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(54) **Slide assembly with security device**

Schubladenführung mit Sicherheitsvorrichtung

Glissière avec un dispositif de sécurité

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(56) References cited:
GB-A- 2 401 534 US-A1- 2004 174 100

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Description

FIELD OF THE INVENTION

[0001] The present invention relates to a slide assembly according to the preamble of claim 1. Thus, the present invention relates to a slide assembly with a security device, and more particularly, to a security device for controlling correct installation between slide members of the slide assembly.

BACKGROUND OF THE INVENTION

[0002] A slide assembly of the initially-mentioned type is known, e.g., from GB 2 401 534 A.

[0003] A conventional slide assembly is shown in Fig. 12 and generally includes a first slide member 1 and a second slide member 2 which is slidably connected to the first slide member 1, wherein the second slide member 2 can be disengaged from the first slide member 1, and re-installed to the first slide member 1. Generally, the slide assembly can be used for server racks, cabinets or the like having retractable objects. For example, the first slide member can be connected to a rack, a cabinet or a fixed object, and the second slide member can be connected to a chassis, a drawer or a movable object. By this arrangement, the chassis, drawer or movable object can be pulled out relative to the rack, the cabinet or the fixed object.

[0004] However, the conventional slide assembly lacks a security device which prevents the second slide member 2 from being incorrectly installed to the first slide member 1. When the slide assembly bears a load, the chassis or the drawer, the chassis or the drawer may drop from the rack or the cabinet when being pulled and cause damage.

[0005] The situation that the second slide member 2 is not correctly installed to the first slide member 1 is disclosed in Fig. 13, wherein a bottom rail 3 of the second slide member 2 is correctly connected to the lower portion of the guiding passage 4 of the first slide member 1, but a top rail 5 of the second slide member 2 is not correctly engaged with the top portion of the guiding passage 4, such that there is an unstable support to the second slide member 2 and it is not safe when a load is supported by the second slide member 2.

[0006] Therefore, a security device is needed to improve the shortcoming of the conventional slide assembly.

SUMMARY OF THE INVENTION

[0007] The present invention intends to provide a security device for a slide assembly so as to ensure the first and second slide member are correctly connected to each other and prevent from possible injury or damage when using the slide assembly.

[0008] To this end, the present invention provides a

slide assembly according to claim 1. Further embodiments of the slide assembly of the present invention are described in the dependent claims.

[0009] The slide assembly comprises a first slide member which includes a first wall, a second wall and a connection board connected between the first and second walls. A first passage and a second passage are defined by the first wall, the second wall and the connection board so as to accommodate rolling mediums. A guiding passage is defined between the rolling mediums of the first passage and the rolling mediums of the second passage. A second slide member includes a top wall, a bottom wall and a side board connected between the top and bottom walls. A first guiding surface is defined by the top wall and a second guiding surface is defined by the bottom wall. The second slide member is inserted in the first slide member via the guiding passage. The first and second guiding surfaces are contact with the rolling mediums of the first and second passages so that the second slide member is slidable relative to the first slide member. A first stop member is movably located at an initial end of the first slide member and the second slide member is slidably connected to the first slide member from the initial end. The first stop member includes a first engaging portion and a first stop portion located opposite to the first engaging portion. The first engaging portion and the first stop portion of the first stop member are located corresponding to the guiding passage of the first slide member. A second stop member is movably located at the initial end of the first slide member and the second slide member is slidably connected to the first slide member from the initial end. The second stop member includes a second engaging portion and a second stop portion located opposite to the second engaging portion. The second engaging portion and the second stop portion of the second stop member are located corresponding to the guiding passage of the first slide member. An elastic member is connected to the first and second stop members to keep the first engaging portion and the first stop portion of the first stop member to be located corresponding to the guiding passage of the first slide member, and the second engaging portion and the second stop portion of the second stop member to be located corresponding to the guiding passage of the first slide member. A first stop wall is located corresponding to the second stop portion of the second stop member and a second stop wall is located corresponding to the first stop portion of the first stop member so as to position the second stop portion and the first stop portion. When the second slide member is inserted in the first slide member via the guiding passage, the first engaging portion and the second engaging portion of the first and second stop members are pushed to disengage from the guiding passage by the second slide member. The first stop portion of the first stop member is disengaged from the guiding passage of the first slide member and the second stop portion of the second stop member is disengaged from the guiding passage of the first slide member.

[0010] According to the invention, the first and second stop members are pivotably connected to the first slide member, and the first and second stop members are crosswise connected to each other.

[0011] Preferably, the first engaging portion of the first stop member is located corresponding to the top wall of the second slide member and the second engaging portion of the second stop member is located corresponding to the bottom wall of the second slide member.

[0012] Preferably, a fixing plate is fixed to the first slide member and the first and second stop members are pivotably connected to the fixing plate, so that the first engaging portion and the first stop portion of the first stop member and the second engaging portion and the second stop portion of the second stop member are movable relative to the first slide member.

[0013] Preferably, the first stop member has a first pivot hole located between the first engaging portion and the first stop portion, and the second stop member has a second pivot hole located between the second engaging portion and the second stop portion. The first and second stop members are pivotably connected to the fixing plate by the first and second pivot holes.

[0014] Preferably, the elastic member includes a first portion, a second portion located corresponding to the first portion and a middle portion connected between the first and second portions. A biasing force is formed between the first and second portions. The middle portion is connected to the first slide member. The first portion is connected to the first stop member. The second portion is connected to the second stop member.

[0015] Preferably, a first support member is fixed to the first slide member close to the first wall, and includes a first guiding portion, a first chamber and a second chamber. The first guiding portion is contact with the first guiding surface of the second slide member. The first chamber accommodates the first engaging portion of the first stop member. The second chamber accommodates the second stop portion of the second stop member. The first stop wall is located adjacent to the second chamber. A second support member is fixed to the first slide member close to the second wall, and includes a second guiding portion, a third chamber and a fourth chamber. The second guiding portion is contact with the second guiding surface of the second slide member. The third chamber accommodates the second engaging portion of the second stop member. The fourth chamber accommodates the first stop portion of the first stop member. The second stop wall is located adjacent to the fourth chamber.

[0016] Preferably, the first and second support members are combined to be a main support member which includes a bridge portion. The first and second stop members are movably connected to the bridge portion so as to be movable relative the first slide member.

[0017] Preferably, the first and second stop walls are disposed on the first slide member.

[0018] The present invention will become more obvious from the following description when taken in connec-

tion with the accompanying drawings which show, for purposes of illustration only, a preferred embodiment in accordance with the present invention.

BRIEF DESCRIPTION OF THE DRAWINGS

[0019]

Fig. 1 is an exploded view to show the slide assembly and the security device according to a first embodiment of the present invention;

Fig. 2 is a perspective view to show that two support members are connected to the slide assembly of the present invention;

Fig. 3 shows that the first and second stop members and the fixing plate of the security device are to be connected to the slide assembly of the present invention;

Fig. 4 is a cross sectional view to show that the second slide member is inserted in the first slide member to be contact with the security device of the present invention;

Fig. 5 is a cross sectional view to show that the security device is pushed to swing an angle by the second slide member;

Fig. 6 shows that the second slide member is correctly connected to the first slide member and moves relative to the first slide member;

Fig. 7 shows that the second slide member is incorrectly connected to the first slide member and contacts a part of the security device of the present invention;

Fig. 8 shows that the second slide member is incorrectly connected to the first slide member and stopped by the security device of the present invention;

Fig. 9 shows a second embodiment of the security device of the present invention;

Fig. 10 shows a third embodiment of the security device of the present invention;

Fig. 11 shows a fourth embodiment of the security device of the present invention;

Fig. 12 shows a conventional slide assembly; and Fig. 13 shows that the conventional slide assembly is not correctly assembled.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT

[0020] Referring to Figs. 1 and 2, the slide assembly 10 of the present invention comprises a first slide member 12 and a second slide member 14 which is longitudinally and movably connected to the first slide member 12. A security device 16 is connected to an initial end 17 of the first slide member 12, where the second slide member 14 is inserted therefrom.

[0021] The first slide member 12 includes a first wall 18, a second wall 20 and a connection board 22 which

is connected between the first and second walls 18, 20. A first passage 24 is defined between the first wall 18 and the connection board 22. A second passage 26 is defined between the second wall 20 and the connection board 22. The first passage 24 and the second passage 26 are adapted for accommodating rolling mediums 28 therein. The rolling mediums 28 can be a plurality of balls. A retainer 29 is used to position the balls. In this embodiment, a guiding passage 30 is defined between the mediums 28 of the first passage 24 and the mediums 28 of the second passage 26.

[0022] The second slide member 14 includes a top wall 32, a bottom wall 34 and a side board 36 connected between the top and bottom walls 32, 34. A first guiding surface 38 is defined by the top wall 32 and a second guiding surface 40 is defined by the bottom wall 34. The second slide member 14 is inserted in the first slide member 12 through the guiding passage 30. The first and second guiding surfaces 38, 40 are contact with the mediums 28 of the first and second passages 24, 26 so that the second slide member 14 is slidable relative to the first slide member 12.

[0023] The security device 16 includes a fixing plate 41 fixed to the first slide member 12. A first stop member 44 and a second stop member 46 are connected to the fixing plate 41. An elastic member 48 is connected to the first and second stop members 44, 46. A first support member 50 and a second support member 52 are connected to the first slide member 12.

[0024] The first stop member 44 is movably connected to the fixing plate 41. For example, the first stop member 44 is pivotally connected to the fixing plate 41 with a pivotal member 54. The first stop member 44 includes a first engaging portion 56, a first stop portion 58 opposite to the first engaging portion 56, and a first pivot hole 57 disposed between the first engaging portion 56 and the first stop portion 58. The first engaging portion 56 and the first stop portion 58 of the first stop member 44 are located corresponding to the guiding passage 30 of the first slide member 12. Preferably, the first engaging portion 56 of the first stop member 44 is located corresponding to the top wall 32 of the second slide member 14.

[0025] The second stop member 46 is movably connected to the fixing plate 41 by using the pivotal member 54 to pivotally connect the second stop member 46 to the fixing plate 41. The second stop member 46 includes a second engaging portion 60, a second stop portion 62 opposite to the second engaging portion 60, and a second pivot hole 61 disposed between the second engaging portion 60 and the second stop portion 62. The second engaging portion 60 and the second stop portion 62 of the second stop member 46 are located corresponding to the guiding passage 30 of the first slide member 12. Preferably, the second engaging portion 60 of the second stop member 46 is located corresponding to the bottom wall 34 of the second slide member 14. In this embodiment, as shown in Fig. 3, the first and second stop members 44, 46 are pivotally connected to the fixing plate 41

by inserting the pivotal member 54 through the first and second pivot holes 57, 61 and to connect with the fixing hole 42 in the fixing plate 41. The first and second stop members 44, 46 are crosswise connected to each other.

5 The fixing plate 41 has a through hole 43 so as to be riveted to the first slide member 12, such that the first and second stop members 44, 46 are rotatable relative to the first slide member 12.

[0026] The elastic member 48 includes a first portion 64, a second portion 66 located corresponding to the first portion 64, and a middle portion 68 connected between the first and second portions 64, 66. A biasing force is formed between the first and second portions 64, 66. The middle portion 68 is connected to the first slide member 12, as shown in Fig. 3. The first slide member 12 includes a positioning hole 13 and two engaging bits 15 extending into the positioning hole 13 from the first slide member 12, so that the middle portion 68 can be inserted into the positioning hole 13 and engaged with the two engaging bits 15. The first portion 64 of the elastic member 48 is connected to the first stop member 44, and the second portion 66 is connected to the second stop member 46, so that the first and second stop members 44, 46 are maintained to be located corresponding to the guiding passage 30 of the first slide member 12 by the force of the elastic member 48.

[0027] The first support member 50 is fixed to the first slide member 12 and located close to the first wall 18. The first support member 50 includes a first guiding portion 70 located corresponding to the first guiding surface 38 of the second slide member 14, a first chamber 72 and a second chamber 74 located corresponding to the first guiding portion 70, and a first stop wall 76 adjacent to the second chamber 74. When the second slide member 14 is inserted in the first slide member 12, as shown in Fig. 4, the first guiding portion 70 of the first support member 50 will be contact with the first guiding surface 38 of the second slide member 14 for guiding the second slide member 14 to be inserted in the first slide member 12. The first stop wall 76 is adapted to hold against the second stop member 46 so as to position the second stop portion 62 thereat.

[0028] The second support member 52 is fixed to the first slide member 12 and located close to the second wall 20. The second support member 52 includes a second guiding portion 80 located corresponding to the second guiding surface 40 of the second slide member 14, a third chamber 82 and a fourth chamber 84 located corresponding to the second guiding portion 80, and a second stop wall 86 adjacent to the fourth chamber 84. When the second slide member 14 is inserted in the first slide member 12, as shown in Fig. 4, the second guiding portion 80 of the second support member 52 will be contact with the second guiding surface 40 of the second slide member 14 so as to guide the second slide member 14 to be inserted in the first slide member 12. The second stop wall 86 is adapted to hold against the first stop member 44 so as to position the first stop portion 58 thereat.

[0029] As shown in Fig. 4 to Fig. 6, when the second slide member 14 is inserted in the first slide member 12, the first and second guiding surfaces 38, 40 of the second slide member 14 are correctly inserted in the guiding passage 30 of the first slide member 12. The first guiding portion 70 of the first support member 50 and the second guiding portion 80 of the second support member 52 guide the first guiding surface 38 and the second guiding surface 40 of the second slide member 14. The first engaging portion 56 of the first stop member 44 and the second engaging portion 60 of the second stop member 46 are pivoted an angle by the top wall 32 and the bottom wall 34 of the second slide member 14. As shown in Figs. 5 and 6, the first engaging portion 56 of the first stop member 44 enters the first chamber 72 of the first support member 50 and the first stop portion 58 of the first stop member 44 enters the fourth chamber 84 of the second support member 52. Therefore, the first engaging portion 56 and the first stop portion 58 of the first stop member 44 are moved from the guiding passage 30 of the first slide member 12 and do not block the second slide member 14. In the meanwhile, the second engaging portion 60 of the second stop member 46 enters the third chamber 82 of the second support member 52 and the second stop portion 62 of the second stop member 46 enters the second chamber 74 of the first support member 50. Therefore, the first stop portion 58 of the first stop member 44 and the second stop portion 62 of the second stop member 46 both are moved from the guiding passage 30 of the first slide member 12 and do not block the bottom wall 34 and the top wall 32 of the second slide member 14. The second slide member 14 can be continuously inserted in the first slide member 12, as shown in Fig. 6. By using the mechanism, as long as the second slide member 14 can be partially inserted into the first slide member 12, the first and second guiding surfaces 38, 40 of the second slide member 14 can be contact with the first guiding portion 70 of the first support member 50 and the second guiding portion 80 of the second support member 52. The second slide member 14 is then correctly and normally inserted into the guiding passage 30 of the first slide member 12.

[0030] On the contrary, as shown in Fig. 7, when the second slide member 14 is not correctly connected to the first slide member 12, for example, only the bottom wall 34 of the second slide member 14 is inserted into the second support member 52 of the first slide member 12, and the top wall 32 of the second slide member 14 is not inserted into the first support member 50 of the first slide member 12. That is to say, the first guiding surface 38 of the second slide member 14 is not contact with the first guiding portion 70 of the first support member 50, the first engaging portion 56 of the first slide member 44 is not pushed by the top wall 32 of the second slide member 14. The first stop member 44 is maintained stationary. The first stop portion 58 holds against the second stop wall 86 and located in the guiding passage 30 of the first slide member 12. Therefore, when the bottom wall 34 of

the second slide member 14 slides along the second support member 52 of the first slide member 12, the second slide member 14 only pushes the second engaging portion 60 of the second stop member 46 and passes. The bottom wall 34 is stopped by the first stop portion 58 of the first stop member 44 and cannot move further, as shown in Fig. 8. Accordingly, once the second slide member 14 is not correctly inserted in the first slide member 12, the assembler is acknowledged this situation by the first stop member 44 located at the trace that the second slide member 14 is slidably connected to the first slide member 12, the assembler then removes the second slide member 14 and installs the second slide member 14 to the first slide member 12 again. The second slide member 14 will not be installed in an incorrect way to cause any possible risk because of the incorrect installation.

[0031] It is noted that the first and second stop members 44, 46 of the security device 16 are movably connected to the first slide member 12, so that the first and second stop members 44, 46 can be movably connected to a fixing plate 88 extending from the first slide member 12 as shown in Fig. 9. Alternatively, the first and second support members 50, 52 of the security device 16 can be combined as a main support member 90 which includes a bridge portion 92. The first and second stop members 44, 46 are movably connected to the bridge portion 92 so as to be movable relative to the first slide member 12, as shown in Fig. 10.

[0032] Referring to Figs. 10 and 11, the first stop wall 76 of the first support member 50 of the security device 16 can be replaced by a first stop wall 94a provided on the first slide member 12. The second stop wall 86 of the second support member 52 can also be replaced by a second stop wall 94b provided on the first slide member 12. The first and second stop walls 94a, 94b stop the first and second stop members 44, 46 so as to position the first and second stop portions 58, 62 relative to the first slide member 12 when in the initial status.

[0033] While we have shown and described the embodiment in accordance with the present invention, it should be clear to those skilled in the art that further embodiments may be made without departing from the scope of the present invention.

Claims

1. A slide assembly, comprising:

a first slide member (12) including a first wall (18), a second wall (20), a connection board (22) connected between the first and second walls (18, 20), a first passage (24) and a second passage (26) defined by the first wall (18), the second wall (20) and the connection board (22) so as to accommodate rolling mediums (28), a guiding passage (30) defined between the roll-

ing mediums (28) of the first passage (24) and the rolling mediums (28) of the second passage (26);

a second slide member (14) including a top wall (32), a bottom wall (34) and a side board (36) connected between the top and bottom walls (32, 34), a first guiding surface (38) defined by the top wall (32) and a second guiding surface (40) defined by the bottom wall (34), the second slide member (14) being inserted in the first slide member (12) via the guiding passage (30), the first and second guiding surfaces (38, 40) being contact with the rolling mediums (28) of the first and second passages (24, 26) so that the second slide member (14) is slidable relative to the first slide member (12);

a first stop member (44) movably located at an initial end of the first slide member (12) and the second slide member (14) being slidably connected to the first slide member (12) from the initial end, the first stop member (44) including a first engaging portion (56) and a first stop portion (58) located opposite to the first engaging portion (56), the first engaging portion (56) and the first stop portion (58) of the first stop member (44) being located corresponding to the guiding passage (30) of the first slide member (12);

a second stop member (46) movably located at the initial end of the first slide member (12) and the second slide member (14) being slidably connected to the first slide member (12) from the initial end, the second stop member (46) including a second engaging portion (60) and a second stop portion (62) located opposite to the second engaging portion (60), the second engaging portion (60) and the second stop portion (62) of the second stop member (46) being located corresponding to the guiding passage (30) of the first slide member (12), and

an elastic member (48) connected to the first and second stop members (44, 46) to keep the first engaging portion (56) and the first stop portion (58) of the first stop member (44) to be located corresponding to the guiding passage (30) of the first slide member (12), the second engaging portion (60) and the second stop portion (62) of the second stop member (46) being located corresponding to the guiding passage (30) of the first slide member (12);

wherein a first stop wall (76) is located corresponding to the second stop portion (62) of the second stop member (46), a second stop wall (86) is located corresponding to the first stop portion (58) of the first stop member (44) so as to position the second stop portion (62) and the first stop portion (58);

wherein when the second slide member (14) is correctly aligned and introduced to the first

slide member (12) via the guiding passage (30), the first engaging portion (56) and the second engaging portion (60) of the first and second stop members (44, 46) are pushed to disengage from the guiding passage (30) by the second slide member (14), the first stop portion (58) of the first stop member (44) is disengaged from the guiding passage (30) of the first slide member (12) and the second stop portion (62) of the second stop member (46) is disengaged from the guiding passage (30) of the first slide member (12);

characterized in that the first and second stop members (44, 46) are pivotably connected to the first slide member (12) and the first and second stop members (44, 46) are crosswise connected to each other.

2. The slide assembly as claimed in claim 1, wherein the first engaging portion (56) of the first stop member (44) is located corresponding to the top wall (32) of the second slide member (14) and the second engaging portion (60) of the second stop member (46) is located corresponding to the bottom wall (34) of the second slide member (14).
3. The slide assembly as claimed in claim 1, further comprising a fixing plate (41) fixed to the first slide member (12), the first and second stop members (44, 46) being pivotably connected to the fixing plate (41) so that the first engaging portion (56) and the first stop portion (58) of the first stop member (44) and the second engaging portion (60) and the second stop portion (62) of the second stop member (46) are movable relative to the first slide member (12).
4. The slide assembly as claimed in claim 3, wherein the first stop member (44) has a first pivot hole (57) located between the first engaging portion (56) and the first stop portion (58), the second stop member (46) has a second pivot hole (61) located between the second engaging portion (60) and the second stop portion (62), the first and second stop members (44, 46) are pivotably connected to the fixing plate (41) by the first and second pivot holes (57, 61).
5. The slide assembly as claimed in claim 1, wherein the elastic member (48) includes a first portion (64), a second portion (66) located corresponding to the first portion (64) and a middle portion (68) connected between the first and second portions (64, 66), a biasing force is formed between the first and second portions (64, 66), the middle portion (68) is connected to the first slide member (12), the first portion (64) is connected to the first stop member (44), the second portion (66) is connected to the second stop member (46).

6. The slide assembly as claimed in claim 1, further comprising a first support member (50) fixed to the first slide member (12) close to the first wall (18), the first support member (50) including a first guiding portion (70), a first chamber (72) and a second chamber (74), the first guiding portion (70) being contact with the first guiding surface (38) of the second slide member (14), the first chamber (72) accommodating the first engaging portion (56) of the first stop member (44), the second chamber (74) accommodating the second stop portion (62) of the second stop member (46), the first stop wall (76) being located adjacent to the second chamber (74); a second support member (52) fixed to the first slide member (12) close to the second wall (20), the second support member (52) including a second guiding portion (80), a third chamber (82) and a fourth chamber (84), the second guiding portion (80) being contact with the second guiding surface (40) of the second slide member (14), the third chamber (82) accommodating the second engaging portion (60) of the second stop member (46), the fourth chamber (84) accommodating the first stop portion (58) of the first stop member (44), the second stop (86) wall being located adjacent to the fourth chamber (84).
7. The slide assembly as claimed in claim 6, wherein the first and second support members (50, 52) are combined to be a main support member (90) which includes a bridge portion (92), the first and second stop members (44, 46) are movably connected to the bridge portion (92) so as to be movable relative to the first slide member (12).
8. The slide assembly as claimed in claim 1, wherein the first and second stop walls (94a, 94b) are disposed on the first slide member (12).

Patentansprüche

1. Ein gleitbarer Mechanismus, umfassend:

einem ersten gleitbaren Element (12) mit einer ersten Wand (18), einer zweiten Wand (20), einer Verbindungsleiste (22), die zwischen der ersten und der zweiten Wand (18, 20) befestigt ist, einem ersten Durchlass (24) und eine mit der ersten Wand (18), der zweiten Wand (20) und den Verbindungsleisten (22) gebildeten zweiten Durchlass (26), um in diesem Rollkugeln (28) aufzunehmen, und mit einem zwischen den Rollkugeln (28) des ersten Durchlasses (24) und den Rollkugeln (28) des zweiten Durchlasses (26) gebildeten Führungsdurchlass (30);
einem zweiten gleitbaren Element (14) mit einer oberen (32), einer unteren Wand (34), einer

Stirnwand (36), die zwischen der oberen und der unteren Wand (32, 34) befestigt ist, einer mit der oberen Wand (32) gebildeten ersten Führungsfläche (38) und einer mit der unteren Wand (34) gebildeten zweiten Führungsfläche (40); das zweite gleitbare Element (14) durch den Führungsdurchlass (30) in das erste gleitbare Element (12) eingeschoben wird; die ersten und zweiten Führungsflächen (38, 40) mit den Rollkugeln (28) des ersten und zweiten Durchlasses (24, 26) in Berührung stehen, so dass das zweite gleitbare Element (14) zum ersten gleitbaren Element (12) gleitbar montiert ist; einem ersten Anschlag (44), der beweglich an einem Absatzende des ersten gleitbaren Elements (12) gebildet ist, während das zweite gleitbare Element (14) vom Ansatzende gleitbar am ersten gleitbaren Element (12) befestigt ist; der erste Anschlag (44) ein erstes Einrückteil (56) und ein erstes Anschlagteil (58) aufweist, wobei letzteres gegenüber dem ersten Einrückteil (56) gebildet ist; das erste Einrückteil (56) und das erste Anschlagteil (58) des ersten Anschlags (44) entsprechend dem Führungsdurchlass (30) des ersten gleitbaren Elements (12) gebildet ist; einem zweiten Anschlag (46), der beweglich am Ansatzende des ersten gleitbaren Elements (12) gebildet ist, während das zweite gleitbare Element (14) vom Ansatzende gleitbar am ersten gleitbaren Element (12) befestigt ist; der zweite Anschlag (46) ein zweites Einrückteil (60) und ein zweites Anschlagteil (62) aufweist, wobei letzteres gegenüber dem zweiten Einrückteil (60) gebildet ist; das zweite Einrückteil (60) und das zweite Anschlagteil (62) des zweiten Anschlags (46) entsprechend dem Führungsdurchlass (30) des ersten gleitbaren Elements (12) gebildet ist, und einem elastischen Element (48), das am ersten und zweiten Anschlag (44, 46) befestigt ist, um das erste Einrückteil (56) und das erste Anschlagteil (58) des ersten Anschlags (44) entsprechend dem Führungsdurchlass (30) des ersten gleitbaren Elements (12) angeordnet zu halten; das zweite Einrückteil (60) und das zweite Anschlagteil (62) des zweiten Anschlags (46) entsprechend dem Führungsdurchlass (30) des ersten gleitbaren Elements (12) angeordnet sind; wobei eine erste obere Wand (76) entsprechend dem zweiten Anschlagteil (62) des zweiten Anschlags (46) und eine zweite obere Wand (86) entsprechend dem ersten Anschlagteil (58) des ersten Anschlags (44) angeordnet sind, um das zweite Anschlagteil (62) und das erste Anschlagteil (58) zu positionieren; wobei beim richtigen Ausrichten des zweiten

- gleitbaren Elements (14) und dessen Einschieben durch den Führungsdurchlass (30) in das erste gleitbare Element (12) das erste Einrückteil (56) und das zweite Einrückteil (60) des ersten und zweiten Anschlags (44, 46) angeschoben werden, um mit dem zweiten gleitbaren Element (14) aus dem Führungsdurchlass (30) ausgerückt zu werden, wobei das erste Anschlagteil (58) des ersten Anschlags (44) aus dem Führungsdurchlass (30) des ersten gleitbaren Elements (12) und das zweite Anschlagteil (62) des zweiten Anschlags (46) aus dem Führungsdurchlass (30) des ersten gleitbaren Elements (12) ausgerückt werden;
- dadurch gekennzeichnet, dass** der erste und zweite Anschlag (44, 46) drehbar am ersten gleitbaren Element (12) und der erste und zweite Anschlag (44, 46) kreuzweise aneinander befestigt sind.
2. Der gleitbare Mechanismus nach Anspruch 1, wobei das erste Einrückteil (56) des ersten Anschlags (44) entsprechend der oberen Wand (32) des zweiten gleitbaren Elements (14) und das zweite Einrückteil (60) des zweiten Anschlags (46) entsprechend der unteren Wand (34) des zweiten gleitbaren Elements (14) angeordnet sind.
 3. Der gleitbare Mechanismus nach Anspruch 1, weiter bestehend aus einem Fixierplättchen (41), das am ersten gleitbaren Element (12) befestigt ist; der erste und zweite Anschlag (44, 46) drehbar am Fixierplättchen (41) befestigt sind, so dass das erste Einrückteil (56) und das erste Anschlagteil (58) des ersten Anschlags (44), das zweite Einrückteil (60) und das zweite Anschlagteil (62) des zweiten Anschlags (46) zum ersten gleitbaren Element (12) beweglich sind.
 4. Der gleitbare Mechanismus nach Anspruch 3, wobei der erste Anschlag (44) ein erstes Drehzapfenloch (57) aufweist, das zwischen dem ersten Einrückteil (56) und dem ersten Anschlagteil (58) gebildet ist; der zweite Anschlag (46) ein zweites Drehzapfenloch (61) aufweist, das zwischen dem zweiten Einrückteil (60) und dem zweiten Anschlagteil (62) gebildet ist; der erste und zweite Anschlag (44, 46) mit dem ersten und zweiten Drehzapfenloch (57, 61) drehbar am Fixierplättchen (41) befestigt sind.
 5. Der gleitbare Mechanismus nach Anspruch 1, wobei das elastische Element (48) einen ersten Abschnitt (64), einen zweiten Abschnitt (66), der entsprechend dem ersten Abschnitt (64) angeordnet ist, und einen mittleren Abschnitt (68) aufweist, wobei letzterer zwischen dem ersten und zweiten Abschnitt (64, 66) befestigt ist; eine Vorspannungskraft zwischen dem ersten und zweiten Abschnitt (64, 66) erzeugt wird; der mittlere Abschnitt (68) am ersten gleitbaren Element (12) befestigt ist; der erste Abschnitt (64) am ersten Anschlag (44) und der zweite Abschnitt (66) am zweiten Anschlag (46) befestigt sind.
 6. Der gleitbare Mechanismus nach Anspruch 1, weiter bestehend aus einem ersten Trägerteil (50), das am ersten gleitbaren Element (12) nahe zur ersten Wand (18) befestigt ist; das erste Trägerteil (50) aus einem ersten Führungselement (70) besteht und eine erste Kammer (72) sowie eine zweite Kammer (74) aufweist; das erste Führungselement (70) mit der ersten Führungsfläche (38) des zweiten gleitbaren Elements (14) steht; in der ersten Kammer (72) das erste Einrückteil (56) des ersten Anschlags (44) und in der zweiten Kammer (74) das zweite Anschlagteil (62) des zweiten Anschlags (46) aufgenommen sind; die erste obere Wand (76) neben der zweiten Kammer (74) angeordnet ist; ein zweites Trägerteil (52) am ersten gleitbaren Element (12) nahe zur zweiten Wand (20) befestigt ist; das zweite Trägerteil (52) aus einem zweiten Führungselement (80) besteht und eine dritte Kammer (82) sowie eine vierte Kammer (84) aufweist; das zweite Führungselement (80) mit der zweiten Führungsfläche (40) des zweiten gleitbaren Elements (14) in Berührung steht; in der dritten Kammer (82) das zweite Einrückteil (60) des zweiten Anschlags (46) und in der vierten Kammer (84) das erste Anschlagteil (58) des ersten Anschlags (44) aufgenommen sind; die zweite Anschlagwand (86) angrenzend an die vierte Kammer (84) angeordnet ist.
 7. Der gleitbare Mechanismus nach Anspruch 6, wobei das erste und zweite Trägerteil (50, 52) zum Bilden eines Hauptträgerteils (90) miteinander kombiniert sind, wobei dieser Hauptträgerteils (90) aus einem Brückenteil (92) besteht, und der erste und zweite Anschlag (44, 46) beweglich am Brückenteil (92) befestigt sind, damit diese relativ zum ersten gleitbaren Element (12) beweglich montiert sind.
 8. Der gleitbare Mechanismus nach Anspruch 1, wobei die erste und zweite Anschlagwand (94a, 94b) am ersten gleitbaren Element (12) angeordnet sind.

Revendications

1. Un ensemble coulissant, comprenant :

un premier élément coulissant (12) comprenant une première paroi (18), une deuxième paroi (20), une plaque de connexion (22) reliée entre les première et deuxième parois (18, 20), un premier passage (24) et un deuxième passage (26) définis par la première paroi (18), la deuxième paroi (20) et la plaque de connexion (22) de manière à recevoir des supports de roulement (28),

un passage de guidage (30) défini entre les supports de roulement (28) du premier passage (24) et les supports de roulement (28) du deuxième passage (26);

un deuxième élément coulissant (14) comprenant une paroi supérieure (32), une paroi inférieure (34) et une plaque latérale (36) reliée entre les parois supérieure et inférieure (32, 34), une première surface de guidage (38) définie par la paroi supérieure (32) et une deuxième surface de guidage (40) définie par la paroi inférieure (34), le deuxième élément coulissant (14) étant inséré dans le premier élément coulissant (12) via le passage de guidage (30), les première et deuxième surfaces de guidage (38, 40) étant en contact avec les supports de roulement (28) des premier et deuxième passages (24, 26) de sorte que le deuxième élément coulissant (14) est coulissant par rapport au premier élément coulissant (12);

un premier élément de butée (44) situé de manière mobile à une extrémité initiale du premier élément coulissant (12) et le deuxième élément coulissant (14) étant relié de manière coulissante au premier élément coulissant (12) à partir de l'extrémité initiale, le premier élément de butée (44) comprenant une première partie d'engagement (56) et une première partie de butée (58) située à l'opposé de la première partie d'engagement (56), la première partie d'engagement (56) et la première partie de butée (58) du premier élément de butée (44) étant situées en correspondance avec le passage de guidage (30) du premier élément coulissant (12);

un deuxième élément de butée (46) situé de manière mobile à l'extrémité initiale du premier élément coulissant (12) et le deuxième élément coulissant (14) étant relié de manière coulissante au premier élément coulissant (12) à partir de l'extrémité initiale, le deuxième élément de butée (46) comprenant une deuxième partie d'engagement (60) et une deuxième partie de butée (62) située à l'opposé de la deuxième partie d'engagement (60), la deuxième partie d'engagement (60) et la deuxième partie de butée (62) du deuxième élément de butée (46) étant situées en correspondance avec le passage de guidage (30) du premier élément coulissant (12), et

un élément élastique (48) relié aux premier et deuxième éléments de butée (44, 46) pour maintenir la première partie d'engagement (56) et la première partie de butée (58) du premier élément de butée (44) situées en correspondance avec le passage de guidage (30) du premier élément coulissant (12), la deuxième partie d'engagement (60) et la deuxième partie de butée (62) du deuxième élément de butée (46) étant

situées en correspondance avec le passage de guidage (30) du premier élément coulissant (12);

dans lequel une première paroi de butée (76) est située en correspondance avec la deuxième partie de butée (62) du deuxième élément de butée (46), une deuxième paroi de butée (86) est située en correspondance avec la première partie de butée (58) du premier élément de butée (44) de manière à positionner la deuxième partie de butée (62) et la première partie de butée (58);

dans lequel lorsque le deuxième élément coulissant (14) est correctement aligné et introduit dans le premier élément coulissant (12) via le passage de guidage (30), la première partie d'engagement (56) et la deuxième partie d'engagement (60) des premier et deuxième éléments de butée (44, 46) sont poussées pour se désengager du passage de guidage (30) par le deuxième élément coulissant (14), la première partie de butée (58) du premier élément de butée (44) est désengagée du passage de guidage (30) du premier élément coulissant (12) et la deuxième partie de butée (62) du deuxième élément de butée (46) est désengagée du passage de guidage (30) du premier élément coulissant (12).

caractérisé en ce que les premier et deuxième éléments de butée (44, 46) sont reliés de manière articulée au premier élément coulissant (12) et les premier et deuxième éléments de butée (44, 46) sont reliés en croix l'un à l'autre.

2. L'ensemble coulissant selon la revendication 1, dans lequel la première partie d'engagement (56) du premier élément de butée (44) est située en correspondance avec la paroi supérieure (32) du deuxième élément coulissant (14) et la deuxième partie d'engagement (60) du deuxième élément de butée (46) est située en correspondance avec la paroi inférieure (34) du deuxième élément coulissant (14).
3. L'ensemble coulissant selon la revendication 1, comprenant en outre une plaque de fixation (41) fixée au premier élément coulissant (12), les premier et deuxième éléments de butée (44, 46) étant reliés de manière articulée à la plaque de fixation (41) de sorte que la première partie d'engagement (56) et la première partie de butée (58) du premier élément de butée (44) et la deuxième partie d'engagement (60) et la deuxième partie de butée (62) du deuxième élément de butée (46) sont mobiles par rapport au premier élément coulissant (12).
4. L'ensemble coulissant selon la revendication 3, dans lequel le premier élément de butée (44) a un premier trou de pivot (57) situé entre la première partie d'en-

gagement (56) et la première partie de butée (58), le deuxième élément de butée (46) a un deuxième trou de pivot (61) situé entre la deuxième partie d'engagement (60) et la deuxième partie de butée (62), les premier et deuxième éléments de butée (44, 46) sont reliés de manière articulée à la plaque de fixation (41) par les premier et deuxième trous de pivot (57, 61).

5. L'ensemble coulissant selon la revendication 1, dans lequel l'élément élastique (48) comprend une première partie (64), une deuxième partie (66) située en correspondance avec la première partie (64) et une partie médiane (68) reliée entre les première et deuxième parties (64, 66), une force de sollicitation est formée entre les première et deuxième parties (64, 66), la partie médiane (68) est reliée au premier élément coulissant (12), la première partie (64) est reliée au premier élément de butée (44), la deuxième partie (66) est reliée au deuxième élément de butée (46). 10 15 20
6. L'ensemble coulissant selon la revendication 1, comprenant en outre un premier élément de support (50) fixé sur le premier élément coulissant (12) adjacent à la première paroi (18), le premier élément de support (50) comprenant une première partie de guidage (70), une première chambre (72) et une seconde chambre (74), la première partie de guidage (70) étant en contact avec la première surface de guidage (38) du deuxième élément coulissant (14), la première chambre (72) recevant la première partie d'engagement (56) du premier élément de butée (44), la seconde chambre (74) recevant la deuxième partie de butée (62) du deuxième élément de butée (46), la première paroi de butée (76) étant située de manière adjacente à la deuxième chambre (74) ; un deuxième élément de support (52) fixé sur le premier élément coulissant (12) adjacent à la deuxième paroi (20), le deuxième élément de support (52) comprenant une deuxième partie de guidage (80), une troisième chambre (82) et une quatrième chambre (84), la deuxième partie de guidage (80) étant en contact avec la deuxième surface de guidage (40) du deuxième élément coulissant (14), la troisième chambre (82) recevant la deuxième partie d'engagement (60) du deuxième élément de butée (46), la quatrième chambre (84) recevant la première partie de butée (58) du premier élément de butée (44), la deuxième paroi de butée (86) étant située de manière adjacente à la quatrième chambre (84). 25 30 35 40 45 50
7. L'ensemble coulissant selon la revendication 6, dans lequel les premier et deuxième éléments de support (50, 52) sont combinés pour être un élément de support principal (90) qui comprend une partie de pont (92), les premier et deuxième éléments de butée (44, 46) sont reliés de manière mobile à la partie de pont

(92) de manière à être mobiles par rapport au premier élément coulissant (12).

8. L'ensemble coulissant selon la revendication 1, dans lequel les première et deuxième parois de butée (94a, 94b) sont disposées sur le premier élément coulissant (12).

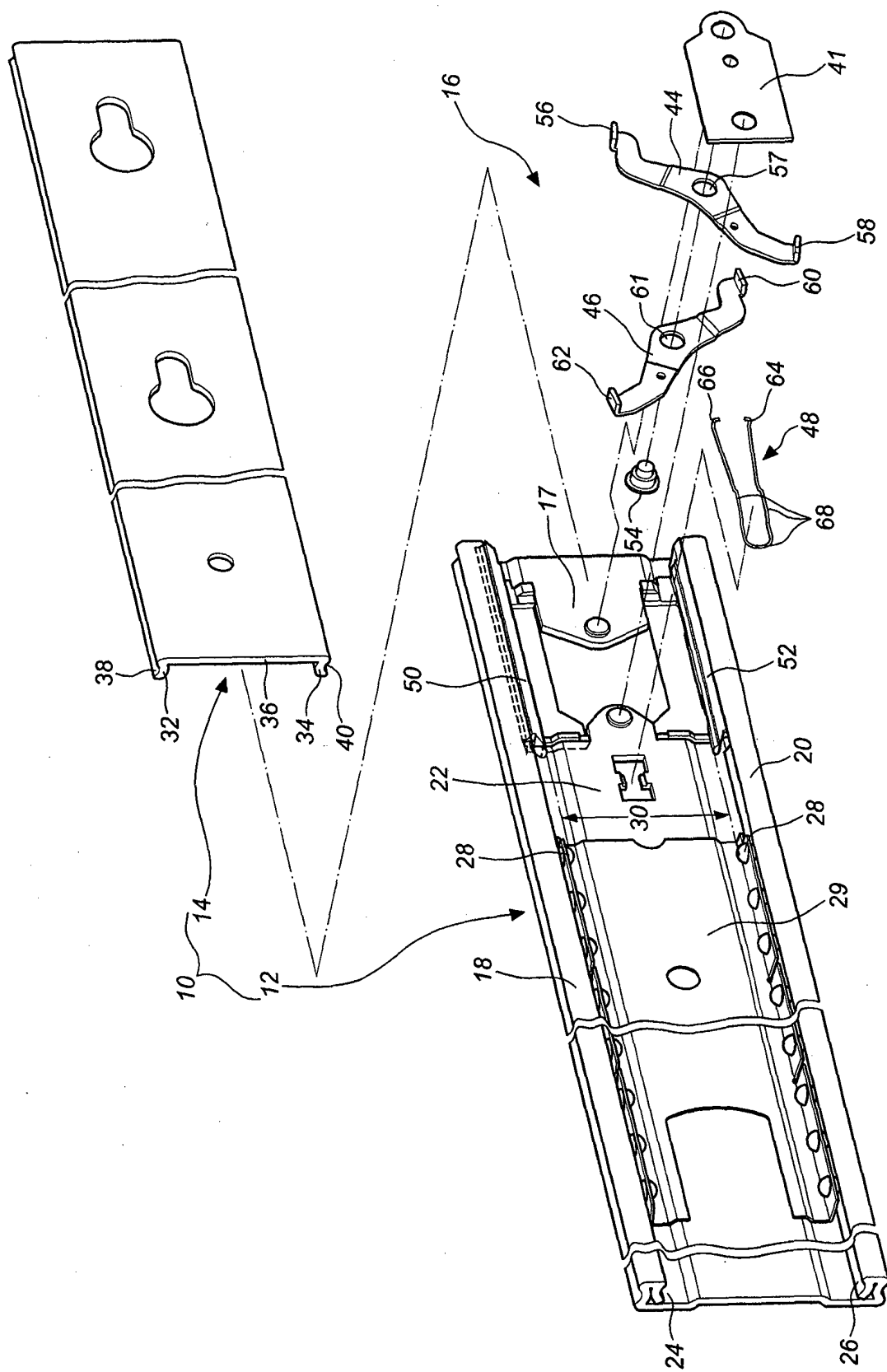


FIG. 1

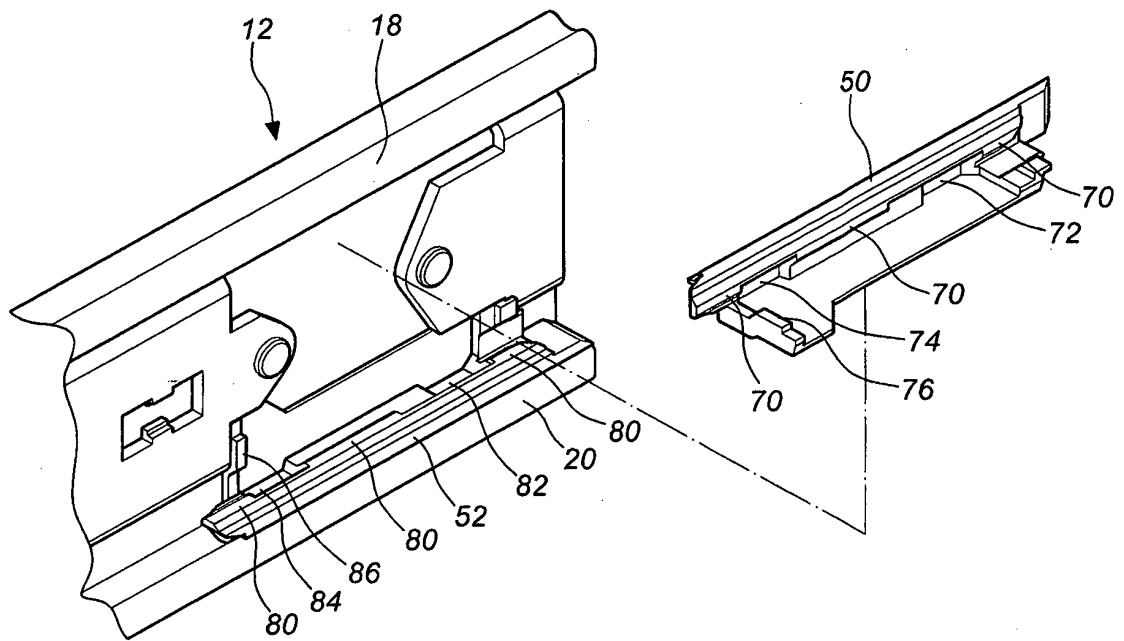


FIG. 2

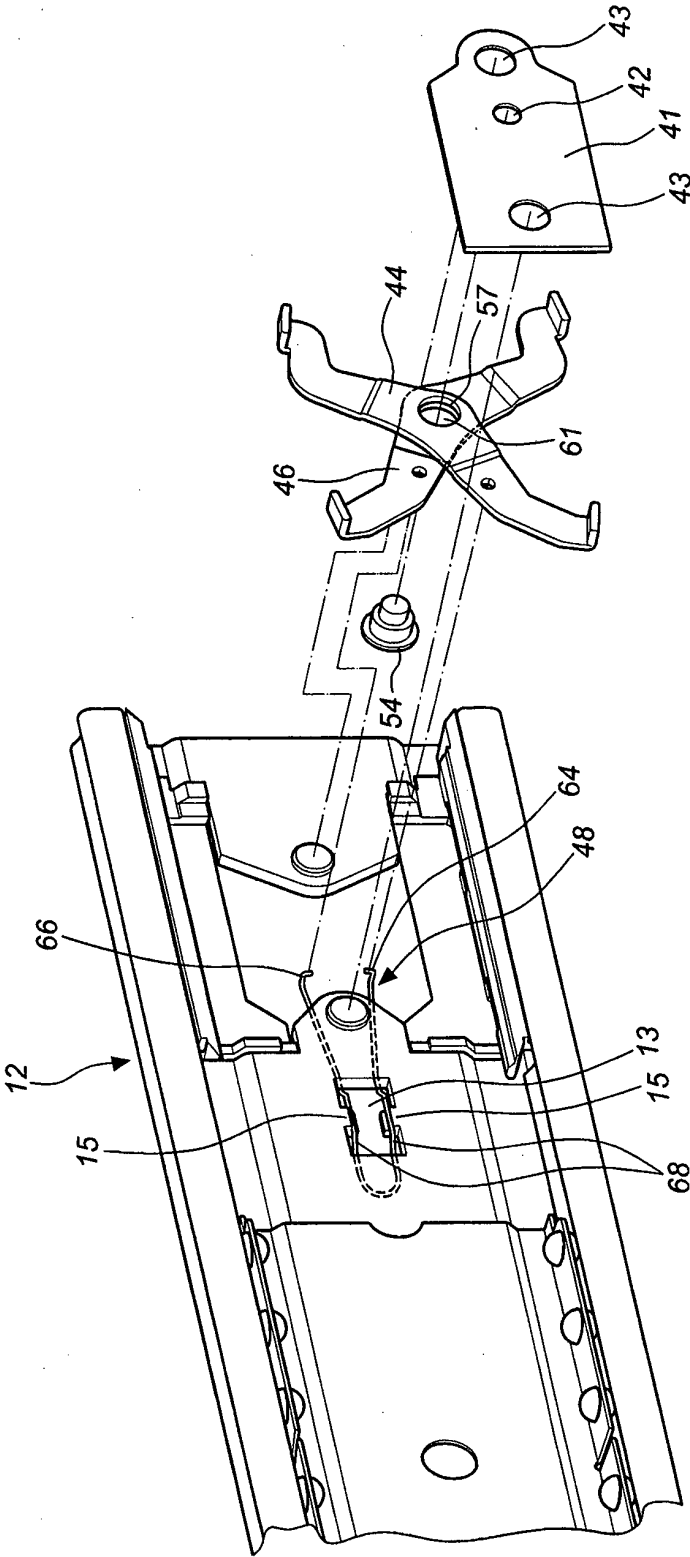


FIG. 3

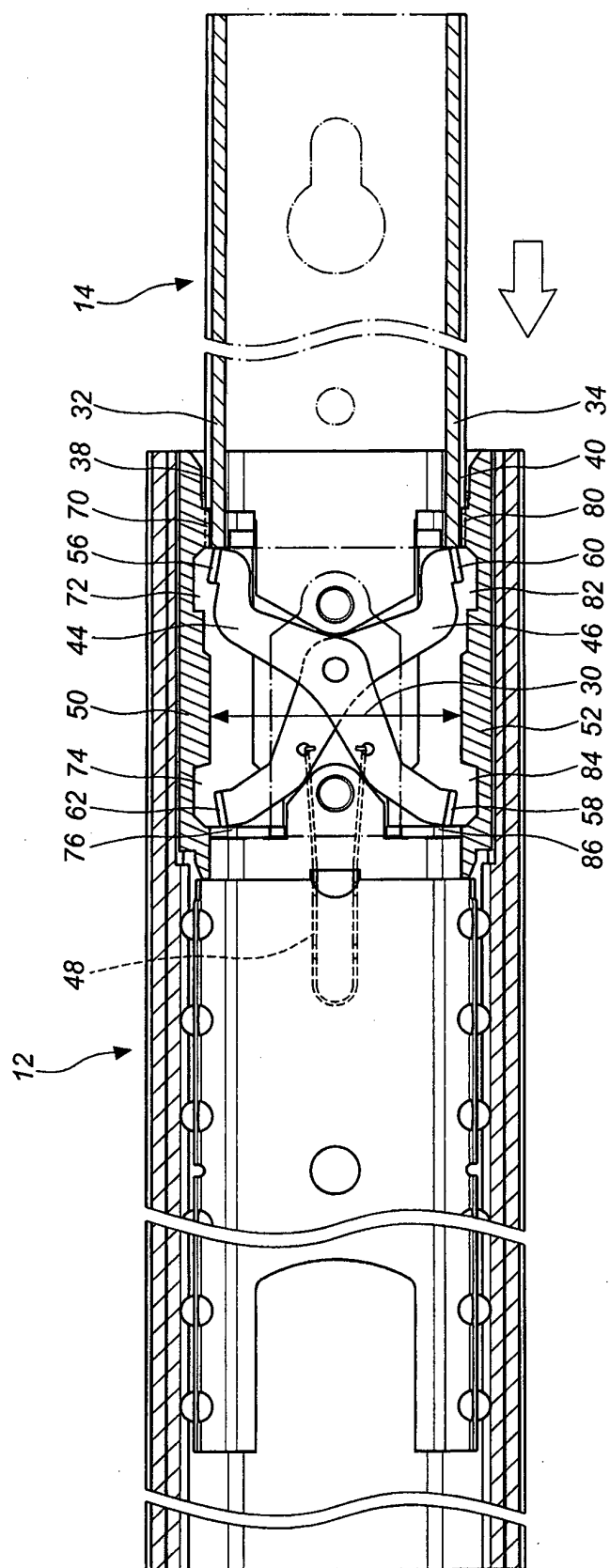


FIG. 4

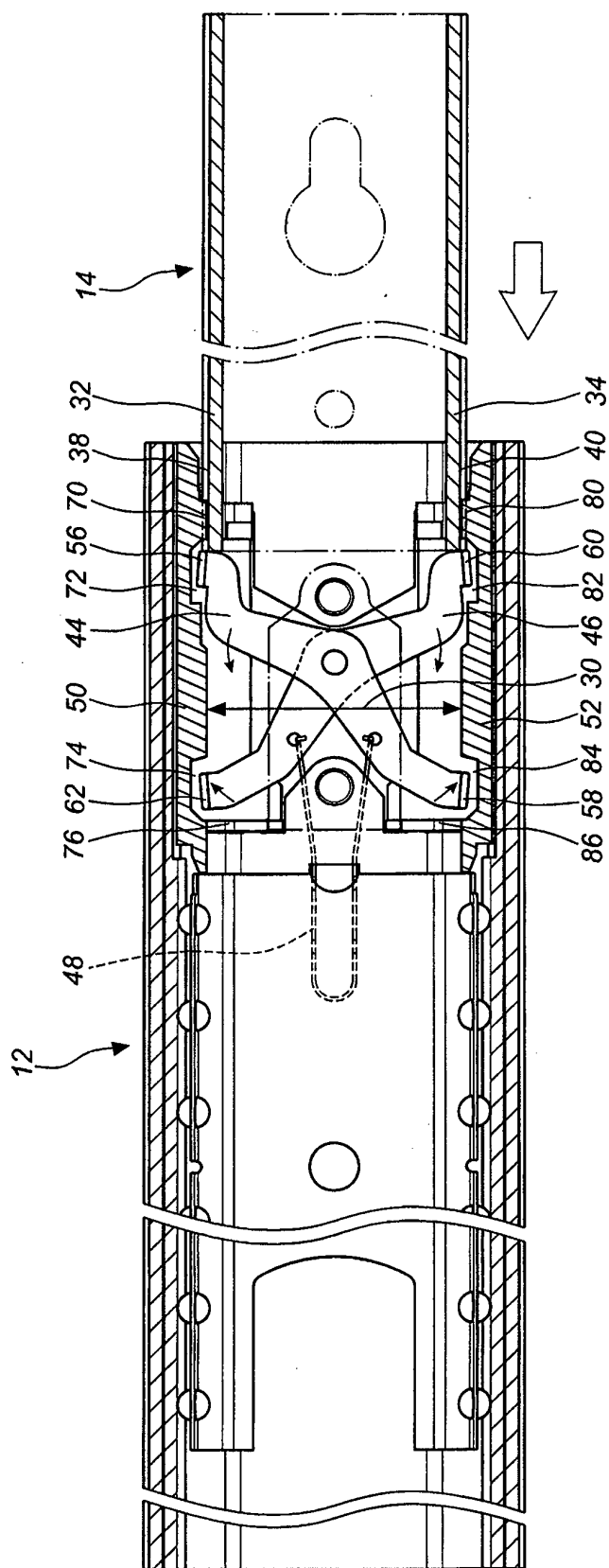


FIG. 5

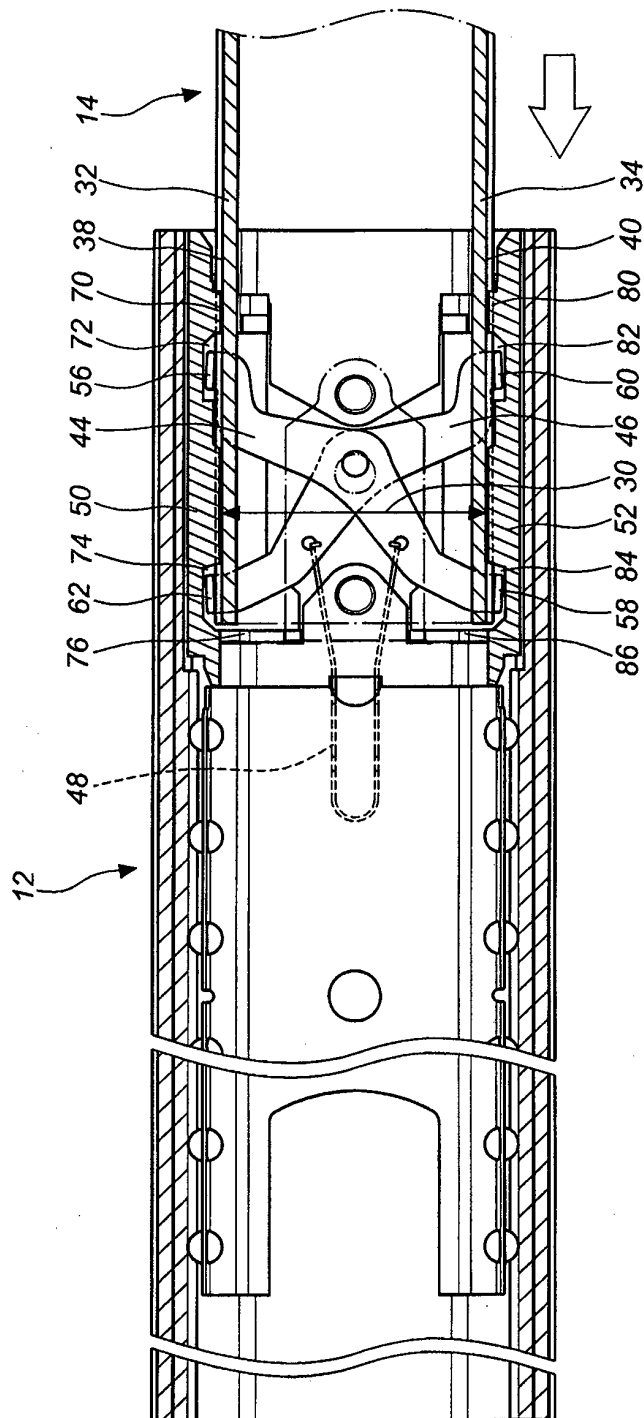


FIG. 6

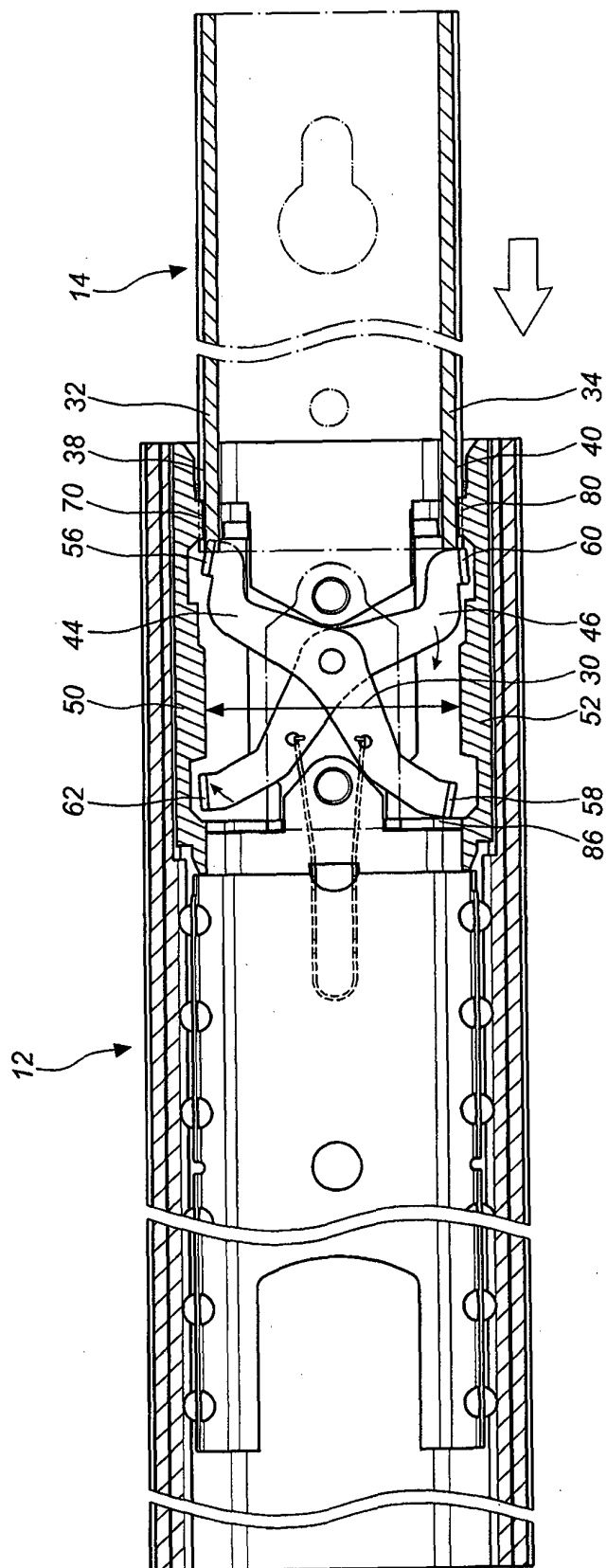
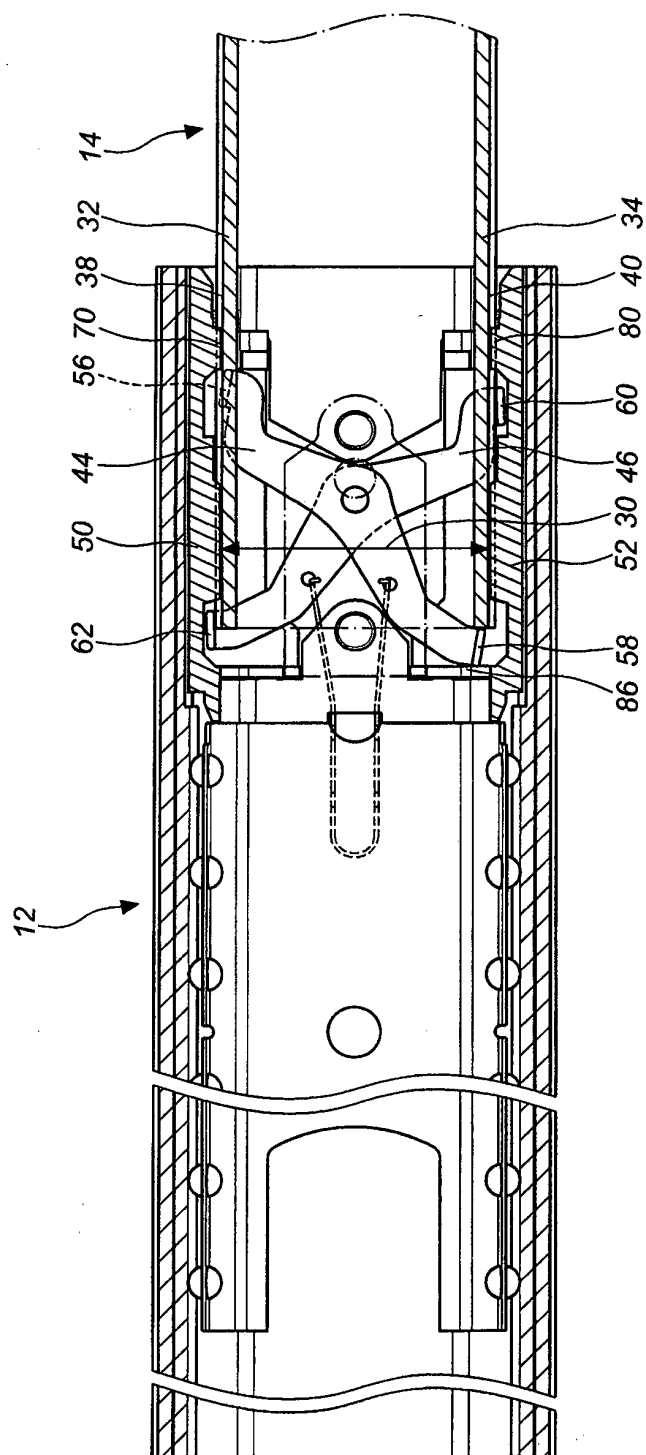


FIG. 7



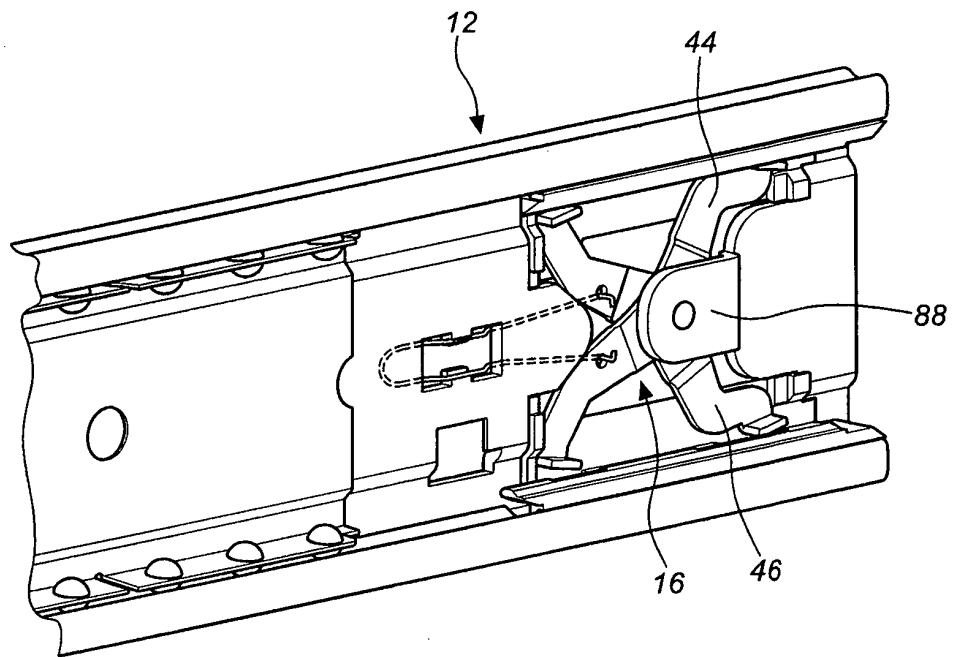


FIG. 9

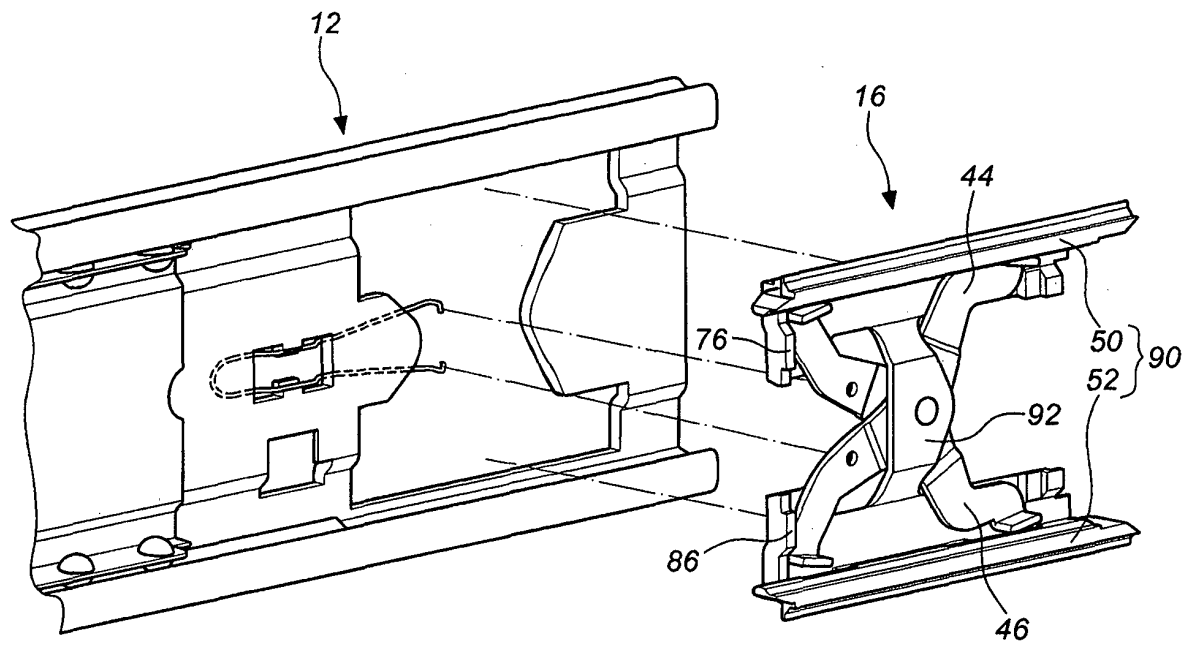


FIG. 10

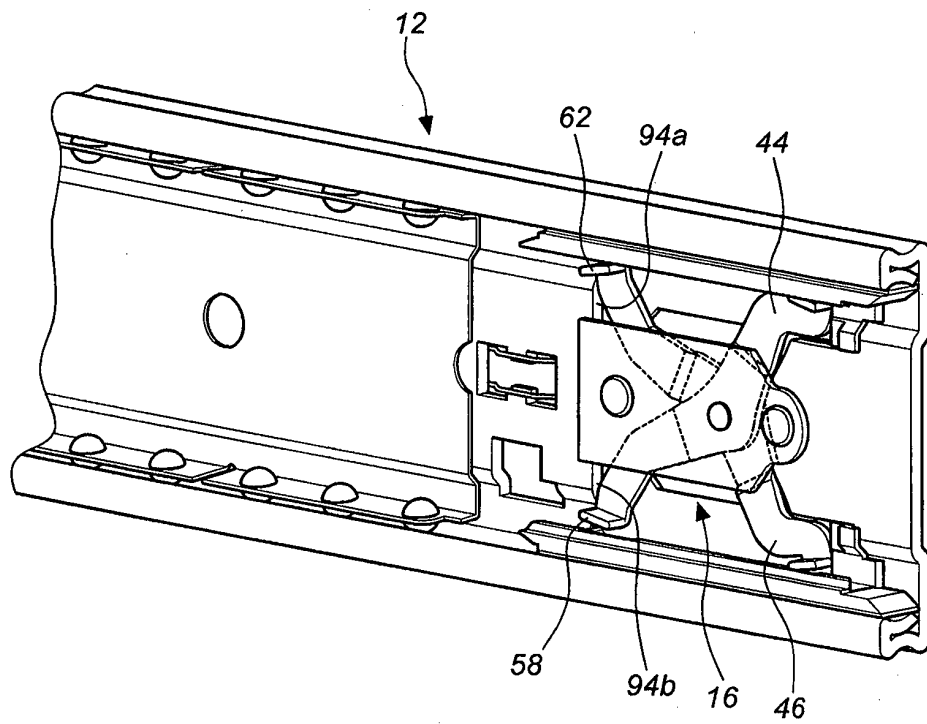


FIG. 11

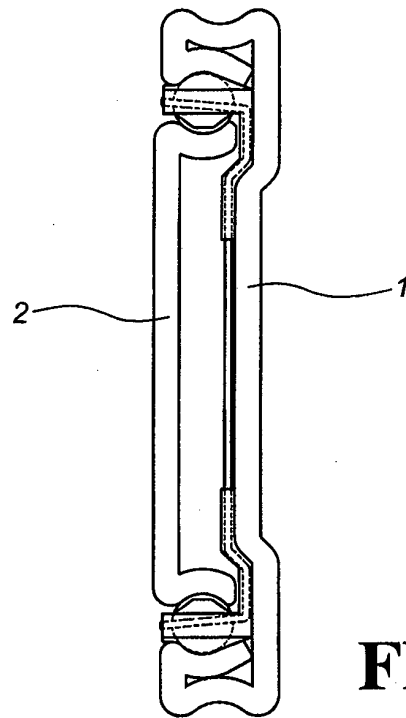


FIG. 12
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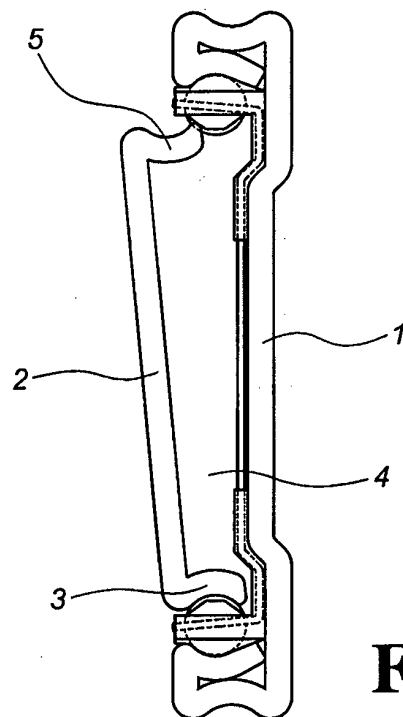


FIG. 13
PRIOR ART

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- GB 2401534 A [0002]