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(54) **Rotation and pull-out fitting for a corner-cabinet**

Dreh- und Ausziehbeschlag für einen Eckschrank

Armature rotative et extensible pour armoire d'angle

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EP 2 253 244 B1

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Description

[0001] The invention relates to a rotation and pull-out fitting for a shelf in a corner cabinet, comprising a carrier that is supported in the corner cabinet to be pivotable about a vertical axis, an intermediate carrier that is rotatable relative to the carrier about an axis that is parallel with but offset from the axis of the carrier, and a pull-out guide on which the shelf can be displaced relative to the intermediate carrier.

[0002] A fitting of this type has been described in EP 1 857 019 A2. The fitting is specifically intended for use in kitchen corner cabinets wherein only one half of the front is accessible through a door whereas the other half of the front is blocked by another furniture body. When the shelf is to be drawn-out, the entire structure comprising the carrier, the intermediate carrier and the shelf is at first pivoted about the axis of the carrier. After an initial phase of this movement, the intermediate carrier engages a guide contour that is fixed relative to the cabinet body and enforces an additional rotation of the intermediate carrier relative to the carrier. In a terminal phase of the movement, the shelf can only be drawn-out of the door opening relative to the intermediate carrier. In this system, the sequence of movements is controlled such that the shelf can be brought into a position in which it projects relatively far out of the door opening and is thus readily accessible and that the shelf may have a useable surface area as large as possible so as to fully exploit the available space in the corner cabinet without the shelf interfering with the body of the corner cabinet in the course of the rotation and pull-out movement.

[0003] In the drawn-out position, the intermediate carrier and the carrier are blocked, so that, when the shelf is pushed back into the cabinet, only a linear movement of the shelf may initially take place, before the pivotal movements of the intermediate carrier and the carrier set in.

[0004] It is an object of the invention to provide a fitting of this type which provides a smoother motion sequence.

[0005] According to the invention, this object is achieved by the feature that the pivotal movement of the intermediate carrier relative to the carrier is positively guided by a guide member during the entire motion sequence, said guide member being stationary relative to the corner cabinet.

[0006] As a result, a well-defined position of the intermediate carrier is associated with each angular position of the carrier, so that the intermediate carrier does not have any additional degrees of freedom of movement. This offers the possibility to have the pivotal movement of the intermediate carrier relative to the carrier set in very smoothly, without any sensible change in the resistance to be overcome. Moreover, this construction improves the overall stability of the support of the shelf, so that the stability requirements can be fulfilled with reduced material usage and at reduced costs.

[0007] Useful embodiments and further developments of the invention are indicated in the dependent claims.

[0008] In a particularly advantageous embodiment, the shelf is directly coupled to the carrier by means of an additional guide structure. As a result, the shelf may move only on a well-defined trajectory throughout the entire motion sequence and has no additional degrees of freedom of movement. More particularly, it is possible in this way to achieve a forcible coupling between the linear pull-out movement of the shelf relative to the intermediate carrier and the rotation of the intermediate carrier relative to the carrier. Then, the rotation of the intermediate carrier and the moment of inertia thereof may already be used for enforcing the start of the linear displacement of the shelf, so that the transition from the pivotal movement to the linear displacement of the shelf will be smooth and almost imperceptible for the user.

[0009] An embodiment example will now be described in conjunction with the drawings, wherein:

Fig. 1	is a schematic plan view of a cabinet body having a shelf and a fitting according to the invention;
Fig. 2	shows the same plan view as Fig. 1, but with other parts of the fitting being highlighted;
Figs. 3 and 4	show a condition of the fitting after an initial phase of a pi- votal movement;
Fig. 5	shows the condition of the fitting in the further course of the pivotal movement;
Fig. 6	shows the condition of the fitting in the further course of the pivotal movement, with simultaneous start of a linear pull-out movement of the shelf; and
Fig. 7	shows the fitting with the shelf being drawn-out completely.

[0010] Fig. 1 shows a horizontal cross-section of a body of a kitchen corner cabinet 10 having side walls 12, a rear wall 14 and a centre post 16 which defines, together with the right side wall 12, a door opening 18, whereas the left half of the front of the cabinet is blocked by another furniture body which has not been shown. An approximately semi-circular shelf 20 is accommodated inside the cabinet. By means of a fitting 22 of which only the contour has been shown in phantom lines, the shelf 20 is held in the cabinet in such a way that it can be pivoted out of the door opening 18 and can then be pulled-out further.

[0011] The fitting 22 comprises a rigid, arcuate carrier 24 that is pivotable about a vertical axis 26 that is stationary relative to the cabinet body. The axis 22 is arranged on the side of the centre post 16 facing away from the door opening and is rotatably supported in a bracket

28 that is rigidly mounted to the cabinet body. As can be seen more clearly in Fig. 2, an intermediate carrier 30 is supported on the distal end of the carrier 24 and is pivotable relative to the carrier 24 about another vertical axis 32. On the side that is closer to the centre post, the intermediate carrier 30 has an arm 34 which carriers a guided member 36 at its free end. The guided member engages in a guide slot 38 formed in a cantilever of the bracket 28.

[0012] Moreover, the intermediate carrier 30 carries on its top side a pair of parallel guide rails 40 (shown in dot-dashed lines in the drawing), which co-operate with runners 42 arranged on the bottom side of the shelf 20.

[0013] Moreover, two arcuate guide slots 44 are formed in a mirror-image configuration in the bottom side of the shelf 20, and only the left one of these guide slots is used in the given example. The other guide slot is provided for use of the shelf in a cabinet body having the door opening 18 on the opposite side. The guide slots 44 may for example be formed directly in the shelf when the latter is moulded from plastics.

[0014] As can be seen most clearly in Fig. 2, an arm 46 projects from the carrier 24 and is formed at its free end with a guided member 48 engaged in the guide slot 44 of the shelf.

[0015] In the condition shown in Fig, 1, the intermediate carrier 30 is locked by the guided member 36 and the guide slot 38 against rotation relative to the carrier 24, so that the carrier and the intermediate carrier behave like a rigid unit. Further, the shelf 20 is locked against displacement along the runners 42 because the part of the guide slot 44 accommodating the guided member 48 is inclined relative to the runners 42.

[0016] When, now, the user wants to rotate the shelf 20 out of the door opening, he clasps with his hand the edge of the shelf through the door opening and pulls the shelf forward. As a result, the shelf 20 and the fitting 22 rotate as a rigid unit about the axis 26. As can be seen in Fig. 1, the leftmost terminal portion of the guide slot 38 is shaped as a circular arc around the axis 26, so that, in the course of the rotation, the guided member 36 may move in the guide slot 38 while continuing to block the intermediate carrier 30 against rotation relative to the carrier 24.

[0017] Only when the condition shown in Figs. 3 and 4 has been reached, the guided member 36 enters into a portion of guide slot 38 which gradually retreats from the axis 26. Consequently, an additional pivotal movement of the intermediate carrier 30 and the shelf 20 about the axis 32 is enforced in the further course of the rotation of the carrier.

[0018] Fig. 5 shows a somewhat later stage of the motion sequence. The carrier 24 has been pivoted clockwise about the axis 26, and the intermediate carrier 30 has started with its pivotal movement about the axis 32, also in clock sense. As a result of this pivotal movement relative to the carrier 24, the lower edge of the guide slot 44 in Fig. 4 runs onto the guided member 48 that is rigidly held at the carrier 24, as has been symbolised by an arrow A in Fig. 5. The resulting force which the guided member 48 exerts onto the guide slot 44 is directed orthogonally to the guide slot and has a component in parallel with the runners 42 and thus enforces the start of the linear displacement of the shelf 20 along the guide rails. This displacement is assisted by the user pulling the shelf with his hand. In this way, the pivotal movement of the fitting is superposed by a pull-out movement, which gradually sets in, of the shelf 20.

[0019] Fig 6 shows yet a later stage of the motion sequence. The carrier 24 and the intermediate carrier 30 have continued their pivotal movements, and the guided member 48 has travelled a considerable distance in the inclined branch of the slot 44, so that the shelf 20 with its runners 42 has moved a corresponding distance along the guide rails 40.

[0020] In Fig. 7, the final stage of the movement has finally been reached. The carrier 24 has been rotated into its end position in which the end carrying the axis 32 is located already outside of the door opening. Since the intermediate carrier 30 and, eventually, the shelf 20 are supported by the carrier 24 at the location of the axis 32, the shelf can bear a high load even in the completely puled-out position.

[0021] The guided member 36 has reached the end of the guide slot 38, so that the movement of the intermediate carrier 30 has stopped as well. The guided member 48 mounted on the carrier 24 has reached the end of the guide slot 44 after having passed through a straight portion of this guide slot that extends in parallel with the runners 42. In this phase, the only movement that has taken place was the linear displacement of the shelf relative to the intermediate carrier. As a result of the curved shape of the guide slot 44, the pivotal movement of the intermediate carrier relative to the carrier has been braked smoothly when the guided member 48 has travelled through the guide slot, and the superposed rotation and linear displacement has smoothly merged into a pure linear displacement. Moreover, in the position shown in Fig. 7, the carrier 24 cannot be pivoted about the axis 26, not even in counter-clock sense in Fig. 7. As long as the guided member 48 is located in the straight branch of the guide slot 44 that extends in parallel with the runners 42, the intermediate carrier 30 cannot be pivoted relative to the carrier 24 about the axis 32, so that the carrier 24 and the intermediate carrier 30 behave again like a rigid unit. If one attempts to rotate this unit about the axis 26, then the guided member 36 mounted on the intermediate carrier would have to move on a circular trajectory about the axis 26. This, however, is prevented by the shape of the guide slot 38.

[0022] The same effect prevents the shelf 20 from abutting at the side wall 12 of the cabinet body when the shelf 20 is pushed back into the door opening. In the further course of the push-in and rotary movement, the forcibly guided movements that have been described about are performed in opposite sequence, until the con-

dition shown in Figs. 1 and 2 has been reached again.

Claims

1. A rotation and pull-out fitting for a shelf (20) in a corner cabinet (10), said pull-out fitting comprising a carrier (24) supported in the corner cabinet to be pivotable about a vertical axis (26), an intermediate carrier (30) rotatable relative to the carrier (24) about an axis (32) that is parallel with but offset from the axis of rotation of the carrier (24), and a pull-out guide (40, 42) on which the shelf (20) can be displaced relative to the intermediate carrier (30), **characterised in that** the rotary movement of the intermediate carrier (30) relative to the carrier (24) is positively guided by a guide member (38) throughout the entire sequence of movement, said guide member (38) being stationary relative to the corner cabinet.

2. The fitting according to claim 1, wherein the guide member (38) is a guide slot formed in a bracket (28) that supports the axis (26) of the carrier (24), a guided member (36) that is mounted on the intermediate carrier (30) being engaged in the guide slot.

3. The fitting according to claim 1 or 2, wherein the guide member (38) is shaped such that it prevents the intermediate carrier (30) from being rotated relative to the carrier (24) in an initial phase of a pivotal movement of the shelf (20) outwardly of the corner cabinet.

4. The fitting according to any of the preceding claims, wherein the shelf (20) is guided directly at the carrier (24) by guide means (44, 48).

5. The fitting according to claims 3 and 4, wherein the guide means (44, 48) are shaped such that they block a displacement of the shelf (20) relative to the intermediate carrier (30) and the carrier (24) in an initial phase of the rotary movement.

6. The fitting according to claim 4 or 5, wherein the guide means (44, 48) are shaped such that they permit only a displacement of the shelf (20) relative to the intermediate carrier (30) and block the intermediate carrier (30) against rotation relative to the carrier (20) in a terminal phase of the movement of the shelf (20) after the latter has been rotated out of the corner cabinet.

7. The fitting according to claim 6, wherein the guide member (38) is shaped such that it prevents the unit formed by the intermediate carrier (30) and the carrier (20) from rotating about the axis (26) of the carrier in said terminal phase.

8. The fitting according to claim 6 or 7, wherein the guide means (44, 48) are shaped such that, before the terminal phase is reached, they enforce a gradual setting-in of the displacement of the shelf (20) relative to the intermediate carrier (30) as a result of the rotation of the intermediate carrier relative to the carrier (24) and then a smooth breaking of the rotary movement of the intermediate carrier (30) relative to the carrier (24).

9. The fitting according to any of the claims 4 to 8, wherein the guide means are formed by a guide slot (44) formed on the bottom side of the shelf (20) and a guided member (48) mounted on the carrier (24).

10. The fitting according to claim 9, wherein the shelf (20) is an injection moulded plastic member and two guide slots (44) are formed symmetrically in the bottom side of the shelf.

Patentansprüche

1. Dreh- und Ausziehbeschlag für einen Fachboden (20) in einem Eckschrank (10), welcher Dreh- und Ausziehbeschlag einen um eine vertikale Achse (26) drehbar im Eckschrank gehaltenen Träger (24), einen Zwischenträger (30), der um eine zur Drehachse des Trägers (24) parallele, jedoch gegenüber dieser versetzte Achse (32) in Bezug auf den Träger drehbar ist, und eine Ausziehführung (40, 42) aufweist, auf welcher der Fachboden (20) relativ zum Zwischenträger (30) verschiebbar ist, **dadurch gekennzeichnet, dass** die Drehbewegung des Zwischenträgers (30) relativ zum Träger (24) während des gesamten Bewegungsablaufes durch ein korpusfestes Zwangsführungselement (38) gesteuert ist.

2. Beschlag nach Anspruch 1, bei dem das Zwangsführungselement (38) eine Führungskulisse ist, die an einer die Achse (26) des Trägers (24) lagernden Konsole (28) angeordnet ist und in die ein am Zwischenträger (30) sitzender Kurvenfolger (36) eingreift.

3. Beschlag nach Anspruch 1 oder 2, bei dem das Zwangsführungselement (38) so gestaltet ist, dass es in einer Anfangsphase einer Schwenkbewegung, mit der der Fachboden (20) aus dem Eckschrank herausgeschwenkt wird, eine Drehung des Zwischenträgers (30) relativ zu Träger (24) verhindert.

4. Beschlag nach einem der vorstehenden Ansprüche, bei dem der Fachboden (20) durch eine Führungseinrichtung (44, 48) direkt am Träger (24) geführt ist.

5. Beschlag nach den Ansprüchen 3 und 4, bei dem die Führungseinrichtung (44, 48) so gestaltet ist,

dass sie in der Anfangsphase der Schwenkbewegung eine Verschiebung des Fachbodens (20) relativ zu dem Zwischenträger (30) und dem Träger (24) blockiert.

6. Beschlag nach Anspruch 4 oder 5, bei dem die Führungseinrichtung (44, 48) so gestaltet ist, dass sie in einer Endphase der Bewegung des Fachbodens (20), nachdem dieser aus dem Eckschrank herausgeschwenkt worden ist, nur eine Verschiebung des Fachbodens (20) relativ zu dem Zwischenträger (30) zulässt und eine Drehung des Zwischenträgers (30) relativ zum Träger (24) blockiert.

7. Beschlag nach Anspruch 6, bei dem das Zwangsführungselement (38) so gestaltet ist, dass es in der Endphase eine Drehung der Einheit aus Zwischenträger (30) und Träger (24) um die Achse (26) des Trägers verhindert.

8. Beschlag nach Anspruch 6 oder 7, bei dem die Führungseinrichtung (44, 48) so gestaltet ist, dass sie vor Erreichen der Endphase ein allmähliches Einsetzen der Verschiebebewegung des Fachbodens (20) relativ zu dem Zwischenträger (30) aufgrund der Drehung dieses Zwischenträgers relativ zum Träger (24) und dann ein sanftes Abbremsen der Drehbewegung des Zwischenträgers (30) relativ zum Träger (24) erzwingt.

9. Beschlag nach einem der Ansprüche 4 bis 8, bei dem die Führungseinrichtung durch eine an der Unterseite des Fachbodens (20) gebildete Führungskulisse (44) gebildet wird, in die ein am Träger (24) sitzender Kurvenfolger (48) eingreift.

10. Beschlag nach Anspruch 9, bei dem der Fachboden (20) ein Spritzgussteil aus Kunststoff ist und zwei Führungskulissen (44) spiegelbildlich an der Unterseite des Fachbodens angeordnet sind.

Revendications

1. Armature rotative et extensible pour une tablette (20) dans une armoire d'angle (10), ladite armature extensible comprenant un support (24) supporté dans l'armoire d'angle pouvant pivoter autour d'un axe vertical (26), un support intermédiaire (30) pouvant tourner par rapport au support (24) autour d'un axe (32) qui est parallèle à, mais décalé par rapport à l'axe de rotation du support (24), et un guide à coulisse (40, 42) sur lequel la tablette (20) peut être déplacée par rapport au support intermédiaire (30), **caractérisée en ce que** le mouvement de rotation du support intermédiaire (30) par rapport au support (24) est positivement guidé par un élément de guidage (38) à travers toute la séquence de mouvement, ledit élément de guidage (38) étant fixe par rapport à l'armoire d'angle.

2. Armature selon la revendication 1, dans laquelle l'élément de guidage (38) est une fente de guidage formée dans une console (28) qui supporte l'axe (26) du support (24), un élément guidé (36) qui est monté sur le support intermédiaire (30) étant engagé dans la fente de guidage.

3. Armature selon la revendication 1 ou 2, dans laquelle l'élément de guidage (38) a une forme telle qu'elle empêche le pivotement du support intermédiaire (30) par rapport au support (24) dans une phase initiale d'un mouvement de pivotement de la tablette (20) vers l'extérieur de l'armoire d'angle.

4. Armature selon l'une quelconque des revendications précédentes, dans laquelle la tablette (20) est guidée directement sur le support (24) par des moyens de guidage (44, 48).

5. Armature selon les revendications 3 et 4, dans laquelle les moyens de guidage (44, 48) sont conformés forme de telle sorte qu'ils bloquent un déplacement de la tablette (20) par rapport au support intermédiaire (30) et au support (24) dans une phase initiale du mouvement de rotation.

6. Armature selon la revendication 4 ou 5, dans laquelle les moyens de guidage (44, 48) sont conformés de telle sorte qu'ils permettent seulement un déplacement de la tablette (20) par rapport au support intermédiaire (30) et bloquent le support intermédiaire (30) vis-à-vis d'une rotation par rapport au support (20) dans une phase terminale du mouvement de la tablette (20) après que cette dernière a été tournée hors de l'armoire d'angle.

7. Armature selon la revendication 6, dans laquelle l'élément de guidage (38) est conformé de telle sorte qu'il empêche l'unité formée par le support intermédiaire (30) et le support (20) de tourner autour de l'axe (26) du support dans ladite phase terminale.

8. Armature selon la revendication 6 ou 7, dans laquelle les moyens de guidage (44, 48) sont conformés de telle sorte que, avant que la phase terminale soit atteinte, ils appliquent une mise en condition progressive du déplacement de la tablette (20) par rapport au support intermédiaire (30) en résultat de la rotation du support intermédiaire par rapport au support (24), puis une rupture en douceur du mouvement de rotation du support intermédiaire (30) par rapport au support (24).

9. Armature selon l'une quelconque des revendications 4 à 8, dans laquelle les moyens de guidage sont

formés par une fente de guidage (44) formée sur le côté inférieur de la tablette (20) et un élément guidé (48) monté sur le support (24).

10. Armature selon la revendication 9, dans laquelle la tablette (20) est un élément en matière plastique moulé par injection et deux fentes de guidage (44) sont formées symétriquement dans le côté inférieur de la tablette.

Fig. 1

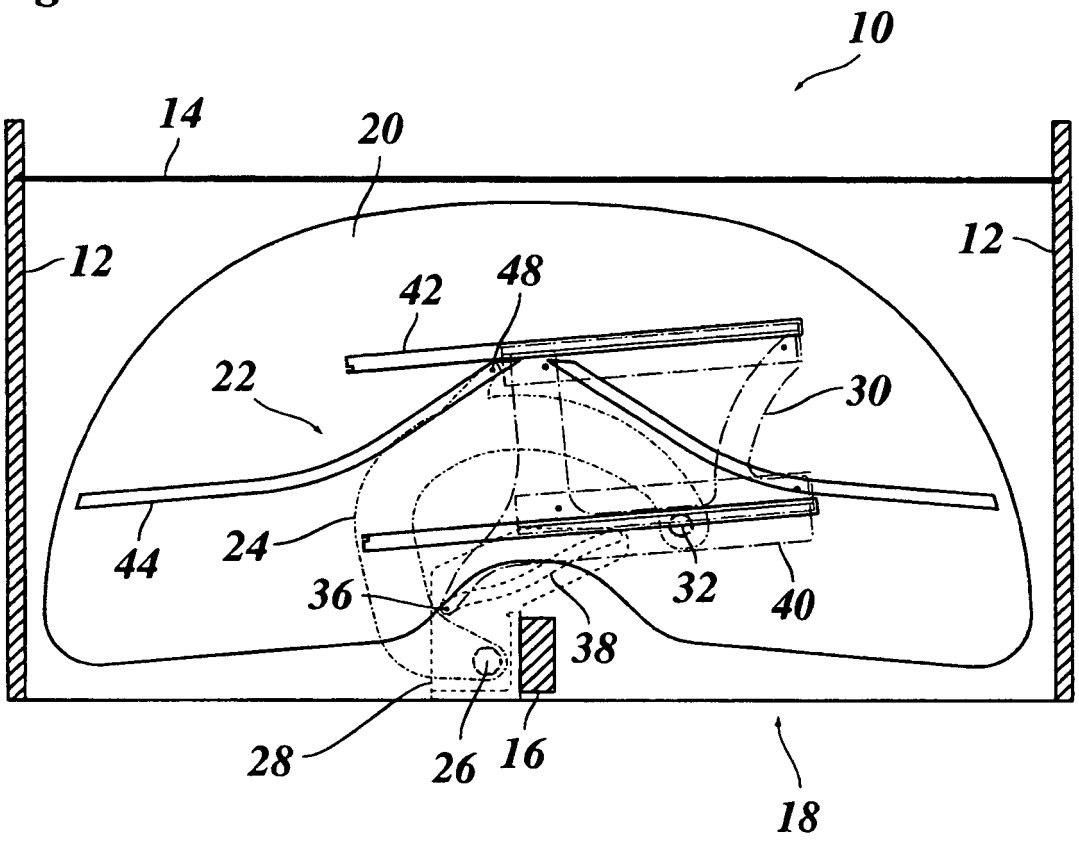
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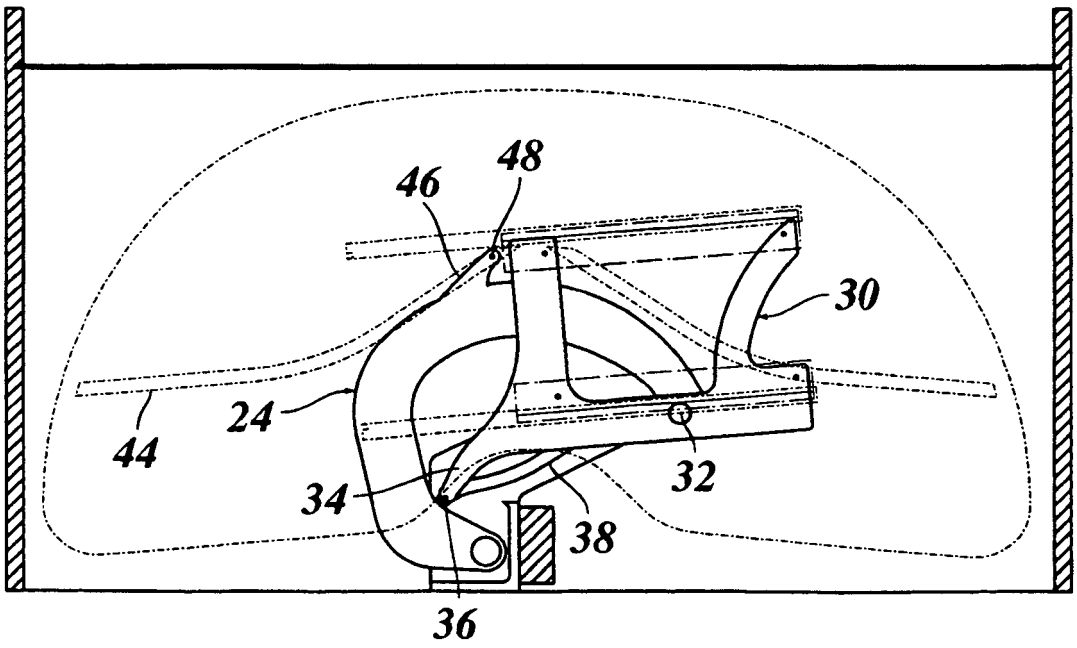
Fig. 2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38
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Fig. 3

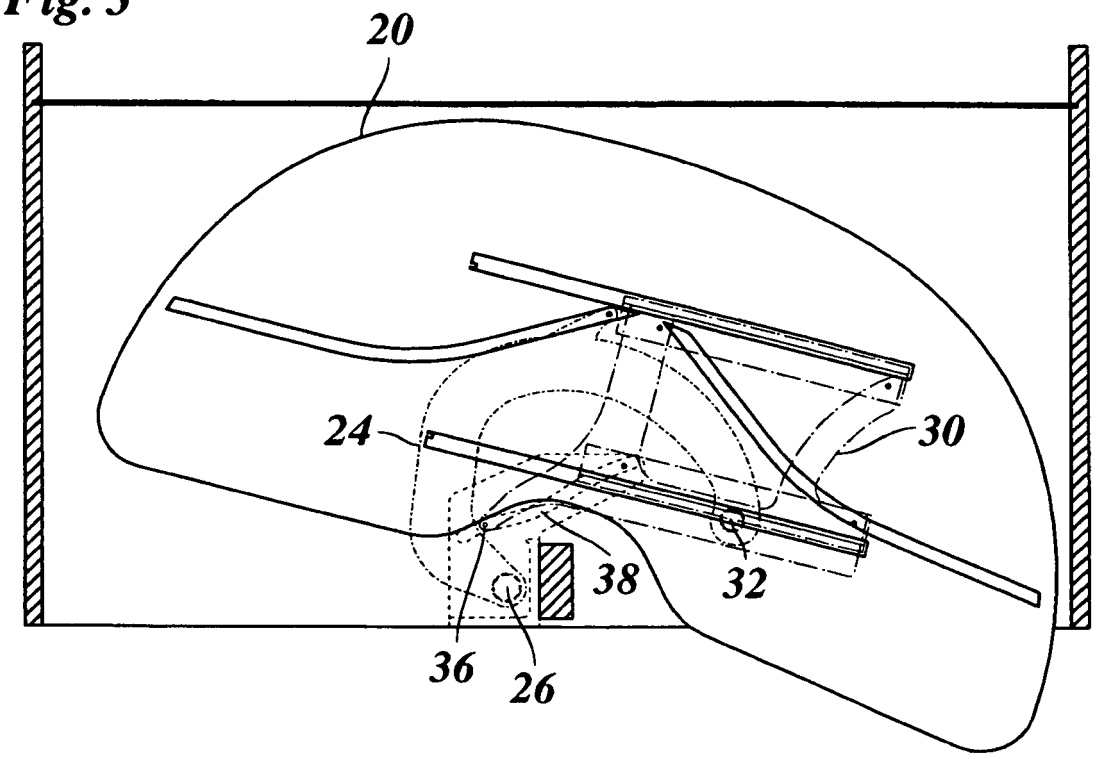


Fig. 4

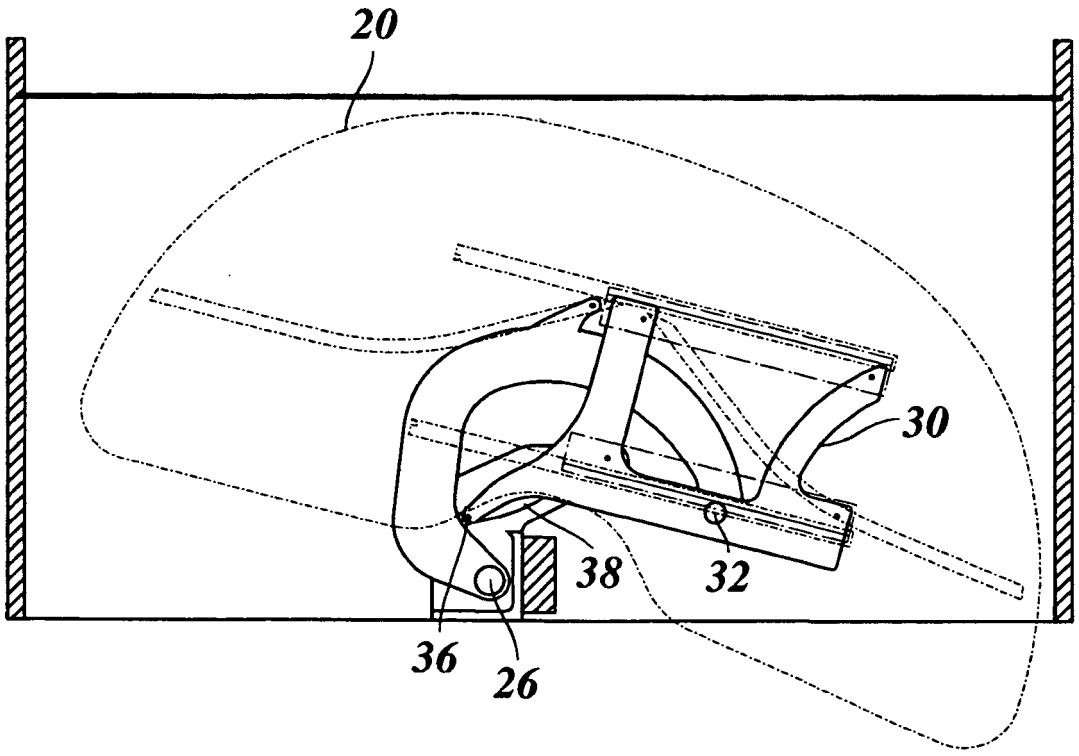


Fig. 5

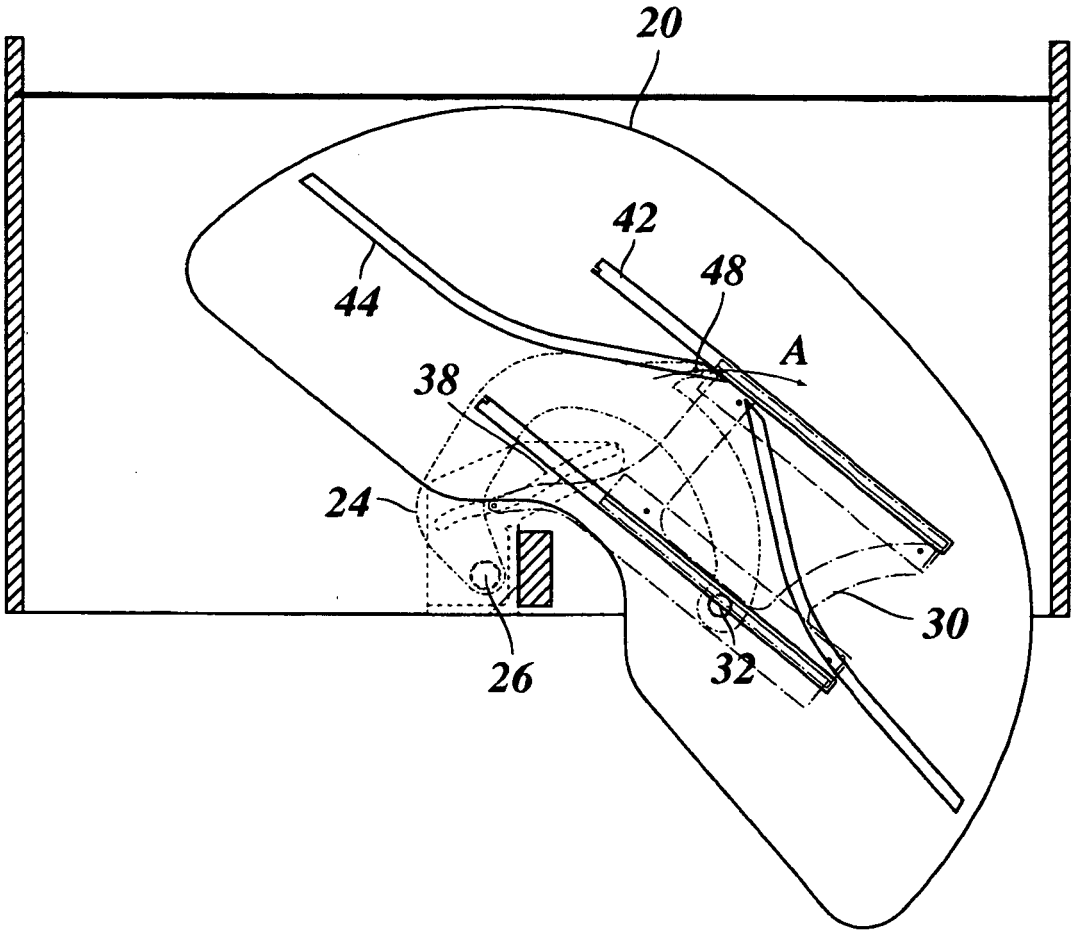


Fig. 6

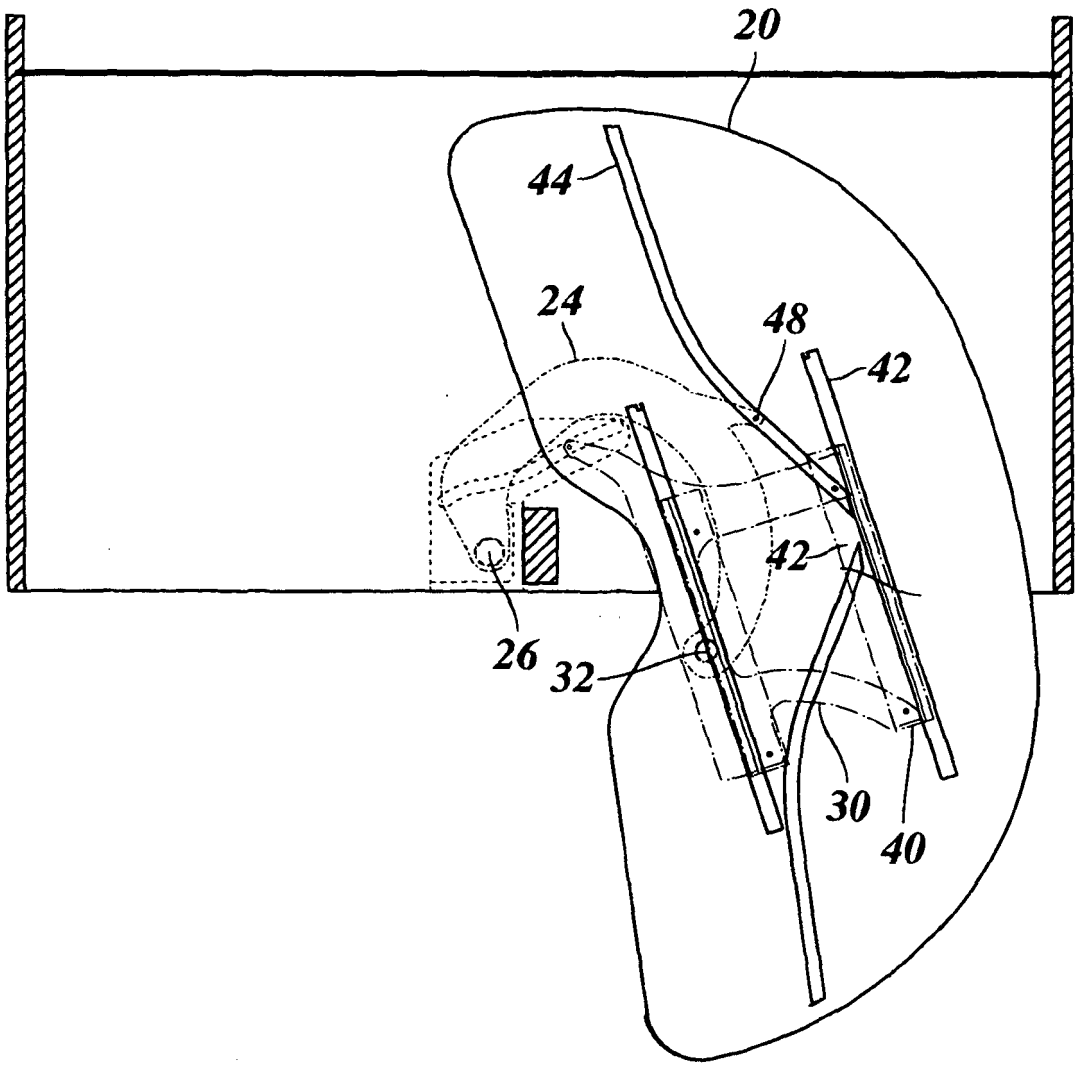
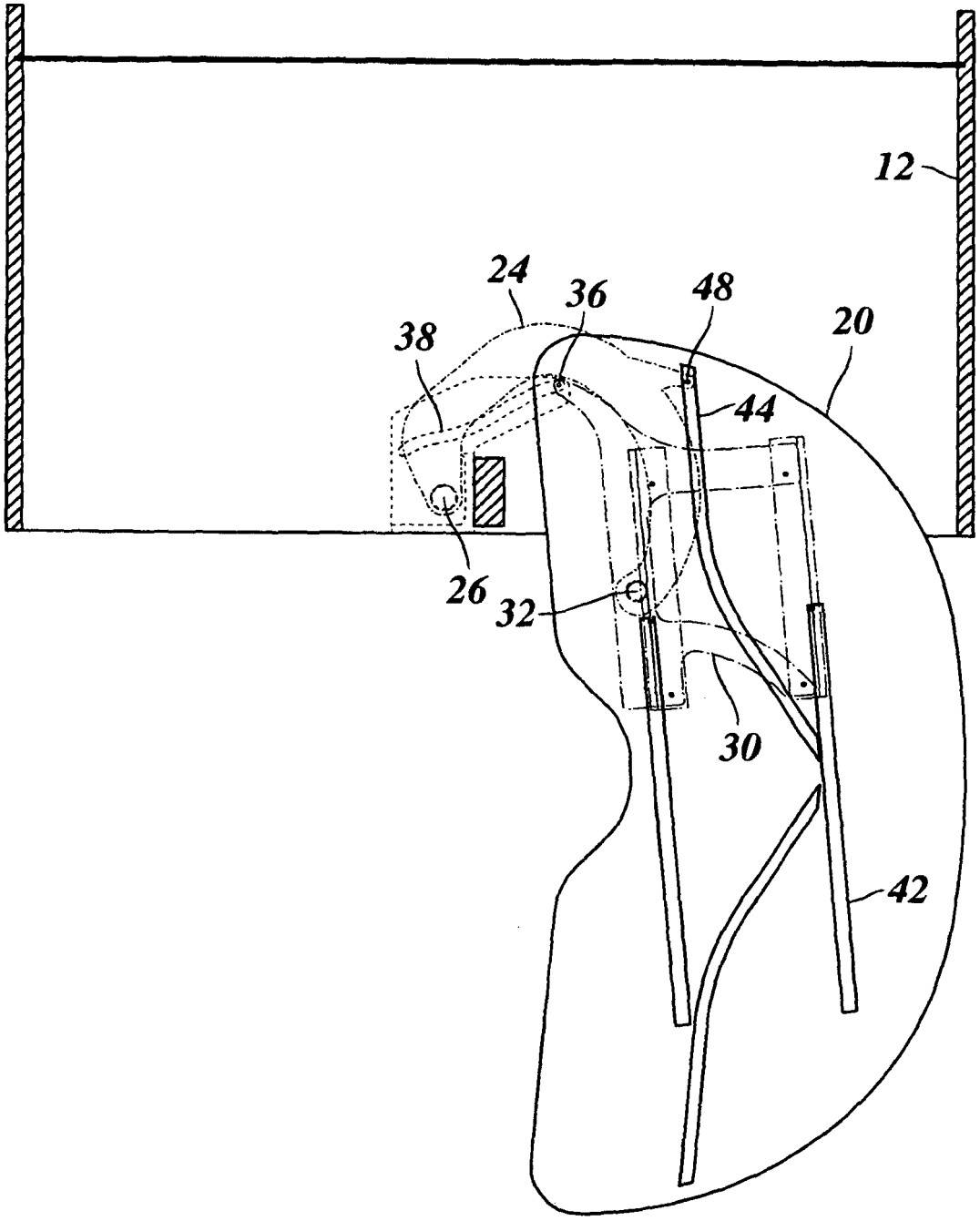


Fig. 7



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Patent documents cited in the description

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