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(54) **Dishwasher rack or basket level adjustment mechanism**

Vorrichtung zum Verstellen der Höhenlage eines Geschirrkorbcs in einem Haushalt-Geschirrspüler

Appareil pour régler à hauteur le panier d'un lave-vaisselle

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Description

Technical Field

[0001] This invention relates to a level adjustment mechanism used to adjust the vertical position of the parts in white goods such as rack, basket, etc. which are located therein.

Prior Art

[0002] The height of the basket can be adjusted by the user depending on the sizes and heights of the goods which are to be placed into the lower and upper baskets located in white goods. The heights of the baskets located in white goods can be adjusted through various mechanisms. In general, these mechanisms enable the basket to be secured in two different positions.

[0003] In a system described in the published patent document WO 02/087408, a latched and wheeled mechanism is mounted on the side of the basket such that it allows the up and down movement of the basket within the machine. After the basket is raised to an upper position by the user, a spring lock which is located on the mechanism rests against one of the horizontal wires of the basket in order to maintain this position. In order to bring the basket down to a lower position, a latch located on the mechanism is pressed towards the basket, thus allowing the lock to disengage from the side wires of the basket against which the lock rests, and the basket is secured at a lower position. In this system, the basket is secured at an upper position after the lock rests against the basket wires. However, in such a system, there is a possibility that the lock mechanism of the basket disengages from the wires and falls. In order to bring the basket down to a lower position, the basket should also be moved while pressing the latch at the same time.

[0004] In the published patent document US5595200, there is a mechanism which is attached to the side of the upper basket. The part to which the wheels allowing the movement of the basket on a rail are connected is assembled to this mechanism with a sliding joint. During up and down movement of the basket, the pin which is located inside the part on the rail moves within a slot with special geometry, which is located inside the part on the basket. The pin which comes to the fixing point of the slot is inserted here, thus allowing the system to be secured. By raising the basket to some extent, it is ensured that the slot disengages from the pin, and the basket comes to a lower position.

[0005] The level adjustment mechanism of the invention has been developed unlike the prior art mentioned above. In this invention, in order to raise a rack or a basket in a white good to an upper position, these parts are pulled up and remain in this position by attaching a thumb lock mechanism when they reach an upper position. If it is required to be brought down to a lower position, it is sufficient to pull it up somewhat more and then bring it down.

Aim of the invention

[0006] An aim of this invention is to ensure that the heights of the racks or baskets in a white good are adjusted such that they can remain at two different positions.

[0007] Another aim of this invention is to ensure that when the rack or basket is pulled up to an upper position, they jam in a lock mechanism under their own weights and remain in this position.

[0008] Yet another aim of the invention is to ensure that the basket or rack is brought down to a lower position by raising it somewhat and then re-lowering it.

Description of the Drawings

[0009] The basket level adjustment mechanism of the invention is shown in the attached drawings, wherein:

Fig. 1 is an assembled perspective view of the inventive level adjustment mechanism.

Fig. 2 is another assembled perspective view of the level adjustment mechanism.

Fig. 3 is a pre-assembly perspective view of the level adjustment mechanism from one direction.

Fig. 4 is a pre-assembly perspective view of the level adjustment mechanism from another direction.

Fig. 5 is the front and rear perspective views of the rail.

Fig. 6 is a perspective view of the support frame.

Fig. 7 is a perspective view of the thumb lock.

Fig. 8 is a perspective view of the shaft.

Fig. 9 is a perspective view of the slide.

Fig. 10 is a perspective view of the adjustment frame.

Fig. 11 is a perspective view of the use of the level adjustment mechanism in a dishwasher.

Fig. 12 is another perspective view of the use of the level adjustment mechanism in a dishwasher.

Fig. 13 is the views of the slide, rail, and thumb lock from one direction.

Figs. 14-19 are the detailed positions of the inventive mechanism during operation.

[0010] The parts in the figures are numbered one by one and the corresponding terms of these numbers are given below.

Level adjustment mechanism (A)

Support frame (1)

Adjustment frame (2)

Wheels (3)

Rail (4)

Slide (5)

Thumb lock (6)

Shaft (7)

Retaining ring (8)

Basket (9)

Rear surface (10)

Channel (12)

Channels (13, 13')
 Set (14, 14')
 Slot (15)
 Front surface (20)
 Snap fitting (21)
 Protrusion (22, 22')
 Side profiles (23, 23')
 Holders (25)
 Rear edges (41)
 Snap joints (42)
 Front face (43)
 Shaft insertion hole (44)
 Snap joint (45)
 Side surface (46)
 Channel (47)
 Front face (50)
 Slots (51)
 Rear face (52)
 Protrusion (53)
 Side surface (54)
 Upper projection (55)
 Lower projection (56)
 Opening (57)
 Counter bore (61)
 Hole (62)
 V shaped-slot (63)
 V shaped-slot (64)
 Shaft head (71)
 Retaining ring channel (72)

Disclosure of Invention

[0011] Figs. 1 and 2 provide the assembled perspective views of the inventive level adjustment mechanism (A). The level adjustment mechanism (A) of which disassembled perspective views are provided in figs. 3 and 4 comprises a support frame (1) which comprises wheels (3) that allow it to move back and forth on the rails in a white good; an adjustment frame (2) which can slide up and down on the support frame (1) and which can be connected to the equipment such as rack or basket of which level adjustment is required; a rail (4) which is secured to the support frame (1) and which performs the bearing task for the up and down movement of the adjustment frame (2); a slide (5) which can move up and down inside said rail (4) and which is connected to the adjustment frame (2); a shaft (7) which is inserted into a slot on said rail (4) together with the retaining ring (8) thereon and a thumb lock (6) which is attached to the shaft (7) such that it can rotate thereon.

[0012] The rail (4) of which front and rear perspective views are provided in fig. 5 is made of a U-shaped profile of which rear edges (41) are incurved and face each other; front face (43) comprises snap joints (42) on its both sides; said front face (43) has a shaft insertion hole (44) somewhere towards its middle part; front face (43) has also a snap joint (45) somewhere towards its lower part, and which has a channel (47) with both sides open, that

is located on the one side of the shaft insertion hole (44), on the side surface (46). The rail (4) is secured to the support frame (1) of which detailed perspective view is provided in fig. 6. On the support frame (1), there is a channel (12) into which snap joints (42) are attached and a slot (15) into which another snap joint (45) is placed. Assembly of the rail (4) and support frame (1) is performed through pushing and attaching these said snap joints (42, 45) to the channel (12) and the slot (15). By the protrusions on the snap joints (42, 45), the joints (42, 45) remain secured at the position they are attached.

[0013] The thumb lock (6) of which detailed perspective view is provided in fig. 7 is a part in the form of a plate, of which opposite two edges have V-shaped slots (63, 64). In the center of gravity of the thumb lock (6), there is a longitudinal hole (62) through which the shaft (7) is passed and a counter bore (61) concentric with this hole (62), into which the shaft head (71) of the shaft (7) is sunk. On the one end of the shaft (7) of which details are shown in fig. 8, there is a retaining ring channel (72) into which the retaining ring (8) can be placed. In the assembled position of the thumb lock (6) on the rail (4), the shaft (7) is passed through the hole (62) in the center of gravity of the thumb lock (6), and the shaft head (71) is seated into the said counter bore (61); the other end of the shaft (7) is passed through the shaft insertion hole (44). In order to prevent the dislocation of the shaft (7) from the shaft insertion hole (44) and said hole (62) in this position, a retaining ring (8) is placed into the retaining ring channel (72) on the front face (43) side of the rail.

[0014] The slide (5) of which perspective views are provided in fig. 9 is a part in the form of a U profile and has slots (51) into which snap fittings (21) of the adjustment frame (2) are attached and which provide passage between its front face (50) and rear face (52) and a protrusion (53) which extends outwards on the lower part of the rear face (52). In addition, through the opening (57) on the side surface (54) of the slide (5), the upper projection (55) and the lower projection (56) which are located on the uppermost and lowermost parts of this surface (54) respectively are separated from each other.

[0015] On the adjustment frame (2) of which perspective views are provided in fig. 10, there are snap fittings (21) attached into the slots (51) on the slide (5). There are also side profiles (23, 23') on the both sides of this frame (2) such that they enter into the channels (13, 13') which extend from up to down at the sides of the support frame (1). The protrusions (22, 22') which are located on the front surface (20) of the adjustment frame (2) are also positioned such that they are seated on the top surface of the set (14, 14') of which lower surfaces are located on the rear surface (10) of the support frame (1). With the help of the relationship of the protrusions (22, 22') with the set (14, 14'), the lowermost position of the adjustment frame (2) relative to the support frame (1) is detected. The uppermost position of the adjustment frame (2) relative to the support frame (1) is the position in which the slide (5) is attached to the thumb lock (6).

There are also holders (25) in the upper part of the adjustment frame (2), to which the parts such as rack or basket can be attached.

[0016] In the invention of level adjustment mechanism (A) of which assembled position is shown in figs. 1 and 2, the adjustment frame (2) secured with slide (5) to each other has an ability to move up and down compared to the support frame (1) secured with the rail (4) to each other. In order to allow this movement, the slide (5) is recessed in the rail (4) and the side profiles (23, 23') of the adjustment frame (2) in the side channels (13, 13') inside the support frame (1) such that they can only move up and down.

[0017] Figs. 11 and 12 provide the perspective views of the use of the invention of level adjustment mechanism (A) in a dishwasher. In the exemplary demonstration provided in fig. 11, the adjustment frame (2) in the level adjustment mechanism (A) is located in the lowermost position. This position is also the lowermost position of the basket (9) which is attached to the holders (25) on the adjustment frame (2). Fig. 12 is the upper position views of the adjustment frame (2) and thus the basket (9). Figs. 13-19 provide the drawings concerning the operating method of the level adjustment mechanism (A) regarding its positions shown in figs. 11 and 12.

[0018] As mentioned above, in the level adjustment mechanism (A), the adjustment frame (2) is secured with the slide (5) to each other and the support frame (1) is secured with the rail (4) to each other. In brief, the movement of the slide (5) relative to rail (4) summarizes the operation mode of the inventive mechanism (A). Therefore, figs. 13-19 explain the movement of the slide (5) in the level adjustment mechanism (A) relative to the rail (4) and the thumb lock (6) and as a result of this movement, the lower and upper positions of the slide (5). The lower and upper positions of the slide (5) detect the lower and upper positions of the adjustment frame (2) and the parts such as rack or basket attached thereto.

[0019] Fig. 13 provides the views of the slide (5), rail (4) and thumb lock (6) from one direction. In this case, the slide (5) is in the lowermost position. Figs. 14-19 provide the detailed positions of this mechanism shown in fig. 13 during operation.

[0020] Fig. 14 provides the lowermost position of the slide (5); in this position, the upper projection (55), the lower projection (56) and the protrusion (53) on the slide (5) are in the baseline position. Fig. 15 provides the position of the slide (5) shifted upwards. In this position, the protrusion (53) contacts the V-shaped slot (63) which is located in the lower side of the thumb lock (6) and rotates the thumb lock (6) somewhat counter-clockwise. Fig. 16 shows the next stage; in this stage, the slide (5) is lowered somewhat and the upper projection (55) is placed into the V shaped-slot (64) on the upper part of the thumb lock (6), thus the thumb lock (6) is allowed to rotate somewhat more counter-clockwise. The position shown in fig. 16 is the position in which the slide (5) is attached to the thumb lock (6) and suspended, and the slide (5) and the

thumb lock (6) are jammed. In this position, the slide (5), the adjustment frame (2) attached thereto and thus the parts such as rack, basket, etc. remain in the uppermost position. In order to allow the attachment and suspension of the slide (5) into the thumb lock (6), the upper projection (55) has an ability to jam in the V shaped-slot (64) such that it cannot move downwards any more. Fig. 17 shows the position in which the slide (5) disengages from the thumb lock (6). In order to allow this, the slide (5) is raised somewhat and the upper projection (55) disengages from the V shaped-slot (64). On the continuation of the movement, the protrusion (53) contacts the lower right surface of the lock (6) relative to the rotation axis and rotates the lock (6) again counter-clockwise; the left part of the lock (6) relative to the rotation axis also enters into the space between the upper and lower projections (55, 56). As shown in fig. 17; in this stage, the lower projection (56) and the protrusion (53) come into a position in which they contact the lower surface of the lock (6). Thereafter, the slide (5) is lowered downwards and the upper projection (55) contacts the top left surface of the lock (6) relative to the rotation axis and rotates the lock (6) again counter-clockwise. This position is shown in fig. 18. On the continuation of the movement, the lock (6) and the slide (5) are completely separated from each other as shown in fig. 19, the slide (5) returns its lowermost position which is its baseline position and the lock (6) turns and takes its initial position. In order to attach the slide (5) to the lock (6) and shift it to an upper position, the stages shown from fig. 14 onwards are repeated.

[0021] The above preferred level adjustment mechanism (A) are not intended to limit the protection scope of the invention. According to the information described with the invention, modifications to be performed on this preferred level adjustment mechanism (A) should be evaluated within the protection scope of the invention as defined in the claims.

Claims

1. A level adjustment mechanism (A), for the level adjustment of a rack or basket in a dishwashing appliance, comprising a support frame (1) which is located in a fixed position, a rail (4) which is connected to the support frame (1), a slide (5) which has a recessed portion so that it can move up and down within the rail (4), an adjustment frame (2) which is connected to the slide (5) and onto which the rack or basket can be attached, a thumb lock (6) in the form of a plate which allows the suspension of the slide (5) when it assumes an upper position, the thumb lock (6) being connected to the rail (4) so as to rotate freely around its center of gravity, the thumb lock comprising two opposed V-shaped slots (63, 64) on its two opposite edges,
characterized in that

for allowing the slide (5) to contact the V-shaped slot (63) which is located in a lower part of the thumb lock (6) and rotate the lock (6) somewhat counter-clockwise when in use the slide is shifted in an upward position from its lowermost position there is provided a protrusion (53) on a lower part of a rear face (52) of the slide (5), which protrusion (53) extends outwards away from the rear face (52); **in that** there is provided an upper projection (55) on an upper part of a side surface (54) of the slide (5), said upper projection being in use placed into the V shaped-slot (64) on an upper part of the thumb lock (6) in order to turn the thumb lock (6) somewhat more counter-clockwise after the slide (5) is lowered somewhat;

in that in order to allow the attachment and suspension of the slide (5) into the thumb lock (6), the upper projection (55) is so constructed so that in use it blocks into the V shaped-slot (64) such that it is prevented from moving downwardly;

in that the slide (5) is in use raised somewhat so that the upper projection (55) disengages from the V shaped-slot (64); wherein in order to further rotate the thumb lock (64) counter-clockwise after the protrusion (53) contacts a lower right surface of the lock (6) relative to the rotation axis there is provided an opening (57) between the upper projection (55) and a lower projection (56) on a lower part of the side surface of the slide (5), wherein in use the opening accommodates the left part of the thumb lock (6) relative to the rotation axis;

in that in order to allow in use the slide (5) to return to its lowermost position which is its baseline position, after the lower projection (56) and the protrusion (53) of the slide (5) are brought to a position such that they contact the lower surface of the thumb lock (6), the slide (5) is lowered downwards resulting in the upper projection (55) contacting the top left surface of the thumb lock (6) relative to the rotation axis in order to further rotate the thumb lock (6) counter-clockwise, the thumb lock (6) and the slide (5) being so disposed so that they can be completely separated from each other.

2. A level adjustment mechanism (A) according to the claim 1, wherein the slide (5) is recessed in the rail (4) and two side profiles (23, 23') of the adjustment frame (2) are recessed in side channels (13, 13'), which channels extend from up to down at the sides of the support frame (1), such that they can only move up and down.
3. A level adjustment mechanism (A) according to the claim 1, wherein there is a shaft insertion hole (44)

on front face (43) of the rail (4) into which a shaft (7) together with the thumb lock (6) thereon is inserted, and there is a channel (47) with both sides open, that is located on the one side of a shaft insertion hole (44), on a side surface (46) such that it will allow the thumb lock (6) to freely rotate.

4. A level adjustment mechanism (A) according to the claim 1, wherein the slide (5) is a part in the form of a U profile and has slots (51) thereon into which snap fittings (21) of the adjustment frame (2) are attached and which slots (51) provide passage between slide's (5) front face (50) and rear face (52).
5. A level adjustment mechanism (A) according to the claim 3, wherein at the center of gravity of the thumb lock (6), there is a longitudinal hole (62) through which the shaft (7) is passed and a counter bore (61) concentric with said longitudinal hole (62), into which a shaft head (71) of the shaft (7) is sunk.
6. A level adjustment mechanism (A) according to the claim 5, wherein in the assembled position of the thumb lock (6) on the rail (4), the shaft (7) is passed through the hole (62) in the center of gravity of the thumb lock (6), and the shaft head (71) is seated into said counter bore (61); the other end of the shaft (7) is passed through the shaft insertion hole (44); in order to prevent the dislocation of the shaft (7) from the shaft insertion hole (44) and said hole (62) in this position, a retaining ring (8) is placed into a retaining ring channel (72) on the shaft (7) on the front face (43) side of the rail.
7. A level adjustment mechanism (A) according to the claim 1, wherein the rail (4) is in the structure of a U-shaped profile of which rear edges (41) are incurved and face each other; front face (43) contains snap joints (42, 45).
8. A level adjustment mechanism (A) according to the claim 7, wherein on the support frame (1), there is a channel (12) into which snap joints (42) are attached and there is also a slot (15) into which another snap joint (45) is placed.
9. A level adjustment mechanism (A) according to the claim 4, wherein on the adjustment frame (2), there are snap fittings (21) attached into the slots (51) on the slide (5).
10. A level adjustment mechanism (A) according to the claim 1, wherein in order to detect the lowermost position of the adjustment frame (2) relative to the support frame (1), protrusions (22, 22') which are located on the front surface (20) of the adjustment frame (2) are positioned such that they are seated on the top surface of sets (14, 14') of which lower

surfaces are located on the rear surface (10) of the support frame (1).

Patentansprüche

1. Höheneinstellmechanismus (A) zur Höheneinstellung einer Ablage oder eines Korbs in einem Geschirrspülgerät, aufweisend einen Tragrahmen (1), der in einer feststehenden Position angeordnet ist, eine Schiene (4), die mit dem Tragrahmen (1) verbunden ist, einen Schieber (5), der einen ausgenommenen Abschnitt hat, so dass er sich in der Schiene (4) nach oben und unten bewegen kann, einen Einstellrahmen (2), der mit der Schiene (5) verbunden ist und auf dem die Ablage oder der Korb befestigt werden kann, eine Daumenarretierung (6) in Form einer Platte, welche die Aufhängung des Schiebers (5) zulässt, wenn er eine obere Position einnimmt, wobei die Daumenarretierung (6) frei drehbeweglich um ihren Schwerpunkt mit der Schiene (4) verbunden ist, wobei die Daumenarretierung zwei entgegengesetzte V-förmige Aussparungen (63, 64) an ihren beiden entgegengesetzten Randbereichen aufweist,
dadurch gekennzeichnet, dass,
um den Schieber (5) die V-förmige Aussparung (63) berühren zu lassen, die in einem unteren Teil der Daumenarretierung (6) angeordnet ist, und die Arretierung (6) ein wenig im Gegenuhrzeigersinn drehen zu lassen, wenn der Schieber im Gebrauch von seiner untersten Position in eine obere Position verschoben wird, ein Vorsprung (53) auf einem unteren Teil einer Rückseite (52) des Schiebers (5) vorgesehen ist, welcher Vorsprung (53) sich von der Rückseite (52) nach außen weg erstreckt;
ein oberer Fortsatz (55) auf einem oberen Teil einer Seitenfläche (54) des Schiebers (5) vorgesehen ist, wobei der obere Fortsatz im Gebrauch in die V-förmige Aussparung (64) an einem oberen Teil der Daumenarretierung (6) eingesetzt ist, um die Daumenarretierung (6) ein wenig mehr im Gegenuhrzeigersinn zu drehen, nachdem der Schieber (5) etwas gesenkt ist;
um die Befestigung und Aufhängung des Schiebers (5) in der Daumenarretierung (6) zuzulassen, der obere Fortsatz (55) so aufgebaut ist, dass er sich im Gebrauch so in der V-förmigen Aussparung (64) festsetzt, dass er daran gehindert wird, sich nach unten zu bewegen;
der Schieber (5) im Gebrauch ein wenig angehoben ist, so dass sich der obere Fortsatz (55) aus der V-förmigen Aussparung (64) löst; wobei, um die Daumenarretierung (6) weiter im Gegenuhrzeigersinn, nachdem der Vorsprung (53) eine untere rechte Fläche der Arretierung (6) berührt, in Bezug auf die Drehachse zu drehen, eine Öffnung (57) zwischen dem oberen Fortsatz (55) und einem unteren Fort-

satz (56) auf einem unteren Teil der Seitenfläche des Schiebers (5) vorgesehen ist, wobei im Gebrauch die Öffnung den in Bezug auf die Drehachse linken Teil der Daumenarretierung (6) aufnimmt; um im Gebrauch den Schieber (5) in seine unterste Position zurückkehren zu lassen, bei der es sich um seine Grundlinienposition handelt, nachdem der untere Fortsatz (56) und der Vorsprung (53) des Schiebers (5) derart zu einer Position gebracht sind, dass sie die Unterseite der Daumenarretierung (6) berühren, der Schieber (5) nach unten abgesenkt ist, was dazu führt, dass der obere Fortsatz (55) die in Bezug auf die Drehachse obere linke Fläche der Daumenarretierung (6) berührt, um die Daumenarretierung (6) weiter im Gegenuhrzeigersinn zu drehen, wobei die Daumenarretierung (6) und der Schieber (5) so angeordnet sind, dass sie vollständig voneinander getrennt werden können.

2. Höheneinstellmechanismus (A) nach Anspruch 1, wobei der Schieber (5) in die Schiene (4) eingelassen ist, und zwei Seitenprofile (23, 23') des Einstellrahmens (2) in Seitenkanäle (13, 13') eingelassen sind, welche Kanäle sich an den Seiten des Tragrahmens (1) so von oben nach unten erstrecken, dass sie sich nur nach oben und unten bewegen können.
3. Höheneinstellmechanismus (A) nach Anspruch 1, wobei eine Welleneinstecköffnung (44) auf einer Stirnfläche (43) der Schiene (4) vorhanden ist, in welche eine Welle (7) zusammen mit der daran befindlichen Daumenarretierung (6) eingesteckt ist, und ein Kanal (47) vorhanden ist, dessen beiden Seiten offen sind, und der auf der einen Seite der Welleneinstecköffnung (44) auf einer Seitenfläche (46) so angeordnet ist, dass er die Daumenarretierung (6) sich frei drehen lässt.
4. Höheneinstellmechanismus (A) nach Anspruch 1, wobei der Schieber (5) ein Teil in der Form eines U-Profils ist und daran befindliche Schlitze (51) hat, in denen Schnappbefestigungen (21) des Einstellrahmens (2) befestigt sind, und welche Schlitze (51) einen Durchgang zwischen einer Vorderseite (50) und Rückseite (52) des Schiebers (5) bereitstellen.
5. Höheneinstellmechanismus (A) nach Anspruch 3, wobei am Schwerpunkt der Daumenarretierung (6) ein Langloch (62) vorhanden ist, durch welches die Welle (7) hindurchgeführt ist, und eine mit dem Langloch (62) konzentrische Gegenbohrung (61), in die ein Wellenkopf (71) der Welle (7) versenkt ist.
6. Höheneinstellmechanismus (A) nach Anspruch 5, wobei in der an der Schiene (4) montierten Position der Daumenarretierung (6) die Welle (7) durch das Loch (62) im Schwerpunkt der Daumenarretierung

- (6) hindurchgeführt ist, und der Wellenkopf (71) in die Gegenbohrung (61) eingesetzt ist; das andere Ende der Welle (7) durch die Welleneinstecköffnung (44) hindurchgeführt ist; um die Verlagerung der Welle (7) aus der Welleneinstecköffnung (44) und dem Loch (62) in dieser Position zu verhindern, ein Haltering (8) in einen Halteringkanal (72) an der Welle (7) auf der Seite der Stirnflächen (43) der Schiene eingesetzt ist.
7. Höheneinstellmechanismus (A) nach Anspruch 1, wobei die Schiene (4) von der Struktur eines U-förmigen Profils ist, dessen hintere Ränder (41) nach innen gekrümmt und einander zugewandt sind; und die Stirnfläche (43) Schnappverbindungsglieder (42, 45) enthält.
8. Höheneinstellmechanismus (A) nach Anspruch 7, wobei am Halterahmen (1) ein Kanal (12) vorhanden ist, in dem Schnappverbindungsglieder (42) befestigt sind, und auch ein Schlitz (15) vorhanden ist, in den ein anderes Schnappverbindungsglied (45) eingesetzt ist.
9. Höheneinstellmechanismus (A) nach Anspruch 4, wobei am Einstellrahmen (2) Schnappbefestigungen (21) in den Schlitz (51) am Schieber (5) befestigt sind.
10. Höheneinstellmechanismus (A) nach Anspruch 1, wobei, um die unterste Position des Einstellrahmens (2) in Bezug auf den Halterahmen (1) zu erfassen, Vorsprünge (22, 22'), die auf der Stirnfläche (20) des Einstellrahmens (2) angeordnet sind, so positioniert sind, dass sie auf der Oberseite von Sätzen (14, 14') sitzen, deren Unterseiten auf der Rückseite (10) des Halterahmens (1) angeordnet sind.

Revendications

1. Mécanisme d'ajustement de niveau (A), pour l'ajustement de niveau d'une grille ou panier dans un lave-vaisselle, comprenant un châssis de support (1) qui est positionné dans une position fixe, un rail (4) qui est raccordé au châssis de support (1), une glissière (5) qui a une partie évidée de sorte qu'elle peut monter et descendre à l'intérieur du rail (4), un châssis d'ajustement (2) qui est raccordé à la glissière (5) et sur lequel la grille ou le panier peut être fixé, un verrouillage par le pouce (6) se présentant sous la forme d'une plaque qui permet la suspension de la glissière (5) lorsqu'il prend une position supérieure, le verrouillage par le pouce (6) étant raccordé au rail (4) afin de tourner librement autour de son centre de gravité, le verrouillage par le pouce comprenant deux fentes en forme de V opposées (63, 64) sur ses deux bords opposés, **caractérisé en ce que :**

pour permettre à la glissière (5) d'entrer en contact avec la fente en forme de V (63) qui est située dans une partie inférieure du verrouillage par le pouce (6) et faire tourner le verrouillage (6) légèrement dans le sens inverse des aiguilles d'une montre, lorsqu'à l'usage la glissière est déplacée dans une position haute à partir de sa position la plus basse, on prévoit une saillie (53) sur une partie inférieure d'une face arrière (52) de la glissière (5), laquelle saillie (53) s'étend vers l'extérieur à distance de la face arrière (52) ;

en ce que l'on prévoit une saillie supérieure (55) sur une partie supérieure d'une surface latérale (54) de la glissière (5), ladite saillie supérieure étant à l'usage placée dans la fente en forme de V (64) sur une partie supérieure du verrouillage par le pouce (6) afin de faire tourner le verrouillage par le pouce (6) légèrement plus dans le sens inverse des aiguilles d'une montre après que la glissière (5) se soit légèrement abaissée ;

en ce qu'afin de permettre la fixation et la suspension de la glissière (5) dans le verrouillage par le pouce (6), la saillie supérieure (55) est construite de sorte qu'à l'usage, elle se bloque dans la fente en forme de V (64) de sorte qu'elle empêche le déplacement vers le bas ;

en ce que la glissière (5) est à l'usage légèrement levée de sorte que la saillie supérieure (55) se dégage de la fente en forme de V (64) ; dans lequel afin de continuer à faire tourner le verrouillage par le pouce (6) dans le sens inverse des aiguilles d'une montre après que la saillie (53) est entrée en contact avec une surface droite inférieure du verrouillage (6) par rapport à l'axe de rotation, on prévoit une ouverture (57) entre la saillie supérieure (55) et une saillie inférieure (56) sur une partie inférieure de la surface latérale de la glissière (5), dans lequel à l'usage, l'ouverture loge la partie gauche du verrouillage par le pouce (6) par rapport à l'axe de rotation ;

en ce qu'afin de permettre, à l'usage, à la glissière (5) de revenir dans sa position la plus basse qui est sa position de base, après que la saillie inférieure (56) et la saillie (53) de la glissière (5) ont été amenées dans une position de sorte qu'elles sont en contact avec la surface inférieure du verrouillage par le pouce (6), la glissière (5) est abaissée vers le bas, ce qui se traduit par la saillie supérieure (55) qui est en contact avec la surface gauche supérieure du verrouillage par le pouce (6) par rapport à l'axe de rotation afin de continuer à faire tourner le verrouillage par le pouce (6) dans le sens inverse des aiguilles d'une montre, le verrouillage par le pouce (6) et la glissière (5) étant disposés de sorte qu'ils peuvent être complètement séparés l'un

de l'autre.

2. Mécanisme d'ajustement de niveau (A) selon la revendication 1, dans lequel la glissière (5) est enfoncée dans le rail (4) et deux profils latéraux (23, 23') du châssis d'ajustement (2) sont enfoncés dans des canaux latéraux (13, 13'), lesquels canaux s'étendent de haut en bas au niveau des côtés du châssis de support (1), de sorte qu'ils ne peuvent que monter et descendre. 5
3. Mécanisme d'ajustement de niveau (A) selon la revendication 1, dans lequel on trouve un trou d'insertion de tige (44) sur la face avant (43) du rail (4) dans lequel une tige (7) conjointement au verrouillage par le pouce (6) sur celle-ci, est insérée, et on trouve un canal (47) avec deux côtés ouverts, qui est situé d'un côté d'un trou d'insertion de tige (44), sur une surface latérale (46) de sorte qu'il permet au verrouillage par le pouce (6) de tourner librement. 10 20
4. Mécanisme d'ajustement de niveau (A) selon la revendication 1, dans lequel la glissière (5) est une partie se présentant sous la forme d'un profil en U et a des fentes (51) sur celle-ci dans lesquelles des raccords par emboîtement (21) du châssis d'ajustement (2) sont fixés et lesquelles fentes (51) fournissent le passage entre la face avant (50) et la face arrière (52) de la glissière (5). 25 30
5. Mécanisme d'ajustement de niveau (A) selon la revendication 3, dans lequel au centre de gravité du verrouillage par le pouce (6), on trouve un trou longitudinal (62) à travers lequel la tige (7) passe et un contre-alésage (61) concentrique avec ledit trou longitudinal (62), dans lequel une tête de tige (71) de la tige (7) est fraisée. 35
6. Mécanisme d'ajustement de niveau (A) selon la revendication 5, dans lequel dans la position assemblée du verrouillage par le pouce (6) sur le rail (4), la tige (7) passe à travers le trou (62) dans le centre de gravité du verrouillage par le pouce (6), et la tête de tige (71) est installée dans ledit contre-alésage (61) ; l'autre extrémité de la tige (7) passe à travers le trou d'insertion de tige (44) afin d'empêcher le délogement de la tige (7) du trou d'insertion de tige (44) et dudit trou (62) dans cette position, une bague de retenue (8) est placée dans un canal de bague de retenue (72) sur la tige (7) du côté de la face avant (43) du rail. 40 45 50
7. Mécanisme d'ajustement de niveau (A) selon la revendication 1, dans lequel le rail (4) est dans la structure d'un profil en forme de U dont les bords arrière (41) sont incurvés et se font face ; la face avant (43) contient des joints par emboîtement (42, 45). 55

8. Mécanisme d'ajustement de niveau (A) selon la revendication 7, dans lequel sur le châssis de support (1), on trouve un canal (12) dans lequel des joints par emboîtement (42) sont fixés et on trouve également une fente (15) dans laquelle un autre joint par emboîtement (45) est placé.
9. Mécanisme d'ajustement de niveau (A) selon la revendication 4, dans lequel, sur le châssis d'ajustement (2), on trouve des raccords par emboîtement (21) fixés dans les fentes (51) sur la glissière (5).
10. Mécanisme d'ajustement de niveau (A) selon la revendication 1, dans lequel afin de détecter la position la plus basse du châssis d'ajustement (2) par rapport au châssis de support (1), des saillies (22, 22') qui sont situées sur la surface avant (20) du châssis d'ajustement (2) sont positionnées de sorte qu'elles sont installées sur la surface supérieure des ensembles (14, 14') dont les surfaces inférieures sont situées sur la surface arrière (10) du châssis de support (1).

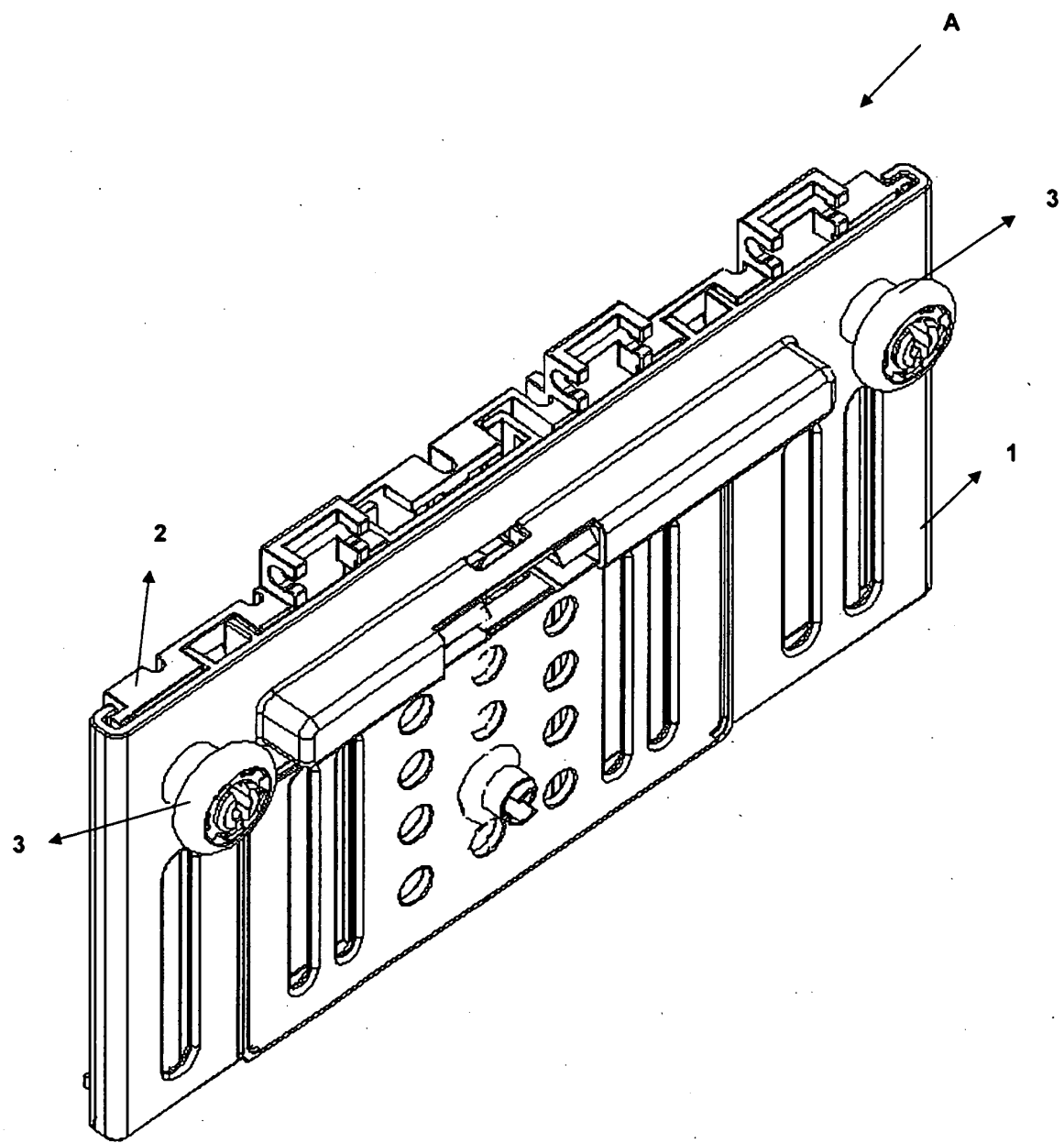


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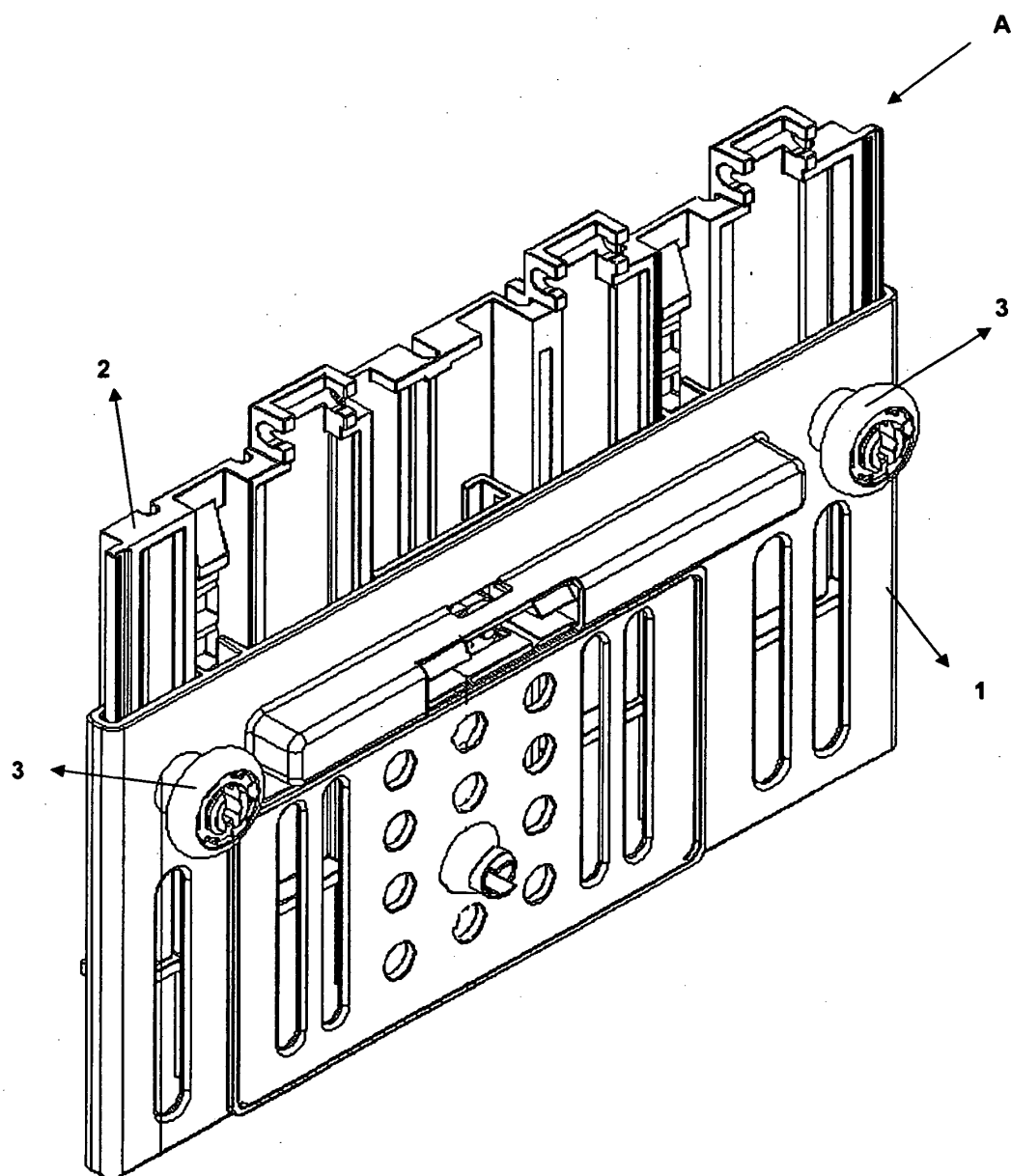


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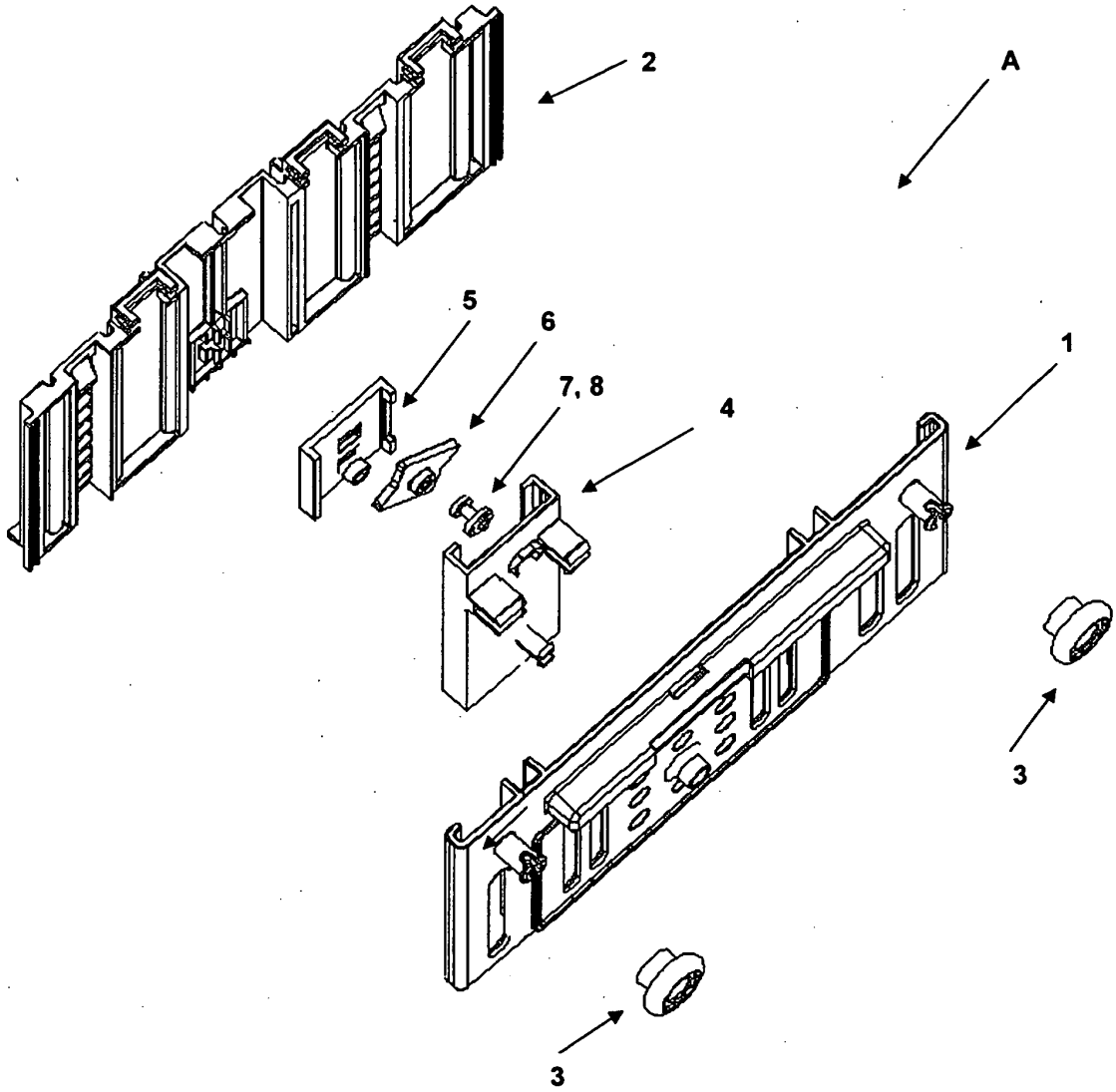


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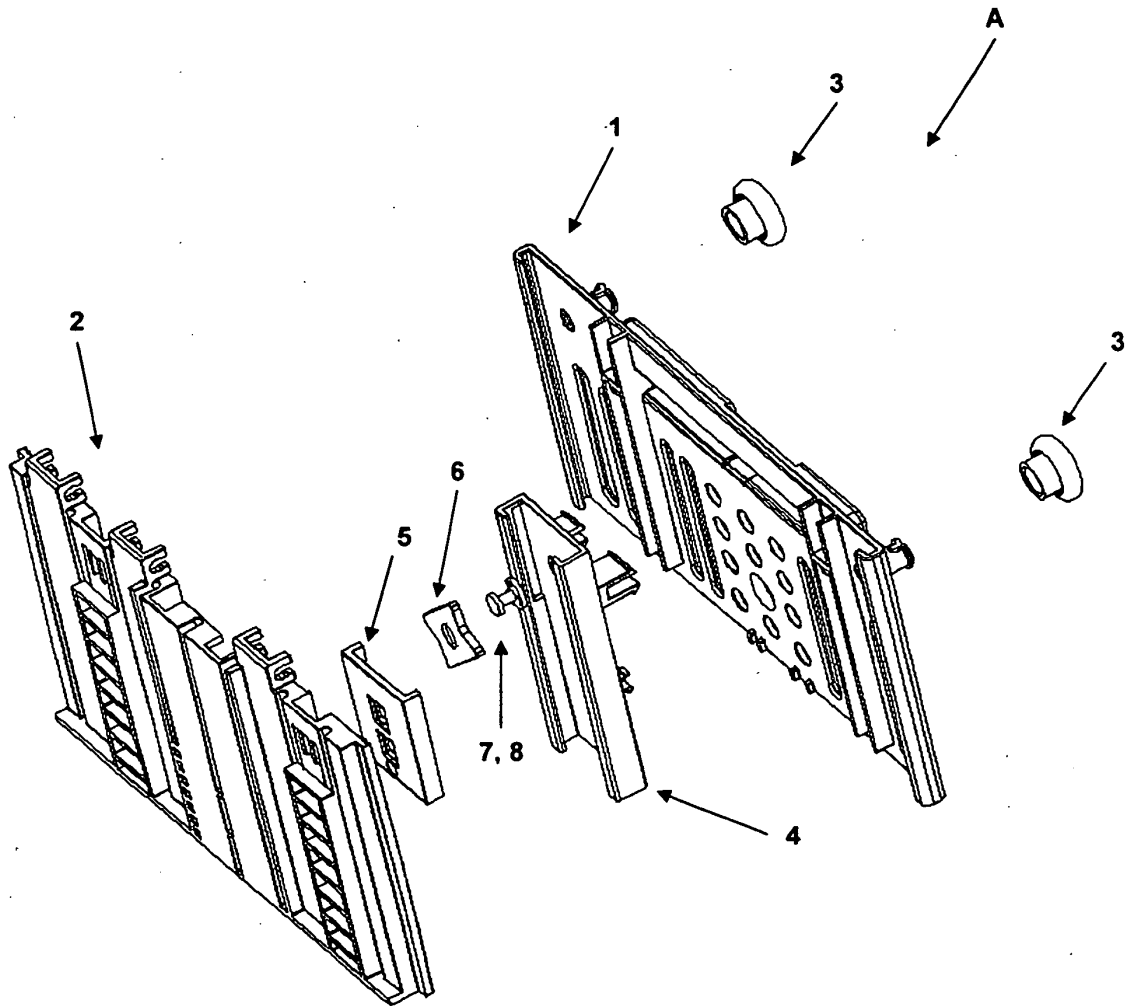


Figure - 4

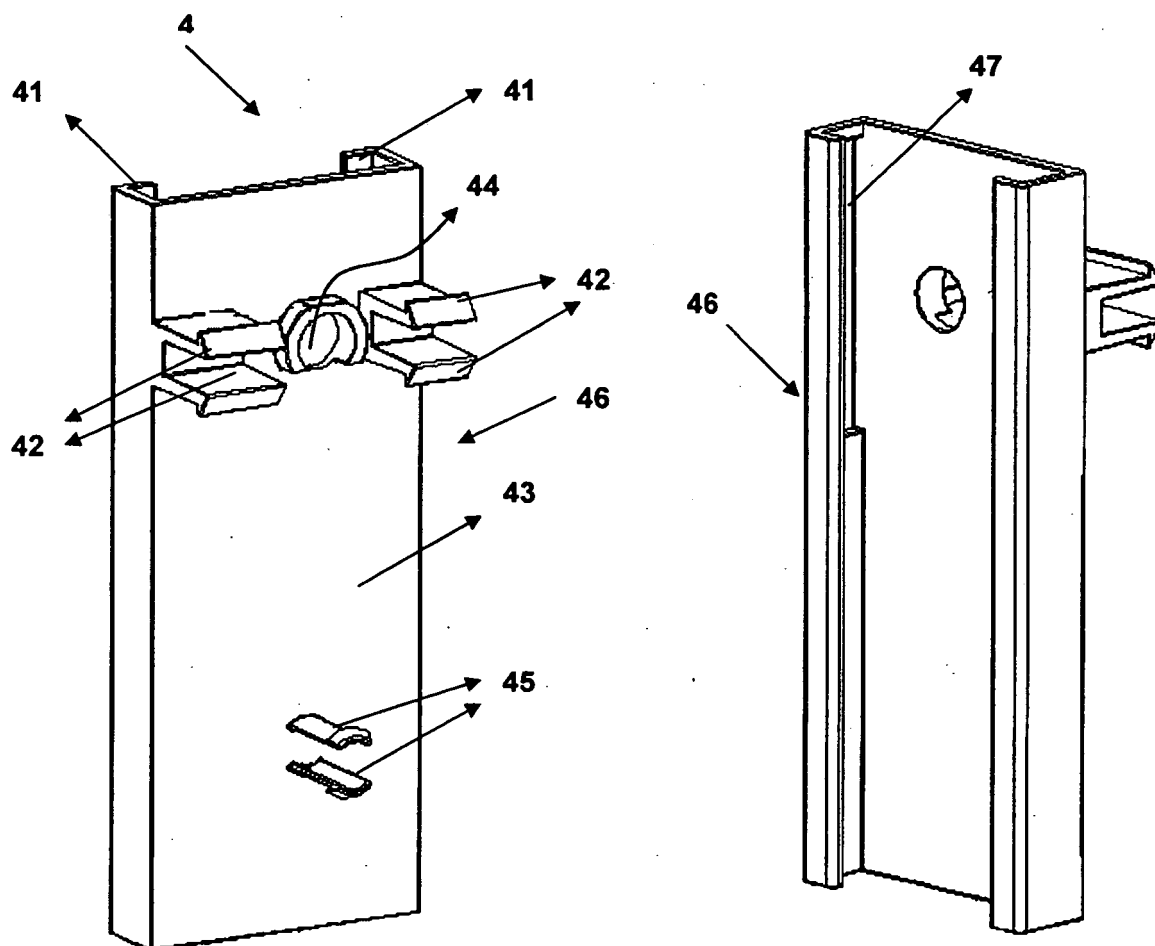


Figure - 5

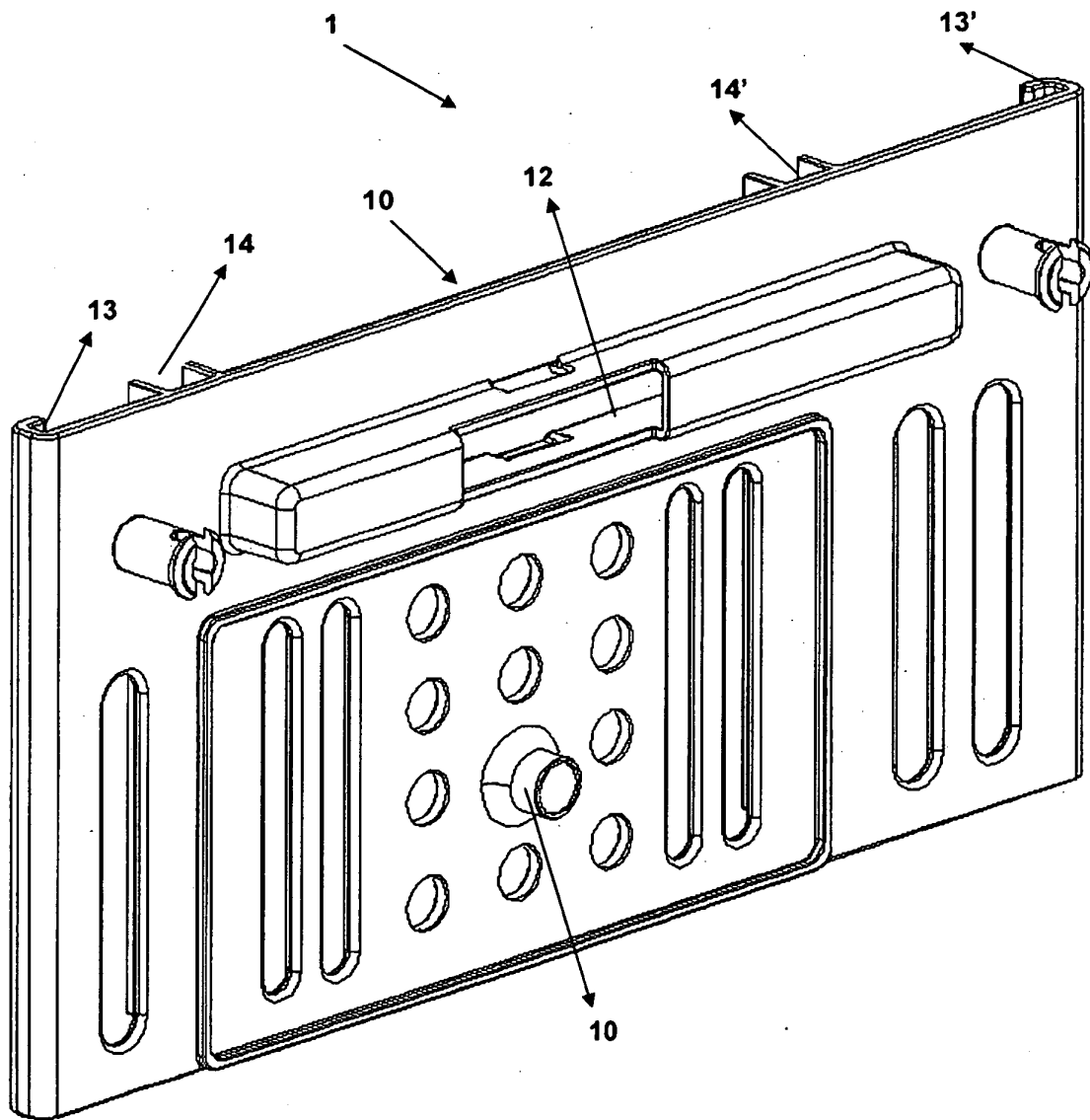


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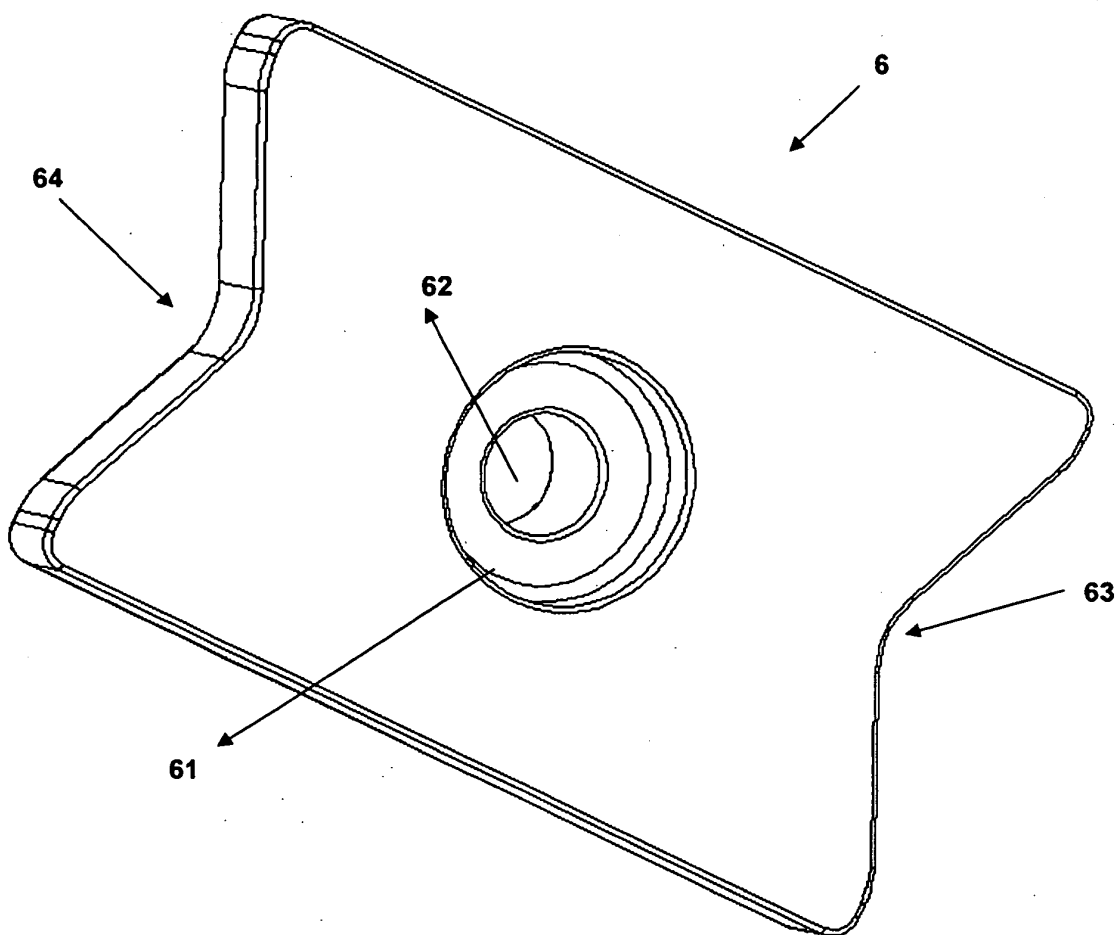


Figure - 7

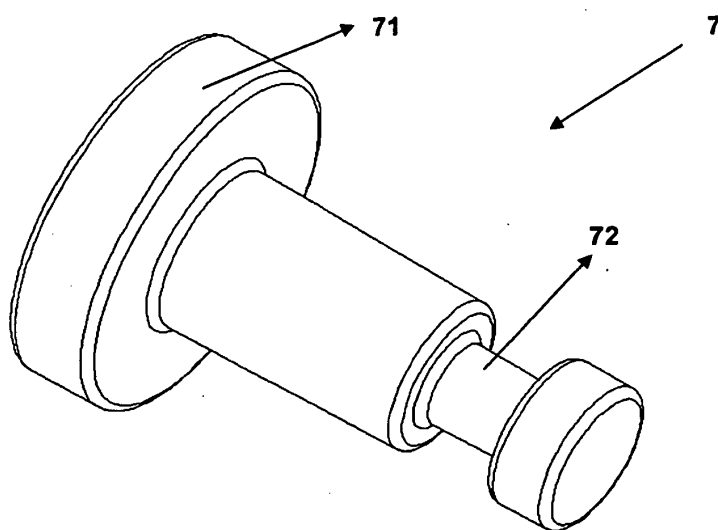


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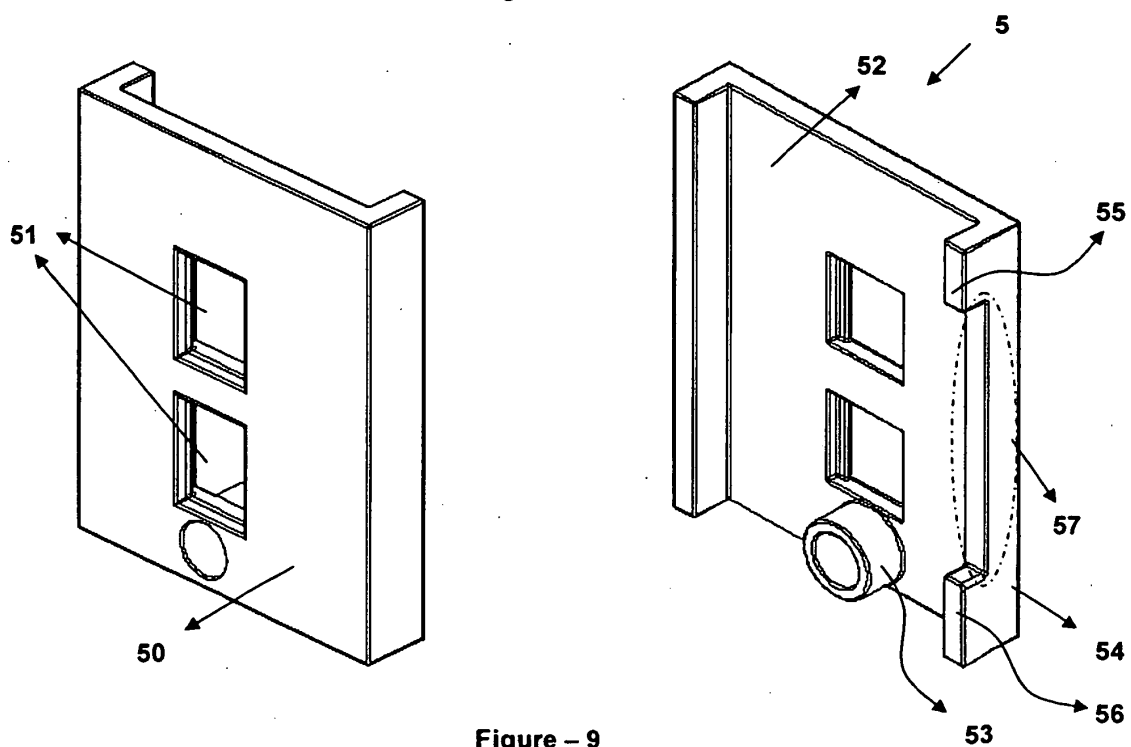


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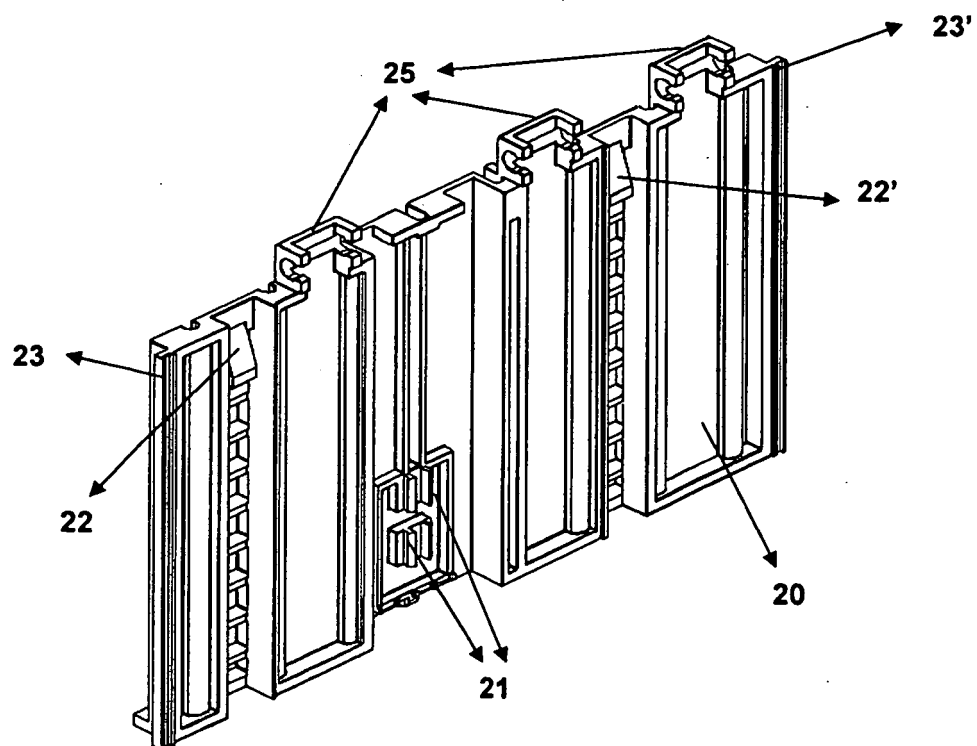
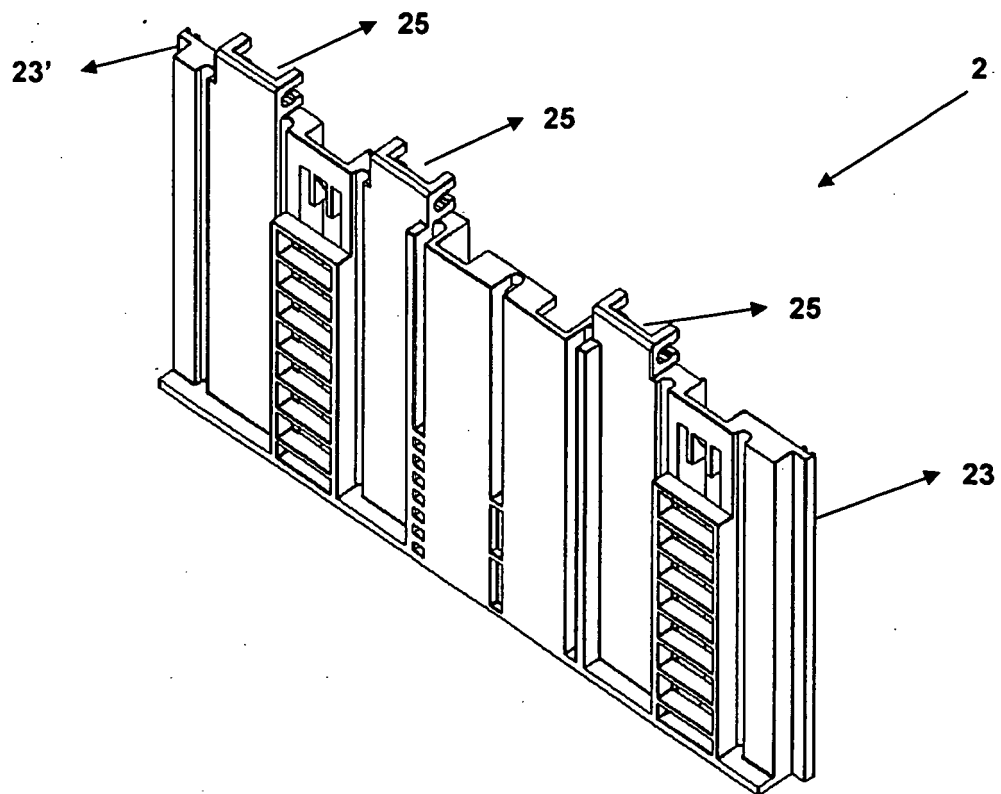


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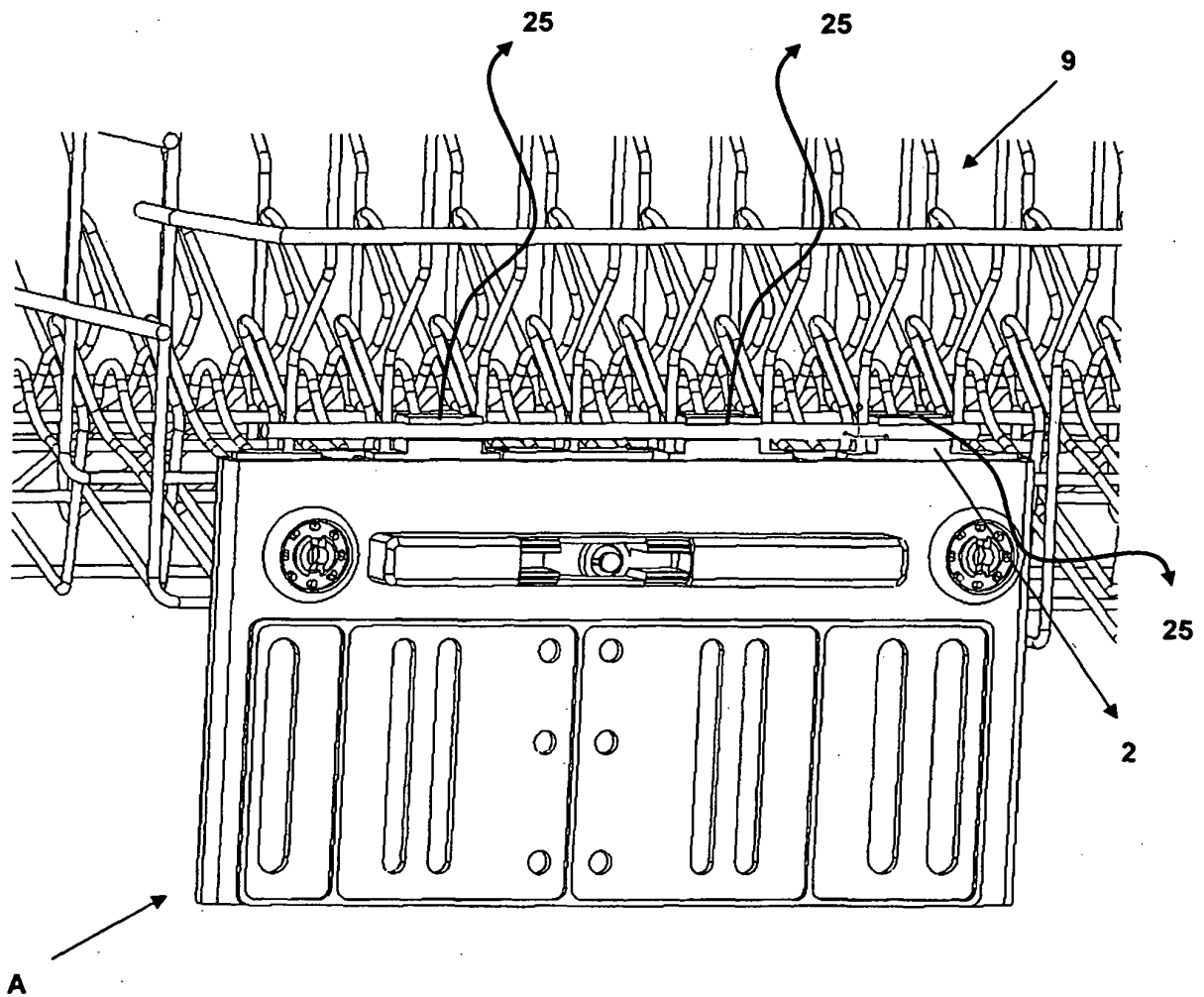


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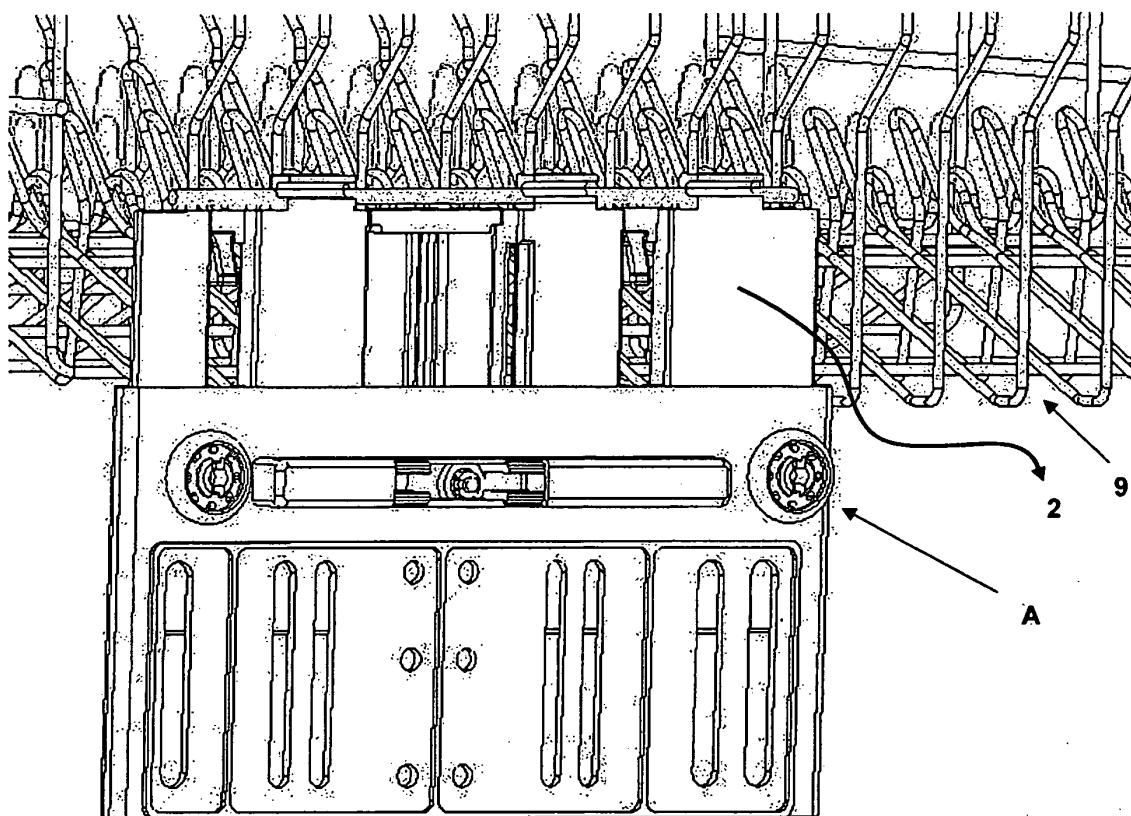


Figure – 12

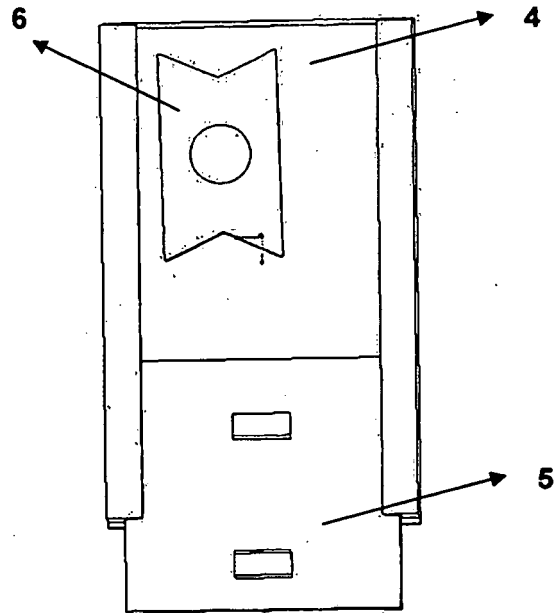


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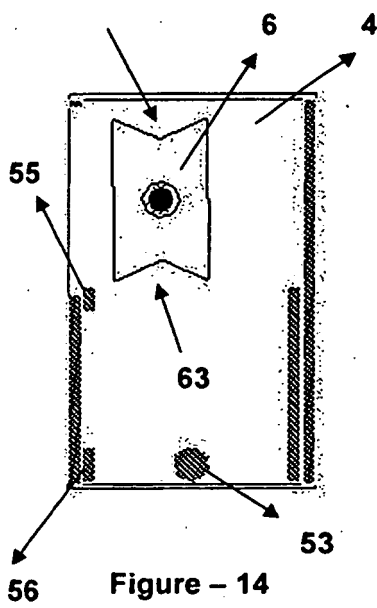


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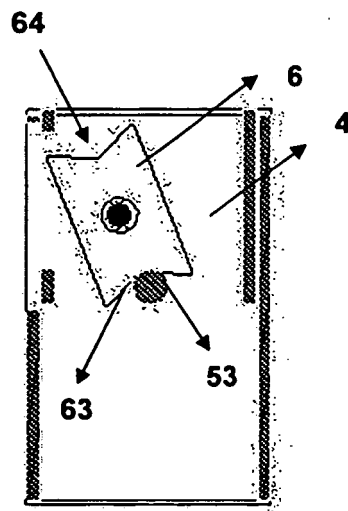


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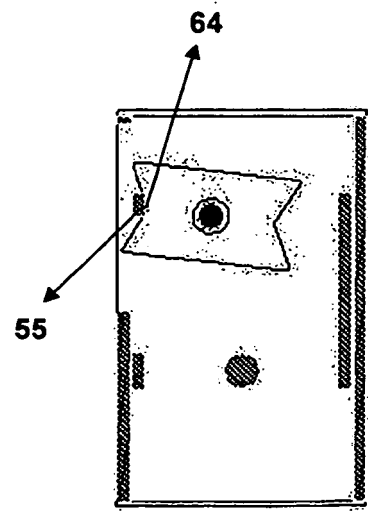


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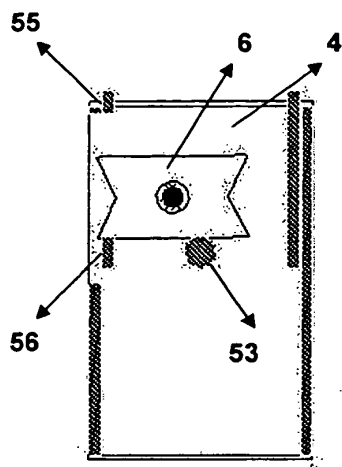


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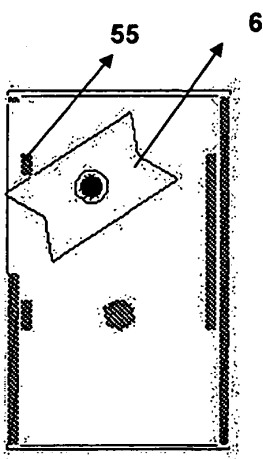


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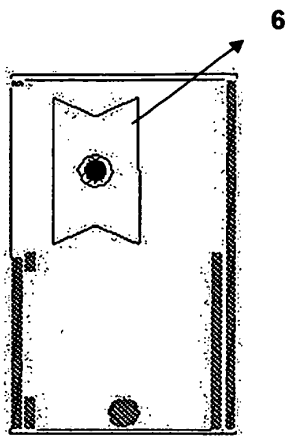


Figure – 19

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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