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(54) **A SLIDING DOOR**

SCHIEBETÜR

PORTE COULISSANTE

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DescriptionFIELD OF THE INVENTION

[0001] The present invention relates to the technical sector relating to sliding doors.

DESCRIPTION OF THE PRIOR ART

[0002] Figures 1 to 3 illustrate a sliding door 100 commonly to be found on the market and comprising a door 101, generally made of wood or glass, superiorly borne by at least two carriages 102 which resting slide on rails provided by a support element 103 fixed to the wall, superiorly of the door compartment, which enables suspended guiding of the door 101 between the open Z1 and closed Z2 positions thereof.

[0003] To enable maximum opening and closing of the door compartment 104, in positions Z1, Z2 of the door 101, the support element 103 has a longitudinal extension which is not less than twice the maximum transversal dimension of the door compartment 104, as can easily be noted from figures 1, 2.

[0004] To enable an optimal closing of the door compartment 104, especially in the closed position Z2 of the door 101, the group constituted by the support element 103 and the carriages 102 extends notably beyond the upper edge of the door compartment 104, as can easily be seen in figure 3.

[0005] In the case under examination, the carriage 102 illustrated is of a type comprising a base body, fixed to the door 101, bilaterally provided with a pair of idle wheels which engage on corresponding rails fashioned inferiorly of the support element 103.

[0006] The support element 103 is usually provided at ends thereof with abutments for abutting the carriages 102, the abutments cooperating with elastic means borne by the carriages 102.

[0007] A covering casing 105 is associated over the whole extension thereof to the support element 103, which casing 105 extends vertically abreast of the door.

[0008] In some embodiments, the door 101, suspended with respect to the floor, is inferiorly provided with a longitudinal channelling in which a guide pin fixed to the floor engages. The biggest drawbacks of a sliding door 100 can be summarised as follows:

- a considerable size of the support element 103 and the associated covering casing 105 in the upper region of the door compartment 104, the size extending well beyond twice the maximum transversal dimension of the door compartment 104, with a consequent undesired aesthetic impact:
- a mounting/dismounting that is particularly long and laborious, due to the coupling/decoupling modality of the carriages 102 on the support element 103.

[0009] Document DE 201 01 304 U1 discloses a sliding

door with wheels rotatably fixed to the wall and positioned superiorly of the door compartment. A guide rail is fixed to the rear surface of the door. Document DE 20 2008 015527 U1 comprises all the features of the preamble of claim 1.

SUMMARY OF THE INVENTION

[0010] An aim of the present invention is to obviate the above-cited drawbacks by providing a sliding door provided with guide and support means able to guarantee a particularly modest overall volume with respect to the extension of the relative door compartment.

[0011] A further aim of the invention is to provide a sliding door able to enable installation and maintenance steps that are particularly rapid and easy, including for operators who are not particularly specialised.

[0012] The above aims are attained by means of a sliding door according to claim 1, being of a type comprising a door capable of translating between extreme open and closed positions such as to enable, respectively, maximum discovery and obturation of a door compartment afforded in a vertical wall; first means associated to the vertical wall and provided for supporting and guiding the door during a stage of translation between the extreme positions; the first support and guide means comprise: rotating organs fixed idle to the vertical wall, superiorly of the door compartment, destined to slidably support longitudinal guide organs, fixed to the door in proximity of an upper edge thereof and contained within a profile thereof; and in that it comprises second means, associated to a lower edge of the door, which permit sliding of the door resting on the floor; second sliding means of the sliding door each comprise at least two sliding groups comprising: a first flexible plate, associated to the lower edge of the door, provided with a projecting fork able to support at least an idle wheel having a rotation axis that is substantially coplanar to the first plate and destined to rest on the floor; the idle wheel being destined to be partially disappearingly housed internally of an inferiorly open chamber provided at the lower edge of the door; each sliding group comprises: a plurality of second plates having a high elastic coefficient destined to be positioned in a stack on the first plate in order to give greater mechanical flexibility in accordance with a type of door to be supported and in accordance with the surface state of the floor on which the idle roller rests.

[0013] In particular embodiments, the sliding door of the invention comprises one or more of the following characteristics, considered singly or in combination according to the annexed claims:

- the rotating organs and the guide organs are disappearingly interposed between the vertical wall and the door;
- the rotating organs are positioned in proximity of a

vertical edge of the door compartment and comprise at least an idle wheel fixed to the vertical wall; and in that the longitudinal guide organs comprise a first shaped member, fixed in proximity of the upper edge of the door, provided with at least a rail which extends parallel to the translation direction of the door and which is designed to engage restingly slidingly with the idle wheel;

- the rotating organs comprise a pair of adjacent wheels, having axes lying on a parallel plane to the translation direction of the door, borne idle by a frame fixed to the vertical wall and destined to restingly receive the rail of the first shaped member;
- shock-absorbing organs are provided, borne by the frame and destined to encounter endrun abutments of the door provided at ends of the first shaped member;
- the second sliding means comprise a pair of sliding groups preferably provided in proximity of the end of the lower edge of the door;
- the chamber is afforded internally of a second shaped member fixed to the lower edge of the door, and is provided with a pair of opposite lateral grooves destined to support and guide a slide able to bear the first plate; fastening screws being provided to enable coupling between the slide and the first plate;
- the chamber is afforded in the body of the door at the lower edge thereof; and in that it comprises a spacer, preferably L-shaped, interposed between the first plate and the lower edge of the door, housed internally of an inferiorly-open groove communicating with the chamber; fastening screws being provided to enable coupling of the spacer both to the door and to the first plate.

BRIEF DESCRIPTION OF THE DRAWINGS

[0014] The characteristics of the invention will emerge from the following in which some preferred but not exclusive embodiments are described by way of example, with reference to the accompanying tables of drawings, in which:

figures 1, 2 illustrate corresponding perspective views of a sliding door according to the prior art in respective positions of closure and opening of the door compartment;

figure 3 is a partial section view according to line A-A indicated in figure 1;

figures 4A, 4B, 4C are three views of the sliding door of the invention in sections performed along a same

coplanar plane to the fixing wall and facing towards the door, in successive steps which lead from the closed position to the open position;

figure 5 is a perspective view in enlarged scale of detail B indicated in figure 4A;

figure 5A is an exploded view of detail B indicated in figure 4A according to an opposite perspective to the one used in figure 5;

figures 6A, 6B, 6C are corresponding lateral views of the sliding door in successive mounting steps;

figures from 7 to 9 are three sections, according to perpendicular planes to the fixing wall, of relative applications of the sliding door;

figure 10 is an exploded perspective view in enlarged scale of detail C indicated in figure 4C relating to the application of the door represented in figures 7 or 8;

figures 10A, 10B show respective section views of detail C illustrated in figure 10 according to respective planes that are perpendicular and parallel to the door;

figure 11 is an exploded perspective view in larger scale of detail C, indicated in figure 4C relating to the application of the door represented in figure 9;

figures 11A, 11B show respective section views of detail C illustrated in figure 11 according to respective perpendicular and parallel planes to the door.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

[0015] With reference to the tables of the drawings, 1 denotes in its entirety the disclosed sliding door, which comprises, in known ways described in the introductory preamble: a door 2 capable of translating between extreme positions of opening W1 and closing W2 in order to enable, respectively, maximum discovery and obturation of a door compartment 3 afforded in a vertical wall 4; first means associated to the vertical wall 4 and provided for supporting and guiding the door 2 during the translation step between the extreme positions W1, W2.

[0016] The first support and guide means comprise rotating organs 5 fixed and idle to the vertical wall 4, superiorly of the door compartment 3, destined to slidingly support longitudinal guide organs 6 fixed to the door 2 in proximity of the upper edge thereof and contained within the profile thereof.

[0017] The sliding door 1 further comprises second means, associated to the lower edge of the door 2, which can enable sliding of the door 2 on the floor P.

[0018] The rotating organs 5 and the guide organs 6 are advantageously interposed disappearingly between

the vertical wall 4 and the door 2, as can be seen in figures 4A - 4C and figures 6A - 6C.

[0019] Figures 4A, 4B, 4C, in particular, represent three views of the sliding door 1 according to section performed with a same coplanar plane to the vertical wall 4 and facing towards the door 2, in successive steps that lead from the closed position W2 to the open position W1.

[0020] The rotating organs 5 are fixed idle to the vertical wall 4 in proximity of a vertical edge of the door compartment 3 and comprise at least two idle wheels 50, 51 fixed to the vertical wall 4, while the longitudinal guide organs 6 comprise a first profiled member 60, fixed in proximity of the upper edge of the door 2, provided with at least a rail 61 that extends parallel to the translation direction of the door 2 and is able to engage restingly slidingly with the idly wheels 50, 51.

[0021] In the accompanying tables of the drawings, reference is made, for the sake of simplicity, to rotating organs 5 comprising a pair of adjacent wheels (50, 51) having axes lying on a plane parallel to the translation direction of the door 2, borne idle by a frame 52 fixed to the vertical wall 4 and destined to restingly receive the rail 61 of the first profiled member 60 (figures 5, 5A).

[0022] In known ways, damper organs 8 are associated to the frame 52, suitable for encountering end-run abutments (not illustrated) of the door 2 provided at the ends of the first profiled member 60 (figures 7, 8, 9).

[0023] Figures 6A, 6B and 6C show corresponding lateral views of the sliding door 1 in successive assembly steps, where it can be seen how the coupling of the first element 61 fixed to the door 2 restingly on the idle wheels 50, 51 fixed to the vertical wall 4, is realised by frontal flanking of the one 61 on the others 50, 51 in a very rapid and simple way.

[0024] The second sliding means, which enable sliding of the door 2 on the floor P, comprise at least two sliding groups 70, preferably two groups in proximity of the ends of the lower edge of the door 2.

[0025] Each sliding group 70 comprises a flexible first plate 71 associated to the lower edge of the door 2, provided with a projecting fork 72 able to support at least an idle wheel 73 having a rotation axis that is substantially coplanar to the first plate 71 and destined to rest on the floor P.

[0026] The idle wheel 73 is partially disappearingly housed internally of an inferiorly open chamber 20, 200 provided at the lower edge of the door 2.

[0027] Figure 10 illustrates an exploded perspective view in enlarged scale of the detail C denoted in figure 4C relating to the application of the sliding door 1 in the case of the door 2 made of glass, as represented in figures 7 or 8 which differ from one another exclusively in relation to the way in which the door 2 is fixed to the first element 61.

[0028] In figure 7, the glass door 2 is fixed to the first element 61 by means of a series of screws 17 the heads of which abut the external part of the door 2, while in figure 8 the glass door 2 is closed in a pack between the

first element 61 and an external member 18 by means of a series of screws 19 the heads of which are housed internally of a channel of the external member 18.

[0029] In reference to figures 10, 10A, 10B, the chamber 20 in which the idle wheel 73 is housed partially disappearingly is afforded internally of a second shaped member 9 fixed to the lower edge of the door 2.

[0030] The chamber 20 is provided with a pair of lateral channels 21, 22 opposite one another and destined to support and guide a slide 10 provided for bearing the first plate 71.

[0031] The coupling between the slide 10 and the first plate 71 is enabled by simple threaded screws, generically denoted by reference numeral 11.

[0032] The position of the slide 10 internally of the chamber 20 can be easily modified by loosening and/or tightening the screws 11 which also interest the first plate 71.

[0033] Figure 11 illustrates an exploded perspective view in enlarged scale of detail C denoted in figure 4C relating to the application of the sliding door 1 in the case of the door 2 made of wood, as represented in figure 9 where the first member 61 is snugly installed abreast in the door 2 and fixed thereto by means of screws 24, for example of the self-tapping type.

[0034] With reference to figures 11, 11A, 11B, the chamber 200 in which the idle roller 73 is housed partially disappearingly is afforded in the body of the door 2, at the lower edge thereof.

[0035] A spacer 12 is also provided, preferably L-shaped, interposed between the first plate 71 and the lower edge of the door 2, housed internally of a channel 13 that is inferiorly open and communicating with the chamber 200.

[0036] The coupling of the spacer 12 with both the door 2 and the first plate 71 is enabled by simple threaded screws, generically denoted by reference numeral 14.

[0037] As illustrated in figures from 10 to 10B and in figures from 11 to 11B, each sliding group 70 comprises a plurality of second plates 15 having a high elastic coefficient destined to be stacked in a pack on the first plate 71 such as to give a greater mechanical flexibility according to the type of door 2 to be supported and the state of the surface of the floor P on which the idle wheel 73 is rested.

[0038] The number of the second plates 15 is chosen according to the weight of the door 2 and the degree of unevenness of the floor P at the rest zones of the idle wheel 73.

[0039] Figures 10-10B and 11-11B also illustrate the guide pins of the door 2 which, in known ways, involve longitudinal slits realised in the lower part of the door 2, in this case afforded respectively in the second member 9 of the channel 13.

[0040] From the above it can easily be understood how the sliding door is provided with guide and support means able to guarantee a particularly limited overall volume with respect to the extension of the door compartment.

[0041] This is fundamentally thanks to the guide and support means comprising idle rotating organs, fixed to the vertical wall, destined to slidingly support longitudinal guide organs fixed to the door in proximity of the upper edge thereof and contained in the profile thereof; these

[0042] The sliding door of the invention can further enable particularly rapid and easy steps of installation and maintenance, even by operators who are not particularly specialised.

[0043] This is because the coupling of the first profiled member, fixed to the door, resting on the idle wheels fixed to the vertical wall, is realised by frontal flanking of the one on the others, in a very fast and simple way.

Claims

1. A sliding door, comprising:

a door (2) capable of translating between an extreme position of opening (W1) and an extreme position of closing (W2) in order to enable, respectively, maximum discovery and obturation of a door compartment (3) afforded in a vertical wall (4); the door having a greater height than the door compartment (3);

first support and guide means comprising rotating organs (5), the latter comprising in turn a first wheel (5) and a second wheel (50); wherein the first wheel (5) and the second wheel (50) are rotatably fixable to the vertical wall (4) and are positionable superiorly of the door compartment (3) such as to face the rear surface of the door;

wherein the sliding door comprises guide organs (6) having a longitudinal development, fixable to the rear surface of the door (2) at the upper edge of the door (2) such as to face the vertical wall (4), the guide organs (6) comprising a rail (61) suitable for restably slidingly engaging with the first wheel (5) and the second wheel (50);

wherein the sliding door comprises second sliding means comprising a third wheel (73) and a fourth wheel (73);

characterized in that:

the third wheel (73) and the fourth wheel (73) are rotatably fixable to the door (2) at the lower edge of the door (2), respectively to a first end and a second end of the lower edge of the door (2), for rotating on the floor (P) and enabling translation of the door (2);

the second sliding means comprise a first sliding group (70) comprising: a first flexible plate (71),

associated to the lower edge of the door (2), provided with a projecting fork (72) able to support the third wheel (73) having a rotation axis that is substantially coplanar to the first plate (71) and destined to rest on the floor (P); the third wheel (73) being destined to be partially disappearingly housed internally of an inferiorly open chamber (20, 200) provided at the lower edge of the door (2); and a second sliding group (70) comprising: a flexible first plate (71), associated to the lower edge of the door (2), provided with a projecting fork (72) able to support the fourth wheel (73) having a rotation axis that is substantially coplanar with the first plane (71) and destined to rest on the floor (P); the fourth wheel (73) being destined to be housed partially disappearingly internally of a chamber (20,200) inferiorly open and provided at the lower edge of the door (2);

each sliding group (70) comprises: a plurality of second plates (15) having a high elastic coefficient destined to be positioned in a stack on the first plate (71) in order to give greater mechanical elasticity in accordance with a type of door (2) to be supported and in accordance with the surface state of the floor (P) on which the third wheel (73) or fourth wheel (73) rests.

2. The sliding door of claim 1, **characterised in that** the rotating organs (5) and the guide organs (6) are disappearingly interposed between the vertical wall (4) and the door (2).

3. The sliding door of claim 1 or 2, **characterised in that** the longitudinal guide organs (6) comprise a first profiled member (60), fixed in proximity of the upper edge of the door (2) provided with the rail which extends parallel to the translation direction of the door (2).

4. The sliding door of claim 3, **characterised in that** the first wheel (5) and the second wheel (50) have axes lying on a parallel plane to the translation direction of the door (2), and are borne idle by a frame (52) fixed to the vertical wall (4); and are destined to restingly receive the rail of the first profiled member (60).

5. The sliding door of claim 4, **characterised in that** it comprises shock-absorbing organs (8) borne by the frame (52) and destined to encounter endrun abutments of the door (2) provided at ends of the first profiled member (60).

6. The sliding door of claim 1, **characterised in that** the sliding groups (70) are preferably provided in proximity of the end of the lower edge of the door (2).

7. The sliding door of claim 1 or 6, **characterised in that** the chamber (20) is afforded internally of a second shaped member (9) fixed to the lower edge of the door (2), and is provided with a pair of opposite lateral grooves (21, 22) destined to support and guide a slide (10) able to bear the first plate (71); fastening screws (11) being provided to enable coupling between the slide (10) and the first plate (71).
8. The sliding door of claim 1 or 6 **characterised in that** the chamber (200) is afforded in the body of the door (2) at the lower edge thereof; and **in that** it comprises an L-shaped spacer (12) interposed between the first plate (71) and the lower edge of the door (2), housed internally of an inferiorly-open groove (13) communicating with the chamber (200); fastening screws (14) being provided to enable coupling of the spacer (12) both to the door (2) and to the first plate (71).

Patentansprüche

1. Schiebetür, Folgendes beinhaltend:

eine Tür (2), die eine Translationsbewegung ausführen kann zwischen einer Endlage in Öffnungsstellung (W1) und einer Endlage in Schließstellung (W2), um jeweils die maximale Aufdeckung beziehungsweise Verdeckung einer Türöffnung (3) zu ermöglichen, die in einer vertikalen Wand (4) ausgeführt ist; wobei die Tür eine größere Höhe aufweist als die Türöffnung (3);
 erste Träger- und Führungsmittel, die Drehorgane (5) umfassen, die ihrerseits ein erstes Rad (5) und ein zweites Rad (50) beinhalten;
 wobei das erste Rad (5) und das zweite Rad (50) drehbar an der vertikalen Wand (4) festgelegt werden können und oberhalb der Türöffnung (3) so positionierbar sind, dass sie der rückseitigen Oberfläche der Tür zugewandt sind;
 wobei die Schiebetür Führungsorgane (6) beinhaltet, die eine längliche Ausdehnung aufweisen und an der rückseitigen Oberfläche der Tür (2) an der oberen Kante der Tür (2) befestigt werden können, so dass sie der vertikalen Wand (4) zugewandt sind, wobei die Führungsorgane (6) eine Schiene (61) beinhalten, die geeignet ist, in gleitender Auflage mit dem ersten Rad (5) und dem zweiten Rad (50) in Eingriff zu treten;
 wobei die Schiebetür zweite Gleiteinrichtungen beinhaltet, die ein drittes Rad (73) und ein viertes Rad (73) umfassen;

dadurch gekennzeichnet, dass:

das dritte Rad (73) und das vierte Rad (73) drehbar an der Tür (2) befestigt werden können, und zwar an der unteren Kante der Tür (2), jeweils an einem ersten und einem zweiten Ende der unteren Kante der Tür (2), und dazu bestimmt sind, auf dem Fußboden (P) zu rollen und somit das Verschieben der Tür (2) zu ermöglichen;
 die zweiten Gleiteinrichtungen eine erste Gleitgruppe (70) umfassen, die Folgendes beinhaltet: eine erste flexible Platte (71), die mit der unteren Kante der Tür (2) verbunden ist und eine hervorstehende Gabel (72) aufweist, die in der Lage ist, das dritte Rad (73) zu tragen, das eine im Wesentlichen zu der ersten Platte (71) koplanare Drehachse aufweist und dafür ausgelegt ist, auf dem Fußboden (P) aufzuliegen; wobei das dritte Rad (73) dafür bestimmt ist, teilweise verschwindend im Innern einer nach unten offenen Kammer (20, 200) aufgenommen zu werden, die an der unteren Kante der Tür (2) angefertigt ist; und eine zweite Gleitgruppe (70), die Folgendes beinhaltet: eine flexible erste Platte (71), die mit der unteren Kante der Tür (2) verbunden ist und eine hervorstehende Gabel (72) aufweist, die in der Lage ist, das vierte Rad (73) zu tragen, das eine im Wesentlichen zu der ersten Platte (71) koplanare Drehachse aufweist und dafür ausgelegt ist, auf dem Fußboden (P) aufzuliegen; wobei das vierte Rad (73) dafür bestimmt ist, teilweise verschwindend im Innern einer nach unten offenen Kammer (20, 200) aufgenommen zu werden, die an der unteren Kante der Tür (2) angefertigt ist;
 jede Gleitgruppe (70) Folgendes beinhaltet: eine Vielzahl von zweiten Platten (15) die einen hohen elastischen Koeffizienten aufweisen und dafür bestimmt sind, zu einem Paket gestapelt auf der ersten Platte (71) angeordnet zu werden, um in Abhängigkeit vom Typ der zu tragenden Tür (2) und vom Oberflächenzustand des Fußbodens (P), auf dem das dritte Rad (73) oder das vierte Rad (73) aufliegt, eine größere mechanische Elastizität bereitzustellen.

2. Schiebetür nach Anspruch 1, **dadurch gekennzeichnet, dass** die Drehorgane (5) und die Führungsorgane (6) verschwindend zwischen der vertikalen Wand (4) und der Tür (2) angeordnet sind.
3. Schiebetür nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** die länglichen Führungsorgane (6) ein erstes Profilelement (60) beinhalten, das in der Nähe der oberen Kante der Tür (2) befestigt ist und mit der Schiene (61) ausgestattet ist, die sich parallel zur Translationsrichtung der Tür (2) erstreckt.
4. Schiebetür nach Anspruch 3, **dadurch gekennzeichnet,**

zeichnet, dass das erste Rad (5) und das zweite Rad (50) Achsen aufweisen, die auf einer Ebene parallel zur Translationsrichtung der Tür (2) liegen, und leerlaufend von einem Rahmen (52) getragen werden, der an der vertikalen Wand (4) festgelegt ist; und die dafür bestimmt sind, die Schiene (61) des ersten Profilelements (60) aufliegend aufzunehmen.

5. Schiebetür nach Anspruch 4, **dadurch gekennzeichnet, dass** sie stoßdämpfende Organe (8) beinhaltet, die von dem Rahmen (52) getragen werden und dafür ausgelegt sind, gegen Endanschläge der Tür (2) anzuschlagen, die an den Enden des ersten Profilelements (60) vorgesehen sind.

6. Schiebetür nach Anspruch 1, **dadurch gekennzeichnet, dass** die Gleitgruppen (70) bevorzugt in der Nähe des Endes der unteren Kante der Tür (2) vorgesehen sind.

7. Schiebetür nach Anspruch 1 oder 6, **dadurch gekennzeichnet, dass** die Kammer (20) im Innern eines zweiten geformten Elements (9) ausgeführt ist, das an der unteren Kante der Tür (2) festgelegt ist, und mit einem Paar gegenüberliegender seitlicher Rillen (21, 22) versehen ist, die dafür bestimmt sind, einen Schlitten (10) zum Tragen der ersten Platte (71) zu tragen und zu führen; wobei Befestigungsschrauben (11) vorgesehen sind, um die Verbindung zwischen dem Schlitten (10) und der ersten Platte (71) zu ermöglichen.

8. Schiebetür nach Anspruch 1 oder 6, **dadurch gekennzeichnet, dass** die Kammer (200) im Körper der Tür (2) an deren unterer Kante ausgeführt ist; und dadurch, dass sie einen L-förmigen Abstandhalter (12) beinhaltet, der zwischen der ersten Platte (71) und der unteren Kante der Tür (2) angeordnet ist, und der im Innern einer nach unten offenen Rille (13) untergebracht ist, die mit der Kammer (200) in Verbindung steht; wobei Befestigungsschrauben (14) vorgesehen sind, um die Verbindung zwischen dem Abstandhalter (12) sowohl mit der Tür (2) als auch mit der ersten Platte (71) zu ermöglichen.

Revendications

1. Une porte coulissante, comprenant:

une porte (2) pouvant se déplacer par translation entre une position extrême d'ouverture (W1) et une position extrême de fermeture (W2) de manière à permettre, respectivement, un dégagement maximum et une obturation d'une baie de porte (3) réalisée dans une paroi verticale (4); la porte ayant une hauteur supérieure à la baie de porte (3);

des premiers moyens de support et de guidage comprenant des organes rotatifs (5), ces derniers comprenant à leur tour une première roue (5) et une deuxième roue (50);

où la première roue (5) et la deuxième roue (50) peuvent être fixées de façon rotative à la paroi verticale (4) et peuvent être positionnées supérieurement à la baie de porte (3) de manière à faire face à la surface arrière de la porte;

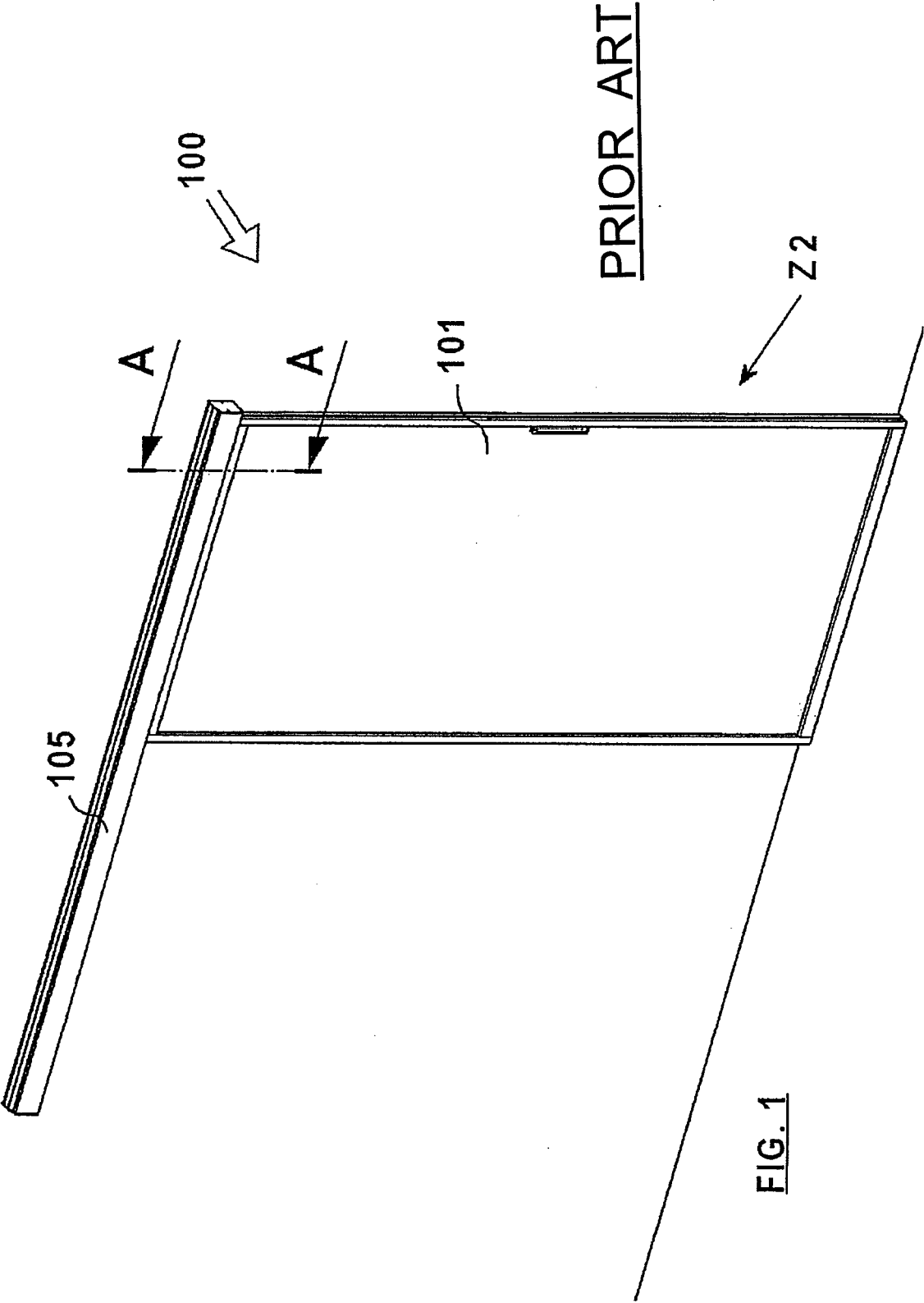
où la porte coulissante comprend des organes de guidage (6) ayant un développement longitudinal, pouvant être fixés à la surface arrière de la porte (2) au niveau du bord supérieur de ladite porte (2) de manière à faire face à la paroi verticale (4), les organes de guidage (6) comprenant un rail (61) destiné à s'assujettir en appui et de façon coulissante avec la première roue (5) et la deuxième roue (50);

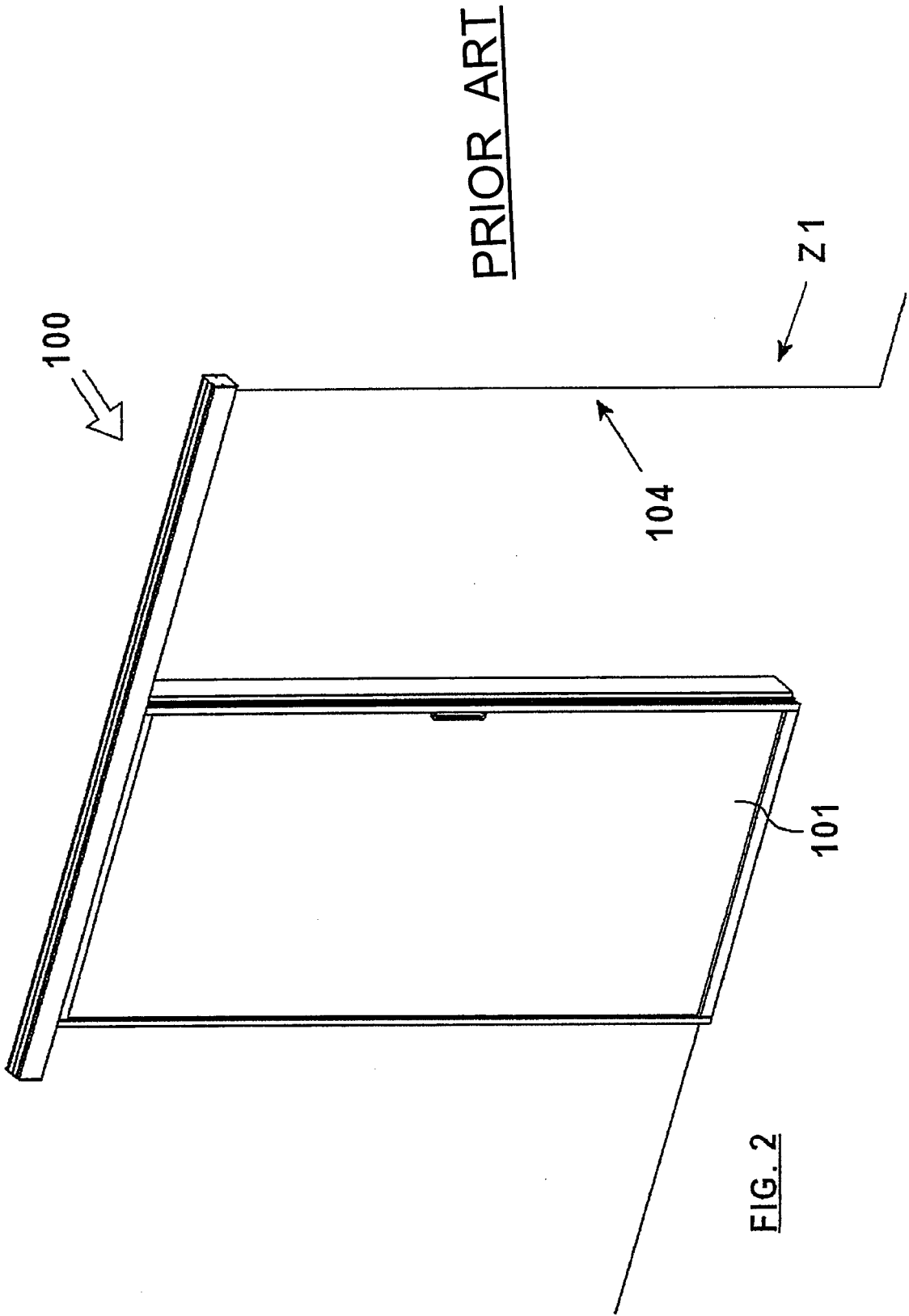
où la porte coulissante comprend des deuxièmes moyens de coulissement comprenant une troisième roue (73) et une quatrième roue (73);

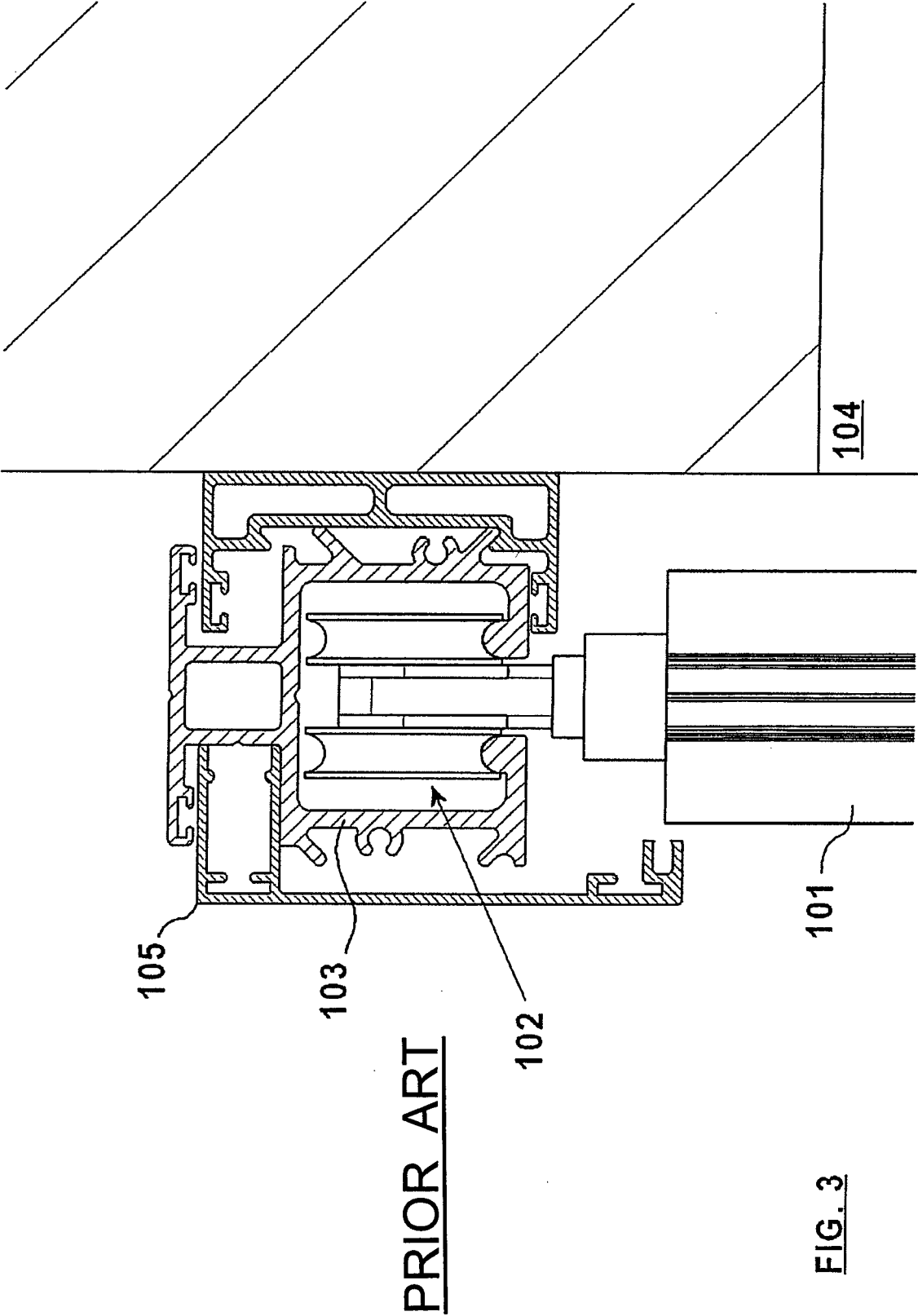
caractérisée en ce que :

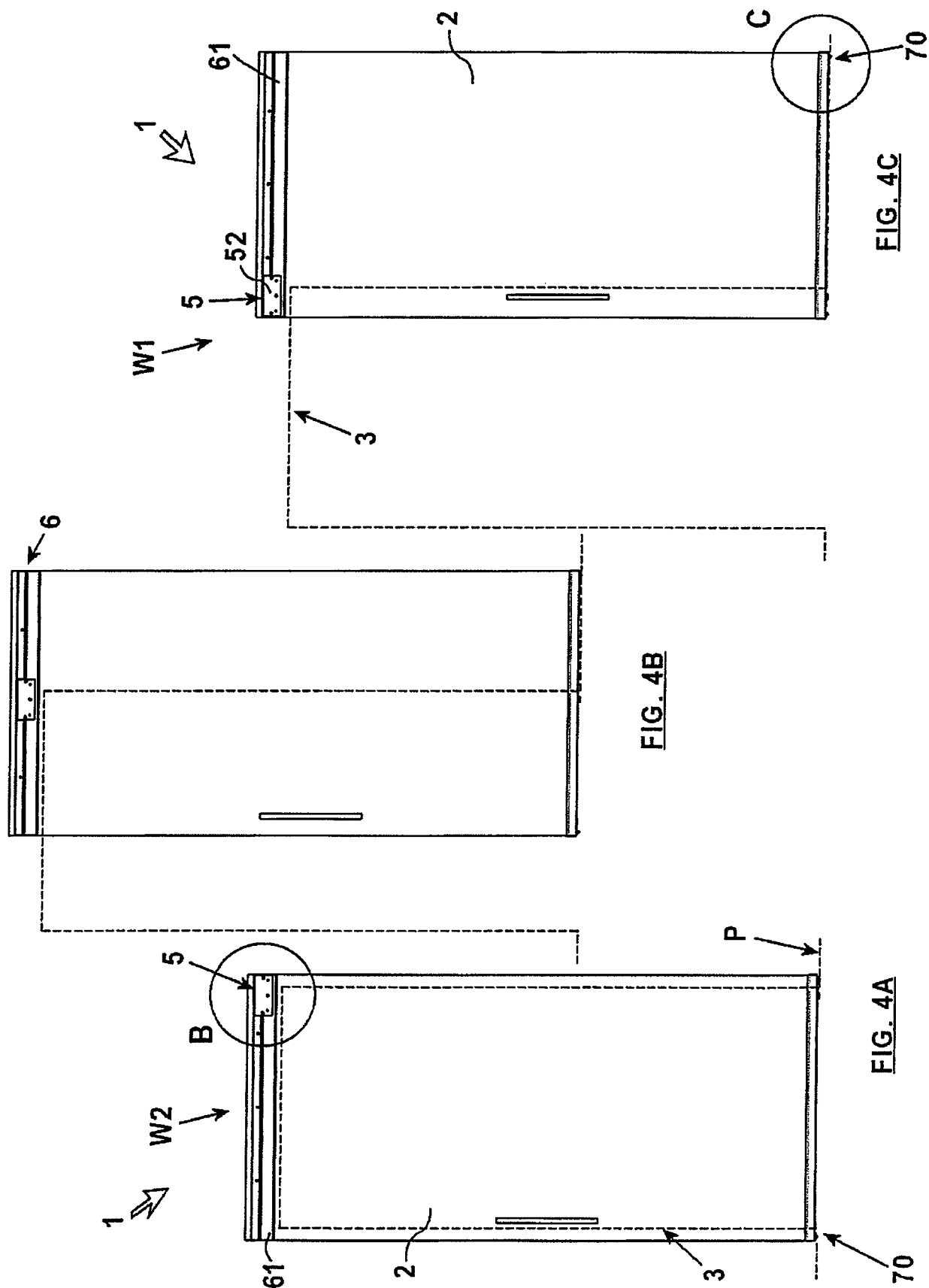
la troisième roue (73) et la quatrième roue (73) peuvent être fixées de façon rotative à la porte (2) au niveau du bord inférieur de ladite porte (2), respectivement à une première extrémité et à une deuxième extrémité du bord inférieur de la porte (2), pour rouler sur le sol (P) et permettre le déplacement par translation de la porte (2); les deuxièmes moyens de coulissement comprennent un premier groupe de coulissement (70) comprenant : une première plaque flexible (71), associée au bord inférieur de la porte (2), pourvue d'une fourche en saillie (72) destinée à supporter la troisième roue (73) ayant un axe de rotation qui est essentiellement coplanaire à la première plaque (71) et destinée à reposer sur le sol (P); la troisième roue (73) étant destinée à être logée de façon partiellement escamotable à l'intérieur d'une chambre (20, 200) inférieurement ouverte prévue au niveau du bord inférieur de la porte (2); et un deuxième groupe de coulissement (70) comprenant : une première plaque flexible (71), associée au bord inférieur de la porte (2), pourvue d'une fourche en saillie (72) destinée à supporter la quatrième roue (73) ayant un axe de rotation qui est essentiellement coplanaire à la première plaque (71) et destinée à reposer sur le sol (P); la quatrième roue (73) étant destinée à être logée de façon partiellement escamotable à l'intérieur d'une chambre (20, 200) inférieurement ouverte et prévue au niveau du bord inférieur de la porte (2); chaque groupe de coulissement (70) comprend : une pluralité de deuxièmes plaques (15) à haut coefficient élastique destinées à être

- positionnées en pile sur la première plaque (71) de manière à conférer une plus grande élasticité mécanique en fonction du type de porte (2) à supporter et en fonction de l'état de surface du sol (P) sur lequel reposent la troisième roue (73) ou la quatrième roue (73). 5
2. La porte coulissante selon la revendication 1, **caractérisée en ce que** les organes rotatifs (5) et les organes de guidage (6) sont interposés de façon escamotable entre la paroi verticale (4) et la porte (2). 10
3. La porte coulissante selon la revendication 1 ou 2, **caractérisée en ce que** les organes de guidage longitudinaux (6) comprennent un premier organe profilé (60), fixé à proximité du bord supérieur de la porte (2) doté du rail (61) qui s'étend parallèlement à la direction de translation de la porte (2). 15
4. La porte coulissante selon la revendication 3, **caractérisée en ce que** la première roue (5) et la deuxième roue (50) ont des axes qui reposent sur un plan parallèle à la direction de translation de la porte (2), et sont portées, folles, par un châssis (52) fixé à la paroi verticale (4) ; et sont destinées à recevoir en appui le rail (61) du premier organe profilé (60). 20 25
5. La porte coulissante selon la revendication 4, **caractérisée en ce qu'elle** comprend des organes amortisseurs (8) portés par le châssis (52) et destinés à rencontrer des butées de fin de course de la porte (2) prévues aux extrémités du premier organe profilé (60). 30
6. La porte coulissante selon la revendication 1, **caractérisée en ce que** les groupes de coulissement (70) sont de préférence prévus à proximité de l'extrémité du bord inférieur de la porte (2). 35
7. La porte coulissante selon la revendication 1 ou 6, **caractérisée en ce que** la chambre (20) est réalisée à l'intérieur d'un deuxième organe profilé (9) fixé au bord inférieur de la porte (2), et est pourvue d'une paire de rainures latérales opposées (21, 22) destinées à supporter et à guider un coulisseau (10) à même de porter la première plaque (71) ; des vis de fixation (11) étant prévues pour permettre l'accouplement entre le coulisseau (10) et la première plaque (71). 40 45 50
8. La porte coulissante selon la revendication 1 ou 6, **caractérisée en ce que** la chambre (200) est réalisée dans le corps de la porte (2) au niveau du bord inférieur de celle-ci ; et **en ce qu'elle** comprend une entretoise en « L » (12) interposée entre la première plaque (71) et le bord inférieur de la porte (2), logée à l'intérieur d'une rainure (13) ouverte inférieurement et communiquant avec la chambre (200) ; des vis de 55
- fixation (14) étant prévues pour permettre l'accouplement de l'entretoise (12) à la fois avec la porte (2) et avec la première plaque (71).









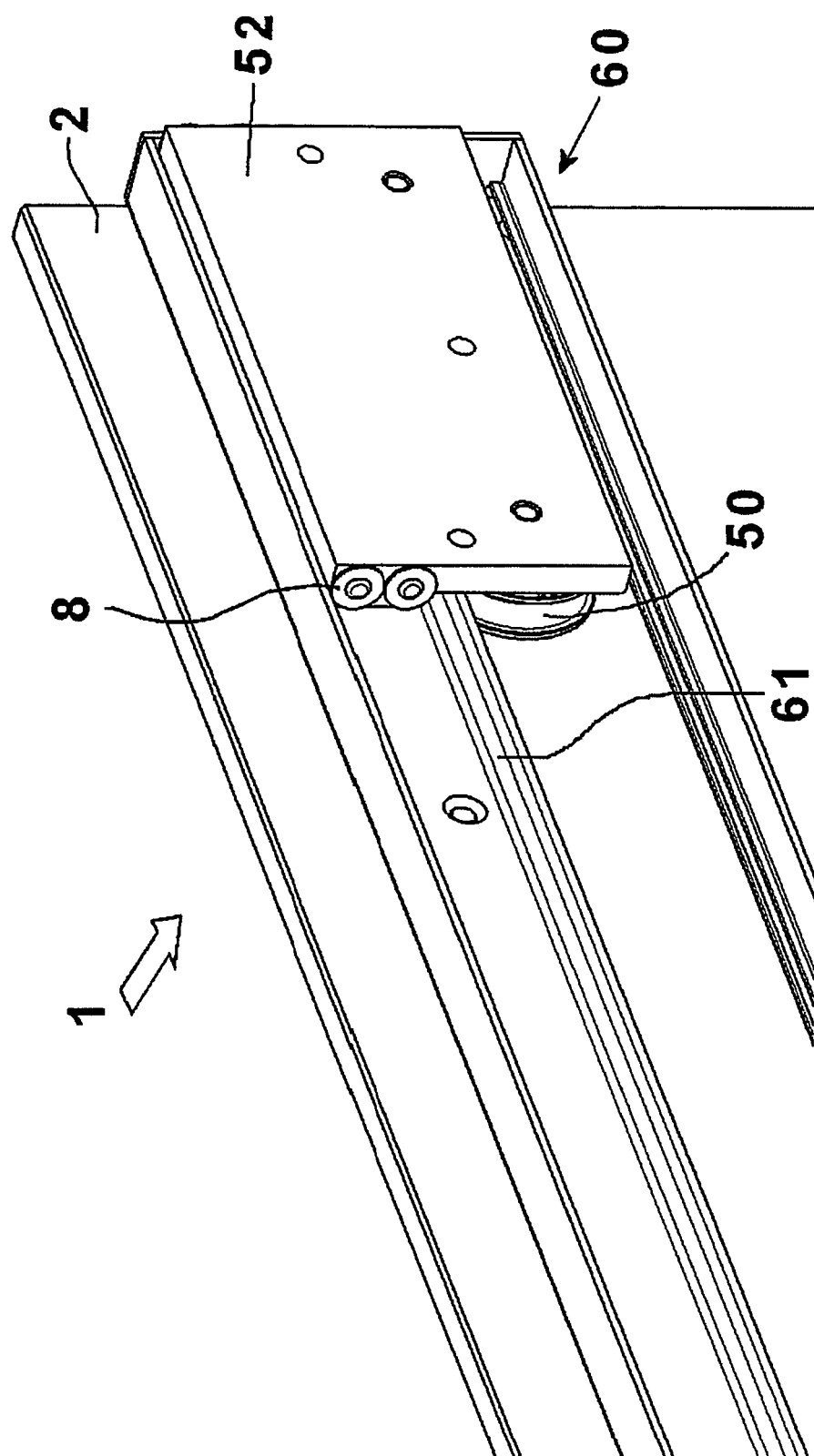


FIG. 5

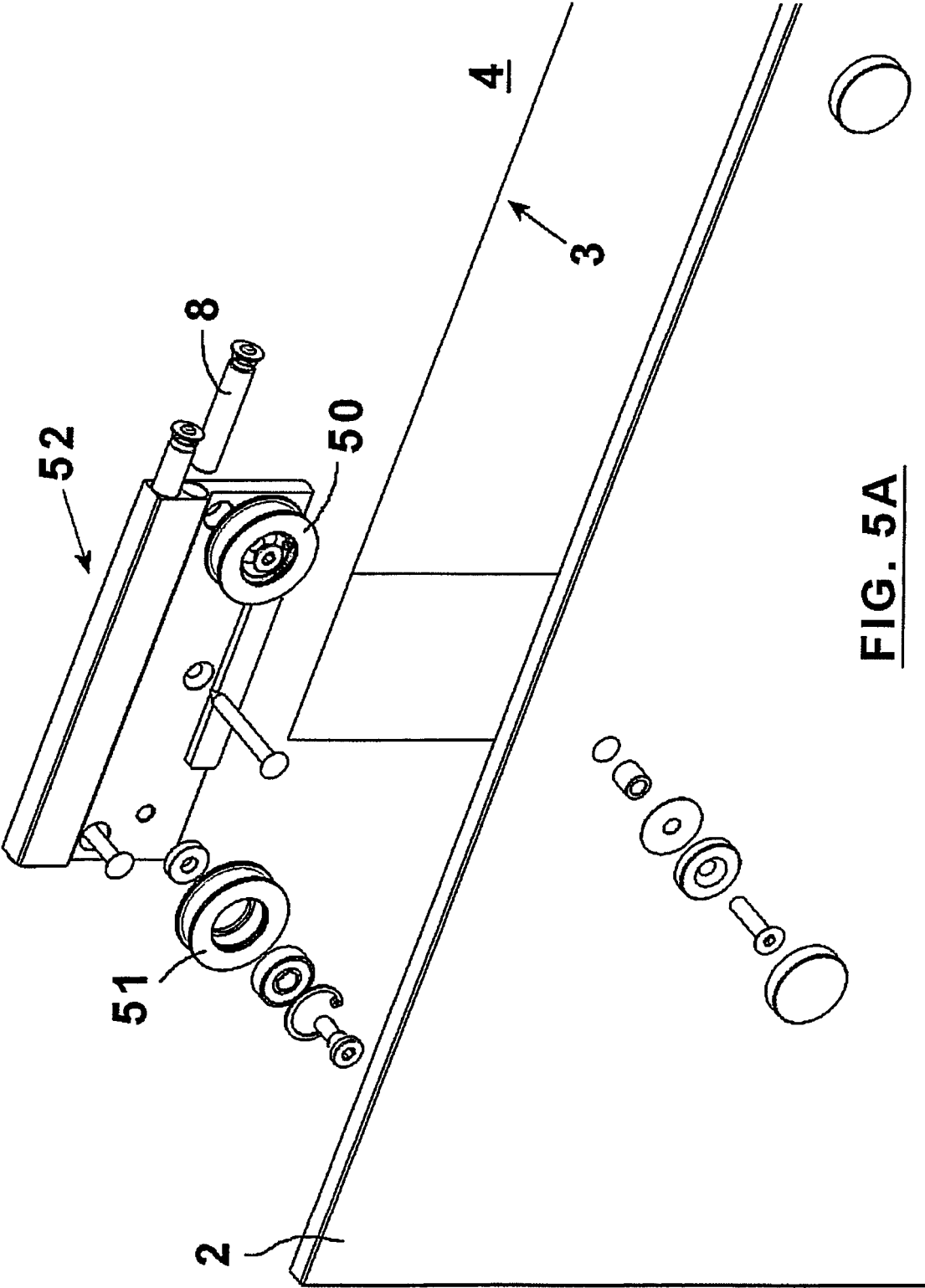


FIG. 5A

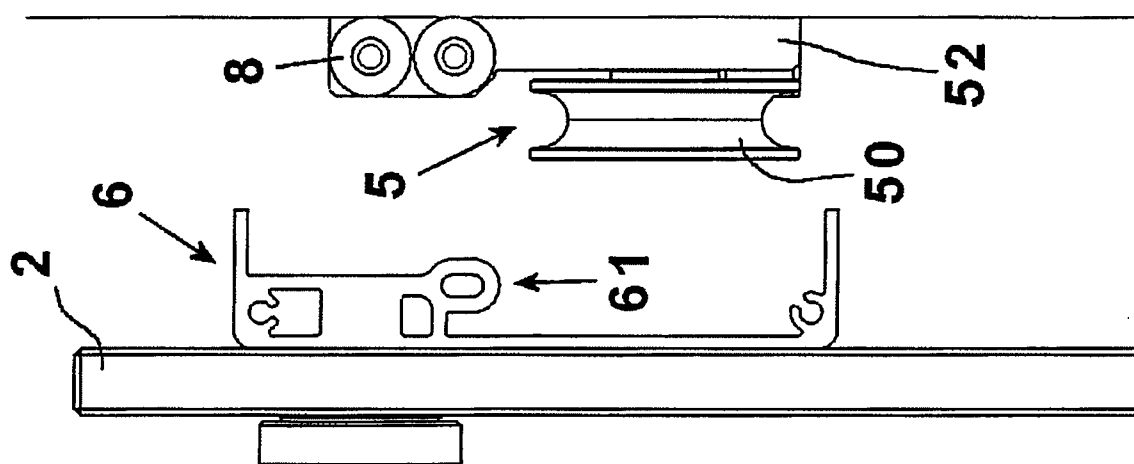


FIG. 6A

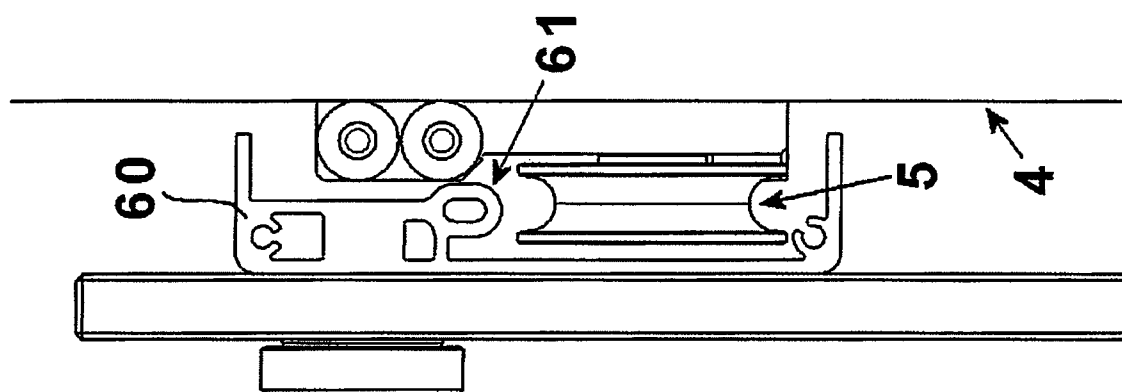


FIG. 6B

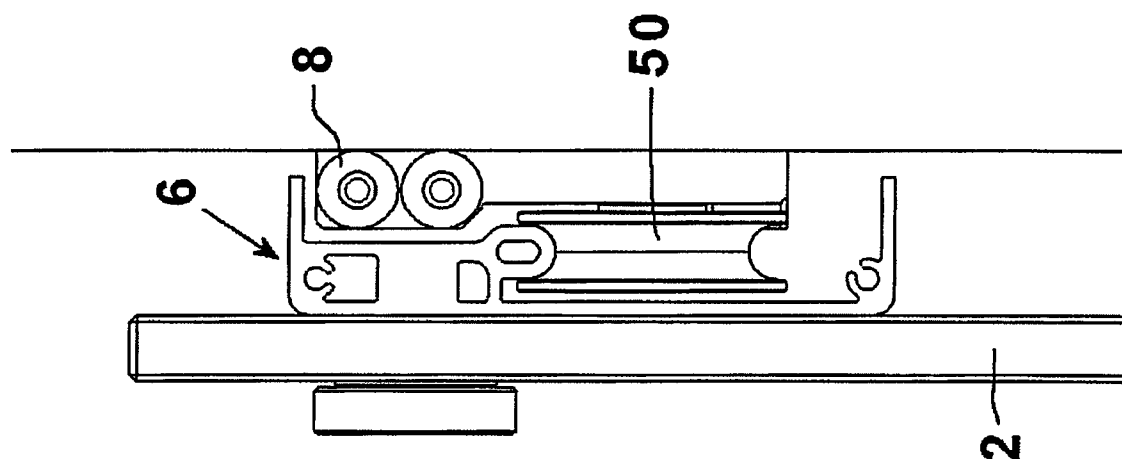
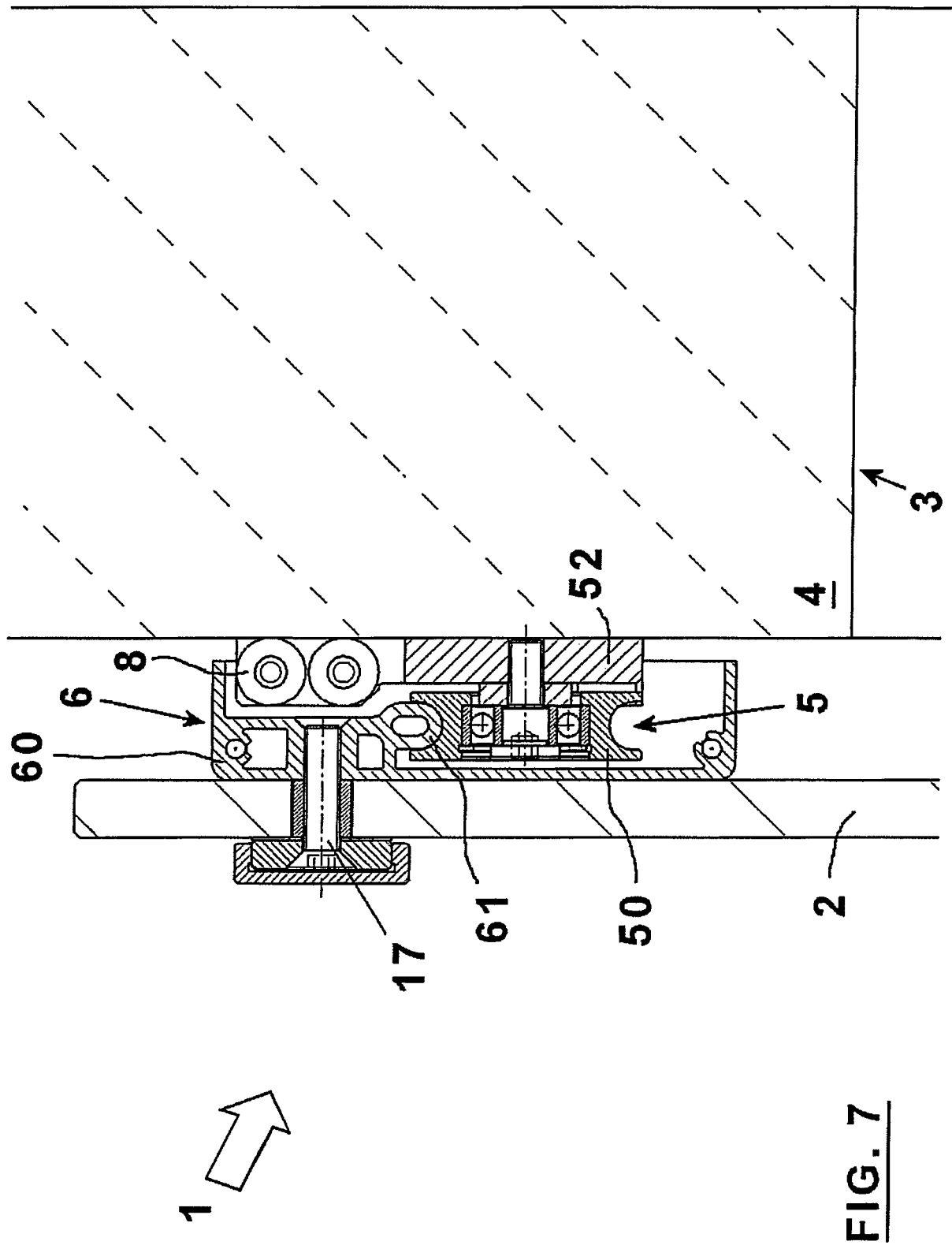
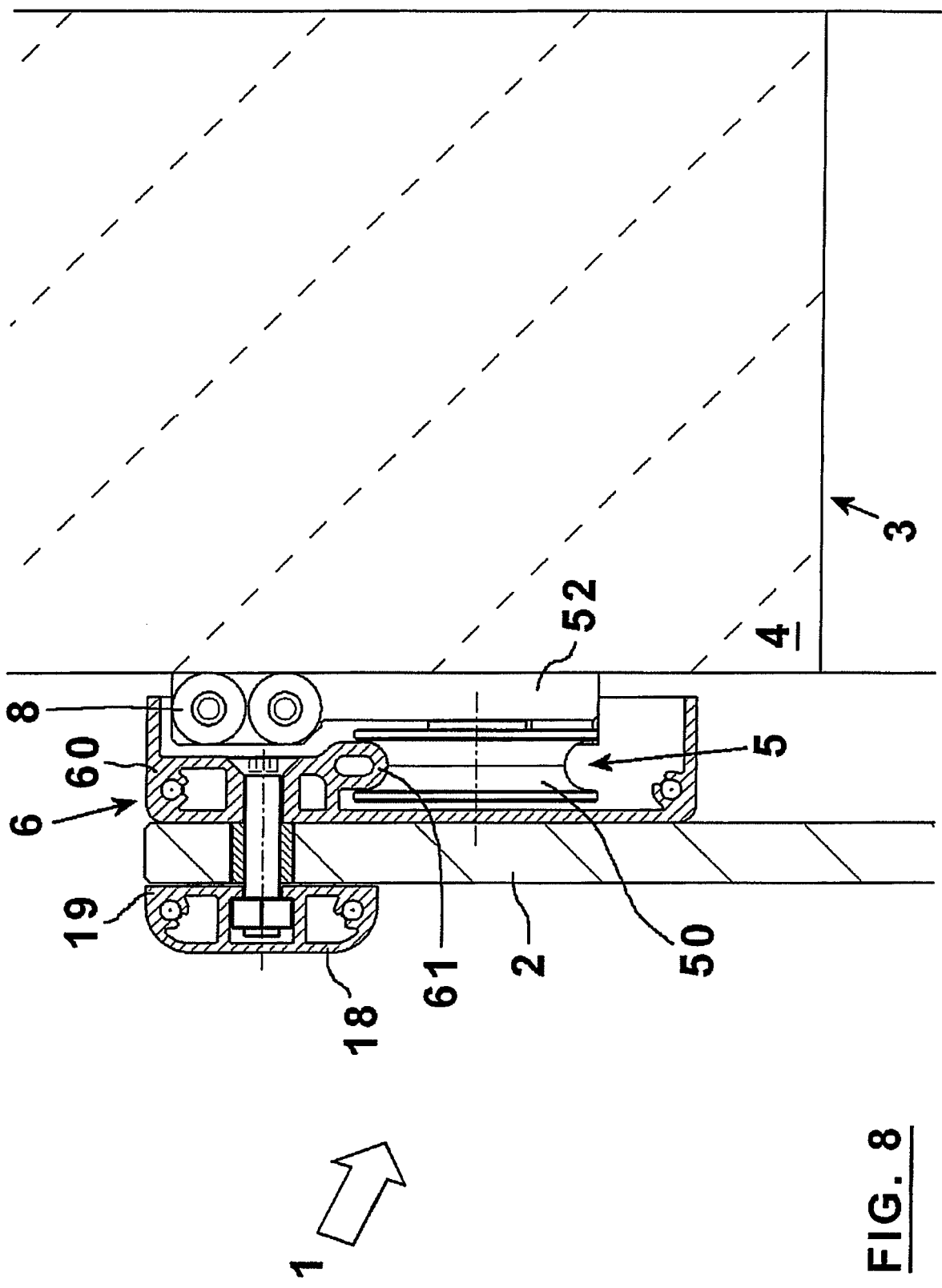
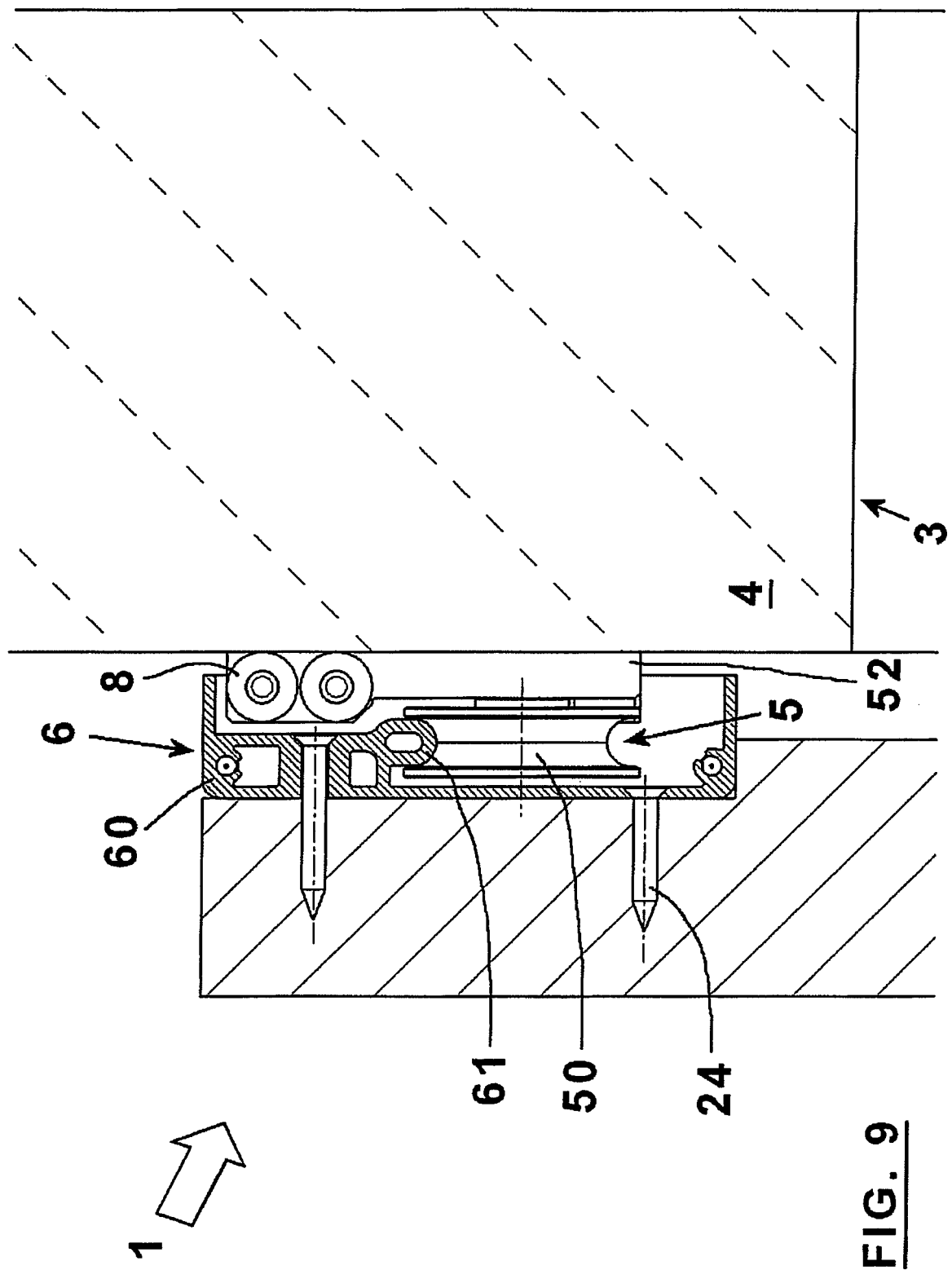


FIG. 6C







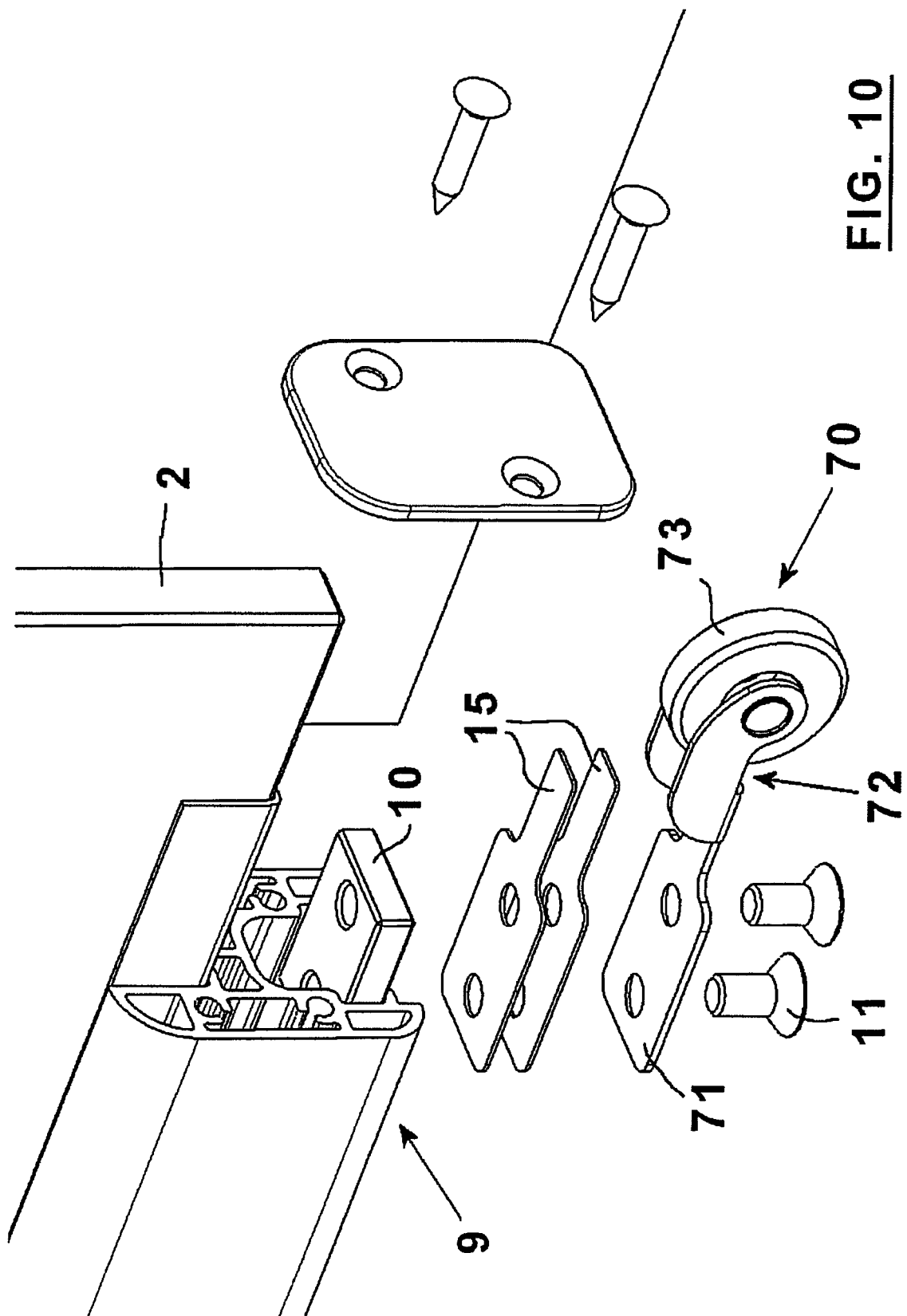


FIG. 10

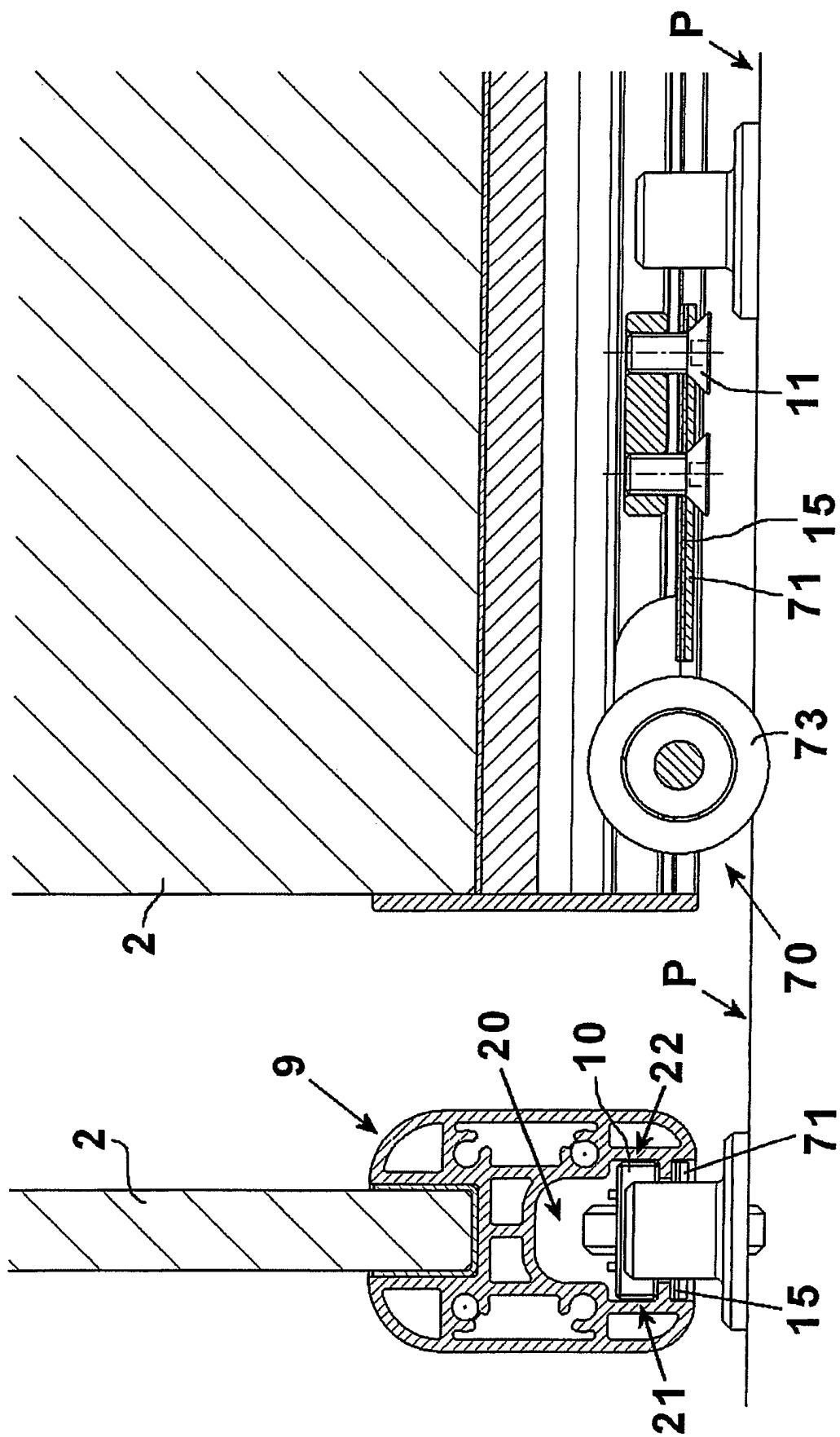


FIG. 10B

FIG. 10A

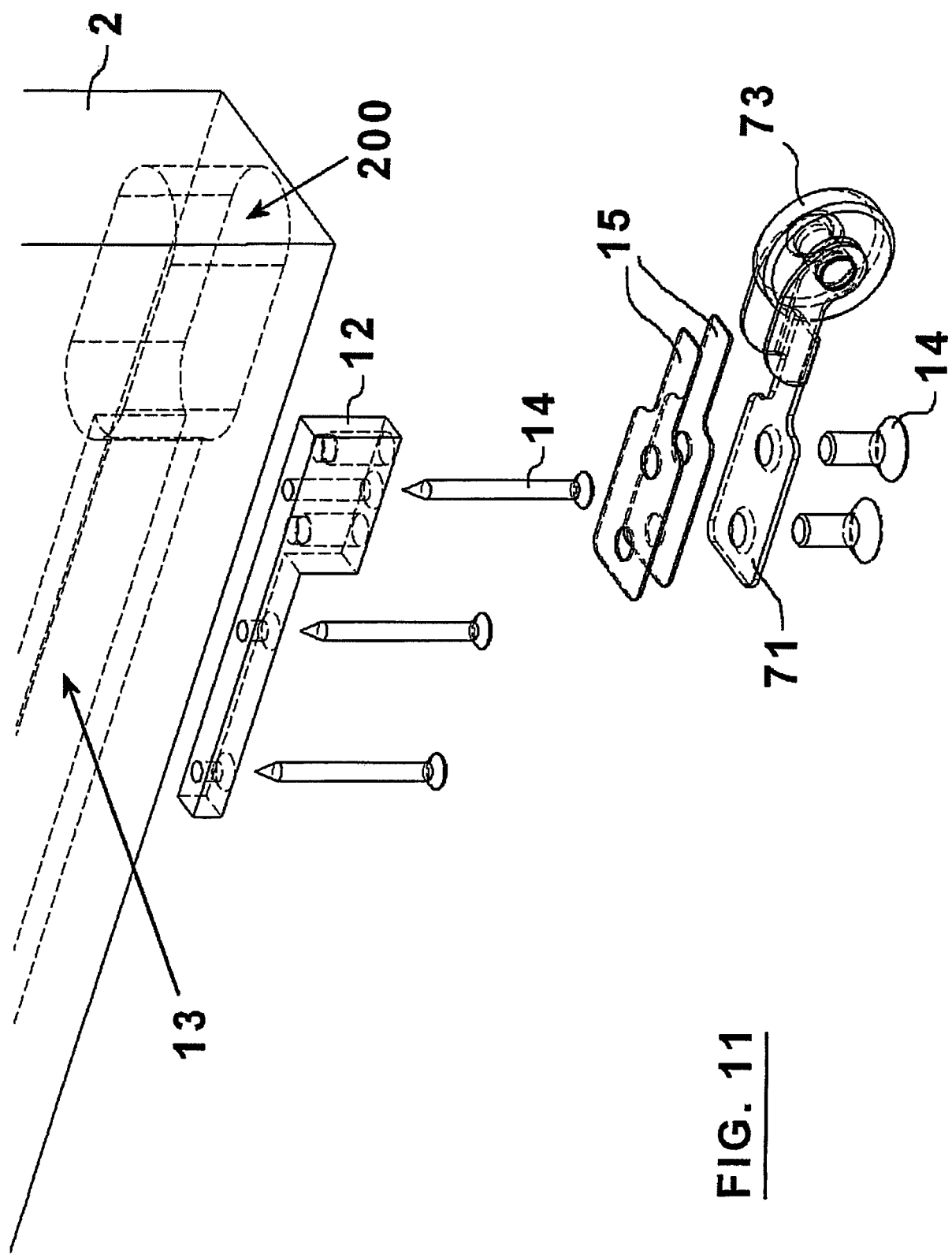


FIG. 11

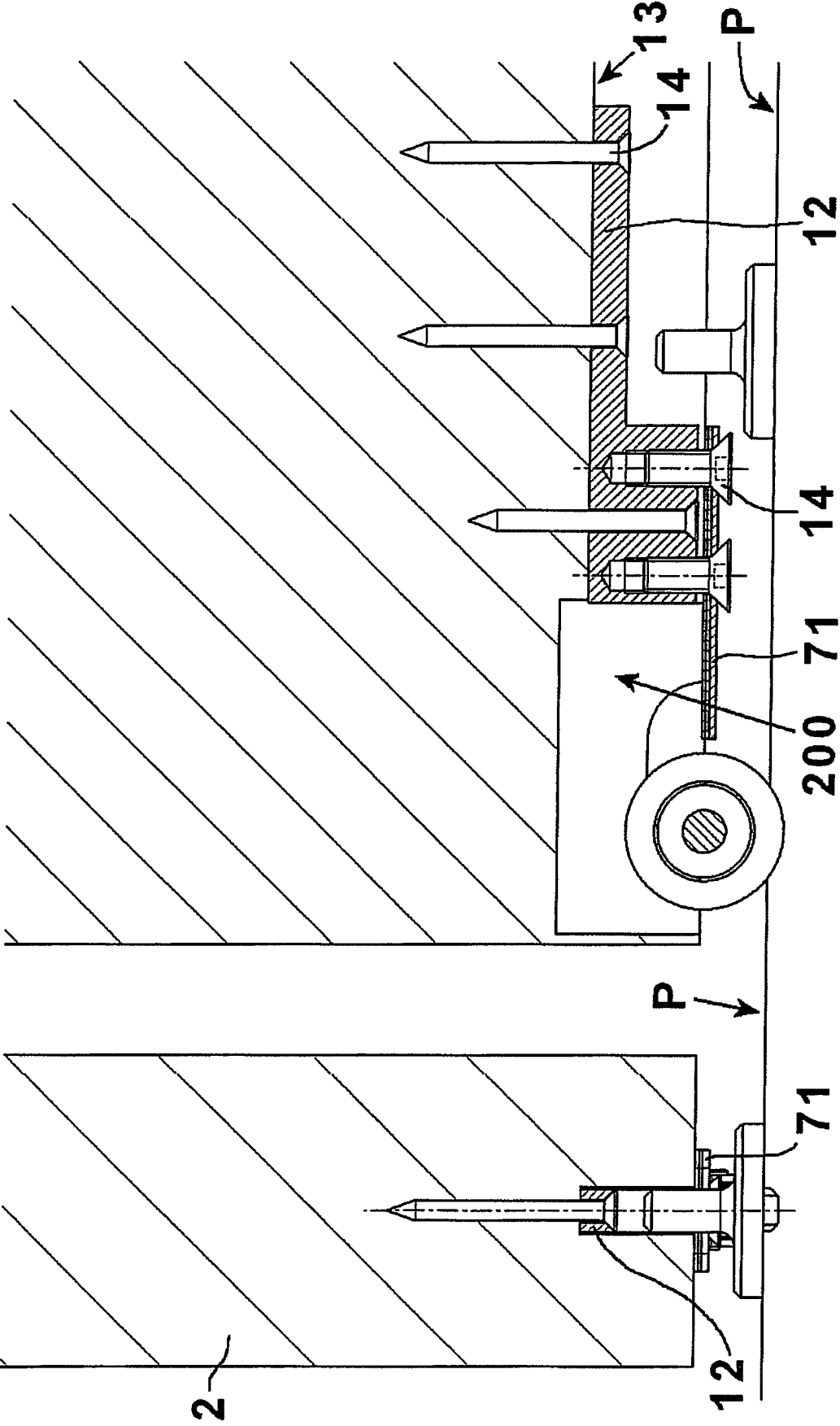


FIG. 11A

FIG. 11B

REFERENCES CITED IN THE DESCRIPTION

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