurality of operating positions.

More specifically and preferably, said interconnection means 7 comprises a grip portion 8 associated with the pivoting member 6 and a second housing seating 9 defined longitudinally on said support body and the shape of which substantially matches that of the attachment portion.

The interconnection means further comprises a locking element 10, consisting for example of a conventional threaded element, movable between an operating condition (shown in Fig. 3), in which fastening of the attachment portion 8 to said second seating 9 occurs, and a rest position in which disengagement of the attachment portion from said second seating is enabled.

The second seating 9 is in particular defined by longitudinal ribs 11 and 12 emerging from an outer wall of the support body 4. From a manufacturing point of view it is pointed out that the support body 4 is made of a substantially U-shaped section member preferably of aluminium, so as to form said first housing seating, and is provided with said ribs 11 and 12 so as to define the second housing seating 9.

Usually, in order to conveniently link the covering element 3 to the cooking surface, two pivoting members 6 are provided which engage the support body at a predetermined distance from each other. Advantageously, due to the type of coupling between the pivoting members 6 and support body 4, members 6 can be engaged at any position along the longitudinal extension of the second housing seating 9, thereby adapting the device 1 to the operating requirements that may occur each time.

Preferably, each of the pivoting members comprises a tubular casing 13 rigidly carrying the grip portion 8 and internally defining a work cavity 14 into which a rotating pin 15 is operatively inserted, said pin having an end portion 15a to be linked to the attachment portion 2a of the cooking surface, by means of a small base 16 for example. As clearly shown in the exploded view in Fig. 2, the small base 16 is provided with a horizontal portion 16a to be linked to the cooking surface and a vertical extension 16b which is fitted into the end portion 15a of the rotating pin 15 and can be locked by means of a threaded member 17, for example.

The hinging device 1 further comprises a spring member 18 operatively interposed between pin 15 and the work cavity 14.

In particular, the spring member 18 is a torsion spring having one end 18a in engagement with the rotating pin 15 and the other end in engagement with the tubular casing 13. It is also to note that the tubular casing 13 at the work cavity 14 comprises a predetermined number of ridges 19 defining corresponding engagement seats 20 for the second end 18b of the torsion spring 18. In this way, during the assembling step, elastic preloading of the torsion spring can be adjusted depending on the weight of the covering element 3. It is finally to note that a stop element 21 is also provided which consists of a conventional threaded element as well, arranged to mutually lock the rotating pin and tubular casing in an axial direction, so as to avoid disassembling thereof and, as a result, prevent the spring from coming out each time the pivoting member 6 is wished to be moved along the seating 9 or when the whole Ringing device is for example required to be disassembled for carrying out maintenance, cleaning or other operations.

The invention achieves important advantages.

First of all it is to point out that by virtue of the hinging device 1 all drawbacks typical of traditional devices are substantially overcome.

Actually, it is to point out that the hinging points can be easily moved without requiring any additional working operation, in that it is sufficient to loosen the locking element 10 and subsequently let the pivoting member 6 run along the second receiving housing 9 until the desired operating position is achieved.

In other words, the hinging device in accordance with the present invention can be easily adapted to any and every cooking surface, independently of the position of the attachment portions 2a arranged thereon.

It is also to note that, since a cutting operation is to be carried out on the support body 4, in order to adapt length thereof to the sizes of the cooking surface for example, the waste material thus generated is minimum and in any case greatly lower than in the devices of the traditional type because the support body in accordance with the invention is made of a mere U-shaped section member. In addition, this operation is very quick

and can be carried out at very reduced operating costs.

It is also to point out that the whole structure of the device in accordance with the invention is very simple and therefore does not involve high manufacturing costs and particular assembling difficulties.

It will be finally recognized that, due to the presence of ridges 19 and consequently seats 20 in the tubular casing 13, a predetermined number of preloading conditions of spring 18 can be provided so as to adapt the elastic reaction exerted by said spring to the different covering elements that can be used each time.

Provision of the axial stop element 21 between the pin and tubular casing is also advantageous because in this manner any tampering or removal of the mechanism adapted to balance the covering element 3 is made impossible.

Obviously, many modifications and variations can be made to the invention as conceived, all of them falling within the scope of the inventive idea characterizing it.

Claims

1. A hinging device in particular for covering elements of cooking surfaces, comprising:

   - a support body (4) having at least one first housing seating (5) to receive a perimetric edge (3a) of a covering element (3) of a cooking surface (2), in engagement;
   - at least one pivoting member (6) operatively interposed between the support body (4) and an attachment portion (2a) of the cooking surface (2), characterized in that it further comprises interconnection means (7) for removable engagement of said pivoting member (6) along said support body (4) at a plurality of operating positions.

2. A hinging device as claimed in claim 1, characterized in that the interconnection means (7) comprises:

   - a grip portion (8) associated with said pivoting member;
   - a second housing seating (9) longitudinally defined on said support body (4) and the shape of which matches that of the attachment portion (2a); and
   - a locking element (10) movable between an operating condition in which fastening of the attachment portion (2a) to the inside of said second seating (9) occurs, and a rest position, in which disengagement of the attachment portion from said second seating is enabled.

3. A hinging device as claimed in claim 1, characterized in that said first seating (5) extends longitudinally along said support body (4).

4. A hinging device as claimed in claim 2, characterized in that said second seating (9) is defined by longitudinal ribs (11, 12) emerging from an outer wall of the support body (4).

5. A hinging device as claimed in claim 1, characterized in that it comprises two of said pivoting members (6) removably in engagement with the support body at a predetermined distance from each other.

6. A hinging device as claimed in claim 2, characterized in that each pivoting member (6) comprises:

   - a tubular casing (13) rigidly carrying the grip portion (8) and defining a work cavity (14) at the inside thereof;
   - a rotating pin (15) engaged in said work cavity and having an end portion (15a) to be linked to an attachment portion (2a) of the cooking surface (2); and
   - a spring member (18) operatively interposed between said pin and said work cavity.

7. A hinging device as claimed in claim 6, characterized in that said spring member (18) comprises a torsion spring having one end (18a) engaging said rotating pin (15) and a second end (18b) engaging said tubular casing.

8. A hinging device as claimed in claim 7, characterized in that said tubular casing (13) at said work cavity (14) comprises a predetermined number of ridges (19) defining corresponding engagement seats (20) for the second end (18b) of said torsion spring (18).

9. A hinging device as claimed in claim 6, characterized in that the end portion (15a) of said rotating pin can be removably engaged with a small fastening base (16) associated with the respective attachment portion of the cooking surface.

10. A hinging device as claimed in claim 6, characterized in that it comprises a stop member (21) arranged to mutually lock the rotating pin and tubular casing in an axial direction.

11. A hinging device as claimed in claim 2, characterized in that said support body (4) is defined by a substantially U-shaped section member for defining the first housing seating (5) and is also provided with longitudinal ribs (11, 12) for defining the second housing seating (9).

FIG. 1

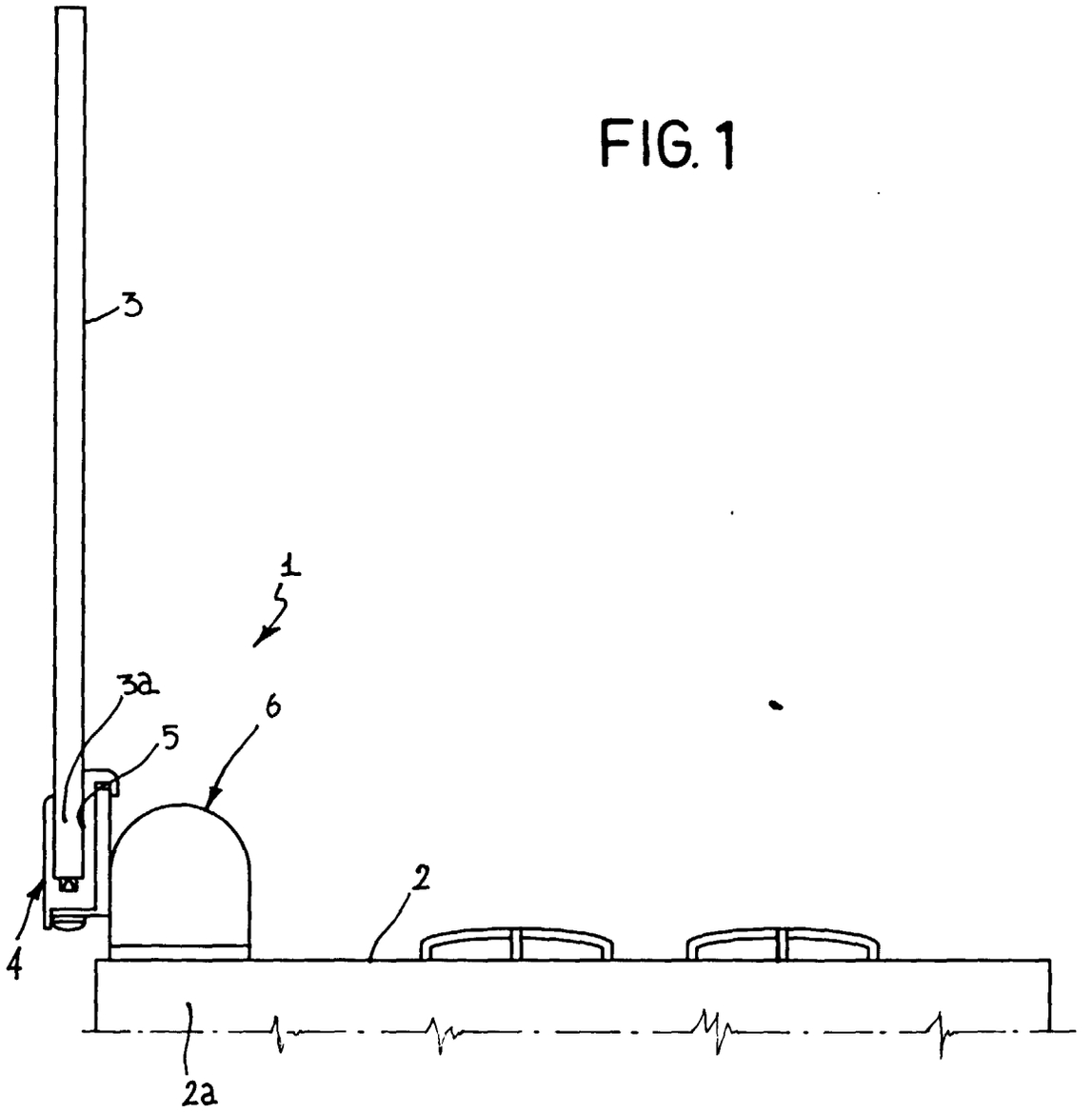
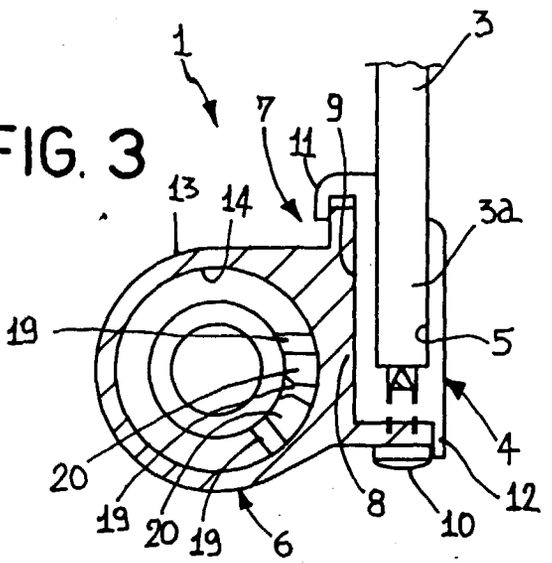


FIG. 3



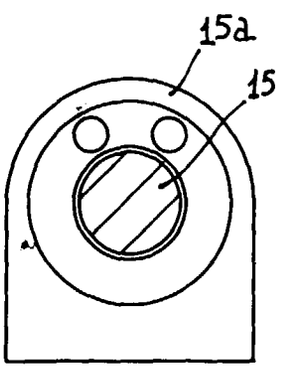


FIG. 4

FIG.2

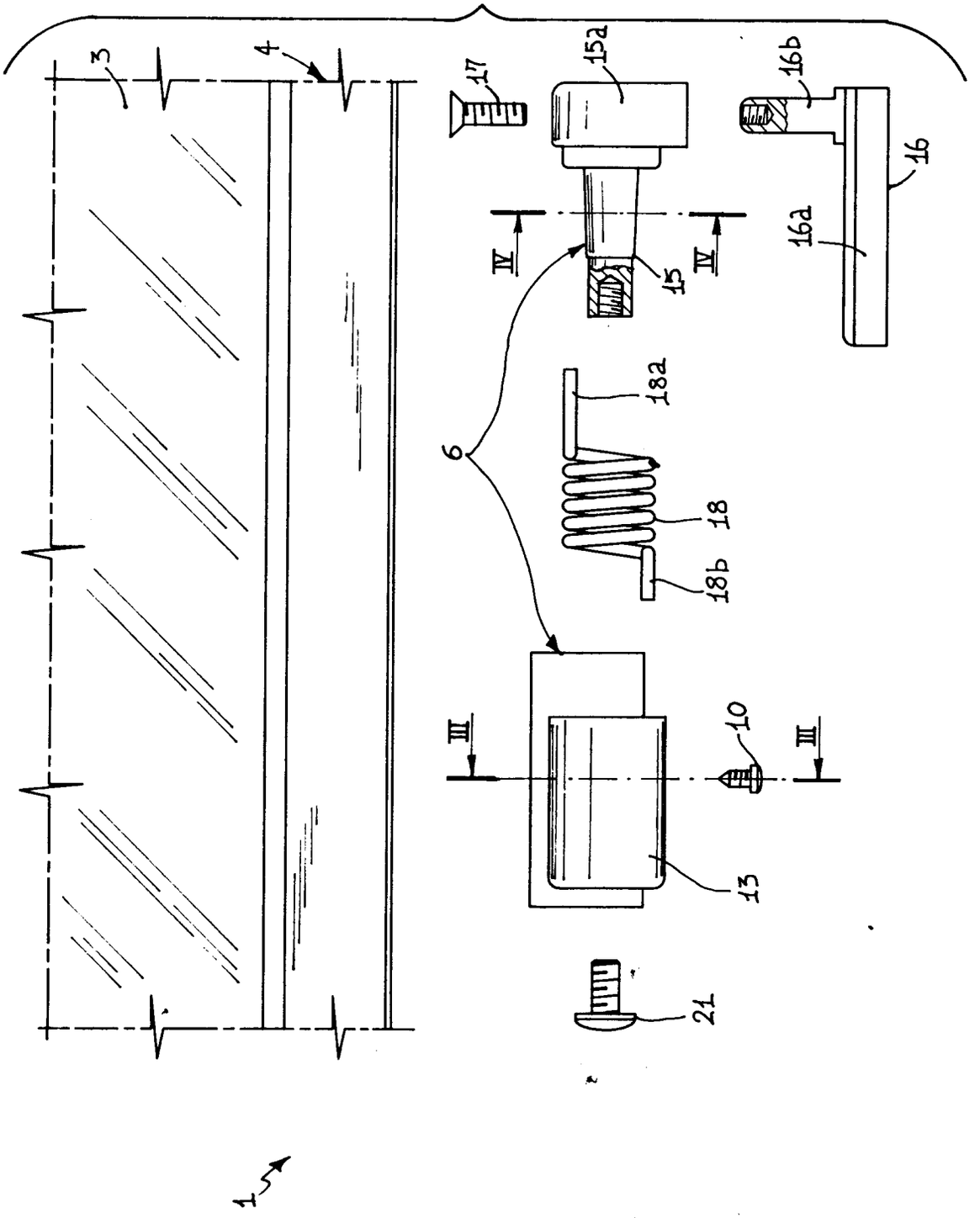
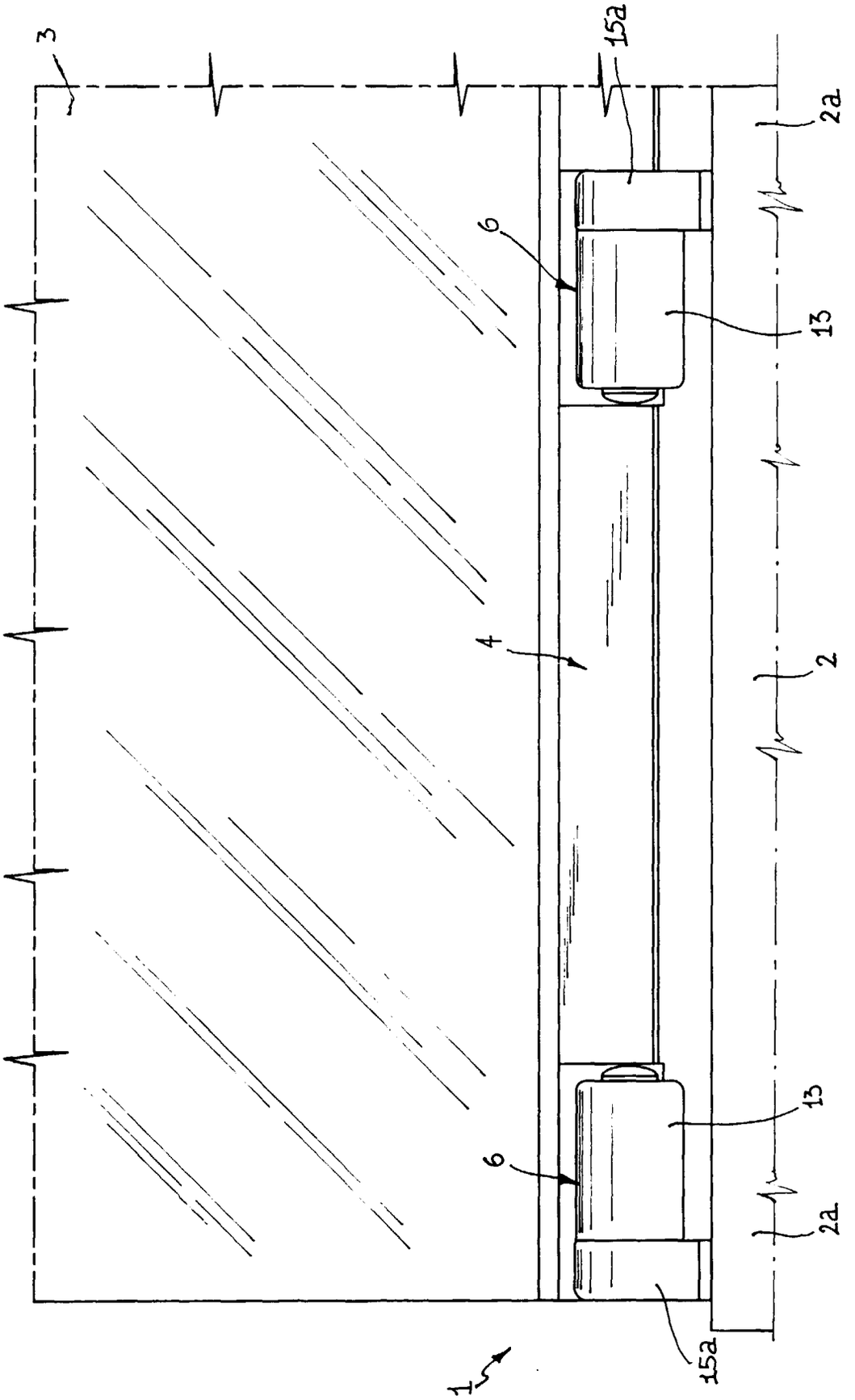


FIG. 5



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EUROPEAN SEARCH REPORT

Application Number
EP 97 83 0389

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X Y	FR 2 203 417 A (WILH. FRANK) * page 6, line 4 - page 9, line 8; claim 1; figures 1,2 *	1-4,11 6,7,9,10	E05D5/02 E05F1/12
Y	FR 455 409 A (BOTTEMAN & FAGES) * page 1, line 27 - line 62 * * page 2, line 8 - line 13; figures 1,2 *	6,7,9,10	
A	US 1 586 615 A (ELLIOTT) * page 1, line 37 - line 41; figures 1,2 *	8	
A	DE 15 84 210 A (SOCIETE ARMETAL) * column 2, line 55 - column 3, line 20; figures 2,3 *	9	

TECHNICAL FIELDS SEARCHED (Int.Cl.6)

E05D
E05F

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	12 January 1998	Guillaume, G

CATEGORY OF CITED DOCUMENTS

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