(19) Europäisches Patentamt
European Patent Office
Office européen des brevets

(11) EP 1 160 403 B1

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
15.02.2006 Bulletin 2006/07

(51) Int Cl.:
E05B 65/20 *(2006.01)*

(21) Application number: **01113306.3**

(22) Date of filing: **31.05.2001**

(54) **Lock for a door of a motor vehicle**

Kraftfahrzeugschloss

Serrure pour porte de véhicule automobile

(84) Designated Contracting States:
DE ES FR GB IT

(30) Priority: **02.06.2000 IT TO000523**

(43) Date of publication of application:
05.12.2001 Bulletin 2001/49

(73) Proprietor: **Intier Automotive Eybl (Germany) GmbH**
92442 Wackersdorf (DE)

(72) Inventor: **Crotti, Giacomo**
56100 Pisa (IT)

(74) Representative: **Jorio, Paolo et al**
STUDIO TORTA S.r.l.
Via Viotti, 9
10121 Torino (IT)

(56) References cited:
EP-A- 0 775 793
DE-A- 19 806 155
FR-A- 2 778 197

Note: Within nine months from the publication of the mention of the grant of the European patent, any person may give notice to the European Patent Office of opposition to the European patent granted. Notice of opposition shall be filed in a written reasoned statement. It shall not be deemed to have been filed until the opposition fee has been paid. (Art. 99(1) European Patent Convention).

EP 1 160 403 B1

Description

[0001] The present invention relates to a lock for a door of a motor vehicle, particularly for a passenger door of a motor vehicle.

[0002] The expression «passenger door» will be used in the present description in its widest sense, to denote either the door located opposite the driver's door, or a rear door, if present.

[0003] As is known, a door of a motor vehicle generally comprises an upper frame portion which forms an aperture which is closed by a movable window when the latter is raised, and a lower box-shaped portion formed by an outer panel and an inner panel, joined at one end by a terminal edge, and forming between them a compartment which normally houses the window, when lowered, and various components fixed to the panels, including for example a lock and a window winder.

[0004] A conventional lock generally comprises a closing unit capable of being coupled to a pin integral with a fixed pillar of the corresponding door, and an operating unit of the mechanical type capable of being connected to the manual operating members associated with the door of the motor vehicle, such as the interior and exterior handles, and capable of interacting with the closing unit to cause it to open, or, more precisely, to be released from the pin.

[0005] A conventional lock also comprises a main security assembly which can be selectively activated to disable the opening of the closing unit from the outside of the motor vehicle (when the external security function is turned on) and an auxiliary security assembly which can be selectively activated to disable the opening of the closing unit from the interior of the motor vehicle (when the «dead lock» or child safety function is turned on).

[0006] Generally, the external security function is turned on by means of an electrically operated actuator, commonly termed the «door securing actuator», while the child safety function, obviously provided only in the locks for the passenger doors of the motor vehicle, is turned on by means of a manually operated actuator, which is normally accessibly on the terminal edge of the lower box-shaped portion of the corresponding door.

[0007] Conveniently, in motor vehicles provided with central locking systems, the driver's door has, in addition to the corresponding lock, a key unit for turning the external security function of all the locks of the motor vehicle on or off by means of a key.

[0008] Each door may also be provided with an interior button for turning the exterior security function of the corresponding door on or off. This button, conventionally carried on the inner panel of the corresponding door and projecting from an upper edge of the lower box-shaped portion of the door, can form, because of its position, a possible means of unauthorized opening of the lock, since it can be accessed relatively easily by means of break-in tools inserted between the window and its seals.

[0009] Recently, in order to overcome this disadvantage, a proposal has been made to remove the aforesaid button from the door of the motor vehicle, or to make it in an «embedding» form so that it cannot be operated by means of break-in tools.

[0010] In both cases, if the central locking system of the motor vehicle fails, it is not possible to carry out the emergency manual activation of the external security function in any way for the locks associated with the passenger doors, since these doors do not have key units, and this has evident disadvantages for users.

[0011] DE-A-19 806 155 discloses a lock for a motor vehicle door, as defined in the preamble of claim 1.

[0012] The object of the present invention is to provide a lock for a door of a motor vehicle which enables the aforementioned disadvantages to be overcome in a simple and economical way.

[0013] The aforesaid object is achieved by the present invention in that it relates to a lock for a door of a motor vehicle, as claimed in claim 1.

[0014] To enable the present invention to be understood more clearly, a preferred embodiment is described below, purely by way of example and without restrictive intent, with reference to the attached drawings, in which:

- Figure 1 shows, in a side view in partial section, a lock according to the present invention for a door of a motor vehicle;
- Figure 2 is a second section along the line II-II of Figure 1;
- Figure 3 shows, in section and on an enlarged scale, a manually operated actuator of the lock of Figure 1, in a different operating configuration;
- Figure 4 is an exploded perspective view on an enlarged scale of the actuator of Figure 2; and
- Figure 5 is a view from above of the lock of Figure 1, with parts removed for clarity.

[0015] With reference to Figures 1 and 5, the number 1 indicates as a whole a lock for a door 2 of a motor vehicle, in this case for a passenger door of the motor vehicle.

[0016] The lock 1 is capable of interacting in a known way with a pin 3 (Figure 5) integral with a pillar (not illustrated) of the door 2 and forms part of a central locking system for the doors of the motor vehicle, the operation of this system being controlled by an electronic control unit, which is known and which is not illustrated, since it does not form part of the present invention.

[0017] The door 2 comprises, in a known way, a lower box-shaped portion 4, which is delimited by an outer panel 5 and an inner panel 6, forming between them a compartment 7 housing the lock 1; Figure 1 shows, in horizontal section, the corresponding essentially flat and parallel principal portions of the box-shaped portion, joined at one end by a terminal edge 10 which is orthogonal to the principal portions and which faces the pillar of the door 2 bearing the pin 3.

[0018] The lock 1 essentially comprises a frame 11

housed inside the compartment 7 of the door 2 and fixed to the terminal edge 10, a closing unit 12 carried by the frame 11 and capable of being coupled to the pin 3, and an operating unit 13, also carried by the frame 11 and capable of interacting with the closing unit 12 to cause it to open, or, more precisely, to be released from the pin 3.

[0019] The frame 11 is essentially L-shaped when viewed from the side, and consists of two prismatic bodies 14, 15 whose thicknesses are small with respect to their other dimensions and which are fixed together at a right angle to each other.

[0020] In particular, the body 14 is delimited by two base walls 16a, 16b parallel to each other and by a lateral edge 17 connecting the base walls 16a, 16b along their external perimeters. More precisely, the body 14 can be fixed by its base wall 16a to the terminal edge 10 of the lower portion 4 of the door 2, and its opposite side communicates with the body 15.

[0021] The body 14 also has a lateral C-shaped opening 18 for the introduction of the pin 3, part of this opening extending along the base wall 16a and part of it extending along a corresponding portion of the lateral edge 17. The opening 18 is also located next to an angled opening (not shown in the attached figures) formed in the lower portion 4 of the door 2 in the corner area formed between the terminal edge 10 and the main portion 9 of the inner panel 6.

[0022] The closing unit 12 (Figure 5) is housed within the body 14 and comprises, in a known way, a fork 20 and a retainer 21 pivoted respectively on pivots 22, 23 which are fixed integrally with the body 14 and have respective axes A, B parallel to each other and orthogonal to the base walls 16a, 16b.

[0023] The fork 20 consists of a shaped plate, is pivoted in its intermediate portion on the pivot 22 and has a peripheral C-shaped seat 24 capable of receiving the pin 3 and delimited laterally by a pair of teeth 25, 26.

[0024] The fork 20 is pushed by a corresponding spring (of a known type, not illustrated) towards an open position, in which it is made to bear laterally on the lateral edge 17 of the body 14 and has its seat 24 facing essentially in the same direction as the opening 18, to permit the engagement and disengagement of the pin 3.

[0025] Under the force imparted by the pin 3 and following the slamming of the door 2, the fork 20 is rotatable about the axis A from the open position to a closed position, in which the pin 3 is locked in the seat 24 and the tooth 25 intercepts the opening 18 in a known way to prevent the release of the pin.

[0026] The retainer 21 consists of a shaped plate which is essentially coplanar with the form 20 and is pushed in a known way towards a peripheral edge of the fork 20 by a spring (of a known type, not illustrated) wound around the pivot 23.

[0027] In particular, the retainer 21 has an L-shaped terminal edge and can be snapped into place against one end of the tooth 25 of the fork 20 to lock the fork 20 releasably in the closed position.

[0028] The retainer 21 can interact in a known way, not illustrated, with the operating unit 13 to receive opening forces from the latter.

[0029] With reference to Figure 1, the operating unit 13, which is of a known type and is described and illustrated only to the extent required for an understanding of the present invention, essentially comprises a first and a second opening lever 30, 31, which are supported by the frame 11, are coupled for operation to the closing unit 12 and are connectable to corresponding handles (not illustrated) of the door 2 which can be operated selectively, from the outside of the motor vehicle in one case and from the inside in the other case, to cause the closing unit 12 to be uncoupled from the pin 3.

[0030] In particular, the opening lever 30 is pivoted on the body 14 about an axis (not shown in the attached figures) parallel to the axes A and B, while the opening lever 31 is pivoted on the body 15 about an axis orthogonal to the axes A and B.

[0031] With reference to Figures 1 to 4, the lock 1 also comprises a first and a second security assembly 32, 33, which are known and are also illustrated and described only to the extent required for the understanding of the present invention, and which are supported by the frame 11 and can be selectively activated to disable the opening of the closing unit 12 from the outside and from the inside, respectively, of the motor vehicle, thus providing what are known as the «external security» and «child safety» functions respectively.

[0032] The lock 1 also comprises an electrically operated main actuator 34 for operating the security assembly 32, and an auxiliary manually operated actuator 35 for operating the security assembly 33.

[0033] The main actuator 34 comprises an electric motor 36, whose operation is controlled in a known way by the control unit of the central locking system of the motor vehicle, and a geared transmission 37 interposed between the motor 36 and an operating member 38 of the security assembly 32.

[0034] In particular, the transmission 37 comprises a pinion 39 keyed on an output shaft 40 of the motor 36, having an axis C parallel to the axes A and B, and a toothed sector 41 having an axis D parallel to the axis C, engaged with the pinion 39 and carrying the operating member 38 integrally and coaxially with it.

[0035] In greater detail, the operating member 38 consists of an essentially cylindrical pin engaged within a central cylindrical sleeve 42 of the toothed sector 41 and provided with an eccentric end portion 43 interacting with a transmission lever 44 of the security assembly 32. The operating member 38 is rotatable integrally with the toothed sector 41 about the axis D between a position in which the external security system is turned on, in which by means of the eccentric portion 43 it sets the lever 44 in a condition preventing the opening of the closing unit 12, and a position in which the external security system is turned off.

[0036] In the case which is illustrated, the aforesaid

external security «on» and «off» positions of the operating member 38 are indicated in Figure 2 by «X» and «Y» respectively, and are separated from each other by an angle of approximately 60°.

[0037] With particular reference to Figures 1, 3 and 4, the auxiliary actuator 35 comprises a button 45, which passes through corresponding penetrating holes 46, 47 with the axis D in the body 14 and in the terminal edge 10 of the door 2, and which is coupled in an axially slidable way and with a fixed angular position to an operating member 48 of the security assembly 33.

[0038] In particular, the button 45 comprises a cylindrical head 50 provided with an elongate slot 51 forming a socket for an operating key (not shown) and a shank 52 of predominantly prismatic shape. More precisely, the shank 52 comprises a prismatic portion 53 having a square section with rounded corners, joined to the head 50 by a short cylindrical portion 54. The button 45 also comprises an annular flange 55 interposed between the head 50 and the cylindrical portion 54 of the shank 52 and projecting radially from the head 50.

[0039] The hole 46 has an entry portion 56 formed in the base wall 16a and having the same diameter as the hole 47 in the terminal edge 10 of the door 2, an intermediate portion 57 whose cross section is greater than that of the entry portion 56, and a terminal portion 58, located on the opposite side of the intermediate portion 57 from the entry portion 56, having a smaller diameter than the other two portions and opening into a cavity 59 of the body 14 in which the security assemblies 32 and 33 are housed.

[0040] In use, the button 45 is located with its shank 52 engaged within the terminal portion 58 of the hole 46 of the body 14, and with its head 50 fitted so that it passes through the entry portion 56 of the hole 46 and the hole 47 of the terminal edge 10 of the door 2.

[0041] The operating member 48 consists of a tubular sleeve engaged in an axially and angularly movable way within the terminal portion 58 of the hole 46 of the body 14 and joined by prismatic coupling to the portion 53 of the button 45.

[0042] In particular, the operating member 48 has an inner surface which is complementary to the outer surface of the portion 53 of the button 45, and forms a seat 49, providing angular coupling and axial sliding, for the portion 53.

[0043] In greater detail, the operating member 48 comprises an externally cylindrical main portion 60, engaged within the terminal portion 58 of the hole 46 of the body 14, an eccentric portion 61 interacting with a transmission lever 62 of the security assembly 33 and located adjacent to the eccentric portion 43 of the operating member 38, and an intermediate portion 63 which is also externally cylindrical, is interposed between the main portion 60 and the eccentric portion 61, has an external diameter greater than that of the main portion 60, and is positioned to bear on an annular shoulder of the body 14 formed between the cavity 59 and the terminal portion 58 of the hole 46.

[0044] As a result of the described arrangement, the operating member 48 is locked axially between the eccentric portion 43 of the operating member 38 and the shoulder of the body 14 formed between the cavity 59 and the hole 46.

[0045] The button 45 is loaded axially by a cylindrical coil spring 65 wound coaxially around the shank 52, housed in the intermediate portion 57 of the hole 46 and interposed between the flange 55 and an axial shoulder of the body 14 formed between the intermediate portion 57 and the terminal portion 58 of the hole 46.

[0046] In the absence of external operation, the button 45 is pushed by the spring 65 into a first operating configuration (Figure 1) in which it permits, by rotation about its axis D through an angular interval, the movement of the operating member 48 between the child safety «off» and «on» positions.

[0047] In the first operating configuration of the button 45, the flange 55 is positioned so that it bears axially on the base wall 16a, and a terminal portion of the prismatic portion 53 of the shank 52 is engaged, with radial play, in a cylindrical entry portion 66 of a blind hole 67 with the axis D in the operating member 38. Thus the angular movements of the button 45 about the axis D are not transmitted to the operating member 38. More precisely, and with particular reference to Figures 1 to 3, the hole 67 in the operating member 38 has, in addition to the cylindrical entry portion 66, a terminal portion 68 having a profile complementary to the profile of the prismatic portion 53 of the shank 52.

[0048] According to an important aspect of the present invention, the button 45 is movable along the axis D between the first operating configuration and a second operating position (Figure 3) in which its prismatic portion 53 is engaged with the terminal portion 68 of the hole 67 of the operating member 38 and therefore permits the movement of both of the operating members 38, 48 about the axis D for the simultaneous turning on and off of the external security and child safety functions.

[0049] In the second operating configuration, the button 45 therefore permits the emergency manual activation of the security assembly 32, as an alternative to the use of the main actuator 34.

[0050] In use, the child safety function can be turned on and off simply by rotating the button 45 about the axis D, the button being held stably in the first operating configuration by the spring 65.

[0051] In case of failure or malfunction of the central locking system of the motor vehicle, the external security function for the door 2 can be turned on manually, with the door 2 open, simply by acting on the button 45 in such a way as to move it axially into the second operating configuration. This operation can only be carried out when the operating member 48 is placed in the child safety «off» position; otherwise, the prismatic portion 53 of the shank 52 of the button 45 and the prismatic terminal portion 68 of the hole 67 of the operating member 38

would be out of angular alignment with each other, which would make it impossible to couple them together.

[0052] Therefore, if the operating member 48 is placed in the child safety «on» position, the button 45 must be rotated about the axis D in such a way as to bring the operating member 48 into the child safety «off» position, and the button 45 must then be moved from the first to the second operating configuration. At this point, the rotation of the button 45 about the axis D causes the angular movement of the operating members 38, 48 into the external security «on» position and into the child safety «on» position respectively.

[0053] On completion of the aforesaid operations, the door 2 can be closed by slamming in such a way as to cause the closing unit 12 of the lock 1 to be coupled to the pin 3.

[0054] The door 2 can subsequently be opened by acting on the interior handle in the first place, to cause the external security function to be mechanically turned off in a known way in an initial portion of the travel of the interior handle, and then by acting directly on the exterior handle, since the child safety function can be turned off only by acting on the button 45.

[0055] An examination of the characteristics of the lock 1 made according to the present invention will clearly reveal the advantages which it provides.

[0056] In particular, the manually operated auxiliary actuator 35 can be used both to turn the child safety function on and off, and to turn the external security function on and off manually in an emergency situation if there is a failure of the central locking system of the motor vehicle.

[0057] This solution is particularly advantageous both in terms of cost and in terms of security against break-in. This is because the additional function of the emergency manual disabling of the opening of the door 2 from the outside is achieved by minimal modification of the structure of a conventional lock, namely by simply making the auxiliary actuator for controlling the child safety function (35) movable along the axis D, loading it with a spring (65) and providing a releasable angular coupling between the auxiliary actuator positioned in the second operating configuration and the main actuator (34) for controlling the external security function.

[0058] Furthermore, where security against unauthorized opening of the lock is concerned, it should be noted that the auxiliary actuator 35 is difficult to access or manoeuvre for the purpose of breaking in, owing to the position in which it is located in the door 2.

[0059] Finally, that the lock 1 can evidently be modified and varied without departure from the scope of protection of the present invention as claimed.

Claims

1. Lock (1) for a door (2) of a motor vehicle comprising:

- a closing unit (12);
- an operating unit (13) connectable to corresponding manual operating members associated with said door (2) and capable of interacting with said closing unit (12) to open it;
- first and second selectively operable disabling means (32, 33) for disabling the opening of said closing unit (12) from the outside and from the inside, respectively, of said motor vehicle;
- a main electrically operated actuator (34) for operating said first disabling means (32); and
- a manually operated auxiliary actuator (35) which can be placed in a first operating configuration in which it permits the activation or disabling of said second disabling means (33) and in a second operating configuration, in which it permits the manual activation or de-activation of said first disabling means (32) in case of emergency; said auxiliary actuator (35) being movable along a first path to create said first and second operating configurations, and along a second path from each of said first and second operating configurations to activate or de-activate said first and second disabling means (32,33);

characterized in that said first path of said auxiliary actuator (35) is a movement along an axis (D) between said first and second operating configurations, and **in that** said second path is a rotation about said axis (D).

2. Lock as claimed in Claim 1, **characterized in that** said auxiliary actuator (35) is loaded by elastic means (65) towards said first operating configuration.

3. Lock as claimed in claim 1 or 2, **characterized in that** it comprises first angular coupling means (53, 68) for releasably connecting said auxiliary actuator (35), placed in said second operating configuration, to an operating member (38) of said first disabling means (32).

4. Lock as claimed in any one of the foregoing claims, **characterized in that** it comprises second angular coupling means (53, 49) to connect said auxiliary actuator (35) stably to an operating member (48) of said second disabling means (33).

5. Lock as claimed in any one of the foregoing claims, **characterized in that** said auxiliary actuator (35) comprises a button (45) coaxial with said axis (D) and fitted on a supporting frame (11) of the lock (1) in such a way that it is axially and angularly movable.

6. Lock as claimed in claim 5, **characterized in that** said second angular coupling means comprise a first penetrating seat (49) with a prismatic profile formed in said operating member (48) of said second disa-

bling means (33) and engaged by a shank (53) having a profile complementary to said button (45).

7. Lock as claimed in claim 6, **characterized in that** said first angular coupling means comprise a second seat (68) which has a profile identical to that of said first seat (49) and can be engaged by said shank (52) of said button (45) in said second operating configuration.

8. Door (2) for a motor vehicle, housing a lock (1) as claimed in any one of the foregoing claims, said door (2) comprising a lower box-shaped portion (4) delimited by an outer panel (5) and by an inner panel (6) forming between them a compartment (7) for housing said lock (1) and joined at one end by a terminal edge (10), said auxiliary actuator (35) being fitted through a penetrating hole (47) of said terminal edge (10).

Patentansprüche

1. Schloss (1) für eine Tür (2) eines Kraftfahrzeugs mit:

einer Schließeinheit (12),
einer Betätigungseinheit (13), die mit entsprechenden manuellen Betätigungselementen zu verbinden ist, die mit der Tür (2) verbunden sind, und geeignet ist, mit der Schließeinheit (12) zusammenzuwirken, um diese zu öffnen,
einem ersten und zweiten selektiv betätigbaren Abschalt- bzw. Sperrmittel (32, 33) zum Sperren des Öffnens der Schließeinheit (12) von der Außenseite bzw. der Innenseite des Kraftfahrzeugs,
einem elektrisch betätigten Hauptstellglied (34) zum Betätigen des ersten Sperrmittels (32), und einem manuell betätigten Hilfsstellglied (35), das in einer ersten Betriebskonfiguration platziert werden kann, in der dieses die Aktivierung bzw. Betätigung oder das Sperren des zweiten Sperrmittels (33) erlaubt, und in einer zweiten Betriebskonfiguration, in der dieses die manuelle Aktivierung oder Deaktivierung des ersten Sperrmittels (32) im Notfall ermöglicht, wobei das Hilfsstellglied (35) entlang einem ersten Pfad bewegbar ist, um die erste und zweite Betriebskonfiguration zu erzeugen, und entlang einem zweiten Pfad von jeder von der ersten und zweiten Betriebskonfiguration, um das erste und zweite Sperrmittel (32, 33) zu aktivieren oder deaktivieren,

dadurch gekennzeichnet, dass der erste Pfad des Hilfsstellglieds (35) eine Bewegung entlang einer Achse (D) zwischen der ersten und zweiten Betriebskonfiguration ist, und dass der zweite Pfad eine Rotation um die Achse (D) ist.

2. Schloss nach Anspruch 1, **dadurch gekennzeichnet, dass** das Hilfsstellglied (35) durch ein elastisches Mittel (65) zu der ersten Betriebskonfiguration gespannt bzw. belastet ist.

3. Schloss nach Anspruch 1 oder 2, **dadurch gekennzeichnet, dass** dieses ein erstes Winkelkoppelmittel (53, 68) zum lösbaren verbinden des Hilfsstellglieds (35) umfasst, angeordnet in der zweiten Betriebeskonfiguration, zu einem Betätigungselement (38) des ersten Sperrmittel (32).

4. Schloss nach einem der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** dieses ein zweites Winkelkoppelmittel (53, 49) umfasst, um das Hilfsstellglied (35) fest mit einem Betätigungselement (48) des zweiten Sperrmittels (33) zu verbinden.

5. Schloss nach einem der vorstehenden Ansprüche, **dadurch gekennzeichnet, dass** das Hilfsstellglied (35) einen Knopf (45) umfasst, der koaxial zu der Achse (D) ist und auf einem Stützrahmen (11) des Schlosses (1) auf eine solche Weise angepasst ist, dass dieser axial und im Winkel bewegbar ist.

6. Schloss nach Anspruch 5, **dadurch gekennzeichnet, dass** das zweite Winkelkoppelmittel einen ersten Durchdringsitz (49) mit einem prismatischen Profil umfasst, der in dem Betätigungselement (48) des zweiten Sperrmittels (33) gebildet ist und durch einen Schaft bzw. Kegel (53) mit einem Profil komplementär zu dem Knopf (45) in Eingriff ist.

7. Schloss nach Anspruch 6, **dadurch gekennzeichnet, dass** das erste Winkelkoppelmittel einen zweiten Sitz (68) umfasst, der ein Profil identisch zu demjenigen des ersten Sitzes (49) hat und durch den Schaft (52) des Knopfs (45) in der zweiten Betriebskonfiguration in Eingriff zu bringen ist.

8. Tür (2) für ein Kraftfahrzeug, die ein Schloss (1) nach einem der vorstehenden Ansprüche aufnimmt, wobei die Tür (2) einen unteren boxengeformten Abschnitt (4) umfasst, der durch eine äußere Wand (5) und durch eine innere Wand (6) begrenzt ist, die zwischen sich ein Fach (7) zum Aufnehmen des Schlosses (1) bilden und an einem Ende durch eine Anschlusskante (10) verbunden sind, wobei das Hilfsstellglied (35) durch ein Durchdringloch (47) der Anschlusskante (10) angepasst ist.

Revendications

1. Serrure (1) pour une porte (2) d'un véhicule à moteur comprenant :

- une unité de fermeture (12) ;
- une unité d'actionnement (13) apte à être raccordée à des éléments d'actionnement manuel correspondants qui sont associés à ladite porte (2) et capable d'agir en interaction avec ladite unité de fermeture (12) afin de l'ouvrir ;
- un premier et un deuxième moyens d'invalidation opérables de façon sélective (32, 33) afin d'invalider l'ouverture de ladite unité de fermeture (12) à partir de l'extérieur et à partir de l'intérieur, respectivement, dudit véhicule à moteur ;
- un actionneur électrique principal (34) destiné à actionner ledit premier moyen d'invalidation (32) ; et
- un actionneur auxiliaire manuel (35) qui peut être placé dans une première configuration d'actionnement dans laquelle il permet l'activation ou l'invalidation dudit deuxième moyen d'invalidation (33) et dans une deuxième configuration d'actionnement, dans laquelle il permet l'activation ou la désactivation manuelles dudit premier moyen d'invalidation (32) en cas d'urgence ; ledit actionneur auxiliaire (35) étant apte à être déplacé le long d'un premier trajet afin de créer lesdites première et deuxième configurations d'actionnement, et le long d'un deuxième trajet à partir de chacune desdites première et deuxième configurations d'actionnement afin d'activer ou de désactiver lesdits premier et deuxième moyens d'invalidation (32, 33) ;

caractérisée en ce que ledit premier trajet dudit actionneur auxiliaire (35) prend la forme d'un mouvement le long d'un axe (D) entre lesdites première et deuxième configurations d'actionnement, et **en ce que** ledit deuxième trajet prend la forme d'une rotation autour dudit axe (D).

2. Serrure, selon la revendication 1, **caractérisée en ce que** ledit actionneur auxiliaire (35) est chargé par un moyen élastique (65) en direction de ladite première configuration d'actionnement.

3. Serrure, selon la revendication 1 ou 2, **caractérisée en ce qu'**elle comprend un premier moyen de couplage angulaire (53, 68) afin de raccorder de façon détachable ledit actionneur auxiliaire (35), placé dans ladite deuxième configuration d'actionnement, à un élément d'actionnement (38) dudit premier moyen d'invalidation (32).

4. Serrure, selon l'une quelconque des revendications précédentes, **caractérisée en ce qu'**elle comprend un deuxième moyen de couplage angulaire (53, 49) afin de raccorder ledit actionneur auxiliaire (35) de façon stable à un élément d'actionnement (48) dudit deuxième moyen d'invalidation (33).

5. Serrure, selon l'une quelconque des revendications précédentes, **caractérisée en ce que** ledit actionneur auxiliaire (35) comprend un bouton (45) lequel est coaxial avec ledit axe (D) et est monté sur un cadre de support (11) de la serrure (1) de telle sorte qu'il puisse être déplacé dans le plan axial et dans le plan angulaire.

6. Serrure, selon la revendication 5, **caractérisée en ce que** ledit deuxième moyen de couplage angulaire comporte un premier siège pénétrant (49) avec un profil prismatique lequel est formé dans ledit élément d'actionnement (48) dudit deuxième moyen d'invalidation (33) et est engagé par une tige (53) dont le profil est complémentaire dudit bouton (45).

7. Serrure, selon la revendication 6, **caractérisée en ce que** ledit premier moyen de couplage angulaire comporte un deuxième siège (68) qui a un profil identique à celui dudit premier siège (49) et peut être engagé par ladite tige (52) dudit bouton (45) dans ladite deuxième configuration d'actionnement.

8. Porte (2) pour un véhicule à moteur, abritant une serrure (1), selon l'une quelconque des revendications précédentes, ladite porte (2) comprenant une section inférieure (4) en forme de caisson laquelle est délimitée par un panneau externe (5) et par un panneau interne (6) lesquels forment un compartiment (7) entre eux destiné à abriter ladite serrure (1) et réunis par un bord terminal (10) sur l'une des extrémités, ledit actionneur auxiliaire (35) étant monté à travers un trou pénétrant (47) pratiqué dans ledit bord terminal (10).

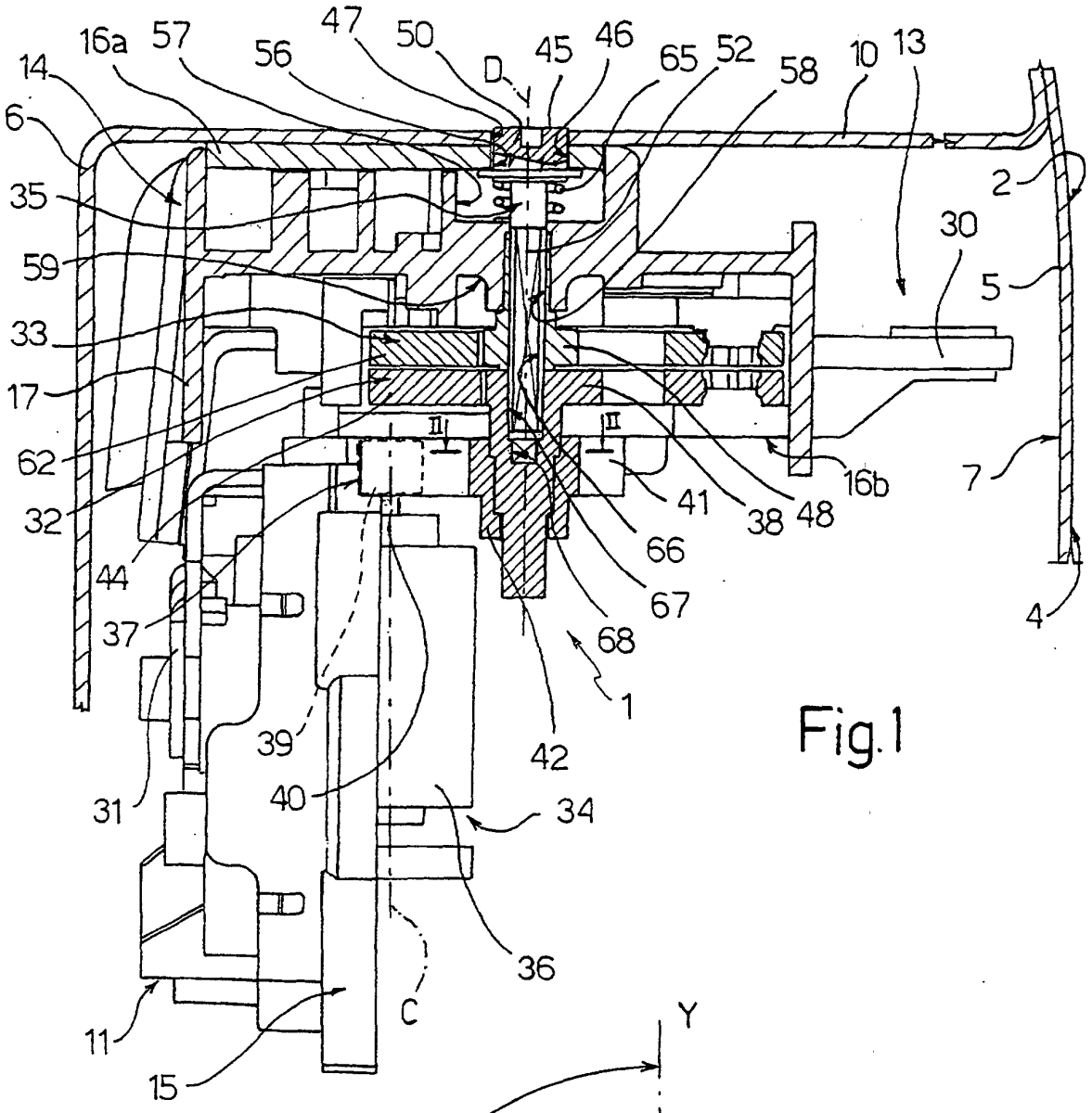

16a
57
56
47
50
D
45
46
65
52
58
10
13
14
6
35
59
33
17
62
32
44
37
39
31
40
42
68
1
66
67
41
38
48
16b
30
5
2
7
4
34
36
C
11
15

Fig.1

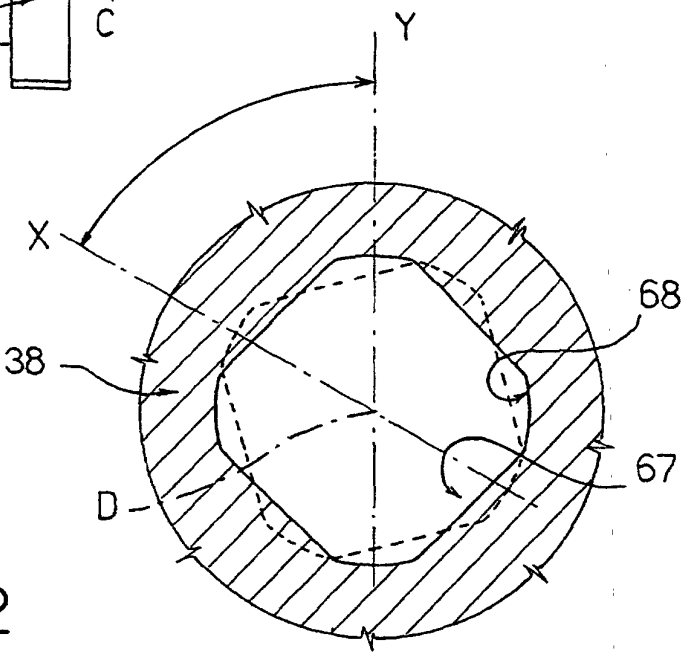

Y
X
68
38
67
D

Fig.2

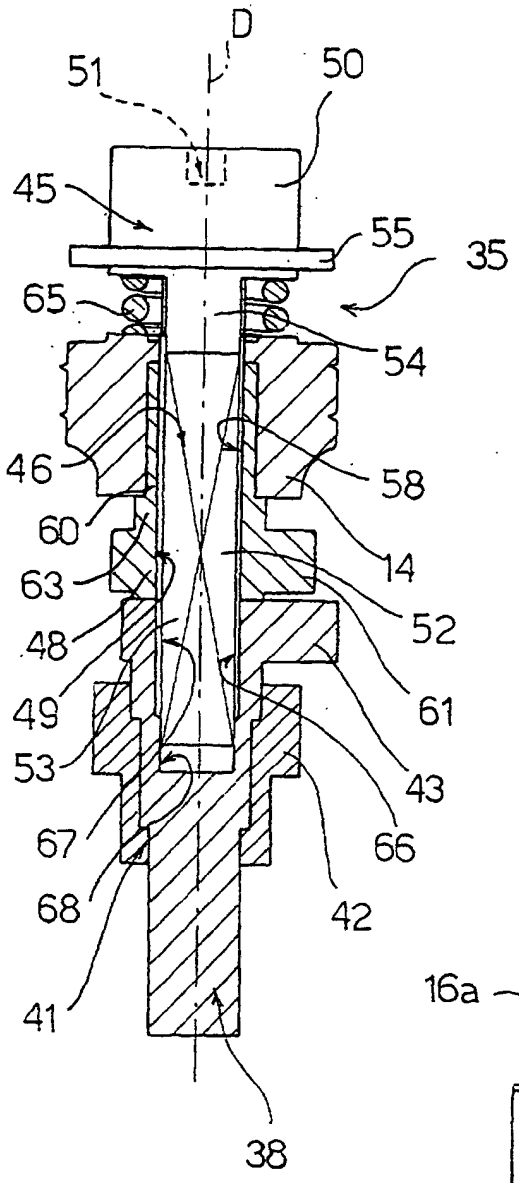

D
51
50
45
55
35
65
54
46
58
60
14
63
52
48
61
49
43
53
67
66
68
42
41
38

Fig.3

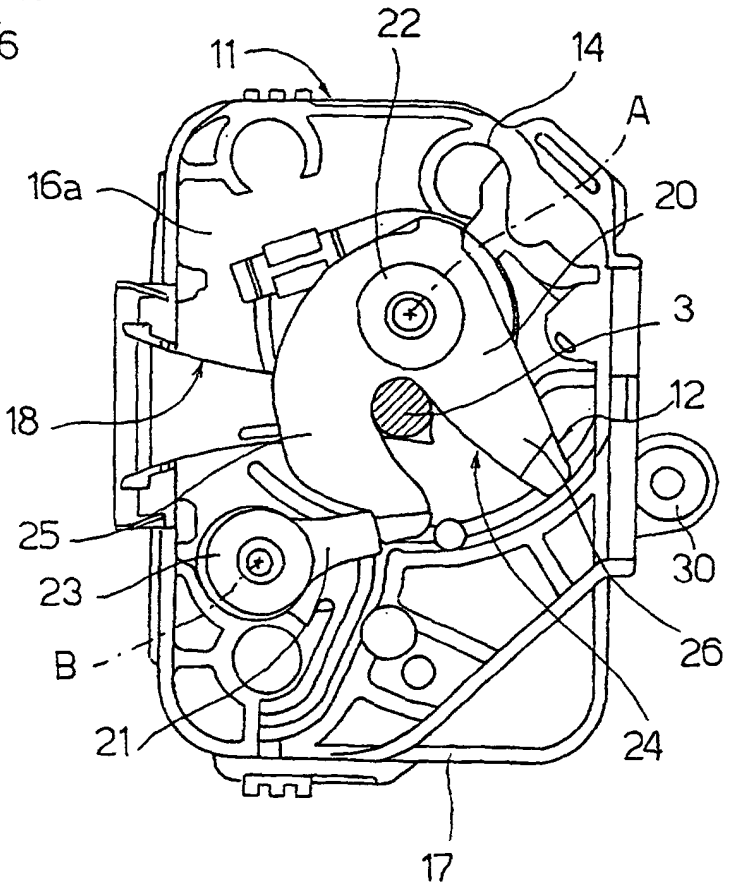

11
22
14
A
16a
20
3
18
12
25
30
23
26
B
21
24
17

Fig.5

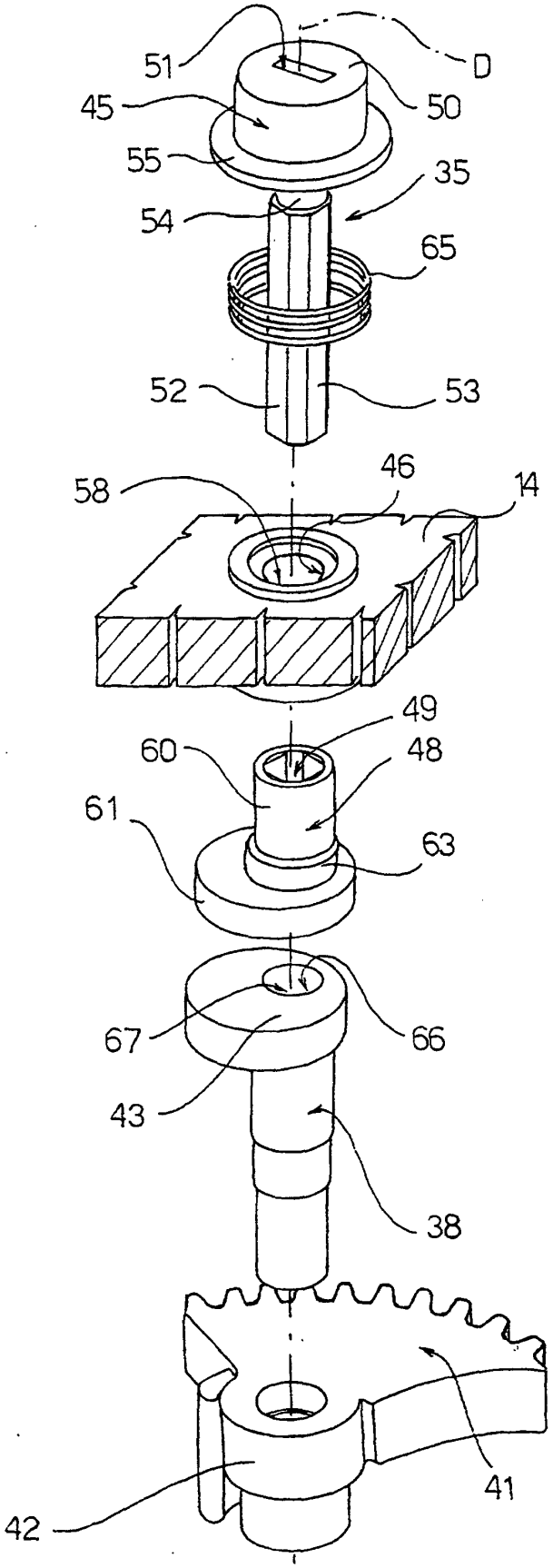


Fig.4