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(54) **ADJUSTING DEVICE FOR ADJUSTING THE POSITION OF THE WINDOW PANE OF A MOTOR
VEHICLE WINDOW LIFTER**

EINSTELLVORRICHTUNG ZUM EINSTELLEN DER POSITION DER FENSTERSCHEIBE EINES
KRAFTFAHRZEUGFENSTERHEBERS

DISPOSITIF DE RÉGLAGE POUR RÉGLAGE DE LA POSITION LA VITRE DE FENÊTRE D'UN
LÈVE-VITRE DE VÉHICULE AUTOMOBILE

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Description

[0001] The present invention generally relates to a motor vehicle window lifter and, in particular, it refers to a device for adjusting the position of a window pane associated with such a window lifter, typically installed on a component member of a motor vehicle body, such as a door or another body member.

[0002] During assembly of glasses or panes of the motor vehicle windows, an adjustment of the position of the window pane is made with respect to the door or the body member on which the window lifter is installed, so that the window pane, in the raised configuration, can fit accurately the body weather strips surrounding its upper and side edges.

[0003] In the case of vehicle doors without a top frame, which are commonly used in more sporty cars, such as the so-called "roadster" or "cabriolet" cars, the adjustment of the position of such a window pane requires a greater accuracy. In fact, in this case, the edges of the window pane must adhere accurately to the weather strips fixed to the vehicle body at the free sides of the window pane and, more particularly, must rest on said weather strips with a predetermined preloading, so as to guarantee, in the closed configuration of the door with the window pane lifted, an optimal seal against air and water, especially at high speeds.

[0004] In the more general case, after the initial rough adjustment performed when the window pane is mounted on the window lifter, the position of each window pane may require a fine adjustment at least along the X and Z directions, which correspond to the direction parallel to the longitudinal axis of the motor vehicle and to the vertical direction transverse to the longitudinal axis of the motor vehicle, respectively, for the purpose of obtaining a precise alignment of the window pane with any other window panes of the motor vehicle or other body members.

[0005] The window pane associated with the window lifter of a door can be carried by a pair of movable supports, or sliders. In this case, the fine adjustment of the position of the window pane with respect to each of these two supports also allows to adjust the inclination of the window pane on a generally longitudinal plane of the motor vehicle.

[0006] Since it would be extremely laborious, as well as uneconomical, to dismantle again the already assembled door in order to carry out this fine adjustment acting from its inner side on the various mechanisms of the window lifter, this adjustment is performed by using a tool intended to be inserted between the window pane and the outer panel of the door, for example after having temporarily removed a substantially horizontal or "belt" weather strip of the door, so as to be able to act on a maneuvering member specially prepared on each slider of the window lifter.

[0007] For example, EP-2 735 682 describes a slider of an adjusting device for adjusting the position of the

window pane of a motor vehicle, having the features mentioned in the preamble of appended Claim 1.

[0008] The adjusting device of this known document, which is particularly adapted for a motor vehicle door without a top frame, comprises a member having an inner thread adapted to be engaged by a screw member associated with a first slider plate, and an outer thread for engaging a nut screw formed in a hub portion of a rotatable member serving to change the distance between the first plate and a second plate of the slider, with the aim of adjusting a clearance between said plates and allowing the window pane to be released from the slider to perform an adjustment of its position. The bush is locked in rotation with respect to the second slider plate.

[0009] However, this known solution has a structure which may prove to be not very reliable, so it is desired to have an alternative solution available, which is more satisfactory in use.

[0010] The object of the present invention is to provide an adjustment device of the type defined above which has a relatively simple structure and which is effective and reliable in operation.

[0011] This object is achieved by the invention by virtue of an adjustment device having the claimed features.

[0012] In particular, the device of the invention comprises a slider which is slidably mounted on a guide rail of the window lifter, which slider comprises a base plate and a movable jaw opposite to the base plate, a gap being defined for accommodating a lower edge of said window pane, or of a support member thereof, between the base plate and the movable jaw, and adjustable clamping means being associated with the base plate and the movable jaw, which are adapted to allow the distance between the base plate and the movable jaw to be changed in order to release or clamp the window pane, or a respective support member, in said gap, which clamping means comprise a screw member crossing the base plate and said gap, which screw member engages a main nut screw on the side of the movable jaw and a rotatable member associated with the main nut screw to change the distance between the latter and the movable jaw in order to adjust a clearance between the base plate, the movable jaw and the window pane, or a respective support member, the main nut screw being formed on a bracket member interposed between said gap and the movable jaw, and said rotatable member being associated with a threaded element that engages a corresponding hole of the bracket member, formed in a position radially spaced from said main nut screw.

[0013] The invention so defined makes it possible to obtain an adjusting device for adjusting the position of the window pane of a window lifter, which is highly effective in use and totally reliable in operation.

[0014] Further characteristics and advantages of the invention will be more clear from the following detailed description of a preferred embodiment thereof, given by way of non-limiting example and shown in the appended drawings, in which:

Figure 1 is a schematic perspective view of a first embodiment of a slider of a lifter device of a window pane associated with a motor vehicle window, Figure 2 is an exploded perspective view of the slider of Figure 1, Figure 3 is a front elevational view of the slider of Figure 1, from the side of arrow III, Figure 4 is a side elevational view, sectioned along the line IV-IV of Figure 3, Figure 5 is a schematic perspective view of a second embodiment of a slider of a window pane lifter device according to the invention, Figure 6 is a side elevational view sectioned along the line VI-VI of Figure 5, Figures 7 and 8 are similar exploded views showing constructional modifications of the second embodiment of the invention, Figure 9 is a view similar to Figure 6 of a third embodiment of the invention, Figure 10 is a perspective view of the slider of Figure 9 from the side of arrow X, and Figures 11 and 12 are perspective views showing schematically a slider according to the invention, to which a respective window pane is associated by means of a support member.

[0015] With initial reference to Figures 1 to 4, a first embodiment of an adjusting device for adjusting the position of the window pane of a motor vehicle window lifter according to the invention comprises, in a manner known per se, a slider 10 that supports a window pane P.

[0016] The slider 10 is intended to be slidably mounted along a guide rail (not shown) which is engaged in a pair of seats 12 formed in a base plate 14 of the slider 10, to allow a window pane P to slide with respect to the window lifter. Sliding of the slider 10 is controlled in a manner known per se through a flexible cable (not shown) associated with a motorized or manually operated displacement unit. In the most common case, the flexible cable is wound on a rotating drum the rotation of which is controlled by a ratio-motor (not shown) which is connected to the structure of the door to which the window lifter is associated, and usually fixed to the aforesaid guide rail or to the door framework.

[0017] The slider 10 also comprises a jaw 16 opposed to the base plate 14 and movably mounted with respect to the latter, which is intended to be arranged on the side facing an outer panel of the motor vehicle door. In particular, between the base plate 14 and the jaw 16, which are preferably made of metallic material, a gap 18 for accommodating the lower edge of the window pane P, or a respective support member thereof, is defined, as it will be more clearly explained below.

[0018] More specifically, the receiving gap 18 is defined by a substantially U-shaped insert 20 comprising a pair of opposing side walls 22 and 24, first and second respectively, which delimit from opposite sides the gap 18 for inserting the aforesaid portion of the lower bottom

portion of the edge of the window pane P. The first side wall 22 of the insert 20 is intended to be arranged adjacent to the base plate 14, while the second side wall is intended to be arranged adjacent to the movable jaw 16. In particular, the insert 20 is made of plastic material such as an elastomeric material, so as to be at least partially flexible and compressible.

[0019] Adjustable clamping means are associated with the base plate 14 and the movable jaw 16 in order to allow their relative distance to be modified, and therefore the distance between the side walls 22 and 24, in order to release or clamp the window pane P inside the gap 18. These clamping means comprise a screw member 26 that crosses the base plate 14 at a smooth hole 28 the diameter of which substantially corresponds to the diameter of the screw member 26, until it engages a nut screw 30 formed in a bracket 32 arranged on the side of the movable jaw 16, and interposed between the latter and the gap 18.

[0020] The clamping means also comprise a rotatable member 34 having the shape of a toothed gear wheel 36 provided with wavy teeth, such teeth being intended to be engaged by a tool having a corresponding shape (not shown being known per se) which can be inserted into the door on which the window lifter is mounted, through a so-called "belt opening" and after having possibly removed a door belt weather strip, in a position interposed between the slider 10 and the outer door panel, in order to create a clearance between the slider 10 and the window pane P, to allow the position of the window pane P to be adjusted as desired.

[0021] Moreover, a threaded element in the form of a screw 38 is associated with a hub central portion 35 of the rotatable member 34, which engages a corresponding hole 40 of the bracket 32.

[0022] Preferably, the bracket 32 is generally S-shaped in a side view. In particular, it comprises a first portion 32a in which the nut screw 30 is formed, a second portion 32b in which the hole 40 for engaging the screw 38 is made, and a third portion 32c for connecting the portions 32a and 32b. The portions 32a and 32b extend on typically parallel and spaced apart planes, and the axes of the nut screw 30 and the hole 40 are typically parallel and spaced apart.

[0023] A pair of parallel wings 42 extend from the sides of the portion 32b to engage a pair of corresponding seats 44 of the movable jaw 16, the wings 42 and the seats 44 forming mutual engagement formations of the jaw 16 and the bracket 32, in order to ensure a predetermined positioning of the bracket 32 with respect to the jaw 16, even when a clearance exists between the movable jaw 16 on one side, and the base plate 14 on the other side, with respect to the edge of the window pane P.

[0024] According to this embodiment, the screw 38 is fixed in the hole 40 of the second portion 32b of the bracket 32, typically by interference or riveting, and the threaded stem thereof crosses the movable jaw 16 at a respective hole 46, until it engages a nut screw 35a formed in

the hub 35 of the rotatable member 34.

[0025] Therefore, in the assembled configuration of the slider 10 according to this embodiment, when the lower edge of the window pane P is inserted into the gap 18 delimited by the side walls 22 and 24 of the insert 20, the screw member 26 is screwed into the nut 30 of the bracket 32 during an initial rough adjustment step, which is carried out upon assembly of the window pane P on the window lifter device, and also the screw 38, which is integral with the portion 32b of the bracket 32, is screwed into the nut screw 35a of the hub 35 of the rotatable member 34.

[0026] In order to finely adjust the position of the window pane P, when this is necessary, the abovementioned tool is operated on the rotatable member 34 to loosen its tightening with respect to the screw 38, thus creating a clearance between the bracket 32 and the jaw 16 or, in other words, between the window pane P, the plate 14 and the jaw 16, as well as between the side walls 22 and 24 of the insert 20 and the window pane P. In this situation, the position of the window pane P can be finely adjusted with respect to the axes X and Z.

[0027] Once the optimal adjustment of the position of the window pane P has been achieved, the rotatable member 34 is rotated in the opposite direction by means of the aforesaid tool for tightening it again with respect to the screw 38 and nullifying the clearance between the window pane P and the base plate 14, on one side, and the movable jaw 16, on the other side, in order to lock the window pane P in the new position reached.

[0028] Figures 5 to 7 show a second embodiment of an adjusting device for adjusting the position of the window pane of a window lifter of a motor vehicle, according to the invention. In these figures, the same references have been used to indicate parts equal or similar to those of the embodiment previously described. For the sake of clarity and brevity, mostly the parts differing from those of the previous embodiment are only described.

[0029] In this case, the window pane P has a through hole 11 made in a portion thereof close to its lower edge, and the insert 20 is conveniently obtained by molding a fairly rigid plastic material, although still partially flexible. The two side walls 22 and 24 each have a general thin wall shape, and are mutually connected at a pair of flexible laminar hinges 23 arranged on the side opposite to the window pane P.

[0030] The hole 11 of the window pane P is crossed by the screw member 26 which also engages the respective holes 28 and 29 formed in the plate 14 and in the side wall 22, as well as a hole in the side wall 24. In particular, the holes 28 and 29 formed in the plate 14 and in the first side wall 22 are smooth and the respective diameters substantially correspond to the diameter of the threaded shank of the screw member 26, while the hole 11 of the window pane P and the hole of the second side wall 24 are substantially larger.

[0031] The clamping means also comprise in this case a rotatable member 34 having the shape of a toothed

gear wheel 36 provided with wavy teeth, the teeth of which are intended to be engaged by a tool having a corresponding shape that can be inserted, through a so-called "belt opening", into the door in which the window lifter is mounted and after having possibly removed a door belt weather strip, in a position interposed between the slider 10 and the outer door panel, in order to create a clearance between the slider 10 and the window pane P, to allow the position of the window pane P to be adjusted in a desired manner.

[0032] The screw 38 of this embodiment, which extends along an axis substantially parallel and spaced apart with respect to the axes of the screw member 26 and of the nut screw 30, has a stem fixed by interference or riveting in the hub portion 35 of the rotatable member 34, for example at the head thereof, which crosses the jaw 16 and engages a corresponding threaded hole 40, or auxiliary nut screw, of the first portion 32a of the bracket 32.

[0033] A wing 42 extends from the top of the portion 32b of the bracket 32, which is intended to engage a corresponding seat 44 of the movable jaw 16, the wing 42 and the seat 44 forming mutual engagement formations that allow a predetermined positioning of the jaw 16 and of the bracket 32 to be assured.

[0034] Figure 8 shows a modification of the second embodiment of the invention described above. In the following, only the parts of this modification which are different from the second embodiment are described.

[0035] In this modification, the screw 38 is fixed at a hole 40 of the portion 32b of the bracket 32, typically by interference or riveting, and the threaded shank of the screw 38, which extends along an axis parallel and spaced apart from the axis of the nut screw 30, is intended to pass through a hole 46 of the jaw 16 to engage a nut screw formed in the hub 35 of the rotatable member 34.

[0036] In the operation of this second embodiment, according to any one of the two modifications described, in the assembled condition of the slider 10 and when the screw member 26 engages the hole 11 of the window pane P, a fairly wide radial clearance is present between the outer radial surface of the screw member 26 and the inner edge of the hole 11. When the position of the window pane P has to be finely adjusted with respect to the slider 10, after having loosened the screw 38 by action on the toothed wheel 34 in order to create a clearance between the window pane P and the plate 14, on one side, and the jaw 16, on the other side, the window pane P can be moved along the directions X and Z by a maximum distance corresponding to the difference between the diameters of the screw member 26 and of the hole 11. During this displacement of the window pane P, the side wall 22 of the insert 20 remains substantially stationary with respect to the plate 14, owing to the fact that the diameters of the holes of the plate 14 and of the side wall 22 are substantially the same as the diameter of the shank of the screw member 26. Also the side wall 24 of the insert 20 and the bracket 32, owing to the engage-

ment of the wing 42 in the seat 44, remain substantially stationary with respect to the side wall 22 and the plate 14, whereby the window pane P can undergo only a relative displacement with respect to the insert 20 and the screw member 26.

[0037] Figures 9 and 10 show a third embodiment of an adjusting device for adjusting the position of the window pane of a window lifter of a motor vehicle, according to the invention. In these figures, the same references have been used to indicate parts equal or similar to those of the second embodiment described above. For the sake of clarity and brevity, mostly the parts differing from those of the second embodiment are only described.

[0038] The window pane P still has a through hole 11 made in a portion close to its lower edge, and the insert 20 is conveniently made as described in the second embodiment.

[0039] In this case, however, the screw member 26 crosses an opening 28 of the plate 14, the dimensions of which are substantially wider than the diameter of the shank of the screw member 26, and which has, for example, a square shape. Moreover, a collar 24a is inserted between the screw member 26 and the edge of the hole 11, which extends from the side wall 24 of the insert 20 towards the side wall 22, and which occupies a prevalent part of the space as a result of the aforementioned difference in diameters.

[0040] A pair of T-shaped guide projections 46 extend from the face of the side wall 22 facing the opposite side of the side wall 24, on opposite sides with respect to the screw member 26, each having a main branch from which a pair of auxiliary transverse branches extend. The main branch of each projection 46, which is directly connected to the side wall 22, engages a respective slot 48 that extends vertically with respect to the window pane P, that is in the direction Z, such slots 48 being axially aligned with each other. Moreover, each slot 48 has a width, in the X direction, such as to allow a clearance for the respective projection 46.

[0041] In this manner, in the operation of this third embodiment, in the assembled condition of the slider 10 and when the screw member 26 engages the hole 11 of the window pane P, a fairly wide radial clearance is present between the outer radial surface of the screw member 26 and the inner edge of the hole 28 of the plate 14. After having loosened the screw 38 by acting on the toothed wheel 34 to create a clearance between the window pane P and the plate 14, on one side, and the jaw 16, on the other side, a displacement of the window pane P along the directions X and Z, in view of carrying out the aforementioned fine adjustment of the position of the window pane P with respect to the slider 10, involves a corresponding dragging of the insert 20 with respect to the plate 14, by virtue of the substantial engagement of the collar 24a of the side wall 24 into the hole 11 of the window pane P. Furthermore, the jaw 16 moves substantially integrally with the insert 20, since it is connected to the side wall 24 which is in turn connected in an almost stiff

manner with the side wall 22.

[0042] Therefore, in this third embodiment, after having created a clearance between the window pane P and the plate 14 and the jaw 16, the window pane P can be moved only together with the insert 20, and the movement of the insert 20 is limited in the X and Z directions by the length and width, respectively, of the slots 48, with respect to the size of the main branch of the projections 46, and it may occur within a predetermined range of positions with respect to the base plate 14. The transverse branches of the T-shaped projections are then used to prevent an accidental separation of the insert 20 with respect to the plate 14 during the assembly of the slider 10 on the window lifter device together with the window pane P.

[0043] Of course, the modifications shown in Figures 7 and 8, described above with reference to the second embodiment, according to which the toothed wheel 34 can be fixed to a screw 38 whose threaded stem engages an auxiliary nut screw 40 of the bracket 32, or in which the screw 38 is fixed at a hole 40 of the bracket 32 and whose threaded shank engages a threaded hole of the hub of the toothed wheel 34, can also be applied indifferently to the first and third embodiments described above.

[0044] In Figures 11 and 12 are shown respective constructive modifications concerning a support appendage 50 of the window pane P, which appendage is suitable for allowing the connection of the window pane with a slider 10 according to the invention. In particular, the support appendage 50 is intended for use with window panes P without a hole 11, to allow their connection with sliders 10 having the structure described in the second or third embodiment.

[0045] Briefly, the appendage 50 comprises a lower laminar portion 50a the thickness of which is usually smaller than that of the window pane P, which is adapted for engaging the gap 18 defined between the side walls 22 and 24 of the insert 20 interposed between the plate 14 and the jaw 16, and an upper fork-shaped portion 50b that includes a pair of branches spaced apart from each other by a distance equal to the thickness of the window pane P, to accommodate a lower edge of such a window pane.

[0046] A substantially keyhole shaped recess 52 (Figure 11) or an inverted U-shaped recess 54 (Figure 12), is formed in the portion 50a, which recesses 52 and 54 are open towards the bottom, that is to the side opposite with respect to the portion 50b and the window pane P. The recesses 52 and 54 allow the screw member 26 to be accommodated upon insertion of the appendage 50 in the gap 18 in the already mounted condition of the slider 10, typically in the initial assembling step of the window pane P on the window lifter, and the desired positioning of the window pane P to be reached with respect to the slider 10 during the fine adjustment step of its position.

[0047] In particular, and differently from the previous

modifications in which the screw member 26 is screwed into the nut screw 30 of the bracket 32 only after insertion of the window pane P into the receiving gap 18, whereby the screw 26 is not already provided mounted on the slider 10, the screw 26 is in this case preferably supplied already pre-assembled on the slider 10, that is with its threaded stem partially screwed into the nut 30 of the bracket 32, so as to avoid the need for the vehicle manufacturer to couple the screw 26 to the slider 10.

Claims

1. Adjusting device for adjusting the position of a window pane associated with a vehicle window lifter, the adjusting device comprising a slider (10) which is slidably mountable on a guide rail of the window, which slider (10) comprises a base plate (14) and a movable jaw (16) opposite to the base plate (14), a gap (18) being defined for accommodating a lower edge of said window pane (P), or of a support member (50) thereof, between the base plate (14) and the movable jaw (16), and adjustable clamping means of the slider (10) being associated with the base plate (14) and the movable jaw (16), which are adapted to allow the distance between the base plate (14) and the movable jaw (16) to be changed in order to release or clamp the window pane (P), or a respective support member (50), in said gap (18), which clamping means comprise a screw member (26) crossing the base plate (14) and said gap (18), which screw member (26) engages a main nut screw (30) on the side of the movable jaw (16), and a rotatable member (34) associated with the main nut screw (30) to change the distance between the latter and the movable jaw (16) in order to adjust a clearance between the base plate (14), the movable jaw (16) and the window pane (P), or a respective support member (50), **characterized in that** the main nut screw (30) is formed on a bracket member (32) which is interposed between said gap (18) and the movable jaw (16), and **in that** said rotatable member (34) is associated with a threaded element (38) that engages a corresponding hole (40) of the bracket member (32), formed in a position radially spaced from said main nut screw (30).
2. Device according to claim 1, **characterized in that** said threaded element is a screw (38) parallel to the axis of said main nut screw (30) and spaced apart from it, which is fixed in a hole (40) of the bracket member (32) and has a shank that crosses the movable jaw (16) and engages an auxiliary nut screw (35a) formed in a hub portion (35) of the rotatable member (34).
3. Device according to claim 1, **characterized in that**

said threaded element is a screw (38) parallel to the axis of said main nut screw (30) and spaced from it, which is fixed to the rotatable member (34) and has a shank that crosses the movable jaw (16) and engages an auxiliary nut screw (35b) of the bracket (32).

4. Device according to any one of claims 1 to 3, **characterized in that** said bracket (32) and said movable jaw (16) have mutual engagement formations (42, 44) to assure a predetermined positioning of the bracket (32) with respect to the movable jaw (16), even in the presence of said clearance between the window pane (P), the base plate (14) and the movable jaw (16).
5. Device according to any one of claims 1 to 4, **characterized in that** said bracket (32) is substantially S-shaped in a side view, and comprises a first portion (32a) including said main nut screw (30), a second a portion (32b) extending on a plane parallel to and spaced from the first portion (32a), in which said hole (40) for engaging said screw (38) is formed, and a third portion (32c) intermediate between said first and second portions (32a, 32b).
6. Device according to any one of Claims 1 to 5, **characterized in that** it comprises an insert (20) that includes a pair of opposite side walls (22, 24) made of an at least partially flexible material to delimit said gap (18) for accommodating the lower edge of the window pane (P), or a support member (50) connected to it, on opposite sides, which first (22) and second (24) side walls being intended to be arranged adjacent to the base plate (14) and to the movable jaw (16), respectively.
7. Device according to claim 6, **characterized in that** said insert (20) is substantially U-shaped and is made of plastic material.
8. Device according to claim 6 or 7, **characterized in that** said screw member (26) is inserted in a hole (28) of the base plate (14) and in a hole (29) of the first side wall (22) of said insert (20), the diameters of said holes (28, 29) corresponding essentially to the diameter of the shank of the screw member (26), and **in that** the window pane (P), or the support member (50) thereof, has an opening (28) that is substantially larger than the diameter of the shank of the screw member (26), whereby the window pane (P), in the presence of said clearance between it, the base plate (14) and the movable jaw (16), can be moved with respect to said screw member (26) and to said insert (20).
9. Device according to claim 6 or 7, **characterized in that** said screw member (26) is inserted through an

opening (28) of the base plate (14) having a size substantially larger than the diameter of the shank of the screw member (26), and **in that** a collar (24a) extends from the second side wall (24) of said insert (20) towards the first side wall (22), which collar (24a) is intended to be interposed between an opening (11, 52) of the window pane (P), or of the support member (50) thereof, and the same screw member (26), said opening being substantially larger than the diameter of the shank of the screw member (26), whereby the window pane (P), in the presence of said clearance between it, the base plate (14) and the movable jaw (16), can be moved together with said insert (20) with respect to the base plate (14).

10. Device according to claim 9, **characterized in that** said first side wall (22) has guide members (46) intended to engage hollow formations (48) of the base plate (14) to limit the movement of the insert (20), as well as of the movable jaw (16) and of the window pane (P), or the support member (50) thereof, within a range of predetermined positions with respect to the base plate (14).
11. Device according to any one of claims 1 to 10, **characterized in that** said window pane (P) is supported by an appendage (50) in which a through recess (52, 54) is formed, which opens towards the slider (10) and is intended to be engaged by said screw member (26), which screw member (26) is already pre-assembled on the slider (10), with its threaded shank partially screwed in the nut screw (30) of the bracket (32), before insertion of the appendage (50) into the gap (18) for accommodating the slider (10).

Patentansprüche

1. Einstellvorrichtung zum Einstellen der Position einer Fensterscheibe, die mit einem Fahrzeugfensterheber verbunden ist, wobei die Einstellvorrichtung einen Schieber (10) aufweist, der verschiebbar auf einer Führungsschiene des Fensters montierbar ist, wobei der Schieber (10) eine Grundplatte (14) und eine bewegliche Backe (16) gegenüber der Grundplatte (14) aufweist, wobei ein Spalt (18) zur Aufnahme einer unteren Kante der Fensterscheibe (P) oder eines Stützelements (50) derselben zwischen der Grundplatte (14) und der beweglichen Backe (16) definiert ist, und wobei einstellbare Klemmmittel des Schiebers (10) welche dazu ausgelegt sind, eine Änderung des Abstands zwischen der Grundplatte (14) und der beweglichen Backe (16) zu ermöglichen, um die Fensterscheibe (P) oder ein zugehöriges Stützelement (50) in dem Spalt (18) freizugeben oder festzuklemmen, mit der Grundplatte (14) und der beweglichen Backe (16) verbunden sind, wobei die Klemmmittel ein Schraubelement (26), das die

Grundplatte (14) und den Spalt (18) durchläuft, wobei das Schraubelement (26) mit einer Hauptschraubenmutter (30) auf der Seite der beweglichen Backe (16) in Eingriff steht, und ein mit der Hauptschraubenmutter (30) verbundenes drehbares Element (34) umfassen, um den Abstand zwischen Letzterem und der beweglichen Backe (16) zu ändern, um einen Zwischenraum zwischen der Grundplatte (14), der beweglichen Backe (16) und der Fensterscheibe (P) oder einem zugehörigen Stützelement (50) einzustellen, **dadurch gekennzeichnet, dass** die Hauptschraubenmutter (30) an einem Klammerelement (32) ausgebildet ist, das zwischen dem Spalt (18) und der beweglichen Backe (16) angeordnet ist, und dass das drehbare Element (34) mit einem Gewindeelement (38) verbunden ist, das in ein zugehöriges Loch (40) des Klammerelements (32) eingreift, welches in einer von der Hauptschraubenmutter (30) radial beabstandeten Position ausgebildet ist.

2. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** das Gewindeelement eine parallel zur Achse der Hauptschraubenmutter (30) und von dieser beabstandet angeordnete Schraube (38) ist, die in einem Loch (40) des Klammerelements (32) befestigt ist und einen Schaft aufweist, der die bewegliche Backe (16) durchläuft und mit einer Hilfschraubenmutter (35a) in Eingriff steht, die in einem Nabenabschnitt (35) des drehbaren Elements (34) ausgebildet ist.
3. Vorrichtung nach Anspruch 1, **dadurch gekennzeichnet, dass** das Gewindeelement eine parallel zur Achse der Hauptschraubenmutter (30) und von dieser beabstandet angeordnete Schraube (38) ist, die an dem drehbaren Element (34) befestigt ist und einen Schaft aufweist, der die bewegliche Backe (16) durchläuft und mit einer Hilfschraubenmutter (35b) der Klammer (32) in Eingriff steht.
4. Vorrichtung nach einem der Ansprüche 1 bis 3, **dadurch gekennzeichnet, dass** die Klammer (32) und die bewegliche Backe (16) gegenseitige Eingriffsausbildungen (42, 44) aufweisen, um eine vorbestimmte Positionierung der Klammer (32) in Bezug zur beweglichen Backe (16) selbst bei Vorhandensein des Zwischenraums zwischen der Fensterscheibe (P), der Grundplatte (14) und der beweglichen Backe (16) zu gewährleisten.
5. Vorrichtung nach einem der Ansprüche 1 bis 4, **dadurch gekennzeichnet, dass** die Klammer (32) in einer Seitenansicht im wesentlichen S-förmig ist und einen ersten Abschnitt (32a), der die Hauptschraubenmutter (30) enthält, einen zweiten Abschnitt (32b), der sich in einer Ebene parallel zu und beabstandet von dem ersten Abschnitt (32a) erstreckt, in

dem das Loch (40) zum Eingriff mit der Schraube (38) ausgebildet ist, und einen dritten Abschnitt (32c) zwischen dem ersten und dem zweiten Abschnitt (32a, 32b) aufweist.

6. Vorrichtung nach einem der Ansprüche 1 bis 5, **dadurch gekennzeichnet, dass** sie einen Einsatz (20) umfasst, der ein Paar gegenüberliegender Seitenwände (22, 24) aus einem zumindest teilweise flexiblen Material aufweist, um den Spalt (18) zur Aufnahme der Unterkante der Fensterscheibe (P) oder eines damit verbundenen Stützelements (50) auf gegenüberliegenden Seiten zu begrenzen, wobei die erste (22) und die zweite (24) Seitenwand dazu bestimmt sind, benachbart zur Grundplatte (14) bzw. zur beweglichen Backe (16) angeordnet zu werden.
7. Vorrichtung nach Anspruch 6, **dadurch gekennzeichnet, dass** der Einsatz (20) im Wesentlichen U-förmig ist und aus Kunststoffmaterial hergestellt ist.
8. Vorrichtung nach Anspruch 6 oder 7, **dadurch gekennzeichnet, dass** das Schraubelement (26) in ein Loch (28) der Grundplatte (14) und in ein Loch (29) der ersten Seitenwand (22) des Einsatzes (20) eingesetzt ist, wobei die Durchmesser der Löcher (28, 29) im Wesentlichen dem Durchmesser des Schaftes des Schraubelements (26) entsprechen, und dass die Fensterscheibe (P), oder dessen Stützelement (50) eine Öffnung (28) aufweist, die wesentlich größer als der Durchmesser des Schaftes des Schraubelements (26) ist, wodurch die Fensterscheibe (P) bei Vorhandensein des Zwischenraumes zwischen sich, der Grundplatte (14) und der beweglichen Backe (16) in Bezug zum Schraubelement (26) und zum Einsatz (20) bewegt werden kann.
9. Vorrichtung nach Anspruch 6 oder 7, **dadurch gekennzeichnet, dass** das Schraubelement (26) durch eine Öffnung (28) der Grundplatte (14) eingeführt wird, die eine Größe aufweist, welche wesentlich größer ist als der Durchmesser des Schaftes des Schraubelements (26), und dass sich ein Kragen (24a) von der zweiten Seitenwand (24) des Einsatzes (20) zur ersten Seitenwand (22) hin erstreckt, wobei der Kragen (24a) dazu bestimmt ist, zwischen einer Öffnung (11, 52) der Fensterscheibe (P) oder ihres Stützelements (50) und dem selben Schraubelement (26) angeordnet zu werden, wobei die Öffnung wesentlich größer als der Durchmesser des Schafts des Schraubelements (26) ist, wodurch die Fensterscheibe (P) bei Vorhandensein des Zwischenraums zwischen sich, der Grundplatte (14) und der beweglichen Backe (16) zusammen mit dem Einsatz (20) in Bezug zur Grundplatte (14) bewegt werden kann.

10. Vorrichtung nach Anspruch 9, **dadurch gekennzeichnet, dass** die erste Seitenwand (22) Führungselemente (46) aufweist, die dazu bestimmt sind, in hohle Ausbildungen (48) der Grundplatte (14) einzugreifen, um die Bewegung des Einsatzes (20) sowie der beweglichen Backe (16) und der Fensterscheibe (P) oder ihres Stützelements (50) innerhalb eines Bereichs von vorbestimmten Positionen in Bezug zur Grundplatte (14) zu begrenzen.

11. Vorrichtung nach einem der Ansprüche 1 bis 10, **dadurch gekennzeichnet, dass** die Fensterscheibe (P) von einem Ansatz (50) getragen wird, in dem eine durchgehende Ausnehmung (52, 54) ausgebildet ist, die sich zum Schieber (10) hin öffnet und dazu bestimmt ist, mit dem Schraubelement (26) in Eingriff zu kommen, wobei das Schraubelement (26) bereits auf dem Schieber (10) vormontiert ist, wobei sein Gewindeschaff teilweise in die Schraubmutter (30) der Klammer (32) eingeschraubt ist, bevor der Ansatz (50) in den Spalt (18) zur Aufnahme des Schiebers (10) eingeführt wird.

Revendications

1. Dispositif de réglage pour régler la position d'une vitre de fenêtre associée à un lève-vitre de véhicule, le dispositif de réglage comprenant un coulisseau (10) qui est apte à être monté coulissant sur un rail de guidage de la vitre, lequel coulisseau (10) comprend une plaque de base (14) et une mâchoire mobile (16) opposée à la plaque de base (14), un interstice (18) étant défini pour loger un bord inférieur de ladite vitre de fenêtre (P), ou d'un élément de support (50) de celle-ci, entre la plaque de base (14) et la mâchoire mobile (16), et des moyens de serrage réglables du coulisseau (10) étant associés à la plaque de base (14) et à la mâchoire mobile (16), qui sont adaptés pour permettre que la distance entre la plaque de base (14) et la mâchoire mobile (16) soit changée de façon à libérer ou serrer la vitre de fenêtre (P), ou un élément de support (50) respectif, dans ledit interstice (18), lesquels moyens de serrage comprennent un élément formant vis (26) traversant la plaque de base (14) et ledit interstice (18), lequel élément formant vis (26) vient en engagement avec une partie à vissage (30) formant écrou principal sur le côté de la mâchoire mobile (16), et un élément rotatif (34) associé à la partie à vissage (30) formant écrou principal pour modifier la distance entre cette dernière et la mâchoire mobile (16) afin d'ajuster un jeu entre la plaque de base (14), la mâchoire mobile (16) et la vitre de fenêtre (P), ou un élément de support respectif (50), **caractérisé en ce que** la partie à vissage (30) formant écrou principal est formée sur un élément de support (32) qui est interposé entre ledit interstice

- (18) et la mâchoire mobile (16), et **en ce que** ledit élément rotatif (34) est associé à un élément fileté (38) qui est en engagement dans un trou correspondant (40) de l'élément de support (32), formé en une position espacée radialement de ladite vis de ladite partie à vissage (30) formant écrou principal.
2. Dispositif selon la revendication 1, **caractérisé en ce que** ledit élément fileté est une vis (38) parallèle à l'axe de ladite partie à vissage (30) formant écrou principal et espacée de celle-ci, qui est fixée dans un trou (40) de l'élément de support (32) et qui possède une tige qui traverse la mâchoire mobile (16) et est en engagement avec une partie à vissage (35a) formant écrou auxiliaire formée dans une partie de moyeu (35) de l'élément rotatif (34).
 3. Dispositif selon la revendication 1, **caractérisé en ce que** ledit élément fileté est une vis (38) parallèle à l'axe de ladite partie à vissage (30) formant écrou principal et espacée de celle-ci, qui est fixée à l'élément rotatif (34) et qui présente une tige qui traverse la mâchoire mobile (16) et est en engagement avec une partie à vissage (35b) formant écrou auxiliaire du support (32).
 4. Dispositif selon l'une quelconque des revendications 1 à 3, **caractérisé en ce que** ledit support (32) et ladite mâchoire mobile (16) ont des formations d'engagement mutuel (42, 44) pour assurer un positionnement prédéterminé du support (32) par rapport à la mâchoire mobile (16), même en présence dudit jeu entre la vitre de fenêtre (P), la plaque de base (14) et la mâchoire mobile (16).
 5. Dispositif selon l'une quelconque des revendications 1 à 4, **caractérisé en ce que** ledit support (32) est sensiblement en forme de S selon une vue latérale, et comprend une première partie (32a) comprenant ladite partie à vissage (30) formant écrou principal, une deuxième partie (32b) s'étendant sur un plan parallèle à la première partie (32a) et espacée de celle-ci, dans laquelle ledit trou (40) destiné à venir en engagement avec ladite vis (38) est formé, et une troisième partie (32c) intermédiaire entre lesdites première et deuxième parties (32a, 32b).
 6. Dispositif selon l'une quelconque des revendications 1 à 5, **caractérisé en ce qu'il** comprend un insert (20) qui comprend une paire de parois latérales opposées (22, 24) en un matériau au moins partiellement flexible pour délimiter ledit interstice (18) destiné à loger le bord inférieur de la vitre de fenêtre (P), ou un élément de support (50) relié à celle-ci, sur des côtés opposés, lesquelles première (22) et deuxième (24) parois latérales étant destinées à être disposées de façon adjacente à la plaque de base (14) et à la mâchoire mobile (16), respectivement.
 7. Dispositif selon la revendication 6, **caractérisé en ce que** ledit insert (20) est sensiblement en forme de U et est réalisé en matière plastique.
 8. Dispositif selon la revendication 6 ou la revendication 7, **caractérisé en ce que** ledit élément formant vis (26) est inséré dans un trou (28) de la plaque de base (14) et dans un trou (29) de la première paroi latérale (22) dudit insert (20), les diamètres desdits trous (28, 29) correspondant essentiellement au diamètre de la tige de l'élément formant vis (26), et **en ce que** la vitre de fenêtre (P), ou l'élément de support (50) de celle-ci présente une ouverture (28) qui est sensiblement plus grande que le diamètre de la tige de l'élément formant vis (26), grâce à quoi la vitre de fenêtre (P), en présence dudit jeu entre elle, la plaque de base (14) et la mâchoire mobile (16) est apte à être déplacée par rapport audit élément formant vis (26) et audit insert (20).
 9. Dispositif selon la revendication 6 ou la revendication 7, **caractérisé en ce que** ledit élément formant vis (26) est inséré à travers une ouverture (28) de la plaque de base (14) ayant une taille sensiblement supérieure au diamètre de la tige de l'élément formant vis (26), et **en ce qu'un** collet (24a) s'étend depuis la deuxième paroi latérale (24) dudit insert (20) vers la première paroi latérale (22), lequel collet (24a) est destiné à être interposé entre une ouverture (11, 52) de la vitre de fenêtre (P) ou de son élément de support (50) et le même élément formant vis (26), ladite ouverture étant sensiblement plus grande que le diamètre de la tige de l'élément formant vis (26), moyennant quoi la vitre de fenêtre (P), en présence dudit jeu entre elle, la plaque de base (14) et la mâchoire mobile (16), est apte à être déplacée avec ledit insert (20) par rapport à la plaque de base (14).
 10. Dispositif selon la revendication 9, **caractérisé en ce que** ladite première paroi latérale (22) présente des organes de guidage (46) destinés à venir en engagement avec des formations creuses (48) de la plaque de base (14) pour limiter le mouvement de l'insert (20), ainsi que de la mâchoire mobile (16) et de la vitre de fenêtre (P), ou de l'élément de support (50) de celle-ci, dans une plage de positions prédéterminées par rapport à la plaque de base (14).
 11. Dispositif selon l'une quelconque des revendications 1 à 10, **caractérisé en ce que** ladite vitre de fenêtre (P) est supportée par un appendice (50) dans lequel est formé un évidement traversant (52, 54), qui s'ouvre vers le coulisseau (10) et est destiné à être en relation d'engagement avec ledit élément formant vis (26), lequel élément formant vis (26) est déjà préassemblé sur le coulisseau (10), avec sa tige filetée partiellement vissée dans la partie à vissage

(30) d'écrou du support (32), avant insertion de l'appendice (50) dans l'interstice (18) pour loger le coulisseau (10).

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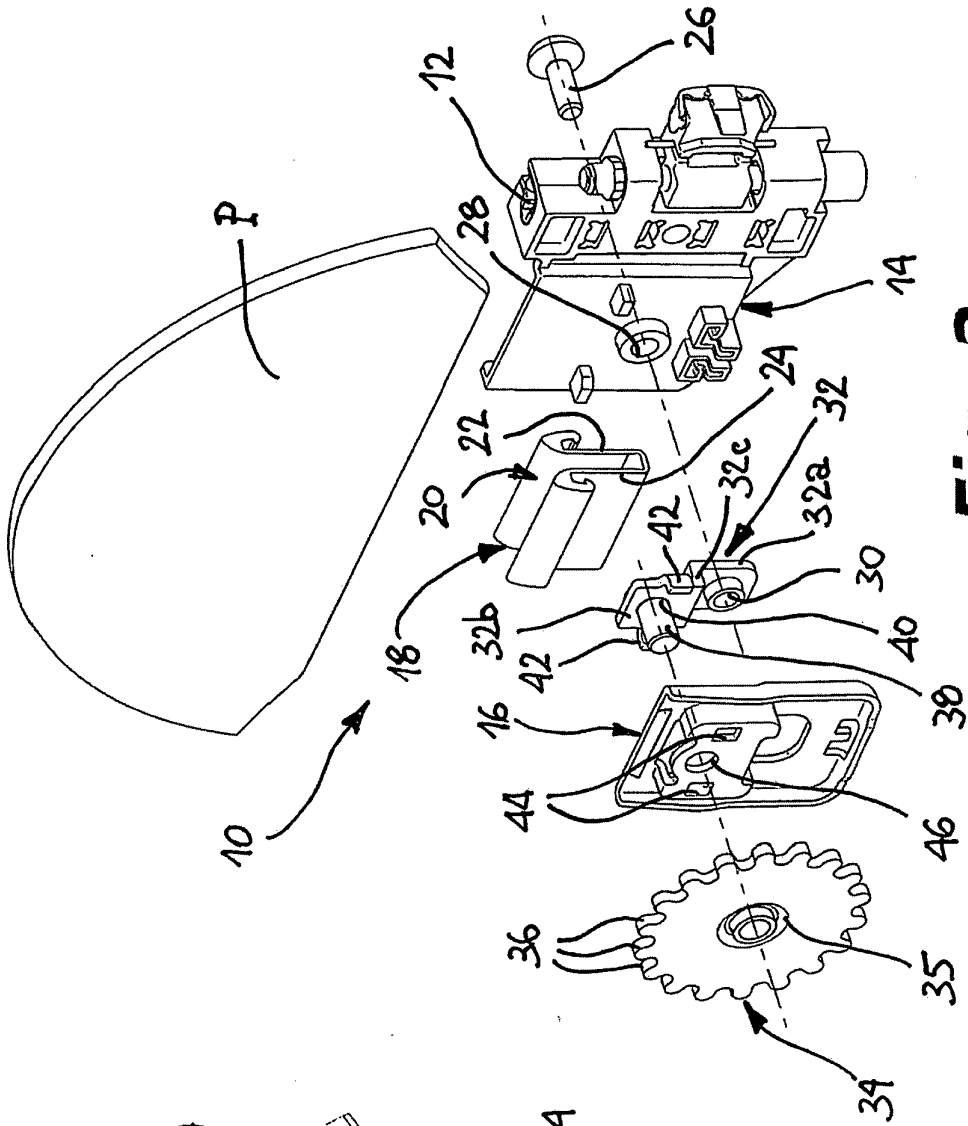


Fig. 2

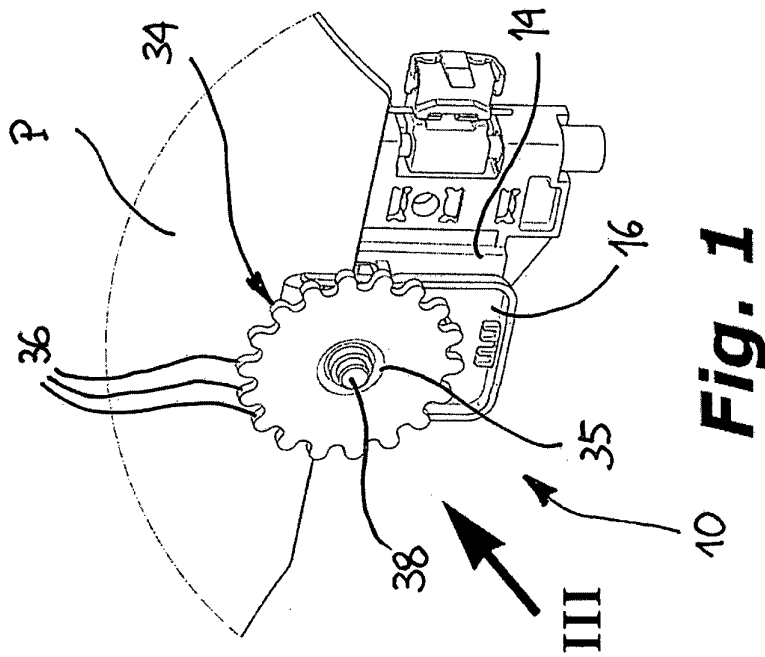


Fig. 1

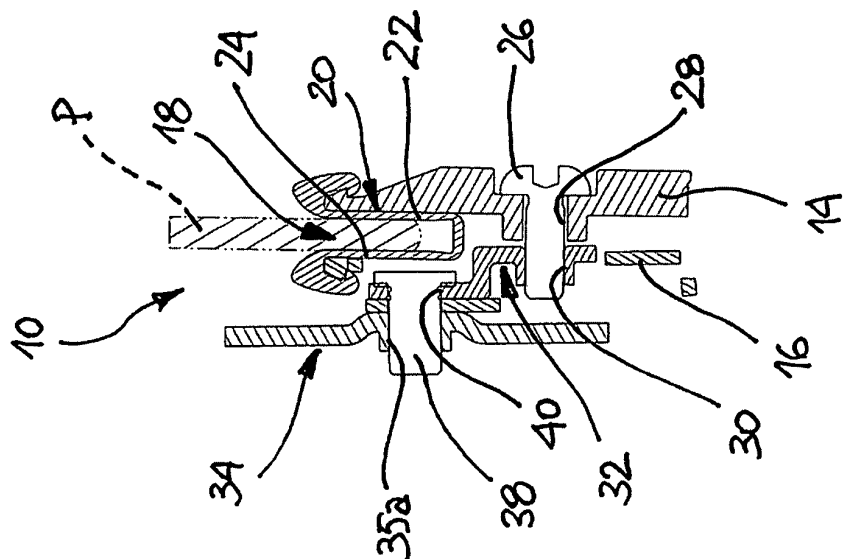


Fig. 4

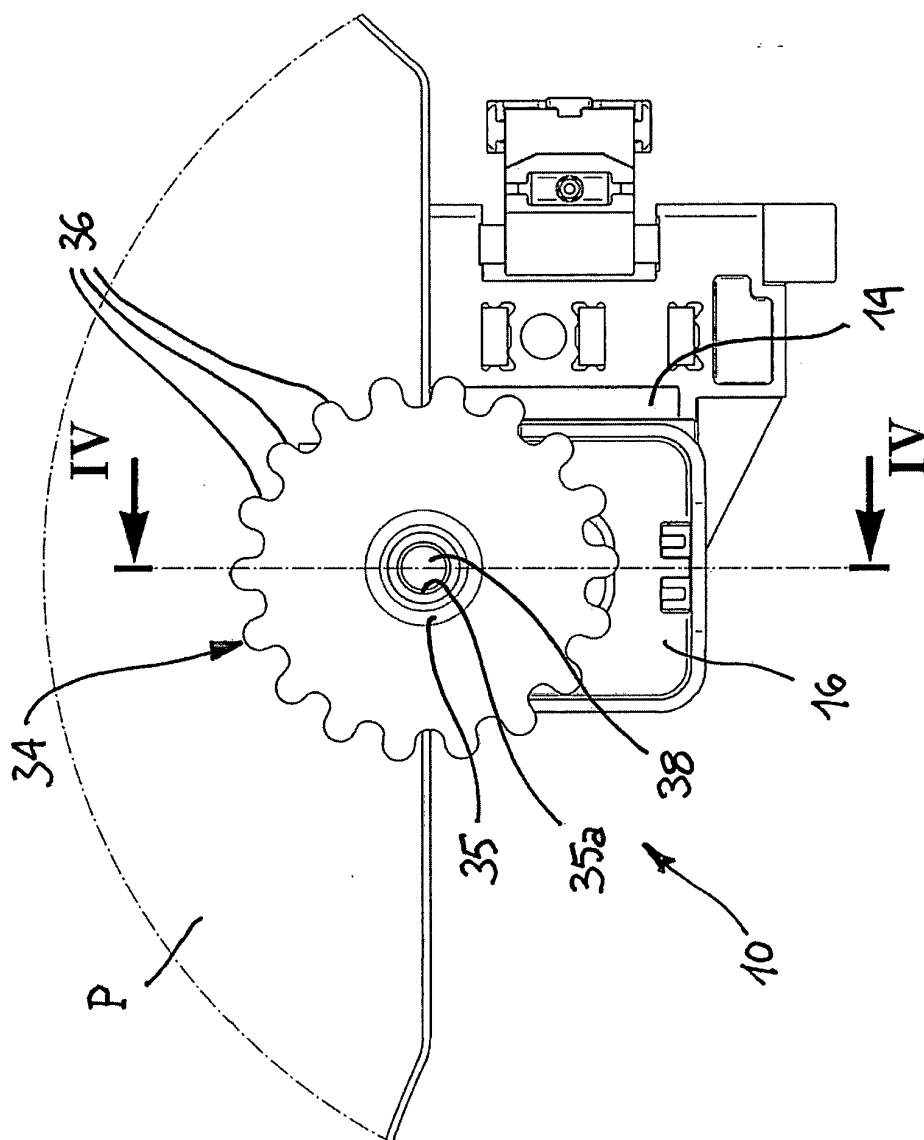


Fig. 3

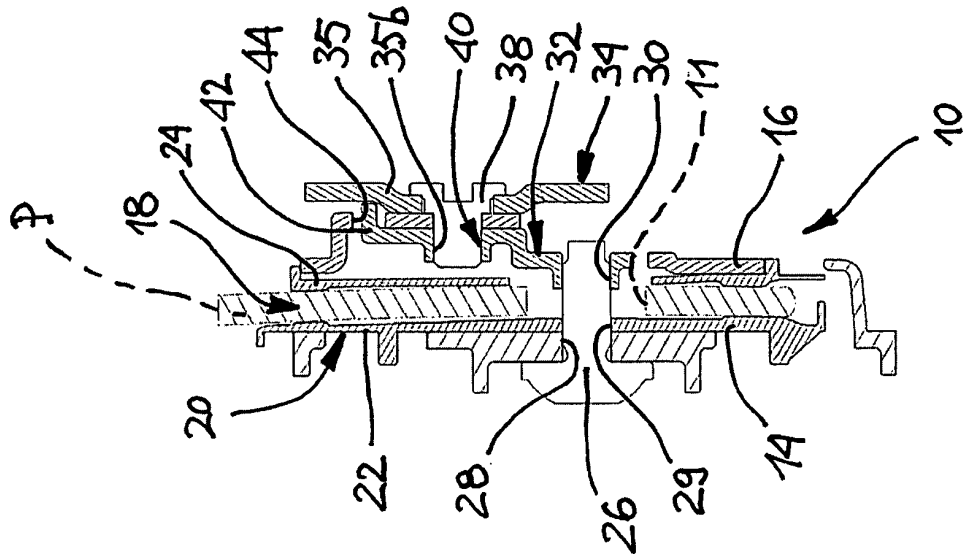


Fig. 6

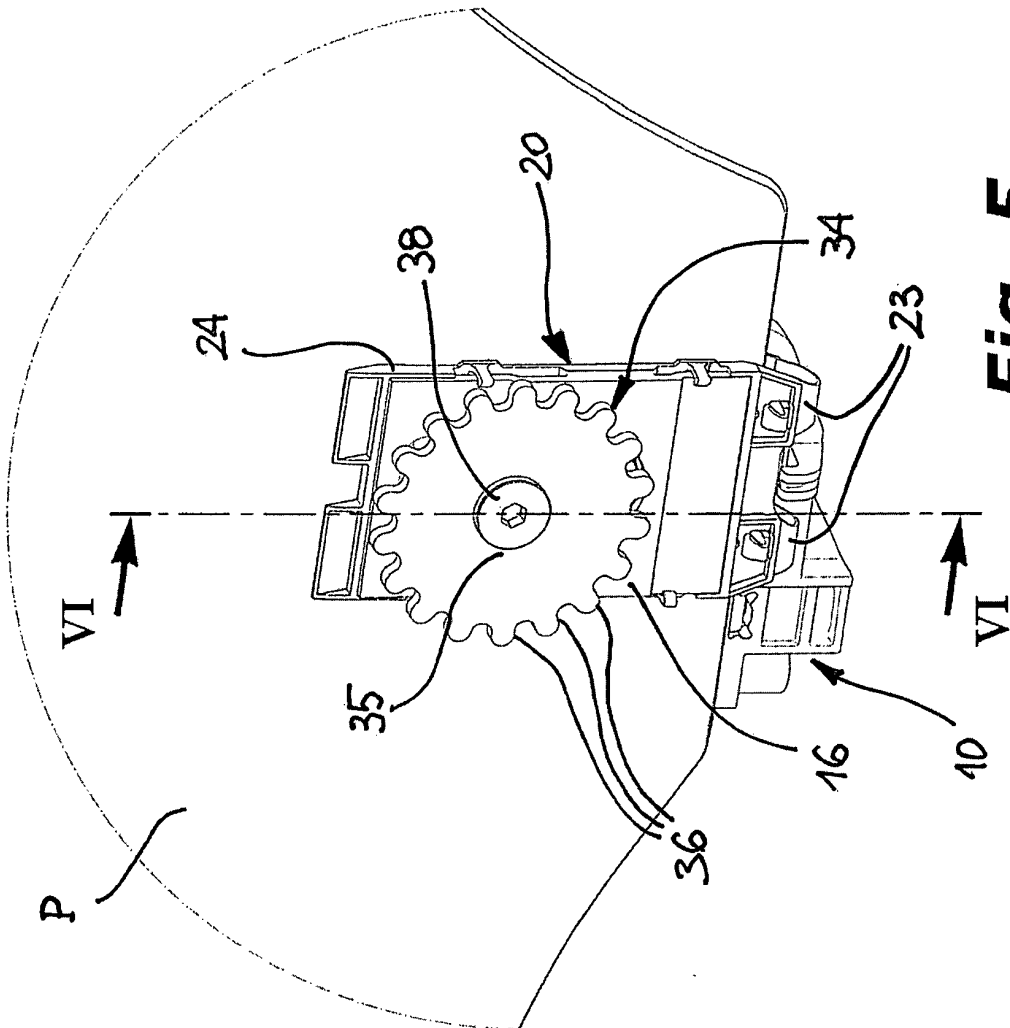
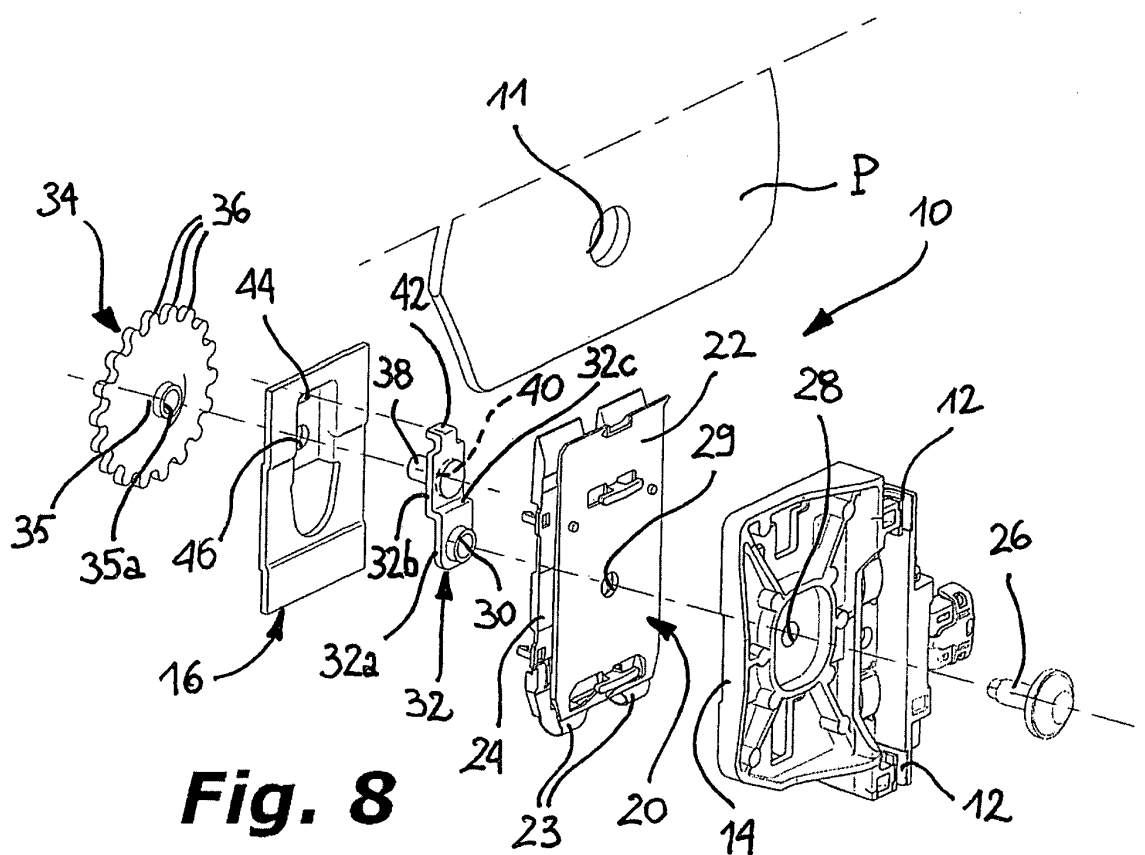
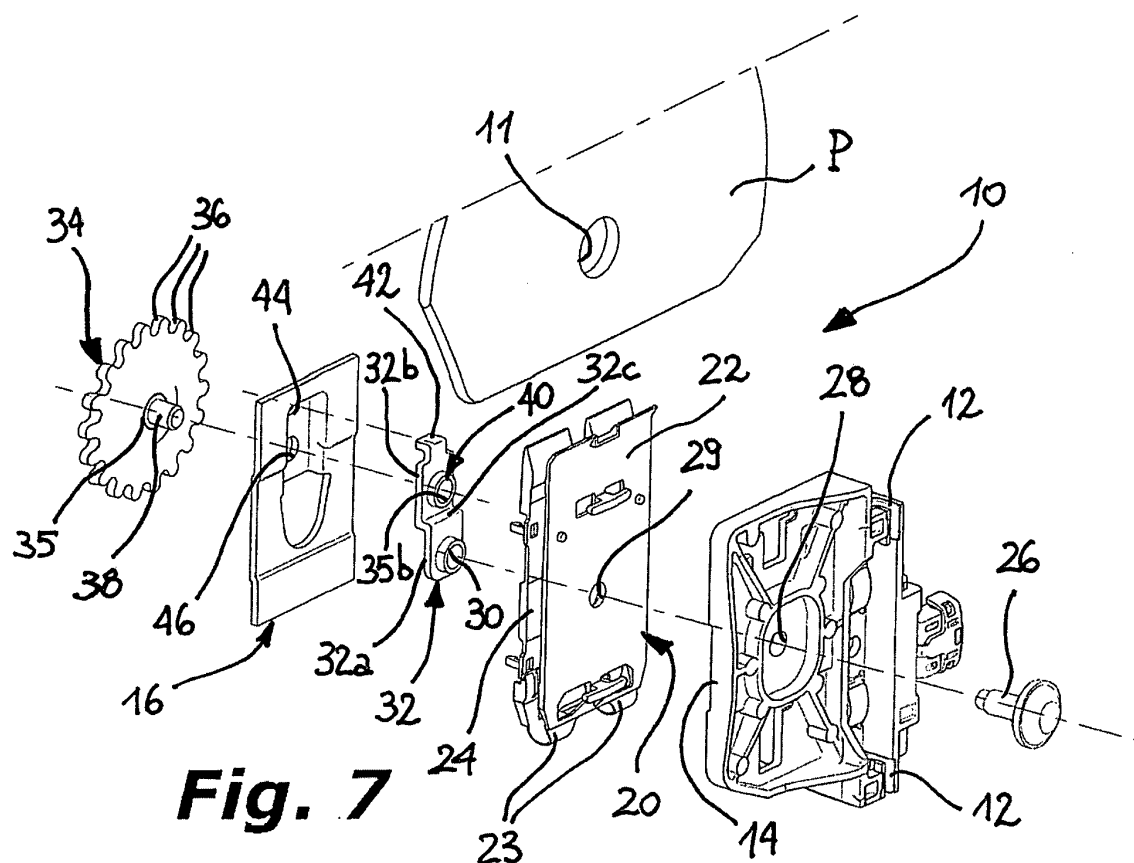


Fig. 5



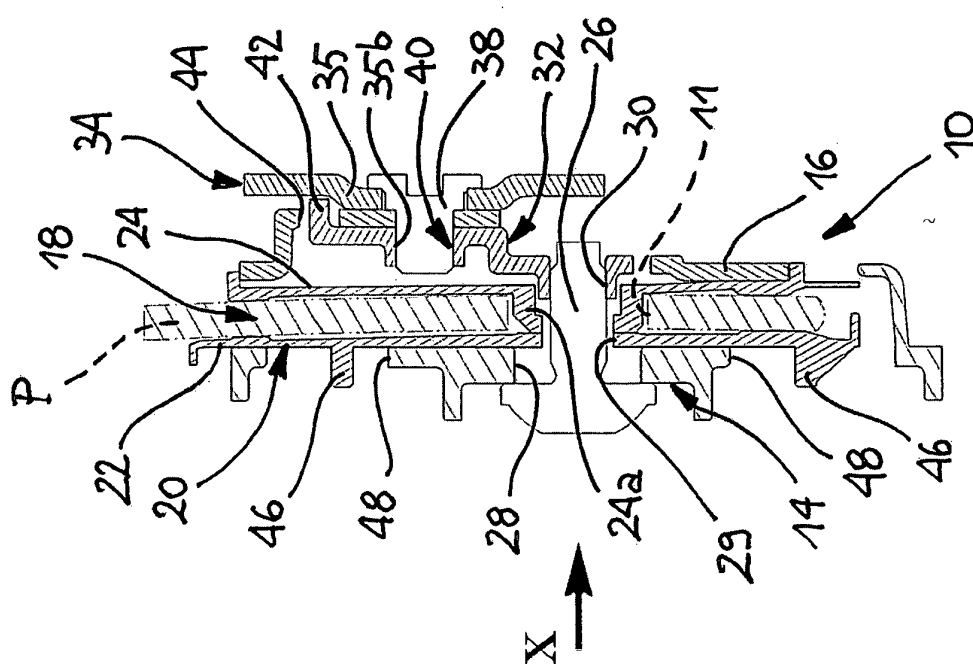


Fig. 9

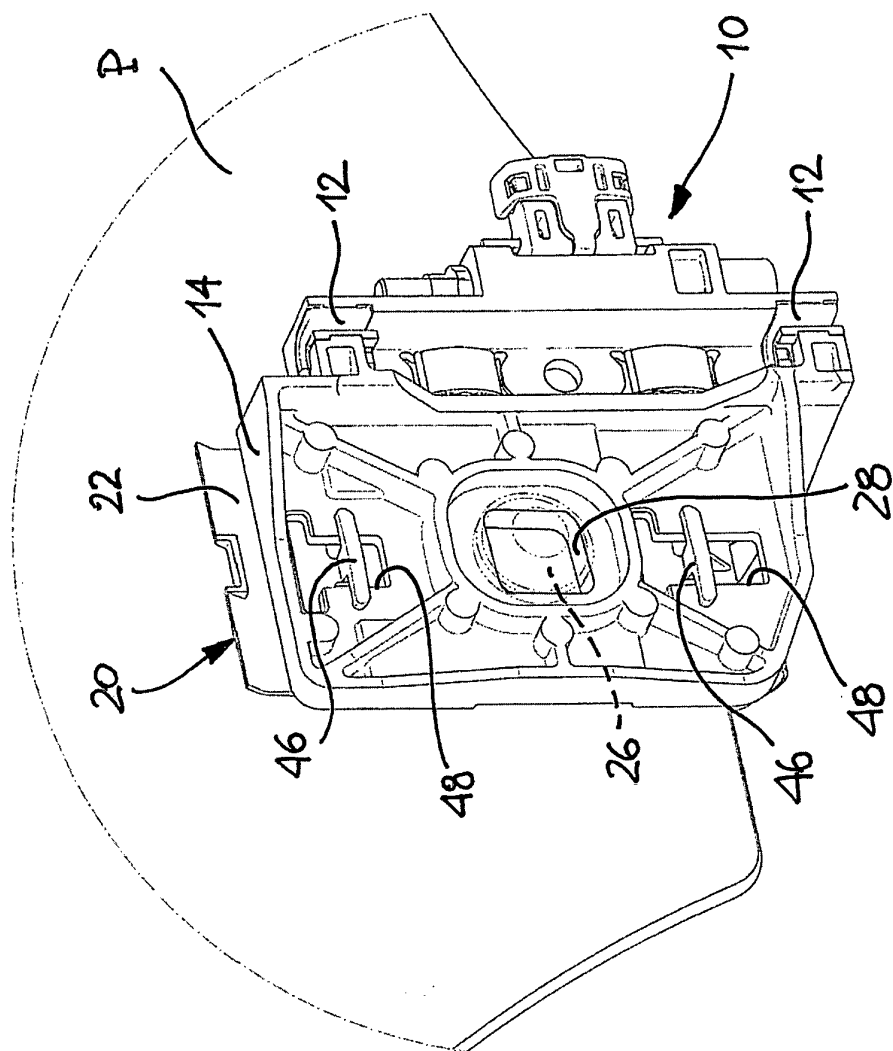


Fig. 10

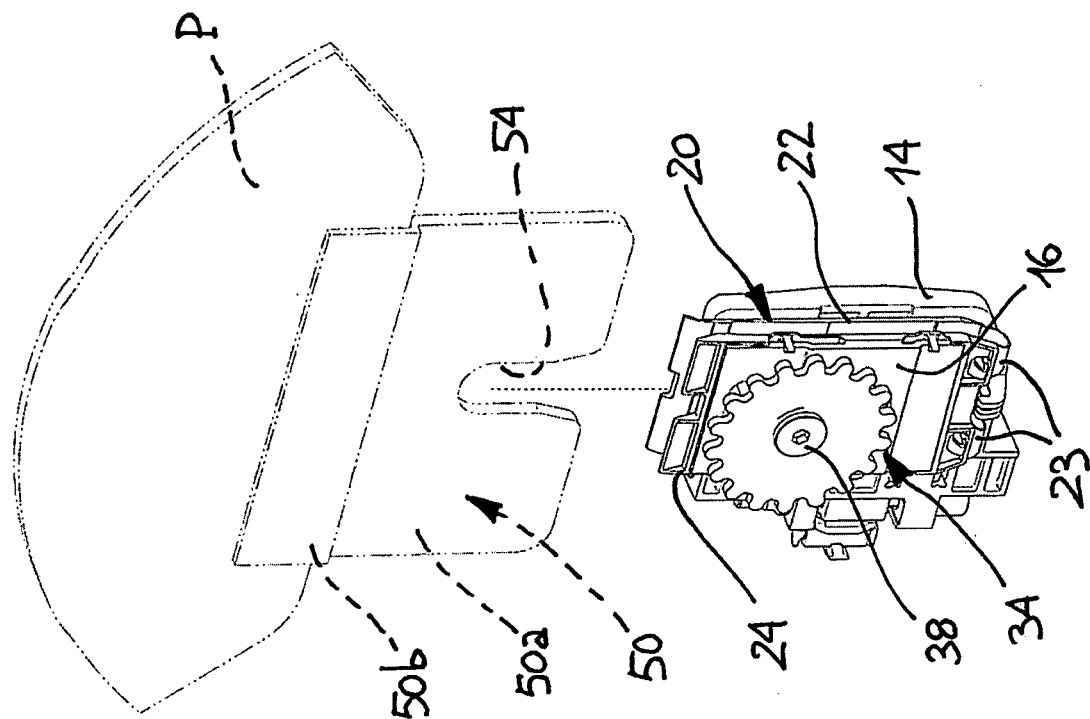


Fig. 12

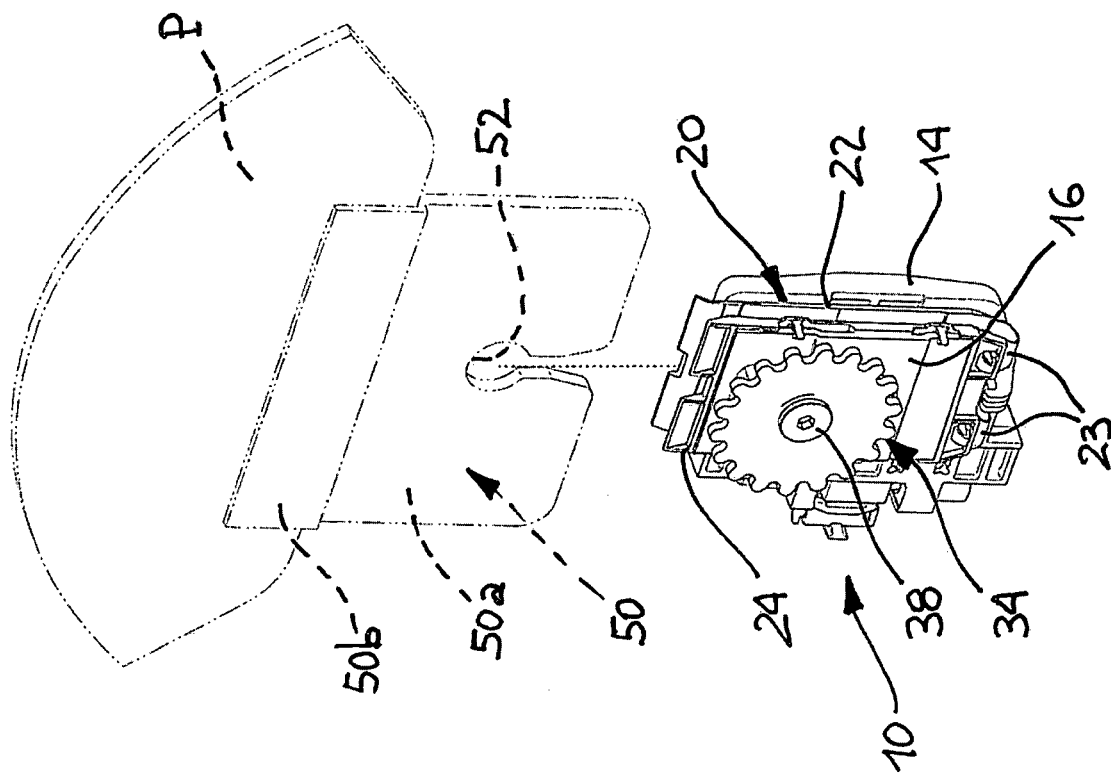


Fig. 11

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

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