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

Scharniervorrichtung, insbesondere für Kochflächendeckel

Dispositif de charnière, en particulier pour couvercles de surfaces de cuisson

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Description

[0001] The present invention relates to a hinging device, in particular to be used for oscillatably linking a covering element to a cooking surface.

[0002] 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.

[0003] 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.

[0004] 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.

[0005] 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.

[0006] 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.

[0007] Although traditional hinging devices briefly described above are widely used, they however have some drawbacks and operating limits.

[0008] 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.

[0009] 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 oc-

cur.

[0010] 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.

[0011] 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.

[0012] From document FR-A-2203417 is known a hinging device having the features of the preamble of claim 1. This hinging device for doors or windows comprises a support body connected to a perimetric edge of a window frame and a pivoting member formed by a tubular casing receiving inside a rotating pin and vertically supported by a new shaped element which, on its turn, is connected to a fixed structure. The tubular body is connected to the support body by means of a grip portion which matches an anchoring portion of the window frame. A grip portion and the anchoring portion are connected the one with the other by means of a screw between the grip portion and the anchoring portion.

[0013] 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.

[0014] 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.

[0015] 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.

[0016] 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.

[0017] 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.

[0018] The hinging device 1 ensures an oscillatory movement 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.

[0019] 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.

[0020] 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.

[0021] Interconnection means 7 is provided for removable engagement of the pivoting member 6 along the support body 4 at a plurality of operating positions.

[0022] More specifically 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.

[0023] 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.

[0024] 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.

[0025] 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.

[0026] 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 fastening base 16. 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.

[0027] The hinging device 1 further comprises a spring member 18 operatively interposed between pin 15 and the work cavity 14.

[0028] 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 hinging device is for example required to be disassembled for carrying out maintenance, cleaning or other operations.

[0029] The invention achieves important advantages.

[0030] 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.

[0031] 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.

[0032] 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.

[0033] 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.

[0034] 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.

[0035] 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.

[0036] 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.

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) adapted to be operatively interposed between the support body (4) and an attachment portion (2a) of the cooking surface (2), the pivoting member (6) having a tubular casing (13) which defines a work cavity (14) at the inside thereof and a rotating pin (15) engaged in said work cavity (14) and having an end portion (15a) adapted to be removably engaged with the attachment portion (2a) of the cooking surface;

interconnection means (7) for removable engagement of said pivoting member (6) along said support body (4) at a plurality of operating positions, said interconnection means (7) including:

- a grip portion (8) rigidly carried by said tubular casing (13);
- a second housing seating (9) longitudinally defined on said support body (4) and the shape of which matches that of the grip portion (8); and

- a locking element (10) movable between an operating condition in which fastening of the grip portion to the inside of said second seating (9) occurs, and a rest position, in which disengagement of the grip portion from said second seating is enabled,

characterized by the fact that the pivoting member further comprises a spring member operatively interposed between the pin (15) and the work cavity (14) and a stop member (21) for mutually locking the rotating pin (15) and the tubular casing (13) in an axial direction, and by the fact that the device further comprises a small fastening base (16) provided with a horizontal portion (16a) to be linked with said attachment portion (2a) and a vertical extension (16b) fitted into the said end portion (15a), the latter being able to be linked with the vertical extension (16b) by means of a threaded member (17).

2. A hinging device as claimed in claim 1, characterized in that said first seating (5) extends longitudinally along said support body (4).
3. A hinging device as claimed in claim 1, characterized in that said second seating (9) is defined by longitudinal ribs (11, 12) emerging from an outer wall of the support body (4).
4. 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 (4) at a predetermined distance from each other.
5. A hinging device as claimed in claim 1, 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 (13).
6. A hinging device as claimed in claim 5, 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).
7. A hinging device as claimed in claim 1, characterized in that the end portion (15a) of said rotating pin can be removably engaged with the small fastening base (16) adapted to be associated with the respective attachment portion of the cooking surface.
8. 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).

Patentansprüche

1. Scharniervorrichtung, insbesondere für Kochflächendeckel, umfassend:

- einen Stützkörper (4) mit mindestens einer ersten Aufnahme (5) für den Eingriff eines Umfangsrandes (3a) eines Deckelelementes (3) einer Kochfläche (2),
- mindestens ein Scharnierorgan (6) zur wirksamen Zwischenschaltung zwischen dem Stützkörper (4) und einem Anschlußabschnitt (2a) der Kochfläche (2), wobei das Scharnierorgan (6) ein Rohrgehäuse (13), das in seinem Inneren einen Arbeitsraum (14) festlegt, und einen Drehbolzen (15) besitzt, der im Arbeitsraum (14) in Eingriff steht und einen Endabschnitt (15a) aufweist, der am Anschlußabschnitt (2a) der Kochfläche abnehmbar in Eingriff gebracht werden kann;
- Verbindungsmittel (7) zum abnehmbaren Eingriff des Scharnierorgans (6) längs des Stützkörpers (4) im Bereich einer Vielzahl von Arbeitsstellungen, wobei die Verbindungsmittel (7) umfassen:
 - einen starr vom Rohrgehäuse (13) getragenen Greifabschnitt (8);
 - eine zweite Aufnahme (9), die in Längsrichtung am Stützkörper (4) festgelegt ist und zum Greifabschnitt (8) gegen profiliert ist; und
 - ein Spannelement (10), das zwischen einer Arbeitsstellung, in der die Befestigung des Greifabschnittes innerhalb der zweiten Aufnahme (9) erfolgt, und einer Ruhestellung verstellbar ist, in der die Freigabe des Greifabschnittes von der zweiten Aufnahme ermöglicht ist,

dadurch gekennzeichnet, daß das Scharnierorgan überdies ein wirksam zwischen dem Bolzen (15) und dem Arbeitsraum (14) geschaltetes Federorgan und ein Arretierorgan (21) umfaßt, um den Drehbolzen (15) und das Rohrgehäuse (13) gegenseitig in axialer Richtung zu spannen, und dadurch, daß die Vorrichtung überdies eine Befestigungsbasis (16) umfaßt, die einen am Anschlußabschnitt (2a) ansetzbaren, horizontalen Abschnitt (16a) und einen vertikalen Fortsatz (16b) umfaßt, der im Endabschnitt (15a) eingebracht ist, wobei dieser letztere am vertikalen Fortsatz (16b) über ein Gewindeorgan (17) befestigbar ist.

2. Scharniervorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß die erste Aufnahme (5) sich in Längsrichtung längs des Stützkörpers (4) erstreckt.

3. Scharniervorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß die zweite Aufnahme (9) durch Längsstege (11, 12) festgelegt ist, die von einer Außenwand des Stützkörpers (4) vorstehen.

4. Scharniervorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß sie zwei von den Scharnierorganen (6) umfaßt, die am Stützkörper (4) mit einem vorgegebenen gegenseitigen Abstand abnehmbar in Eingriff stehen.

5. Scharniervorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß das Federorgan (18) eine Torsionsfeder umfaßt, die ein erstes Ende (18a), das am Drehbolzen (15) angreift, und ein zweites Ende (18b) besitzt, das am Rohrgehäuse (13) angreift.

6. Scharniervorrichtung nach Anspruch 5, dadurch gekennzeichnet, daß das Rohrgehäuse (13) im Bereich des Arbeitsraumes (14) eine vorgegebene Anzahl von Ansätzen (19) umfaßt, die entsprechende Eingriffsaufnahmen (20) für das zweite Ende (18b) der Torsionsfeder (18) festlegen.

7. Scharniervorrichtung nach Anspruch 1, dadurch gekennzeichnet, daß der Endabschnitt (15a) des Drehbolzens an der Befestigungsbasis (16) abnehmbar in Eingriff gebracht werden kann, die dem entsprechenden Anschlußabschnitt der Kochfläche zugeordnet werden kann.

8. Scharniervorrichtung nach Anspruch 2, dadurch gekennzeichnet, daß der Stützkörper (4) durch ein im wesentlichen "U" ausgebildetes Profil festgelegt ist, um die erste Aufnahme (5) festzulegen und das auch mit Längsstegen (11, 12) versehen ist, um die zweite Aufnahme (9) festzulegen.

45 Revendications

1. Dispositif de charnière, en particulier pour couvercles de surfaces de cuisson, comprenant:

- un corps support (4) ayant au moins un premier siège de logement (5) pour recevoir en engagement un bord périphérique (3a) d'un couvercle (3) d'une surface de cuisson (2),
- au moins un organe pivotant (6) destiné à être interposé pour son fonctionnement entre le corps support (4) et une portion d'attache (2a) de la surface de cuisson (2), l'organe pivotant (6) ayant un étui tubulaire (13) définissant à son

- intérieur une cavité de travail (14), et un pivot tournant (15) engagé dans ladite cavité de travail (14) et ayant une portion finale (15a) susceptible d'engagement amovible avec la portion d'attache (2a) de la surface de cuisson;
- des moyens d'interconnexion (7) pour l'engagement amovible dudit organe pivotant (6) le long dudit corps support (4) en correspondance d'une pluralité de positions de travail, lesdits moyens d'interconnexion (7) comportant:
 - une portion de prise (8) portée rigidement par ledit étui tubulaire (13);
 - un deuxième siège de logement (9) défini longitudinalement sur ledit corps support (4) et dont la forme épouse celle de la portion de prise (8); et
 - un élément de verrouillage (10) susceptible de déplacement entre une condition de fonctionnement dans laquelle il y a la fixation de la portion de prise à l'intérieur dudit deuxième siège (9), et une position de repos, dans laquelle on autorise le dégagement de la portion de prise dudit deuxième siège,

caractérisé en ce que l'organe pivotant comporte en outre un organe élastique interposé de manière opérationnelle entre le pivot (15) et la cavité de travail (14) et un organe d'arrêt (21) destiné à bloquer réciproquement en sens axial le pivot tournant (15) et l'étui tubulaire (13), et en ce que le dispositif comporte en outre une petite base de fixation (16) munie d'une portion horizontale (16a) à lier à ladite portion d'attache (2a) et un prolongement vertical (16b) inséré dans ladite portion finale (15a), cette dernière pouvant être reliée au prolongement vertical (16b) par un organe fileté (17).

2. Dispositif de charnière selon la revendication 1, caractérisé en ce que ledit premier siège (5) s'étend longitudinalement le long dudit corps support (4).
3. Dispositif de charnière selon la revendication 1, caractérisé en ce que ledit deuxième siège (9) est défini par des nervures longitudinales (11, 12) faisant saillie de la paroi extérieure du corps support (4).
4. Dispositif de charnière selon la revendication 1, caractérisé en ce qu'il comporte deux desdits organes pivotants (6) engagés de manière amovible au corps support (4) à une distance prédéterminée l'un de l'autre.
5. Dispositif de charnière selon la revendication 1, caractérisé en ce que ledit organe élastique (18) comporte un ressort de torsion ayant une première extrémité (18a) reliée audit pivot tournant (15) et une

deuxième extrémité (18b) reliée audit étui tubulaire (13).

6. Dispositif de charnière selon la revendication 5, caractérisé en ce que ledit étui tubulaire (13) comporte, en correspondance de ladite cavité de travail (14), un nombre prédéterminé de ressauts (19) définissant des sièges d'engagement (20) correspondants pour la deuxième extrémité (18b) dudit ressort de torsion (18).
7. Dispositif de charnière selon la revendication 1, caractérisé en ce que la portion finale (15a) dudit pivot tournant peut être engagée de manière amovible à la petite base de fixation (16) apte à être associée à la portion d'attache respective de la surface de cuisson.
8. Dispositif de charnière selon la revendication 2, caractérisé en ce que ledit corps support (4) est défini par un profilé sensiblement en forme de "U", à définir le premier siège de logement (5) et il est également muni de nervures longitudinales (11, 12) à définir le deuxième siège de logement (9).

FIG. 1

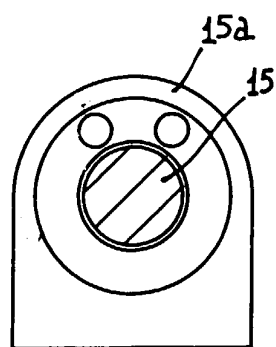
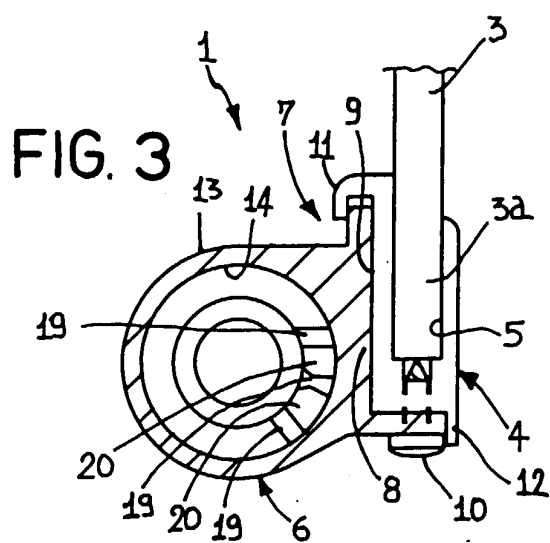
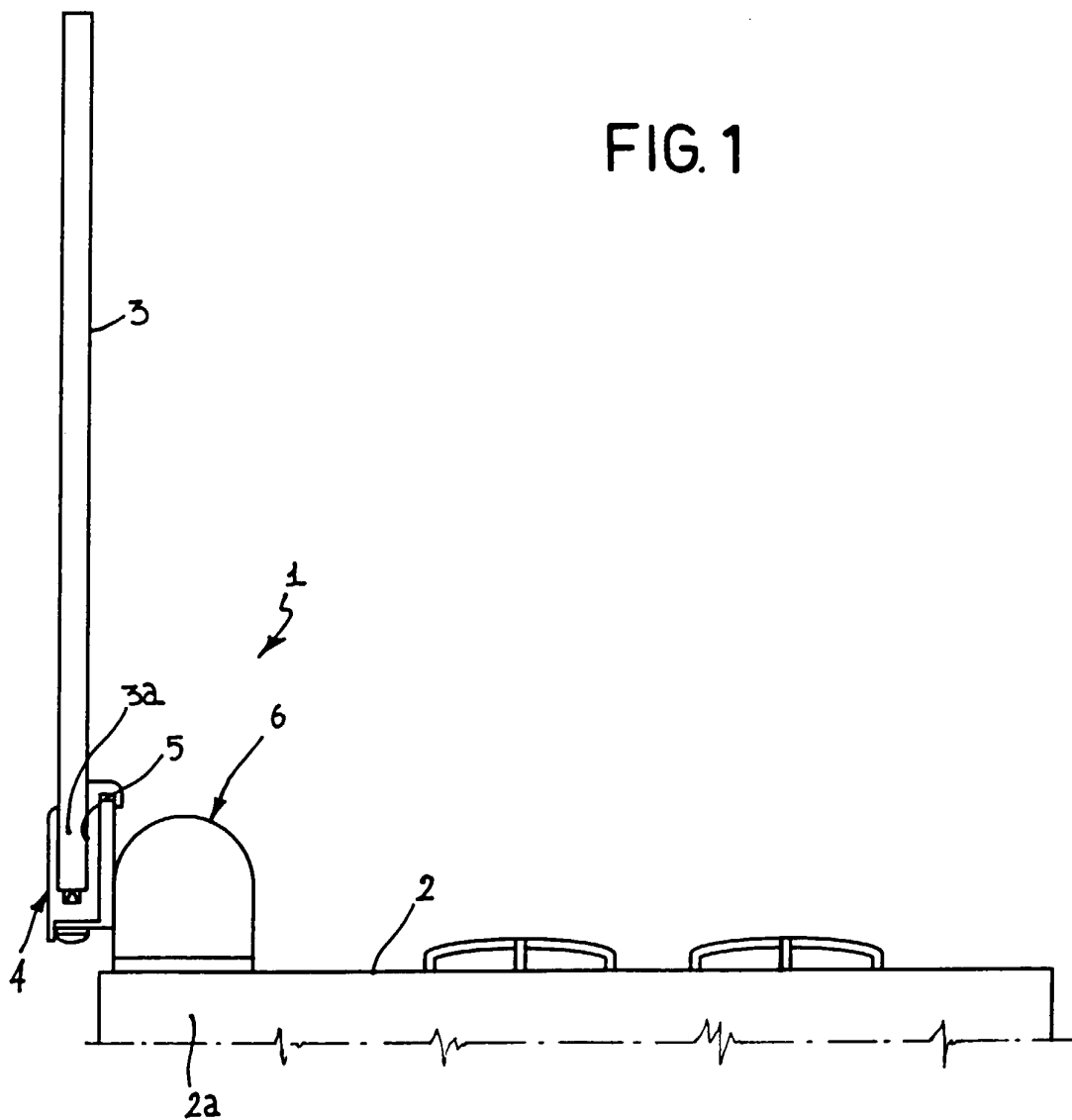


FIG. 4

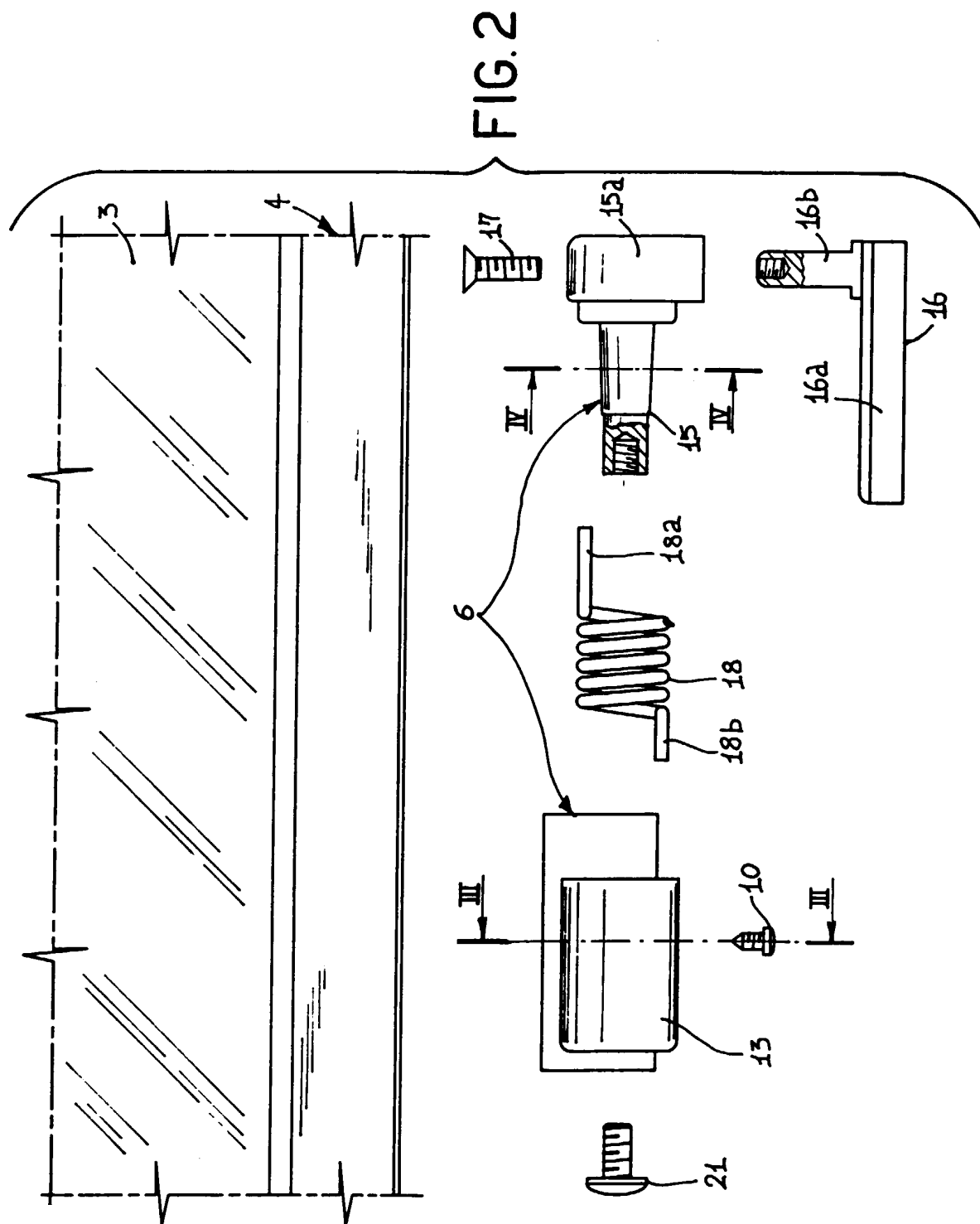


FIG. 5

