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(54) **VERTICAL ADJUSTMENT MECHANISM**  
**HÖHENEINSTELLMECHANISMUS**  
**MECANISME DE REGLAGE VERTICAL**

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**Description**

**[0001]** The present invention relates to the vertical adjustment of the dishwasher rack used in dishwashers.

**[0002]** The dishwashers comprises a rail-wheel assembly attached onto the body, a rail moving between said rail-wheel assembly, wheels engaged in the rail, that is connected to the upper rack and a rail lid serving as a stopper to avoid the derailment of the upper rack. When the user wants to change the height of the rack, she opens the ray lid, disengages the rack from the rail and closes the rail lid after she places the other row of wheels provided on the upper rack, onto the rail. This procedure is relatively difficult for the user, particularly when the upper rack is not empty. Thus it can be realized only after said rack is emptied.

**[0003]** In the German Patent No., DE 3025311 the system for the vertical adjustment of a rack when it is full, by a mechanism placed at both side of the said rack, without requiring the rail lid to be opened is depicted. Said mechanism comprises a support piece attached to the wires constituting the rack and a body providing the locking of said rack at a desired height while said supporting piece is moving. The user may raise or lower the rack by using said mechanism.

**[0004]** In the European Patent Application No. 0925755 a vertical adjustment mechanism that can be used to elevate the material attached on it gradually, is disclosed. Other known vertical adjustment mechanisms are disclosed in EP 0 033 483 and in DE 19512128 A1.

**[0005]** The object of the present invention is to provide the adjustment of the dishwasher rack height inside the dishwasher cabinet.

**[0006]** This object is achieved with a vertical adjustment mechanism according to independent claim 1. Preferred embodiments are defined in the dependent claims.

**[0007]** The vertical adjustment mechanism realized to attain the object of the present invention has been illustrated in the attached drawings, wherein;

Figure 1, is the exploded perspective view showing the vertical adjustment mechanism from the front;

Figure 2, is the exploded perspective view showing the vertical adjustment mechanism from the back;

Figure 3, is the perspective view showing the vertical adjustment mechanism and the rack at the lower position;

Figure 4, is the perspective view showing the vertical adjustment mechanism and the rack at the upper position;

Figure 5, is the front view of the body and locking mechanism and the section view of the supporting piece, when the rack is at the upper position;

Figure 6, is the front view of the body and locking mechanism and the section view of the supporting piece, when the rack is at the upper position and when a force is applied on the unlocking lever;

Figure 7, is the front view of the body and locking

mechanism and the section view of the supporting piece, when the rack is at the lower position.

**[0008]** The components shown in the drawings are numerated separately as listed below:

1. Vertical adjustment mechanism
2. Body
3. Supporting piece
4. Unlocking lever
5. Locking mechanism
6. Wheelwheel
7. Sliding guide
8. Guiding projection
9. Channel
10. Upper locking socket
11. Rack holder
12. 12a and 12b-Stopper
13. Rail
14. Socket
- 14a. Unlocking lever socket
- 14b. Lock socket
15. Slide guide projection
16. Groove
17. Bolt aperture
18. Unlocking lever frame
19. 19a and 19b, projection
20. Catch bar
21. Contact surface
22. Unlocking lever channel
23. Bolt projection
24. First bolt
25. Second bolt
26. Bolt angular surface
27. Spring secess
28. Spring
29. Supporting surface
30. End portion
31. Central portion
32. Barrier

**[0009]** The dishwasher contains lower and upper dishwasher racks wherein the material to be washed are placed. The distance between the lower-and upper-rack is determined by taking certain standards into consideration. When the upper rack is fixed, i.e. is stationary, various problems arise in placing the bulgy materials such as pots and pans in the dishwasher. In order to eliminate such problems, the upper rack is mounted in such a manner that its position in the dishwasher and its height can be adjusted, and consequently materials of different sizes can easily be placed both in the upper and lower racks. One or more vertical adjustment mechanisms (1) preferably located on both sides of the upper rack are realized in order to enable the customer to adjust the position of said rack and to fix it at different heights.

**[0010]** The vertical adjustment mechanism (1), comprises a body (2), an unlocking lever (4) placed on said

body (2), a locking mechanism (5) located between said body (2) and the unlocking lever (4) and, a supporting piece (3) on which the body (2) is attached. Said vertical adjustment mechanism (1) is placed on both sides of the rack and when the user wants to move the rack upwards or downwards, she actuates the unlocking lever (4) and the locking mechanism (5) by applying force on the unlocking lever (4) and as the result of this movement, the body (2) and the rack attached to said body (2) moves on the supporting piece (3).

**[0011]** On the front surface of the supporting piece (3), a pair of wheels (6) and on its back surface, the sliding guides (7) facilitating the engagement of the body (2), one or more guide projections (8) between said sliding guides (7) and a channel (9) wherein the unlocking lever (4) moves between said guide projections (8), are provided. At the upper section of the channel (9) at least one upper locking socket (10) wherein the locking mechanism (5) is fitted and left locked, is provided. The channel (9) has such a structure that it narrows after the upper locking socket (10) and widens towards its end. The positioning of the sliding guide (7) and channel (9) on the supporting piece (3) is realized according to the center of gravity of the rack. The distance between sliding guides (7) located symmetrically on both sides of the supporting piece (3) is equal to the width of the body (2). The to-and fro-movement of the rack by the user is provided by the sliding movement of the wheels (6) placed on the rails in the dish washer.

**[0012]** The body (2) comprises one or more rack holders (11) preferably placed at the top, bottom and lateral sides of said body (2), one or more stoppers (12a), one or more rails (13), a socket (14) and one or more sliding guide projections (15). The rack holders (11) enable the body (2) to be attached to the horizontal and/or longitudinal wires of the rack. Said stoppers (12a) that are located on the body (2), are so formed that they will not escape from the supporting piece (3) on which the body (2) is placed.

**[0013]** The sliding guide projections (15) provided on both sides of the body (2) are attached to the sliding guides (7) on the supporting piece (3). Furthermore, the body (2) is allowed to move easily without deviating from its movement direction, on the supporting piece (3) placed on the rails (13) by means of the guide projections (8).

**[0014]** The socket (14) on the body (2) comprises an unlocking lever socket (14a) wherein the unlocking lever (4) is placed and a locking socket (14b) wherein the locking mechanism (5) is placed.

**[0015]** Projections (19a) provided at the inner sides of the unlocking lever socket (14a) to prevent the unlocking lever (4) from escaping out of its socket (14a). Said projections (19a) are preferably made in a cascading form, in order to minimize the movements of the unlocking lever (4) in its socket (14a). Stoppers (12a) that prevent the unlocking lever (4) from escaping, in vertical direction, from the body (2), are provided on the body (2), below

the unlocking lever socket (14a). At the center of the unlocking lever socket (14a), a barrier (32) delimiting the horizontal movement of the unlocking lever (4), and extending along the unlocking lever socket (14a), is located.

**[0016]** Stoppers (12b) that prevent the locking mechanism (5) to release from the lock socket (14b) are provided at both ends of the lock socket (14b) and at places corresponding the recesses formed at the edges of the locking mechanism (5) of the lock socket (14b). The movement of the locking mechanism (5) is limited by the lateral wall of the lock socket (14b). Said lock socket (14b) is provided with one or more grooves (16) that allow the easy attachment of the locking mechanism (5).

**[0017]** The unlocking lever (4) comprises a bolt aperture (17), an unlocking lever frame (18), projections (19b), contact surfaces (21) preferably of an inclined structure, located at the lower section of the bolt aperture (17), an unlocking lever channel (22) to engage to the barrier (32) located at the center of the unlocking lever socket (14a) and a catch lever (20). The unlocking lever (4) moves in the direction of the force applied by the user, by means of the catch lever (20). Projections (19b) having the same cascade structure as the projections (19a) provided at the inner sides of the unlocking lever socket (14a), are provided at the edge of the unlocking lever frame (18), so that they (19b) are located under said projections (19a).

**[0018]** Locking mechanism (5) comprises a first bolt (24), a second bolt (25) and a spring (28) located between the first and second bolts (24,25). Said first and second bolts (24 and 25) comprise two portions, namely the end portion (30) and the central portion (31). The end portion (30) has a sloping surface that facilitates the movement of the locking mechanism (5) in the channel (9) provided on the supporting piece (3); whereas the central portion (31) has angular surfaces (26) to match with the contact surfaces (21) of the unlocking lever (4). A spring (28) that is contained in a spring recess (27) larger than the diameter of the spring (28) provided at the central portion (31) of the first bolt (24) is located between the first and second bolts (24 and 25). In the central portion (31) of the second bolt (25) placed as opposing the first lock handle (24), a supporting surface (29) is provided so that it enters the spring recess (27) on the first bolt (24). The spring recess (27) has a shape and size sufficient to contain said supporting surface (29). One or more bolt projections (23) are provided at the lower edge of the central portion (31) of both locking mechanisms (5). Said projections (23) fit into the grooves (16) provided at the lock socket (14b), during the assembly.

**[0019]** During the assembly of the rack vertical adjustment mechanism (1), the spring (28) is disposed in the spring recess (27) provided in the central portion (31) of the first bolt (24). Second bolt (25) is so placed in the spring recess (27) that the supporting surface (29) will be in contact with the spring (28). In this case, when a force greater than the spring (28) force is applied on the end portion (30) of the first and second bolts (24 and 25),

they approach towards each other. Said first and second bolts (24,25) are brought close to each other and the spring (28) is compressed in order to place the locking mechanism (5) into the lock socket (14b) provided on the body (2). At this position, the distance between two bolt projections (23) provided at the bottom of the central portion (31) of the first and second bolts (24,25) is minimum and the locking mechanism (5) is attached in the lock socket (14b) by placing said bolt projections (23) in the grooves (16) provided at the lock socket (14b). To take said locking mechanism (5) out of the lock socket (14b), the spring (28) is compressed and the bolt projections (23) are removed from said grooves (16). At the moment when the locking mechanism (5) is fitted into the lock socket (14b), it is pushed by the spring (28) against the lateral walls of the lock socket (14b). Then, the unlocking lever (4) is placed into the unlocking lever socket (14a) provided on the body (2).

**[0020]** Said unlocking lever (4) is so placed on the barrier (32) extending along the unlocking lever socket (14a), that the projections (19b) at the edge of the unlocking lever frame (18) do not lap over the projections (19a) provided at the inner edges of the unlocking lever socket (14a). In order to place the unlocking lever (4) completely into the unlocking lever socket (14a) an upward force is applied on the unlocking lever (4) so that the unlocking lever (4) slides over the barrier (32), passes over the stopper (12a) and is received into the unlocking lever socket (14a). In this case, the projections (19b) on the unlocking lever (4) are positioned below the projections provided in the unlocking lever socket (14a) and the unlocking lever (4) is completely seated on the body (2) by means of two stoppers (12a) which rest against the lower surface of the unlocking lever frame (18). The movement of the unlocking arm (4) inside its socket (14a) is limited by the stopper (12a), the grooves (16) provided below the lock socket (14b) and the lower surface of the bolt aperture (17).

**[0021]** Finally, the rack vertical adjustment mechanism (1) is completed by attaching the body (2) to which the unlocking arm (4) and locking mechanism (5) are incorporated, onto the sliding guides (7) provided on the supporting piece (3) by means of the sliding guides (15) provided on its both sides.

**[0022]** Said vertical adjustment mechanism (1) is fixed onto the rack by attaching the rack holders (11) provided on the body (2) to the horizontal and longitudinal wires of the rack. Preferably, said mechanism (1) is placed symmetrically on both sides of the rack: then, the wheels (6) provided on the supporting piece (3) are put onto the rails in the dishwasher and the rack is thus placed into the dishwasher.

**[0023]** Said rack may be elevated by the user, applying a force onto the catch bar (20) provided at the upper section of the unlocking lever (4) or directly onto the rack.

**[0024]** When a force is directly applied on the rack, the body (2) with the rack attached on it, moves upwards in the supporting piece (3). During this movement, the chan-

nel (9) on the supporting piece (3), compresses the locking mechanism (5) provided on the body (2) due to its structure which first narrows then widens upwards. Consequently, the first bolt (24) is driven apart from the second bolt (25) when the channel widens and vice versa. When the rack reaches its uppermost level, the channel (9) widens again and the first and second bolts (24 and 25) move in the channel in opposite directions, by the force applied by the spring (28) compressed between said two bolts (24, 25). Consequently the locking mechanism (5) sits into the upper locking socket (10) located at the channel (9). In this case, the distance between the first and second bolts (24 and 25) is at maximum level and the rack remains fixed at this height.

**[0025]** While the rack is being raised by applying force onto the catch lever (20) provided at the upper side of the unlocking lever (4), as the results of said force, the unlocking lever (4) moves up inside the unlocking lever socket (14a), and simultaneously, the contact surfaces (21) on the unlocking lever (4) also move up, and bring the locking mechanism closer to each other by means of the angular surfaces (26) at the central portion (31) of the bolt, to which they contact. When said unlocking lever (4) is continued to be raised as long as it is pressed down after it rests against the body (2), said body (2) moves upwards inside the supporting piece (3). When the rack reaches the uppermost level, it is kept fixed and the locking mechanism (5) is fitted into the upper locking socket (10) by means of the spring (28) compressed after releasing the force applied on the unlocking lever (4), and which moves the first and second bolts (24 and 25) in opposite directions within the lock socket (14b), (Fig. 5).

**[0026]** When the user wants to lower the rack, she applies a force onto the catch lever (20) provided at the upper section of the unlocking lever (4) (in direction A-Fig. 6). As the result of this force applied, said unlocking lever (4) moves up within the unlocking lever socket (14a). When the contact surfaces (21) at the lower side of the bolt aperture (17) move up, the spring (28) between the bolts is compressed and the first and second bolts (24 and 25) are brought close to each other by moving on the horizontal plane (in directions B and C, Fig. 6), by means of the angular surfaces (26) provided at the central portion of the bolt (24 or 25) to which they contact. At the end of this process, the first and second bolts (24 and 25) seated in the upper locking socket (10) when the rack was at the uppermost level, leave the socket (10) and the body (2) moves downwards, on the supporting piece (3).

**[0027]** While raising or lowering the rack, said rack can be raised/lowered as a whole by pulling simultaneously both unlocking levers (4) of the vertical adjustment mechanism (1) located at both sides of the rack, or first a part of the rack can be raised/lowered by pulling one of the unlocking levers (4) and then the other a part of the rack can be raised/lowered by pulling the other unlocking lever (4).

**[0028]** Although one upper locking socket (10) is lo-

cated on the supporting piece (3), in the above disclosed embodiments, more than one locking socket (10) may also be used in order to enable the rack to be kept at more than one level.

### Claims

1. A vertical adjustment mechanism used in dishwashers, which is located on both sides of the rack, opposite to each other, and which comprises a body (2), an unlocking lever (4) placed on said body (2) in an unlocking lever socket (14a), a locking mechanism (5) placed on said body (2) in a locking socket (14b) and a supporting piece (3) on which the body (2) is attached, enabling the rack to move by the movement of the body (2) on the supporting piece (3) when for unlocking the locking mechanism (5) a force in upwards direction (A) is applied on the unlocking lever (4) provided on the body (2) or is applied directly on the rack whereby the unlocking lever (4) moves up in said unlocking lever socket (14a) whereby the said unlocking lever (4) matches with the locking mechanism (5) when a force is applied in upwards direction (A) unlocking the locking mechanism (5) whereby said unlocking lever (4) functions for unlocking the locking mechanism (5) for both for raising and for lowering the rack.
2. A vertical adjustment mechanism as defined in Claim 1, **characterized by** the supporting piece (3) comprising, on its front surface, a pair of wheels (6) and on its back surface, the sliding guides (7) facilitating the engagement of the body (2), one or more guide projections (8) between said sliding guides (7), a channel (9) wherein the unlocking lever (4) and the locking mechanism (5) moves, between said guide projections (8), and at least one upper locking socket (10) wherein the locking mechanism (5) is fitted and left locked, and which enables the rack to move to-and-fro by the movement of the wheels (6) on the rails in the dishwasher.
3. A vertical adjustment mechanism (1), as defined in Claims 1 and 2, **characterized by** the body (2) disposed on the supporting piece (3), that comprises rack holders (11) that enable the body (2) to be attached to the horizontal and/or longitudinal wires of the rack, a stopper (12a) preventing its escaping from the supporting piece (3) while moving on the supporting piece (3), sliding guide projections (15) attached to the sliding guides (7) on the supporting piece (3), rails (13) placed in the guide projections (8) on the supporting piece (3), allowing it to move easily without deviating from its movement direction, on the supporting piece (3), and a socket (14) including an unlocking lever socket (14a) wherein the unlocking lever (4) is placed and a locking socket (14b) wherein the locking mechanism (5) is placed.
4. A vertical adjustment mechanism (1), according to Claims 1 to 3, **characterized by** the socket (14) on the body (2) comprising an unlocking lever socket (14a) comprising projections (19a) to prevent the unlocking lever (4) from escaping out of its socket (14a) and at its center, a barrier (32) delimiting the horizontal movement of the unlocking lever (4), and a lock socket (14b) comprising stoppers (12b) that prevent the locking mechanism (5) to depart from the lock socket (14b) at both ends of the locking socket (14b) and at places corresponding the recesses formed at the edges of the locking mechanism (5) and grooves (16) that allow the easy attachment of the locking mechanism (5).
5. A vertical adjustment mechanism (1), according to Claims 1-4, **characterized by** the unlocking lever (4), comprising a catch lever (20) on which force is applied, an unlocking lever frame (18) wherein the projections (19b) having the same cascade structure as the projections (19a) provided at the inner sides of the unlocking lever socket (14a), are provided, a bolt aperture (17) wherein contact surfaces (21) are located at the lower section of the bolt aperture (17), an unlocking lever channel (22) to engage to the barrier (32) extending along the center of the socket (14).
6. A vertical adjustment mechanism (1), according to Claims 1-5, **characterized by** the locking mechanism (5) comprising a first bolt (24) comprising an end portion (30), a central portion (31), at said end portion (30) a sloping surface that facilitates the movement of the locking mechanism (5) in the channel (9) provided on the supporting piece (3) and at the central portion (31), one or more angular surfaces (26), and a spring recess (27), a second bolt (25) in the central portion (31) of which, placed as opposing the first bolt (24), a supporting surface (29) is provided so that it enters the spring recess (27) on the first bolt (24) and, a spring (28) placed in the spring recess (27) at the first bolt (24), connecting the first and second bolts (24 and 25) by resting against the supporting surface (29) at the central portion (31) of the second bolt (25).
7. A vertical adjustment mechanism (1), according Claim 6, **characterized by** the locking mechanism (5) comprising angular bolt surfaces (26) with the same form as the contact surfaces (21) provided at the lower section of the lock hand aperture (17).
8. A vertical adjustment mechanism (1), as defined in Claims 1 to 6, assembled by placing the locking mechanism (5) formed by the spring (28) placed be-

tween the first and second bolts (24,25) in to the lock socket (14b) provided on the body (2), placing the unlocking lever (4) into the unlocking lever socket (14a) provided on the body (2) and attaching said body (2) with the unlocking lever (4) and the locking mechanism (5) onto the supporting piece (3); which provides the upwards movement of the body (2) in the channel (9) provided at the supporting piece (3), when the user intends to raise the rack, by applying a force on the catch lever (20) or on the rack, and keeps the rack fixed by engaging the locking mechanism (5) into the upper locking socket (10), and when the user desires to lower the rack, which provides the upwards movement of the unlocking lever (4) in the unlocking lever socket (14a) which in turn causes the locking mechanism (5) to leave the upper locking socket (10) and the body (2) to move downwards, in the channel (9) provided at the supporting piece.

### Patentansprüche

1. Vertikalverstellmechanismus zur Verwendung in Geschirrspülmaschinen, der an beiden gegenüberliegenden Seiten des Ablagegestells angeordnet ist, und der einen Grundkörper (2), einen Entriegelungshebel (4), der in einer Entriegelungshebelsteckhülse (14a) am genannten Grundkörper (2) angeordnet ist, einen Verriegelungsmechanismus (5), der in einer Verriegelungssteckhülse (14b) am genannten Grundkörper (2) angeordnet ist, und ein Halteelement (3) umfasst, an dem der Grundkörper (2) angebracht ist, wodurch das Ablagegestell sich mittels der Bewegung des Grundkörpers (2) am Halteelement (3) bewegen kann, wenn zum Entriegeln des Verriegelungsmechanismus (5) eine Kraft in Aufwärtsrichtung (A) auf den Entriegelungshebel (4) angewandt wird, der am Grundkörper (2) vorgesehen ist, oder direkt auf das Ablagegestell angewandt wird, wodurch sich der Entriegelungshebel (4) in die Entriegelungshebelsteckhülse (14a) nach oben bewegt, wobei der genannte Entriegelungshebel (4) in Übereinstimmung mit dem Verriegelungsmechanismus (5) gelangt, wenn eine Kraft in Aufwärtsrichtung (A) angewandt wird, um den Verriegelungsmechanismus (5) zu entriegeln, wobei der genannte Entriegelungshebel (4) dazu dient, den Verriegelungsmechanismus (5) sowohl zum Anheben als auch zum Absenken des Ablagegestells zu entriegeln.
2. Vertikalverstellmechanismus nach Anspruch 1, **dadurch gekennzeichnet, dass** das Halteelement (3) an seiner Stirnfläche ein Paar Räder (6) und an seiner Rückenfläche die Gleitführungselemente (7) umfasst, die das Eingreifen des Körpers (2) erleichtern, einen oder mehrere Führungsvorsprünge (8) zwischen den genannten Gleitführungselementen (7), einen Kanal (9), in dem sich der Entriegelungshebel (4) und der Verriegelungsmechanismus (5) bewegen, zwischen den genannten Führungsvorsprüngen (8), und mindestens eine obere Verriegelungssteckhülse (10), in die der Verriegelungsmechanismus (5) eingesetzt ist und verriegelt bleibt, und die es erlaubt, dass sich das Ablagegestell durch die Bewegung der Räder (6) an den Schienen in der Geschirrspülmaschine vor und zurück bewegt.
3. Vertikalverstellmechanismus (1) nach den Ansprüchen 1 und 2, **dadurch gekennzeichnet, dass** der Grundkörper (2), der am Halteelement (3) angeordnet ist, Ablagegestellhalterungen (11) umfasst, die ein Anbringen des Grundkörpers (2) an den horizontalen und/oder längs verlaufenden Stäben des Ablagegestells erlauben, einen Anschlag (12a), der während der Bewegung am Halteelement (3) sein Heraustreten aus dem Halteelement (3) verhindert, Gleitführungsvorsprünge (15), die an den Gleitführungselementen (7) am Halteelement (3) angebracht sind, Schienen (13), die in den Führungsvorsprüngen (8) am Halteelement (3) angeordnet sind, und die es ihm erlauben, sich leichtgängig und ohne Abweichung von seiner Bewegungsrichtung am Halteelement (3) zu bewegen, und eine Steckhülse (14), die einen Entriegelungshebelsteckhülse (14a) umfasst, in der der Entriegelungshebel (4) angeordnet ist, und eine Verriegelungssteckhülse (14b), in der der Verriegelungsmechanismus (5) angeordnet ist.
4. Vertikalverstellmechanismus (1) nach den Ansprüchen 1 bis 3, **dadurch gekennzeichnet, dass** die Steckhülse (14) am Grundkörper (2) Entriegelungshebelsteckhülse (14a) mit Vorsprüngen (19a) umfasst, die verhindern, dass der Entriegelungshebel (4) aus seiner Steckhülse (14a) austritt, und in ihrer Mitte eine Barriere (32), die die horizontale Bewegung des Entriegelungshebels (4) begrenzt, und eine Verriegelungssteckhülse (14b) mit Anschlägen (12b) an beiden Enden der Verriegelungssteckhülse (14b) und an Positionen, die den Vertiefungen entsprechen, welche an den Kanten des Verriegelungsmechanismus (5) ausgebildet sind, die verhindern, dass der Verriegelungsmechanismus (5) die Verriegelungssteckhülse (14b) verlässt, und Nuten (16), die eine leichte Anbringung des Verriegelungsmechanismus (5) erlauben.
5. Vertikalverstellmechanismus (1) nach den Ansprüchen 1 bis 4, **dadurch gekennzeichnet, dass** der Entriegelungshebel (4) einen Sperrhebel (20) umfasst, auf den Kraft angewandt wird, einen Entriegelungshebelrahmen (18), an dem die Vorsprünge (19b) vorgesehen sind, die den gleichen kaskadierenden Aufbau aufweisen wie die Vorsprünge (19a),

die an den Innenseiten der Entriegelungshebelsteckhülse (14a) vorgesehen sind, eine Schrauböffnung (17), wobei im unteren Abschnitt der Schrauböffnung (17) Kontaktflächen (21) angeordnet sind, einen Entriegelungshebelkanal (22), der in Eingriff mit der Barriere (32) gelangt, die sich an der Mitte der Steckhülse (14) entlang erstreckt.

6. Vertikalverstellmechanismus(1) nach den Ansprüchen 1 bis 5, **dadurch gekennzeichnet, dass** der Verriegelungsmechanismus (5) eine erste Schraube (24) umfasst, die einen Endabschnitt (30), einen Mittelabschnitt (31), an dem genannten Endabschnitt (30) eine geneigte Fläche, die die Bewegung des Verriegelungsmechanismus (5) im Kanal (9), der am Halteelement (3) und an dem Mittelabschnitt (31) vorgesehen ist, erleichtert, eine oder mehrere gewinkelte Flächen (26) und eine Federvertiefung (27) umfasst, eine zweite Schraube (25), in deren Mittelabschnitt (31) in einer Position gegenüber der ersten Schraube (24), eine Haltefläche (29) vorgesehen ist, derart, dass sie in die Federvertiefung (27) der ersten Schraube (24) eintritt, und eine Feder (28), die in der Federvertiefung (27) der ersten Schraube (24) angeordnet ist, und die die erste und zweite Schraube (24 und 25) verbindet, indem sie an der Haltefläche (29) am Mittelabschnitt (31) der zweiten Schraube (25) ruht.
7. Vertikalverstellmechanismus (1) nach Anspruch 6, **dadurch gekennzeichnet, dass** der Verriegelungsmechanismus (5) gewinkelte Schraubflächen (26) umfasst, die die gleiche Form aufweisen wie die Kontaktflächen (21), die am unteren Teil der Verriegelungshandöffnung (17) vorgesehen sind.
8. Vertikalverstellmechanismus (1) nach den Ansprüchen 1 bis 6, der zusammengebaut wird, indem der Verriegelungsmechanismus (5), der gebildet ist, indem die Feder (28) zwischen die erste und zweite Schraube (24, 25) gesetzt ist, in die Verriegelungssteckhülse (14b) gesetzt wird, die am Grundkörper (2) vorgesehen ist, der Entriegelungshebel (4) in die Entriegelungshebelsteckhülse (14a) gesetzt wird, die am Grundkörper (2) vorgesehen ist, und der genannte Grundkörper (2) mit dem Entriegelungshebel (4) und dem Verriegelungsmechanismus (5) am Halteelement (3) angebracht wird, was die Aufwärtsbewegung des Grundkörpers (2) im Kanal (9) ermöglicht, der am Halteelement (3) vorgesehen ist, wenn der Benutzer das Ablagegestell anheben möchte, indem er eine Kraft auf den Klinkenhebel (20) oder auf das Ablagegestell ausübt, und das Ablagegestell fixiert hält, indem der Verriegelungsmechanismus (5) in die obere Verriegelungssteckhülse (10) eingreifen lässt, und wenn der Benutzer das Ablagegestell absenken möchte, die Aufwärtsbewegung des Entriegelungshebels (4) in die Entriegelungshebel-

steckhülse (14a) ermöglicht, was wiederum den Verriegelungsmechanismus (5) veranlasst, die obere Verriegelungssteckhülse (10) zu verlassen, und den Grundkörper (2), sich im Kanal (9), der am Halteelement (3) vorgesehen ist, nach unten zu bewegen.

## Revendications

1. Un mécanisme d'ajustement vertical utilisé dans les lave-vaisselles, situé sur les deux côtés de la panier, l'un en face de l'autre, et qui comprend un corps (2), un levier de déverrouillage (4) placé sur ledit corps (2) dans une prise de levier de déverrouillage (14a), un mécanisme de verrouillage (5) placé sur ledit corps (2) dans une prise de verrouillage (14b) et une pièce de support (3) sur lequel le corps (2) est attaché, ce qui permet de déplacer le panier par le mouvement du corps (2) sur la pièce de support (3) lorsque, pour libérer le mécanisme de verrouillage (5), une force par le haut (A) est appliquée sur le levier de déverrouillage (4) sur le corps (2) ou une force est appliquée directement sur le panier par laquelle le levier de déverrouillage (4) se déplace dans ladite prise de levier de déverrouillage (14a) par laquelle le levier de déverrouillage (4) correspond avec le mécanisme de verrouillage (5) lorsqu'une force est appliquée dans la direction vers le haut (A) pour le déverrouillage du mécanisme de verrouillage (5) par laquelle le levier de déverrouillage (4) fonctionne pour déverrouiller le mécanisme de verrouillage (5) à la fois en élevant et en abaissant le panier.
2. Un mécanisme d'ajustement vertical selon la revendication 1, **caractérisé par** la pièce de support (3) comprenant, sur sa face avant, une paire de roues (6) et sur sa face arrière, des guides de glissement (7) facilitant l'engagement du corps (2), une ou plusieurs projections de guidage (8) entre lesdits guides de glissement (7), un canal (9) dans lequel le levier de déverrouillage (4) et le mécanisme de verrouillage (5) se déplacent, entre lesdites projections de guidage (8), et au moins une prise de verrouillage supérieure (10) dans laquelle le mécanisme de verrouillage (5) est en place et de gauche est verrouillée, et qui permet au support de passer dans les deux sens par le mouvement des roues (6) sur les rails dans le lave-vaisselle.
3. Un mécanisme d'ajustement vertical (1), selon les revendications 1 et 2, **caractérisé par** le corps (2) disposé sur la pièce de support (3), qui comprend des porte-paniers (11) qui permettent au corps (2) d'être joint à l'horizontale et/ou aux côtés longitudinaux du panier, une butée (12a) qui empêche la fuite sur la pièce de support (3) tout en se déplaçant sur la pièce de support (3), glissant les projections de

- guidage (15) attachées aux guides de glissement (7) sur la pièce de support (3), les rails (13) placés dans les projections de guidage (8) sur la pièce de support (3), ce qui leur permet de se déplacer facilement sans dévier du sens de leur mouvement, sur la pièce de support (3), et une prise (14), y compris une prise de levier de déverrouillage (14a), dans laquelle le levier de déverrouillage (4) est placé et une prise de verrouillage (14b), dans laquelle le mécanisme de verrouillage (5) est placé.
4. Un mécanisme d'ajustement vertical (1), selon les revendications de 1 à 3, **caractérisé par** la prise (14) sur le corps (2) qui comprend une prise de levier de déverrouillage (14a) comprenant des projections (19a) pour empêcher le levier de déverrouillage (4) de s'échapper de sa prise (14a) et, en son centre, une barrière (32) délimitant le mouvement horizontal du levier de déverrouillage (4), et une prise de verrouillage (14b) comprenant des butées (12b) qui empêchent le mécanisme de verrouillage (5) à partir de la prise de verrouillage (14b) aux deux extrémités de la prise de verrouillage (14b) et à des endroits correspondant aux évidements formés sur les bords du mécanisme de verrouillage (5) et de rainures (16) qui permettent la fixation facile du mécanisme de verrouillage (5).
5. Un mécanisme d'ajustement vertical (1), selon les revendications de 1 à 4, **caractérisé par** le levier de déverrouillage (4), qui comprend un levier d'arrêt (20) sur lequel la force est appliquée, un cadre de levier de déverrouillage (18) dans lequel les projections (19b) ayant la structure en cascade même que les projections (19a) prévues à la partie interne de la prise du levier de déverrouillage (14a), sont fournis, une ouverture de verrou (17) dans laquelle les surfaces de contact (21) sont situées à la partie inférieure de l'ouverture de verrou (17), un canal de levier de déverrouillage (22) dans le but de se livrer à la barrière (32) tout en s'étendant le long du centre de la prise (14).
6. Un mécanisme d'ajustement vertical (1), selon les revendications de 1 à 5, **caractérisé par** le mécanisme de verrouillage (5) qui comprend un premier verrou (24) comprenant une partie terminale (30), une partie centrale (31), au niveau de ladite partie terminale (30) une surface en pente qui facilite le mouvement du mécanisme de verrouillage (5) dans le canal (9) prévu sur la pièce de support (3), et à la partie centrale (31), une ou plusieurs faces angulaires (26), et un évidement de ressort (27), un deuxième verrou (25) dans la partie centrale (31) qui, placé à l'opposé du premier verrou (24), une surface d'appui (29) étant prévu pour que son entrée dans l'évidement de ressort (27) sur le premier boulon (24) et un ressort (28) placé dans l'évidement de ressort
- (27) au premier verrou (24), reliant les verrous premier et deuxième (24 et 25) en appui contre la surface d'appui (29) à la partie centrale (31) de la deuxième verrou (25).
7. Un mécanisme d'ajustement vertical (1), selon la revendication 6, **caractérisé par** le mécanisme de verrouillage (5) qui comprend des surfaces de verrou coudé (26) avec la même forme que les surfaces de contact (21) prévues à la partie inférieure de l'ouverture de verrou (17).
8. Un mécanisme d'ajustement vertical (1), selon les revendications de 1 à 6, assemblé de façon à placer le mécanisme de verrouillage (5) formé par le ressort (28) qui se situe entre les verrous premier et deuxième (24, 25) à la prise de verrouillage (14b) sur le corps (2), plaçant le levier de déverrouillage (4) dans la prise de levier de déverrouillage (14a) sur le corps (2) et fixant ledit corps (2) avec le levier de déverrouillage (4) et le mécanisme de verrouillage (5) sur la pièce de support (3), ce qui donne le mouvement à la hausse du corps (2) dans le canal (9) fourni à la pièce de support (3), lorsque l'utilisateur a l'intention de soulever le panier, en appliquant une force sur le levier d'arrêt (20) ou sur le panier, et maintient le panier fixée pour enclencher le mécanisme de verrouillage (5) dans la prise de verrouillage supérieure (10), et lorsque l'utilisateur désire abaisser le panier, qui fournit le mouvement à la hausse du levier de déverrouillage (4) dans la prise de levier de déverrouillage (14a), qui pousse à son tour le mécanisme de verrouillage (5) à quitter la prise de verrouillage supérieure (10) et le corps (2) à se déplacer vers le bas, dans le canal (9) à la pièce de support (3).

FIGURE 1

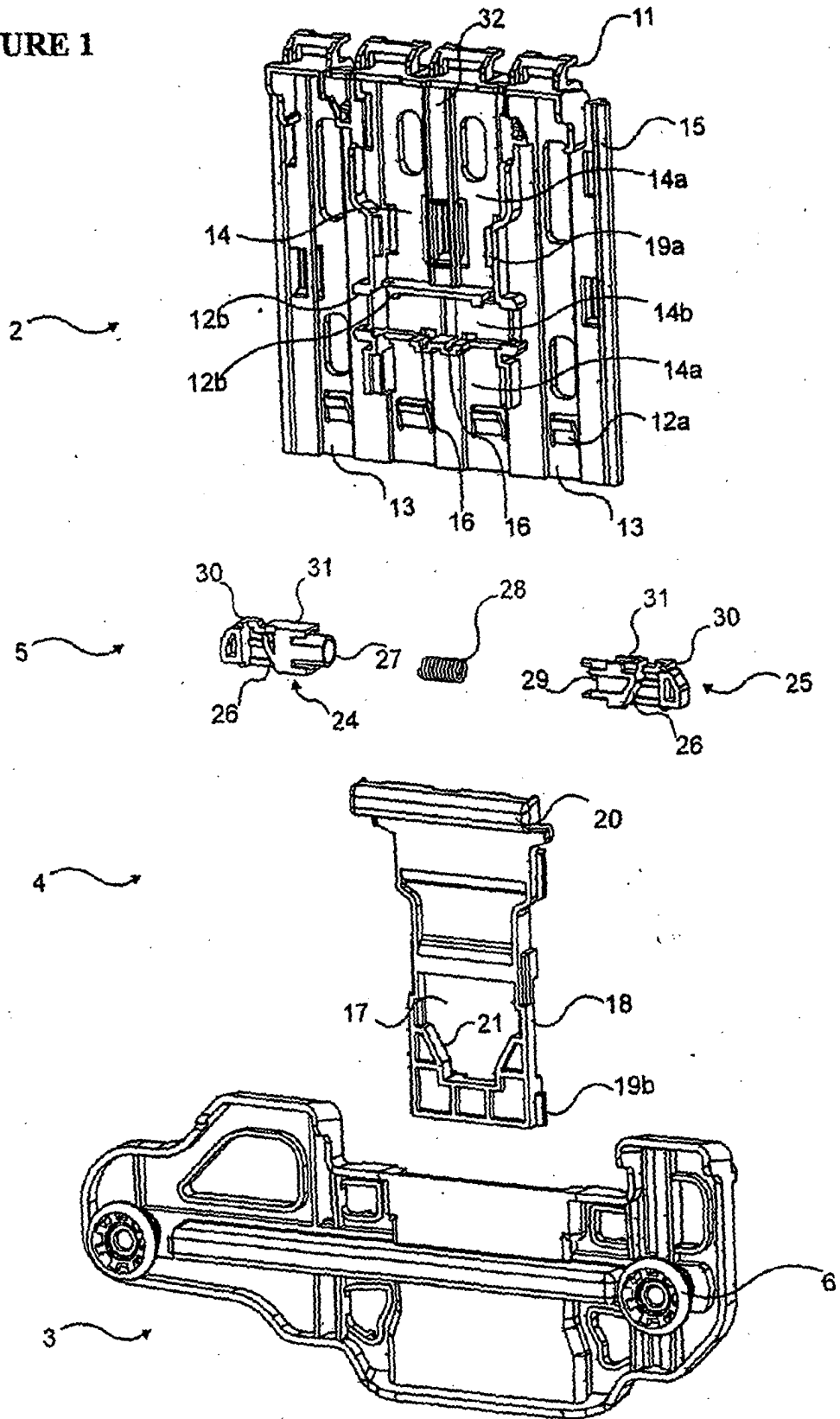


FIGURE 2

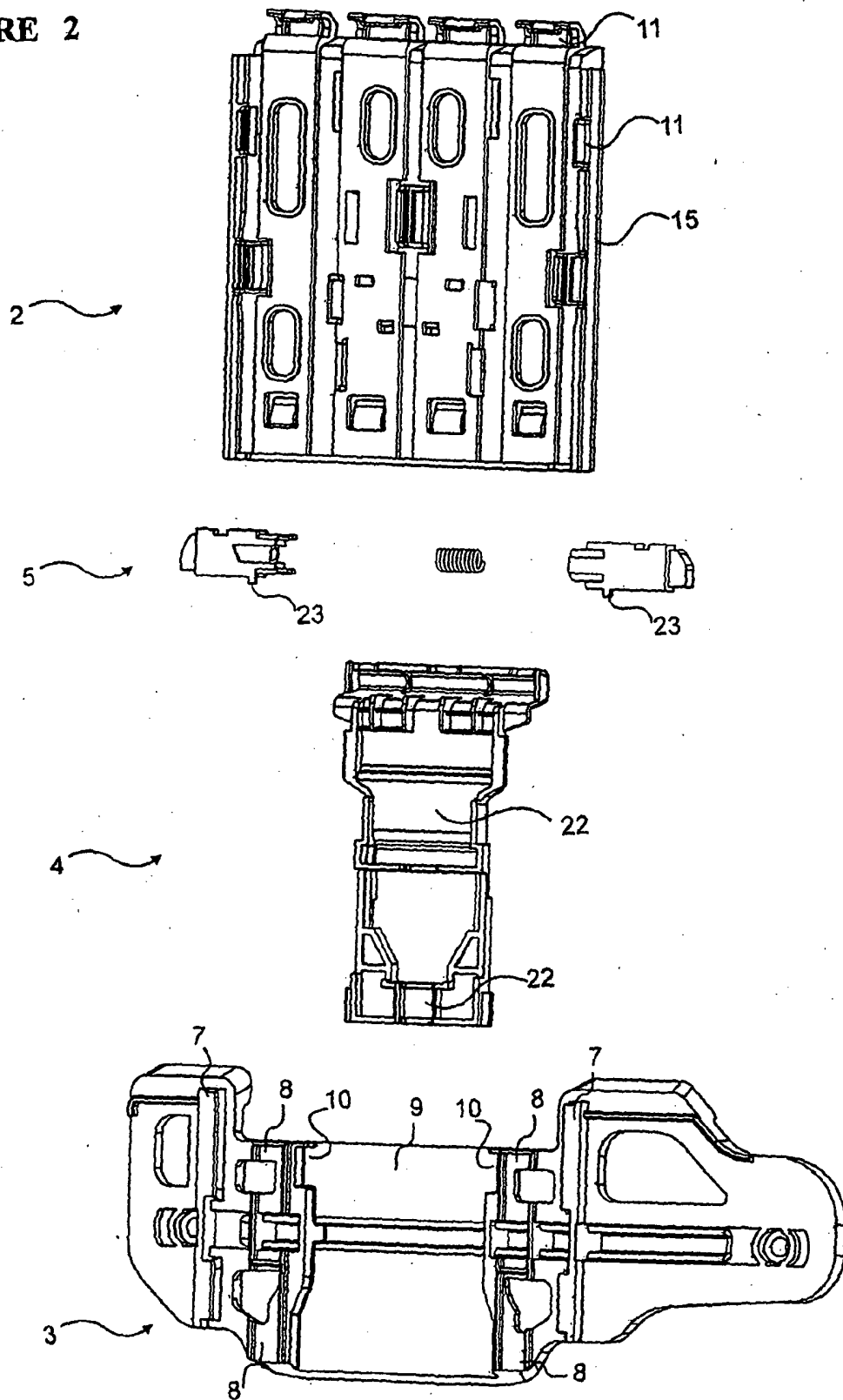


FIGURE 3

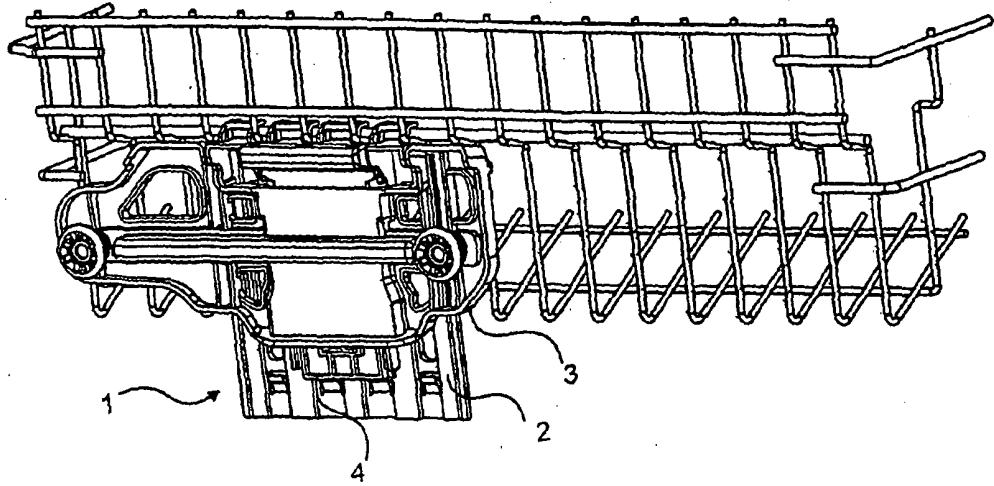


FIGURE 4

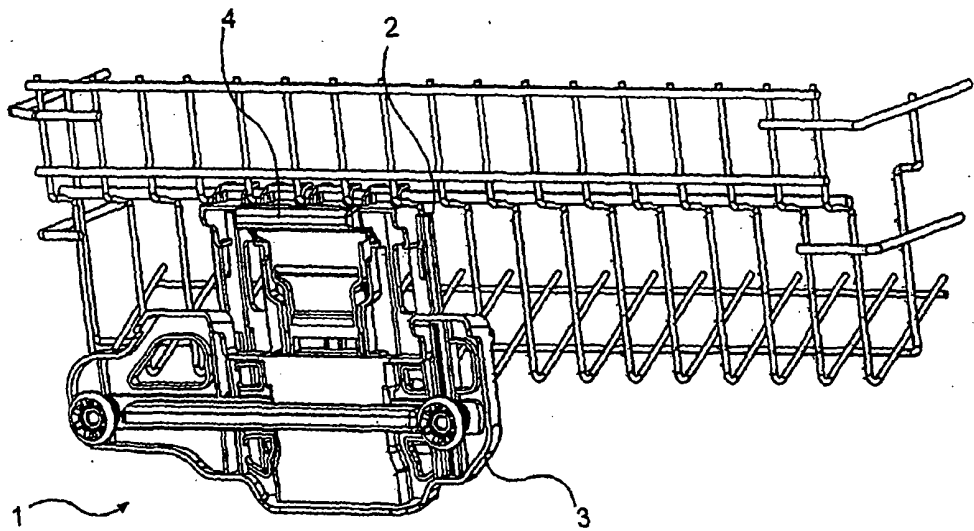


FIGURE 5

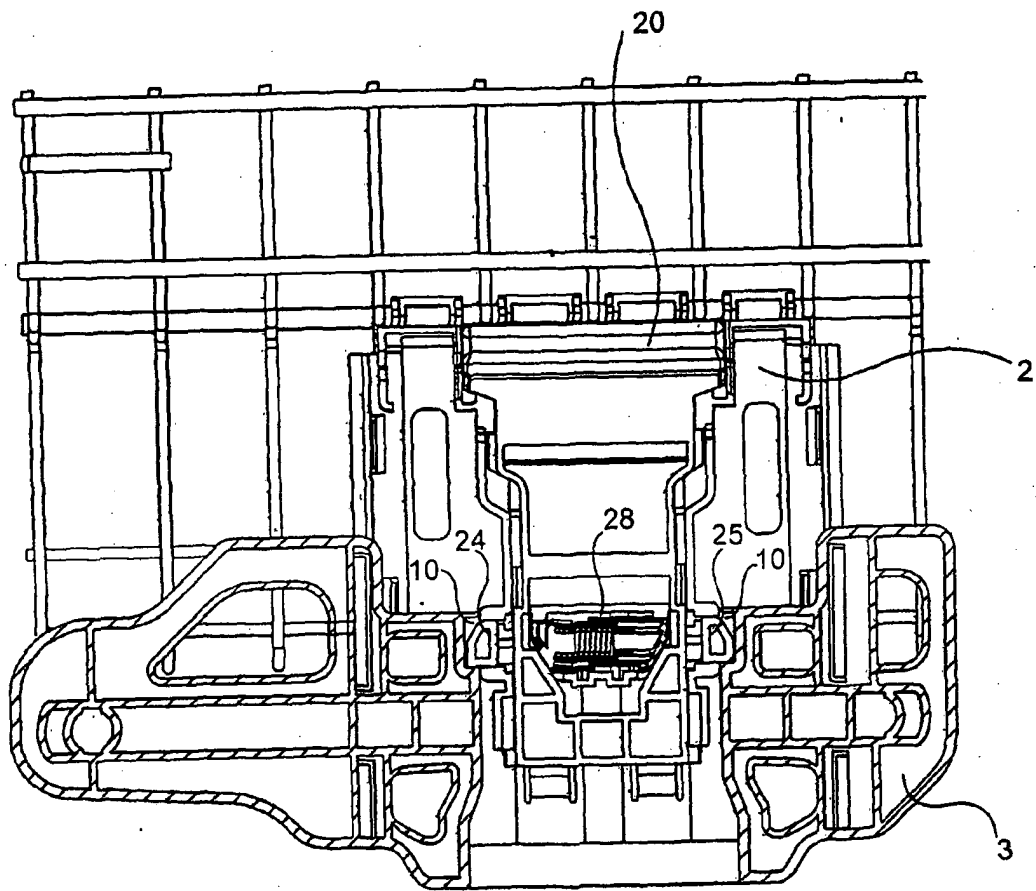


FIGURE 6

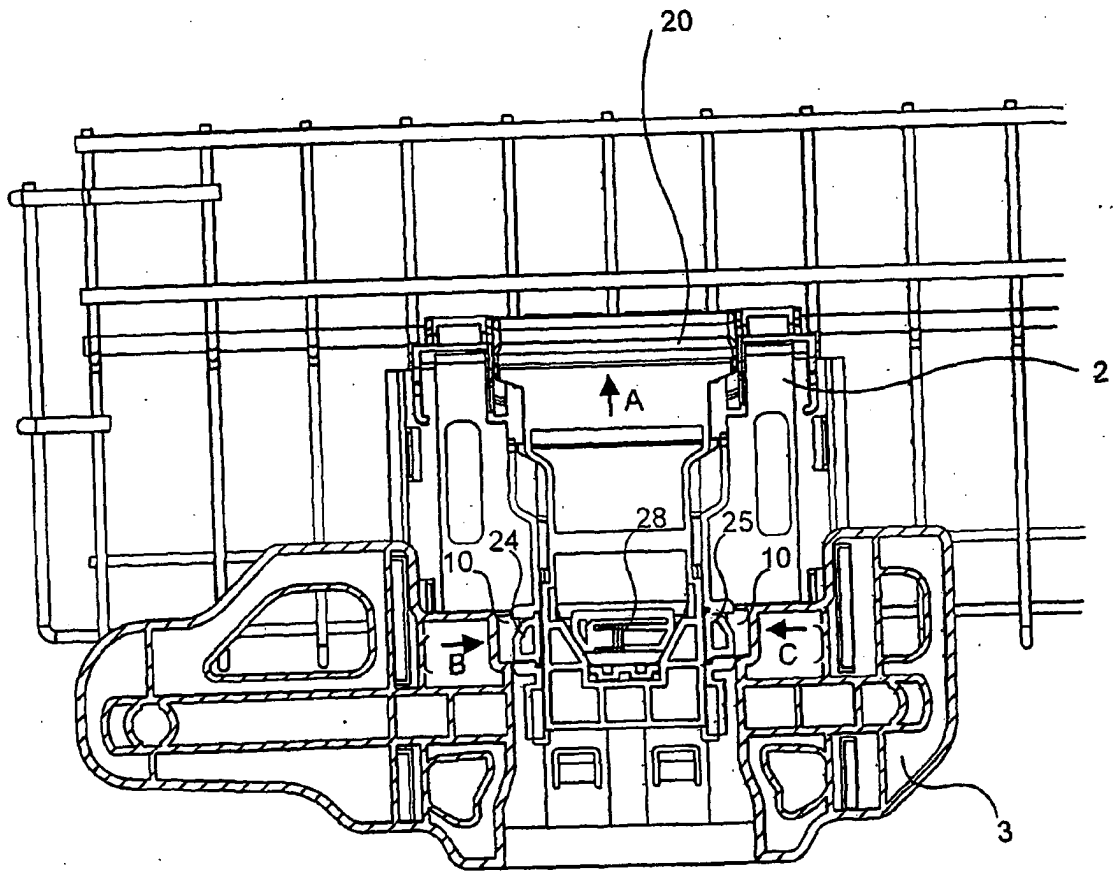
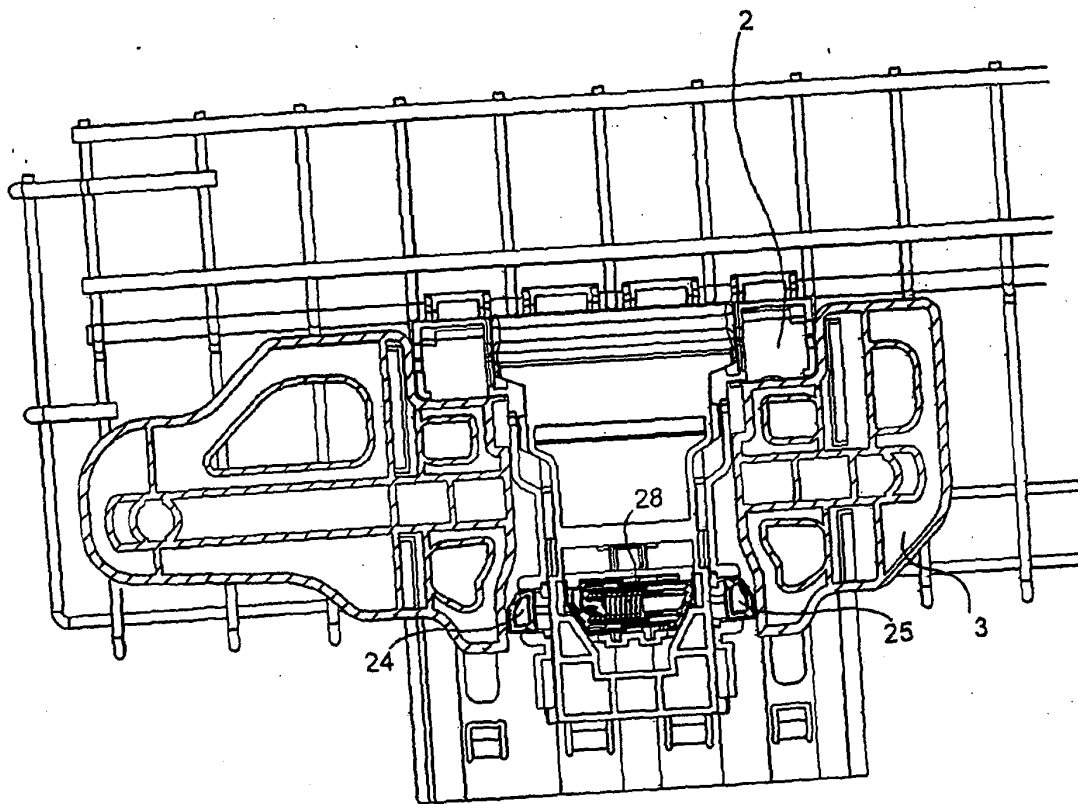


FIGURE 7



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