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

(11) **EP 1 939 376 B9**

(12) **CORRECTED NEW EUROPEAN PATENT SPECIFICATION**

(15) Correction information:
**Corrected version no 1 (W1 B2)**
**Corrections, see**
**Description**
**Drawings**
**Drawing(s) replaced or added**

(48) Corrigendum issued on:
**15.06.2016 Bulletin 2016/24**

(45) Date of publication and mention of the opposition decision:
**20.01.2016 Bulletin 2016/03**

(45) Mention of the grant of the patent:
**20.01.2010 Bulletin 2010/03**

(21) Application number: **07118606.8**

(22) Date of filing: **16.10.2007**

(51) Int Cl.:
***E05B 19/04*** *(2006.01)*

# (54) Key-holder with a retractable key, in particular for a vehicle lock

Schlüsselhalter mit einziehbarem Schlüssel, im Besonderen für ein Fahrzeugschloss

Porte-clé à clé rétractable en particulier pour serrure de véhicule

(84) Designated Contracting States:
**AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HU IE IS IT LI LT LU LV MC MT NL PL PT RO SE SI SK TR**

(30) Priority: **17.10.2006 IT TO20060747**

(43) Date of publication of application:
**02.07.2008 Bulletin 2008/27**

(73) Proprietors:
- **Giobert S.p.A.**
  **Rivoli (TO) (IT)**
- **Fiat Group Automobiles S.p.A.**
  **10135 Torino (TO) (IT)**

(72) Inventors:
- **Franceschini, Maurizio**
  **10060 Cantalupa (IT)**
- **Marangon, Stefano**
  **10156 Torino (IT)**

(74) Representative: **Bergadano, Mirko et al**
**Studio Torta S.p.A.**
**Via Viotti, 9**
**10121 Torino (IT)**

(56) References cited:
**EP-A- 1 526 232**
**WO-A-01/48339**
**WO-A2-2005/108721**
**DE-A1- 4 226 579**
**FR-A- 2 816 976**
**JP-A- H11 210 293**

EP 1 939 376 B9

## Description

**[0001]** The present invention relates to a key-holder with a retractable key, in particular for a vehicle lock.

**[0002]** Key-holders are known which comprise a supporting body; and a flat key hinged to the supporting body to rotate between an extracted position for insertion inside the lock, and a withdrawn position housed inside a lateral recess in the supporting body.

**[0003]** The key is retained in the withdrawn position by a retaining device, which is released by manually pressing a release button located on a wall of the supporting body, coaxially with the hinge axis of the key, and adjacent to an edge of the lateral recess housing the key in the withdrawn position.

**[0004]** The key is pushed automatically by an elastic device into the extracted position when the key release button is pressed; and the key is returned to the withdrawn position by simply rotating it manually, in opposition to the elastic device, until it engages the retaining device.

**[0005]** The supporting body formally also houses in fluidtight manner a remote control operated by a further button to activate/deactivate an antitheft device on the vehicle.

**[0006]** Despite the compact design of the supporting body, known solutions of the type described above have aesthetic drawbacks. More specifically, the release button can only accommodate a relatively small trademark or logo, and, being located close to an edge of the supporting body, conditions the design of the key-holder as a whole.

**[0007]** What is more, a trademark or logo on the release button rotates together with the key about the hinge axis when the key rotates from the withdrawn position to the extracted position or vice versa.

**[0008]** WO 2005/108721 A2, which corresponds to the preamble of claim 1, discloses a key-holder having a case and a locking element, which consists of a generally cylindrical element with a vertical main axis and is mounted such that it can slide in relation to the case in a generally vertical direction in a complementary cylindrical recess. Such vertical main axis is offset in relation to a hinge pin of the key.

**[0009]** It is an object of the present invention to provide a key-holder with a retractable key, in particular for a vehicle lock, designed to provide a straightforward, low-cost solution to the above problems, and which, in particular, is straightforward and compact.

**[0010]** According to the present invention, there is provided a key-holder as defined in claim 1.

**[0011]** A non-limiting embodiment of the invention will be described by way of example with reference to the accompanying drawings, in which:

Figure 1 shows a view in perspective of a key-holder with a retractable key, in particular for a vehicle lock;
Figures 2 and 3 show larger-scale views in perspective, with parts removed for clarity, of a number of component parts of the Figure 1 key-holder;
Figures 4 and 5 show in larger-scale views, in perspective, and with parts removed for clarity, a preferred embodiment of the key-holder with a retractable key, in particular for a vehicle lock, according to the present invention.

**[0012]** Number 1 in Figure 1 indicates a key-holder comprising a retractable key 2, in particular for a vehicle lock (not shown).

**[0013]** Key-holder 1 comprises a supporting body 3 elongated in a straight direction 5 and defining a lateral recess 4, which is outwardly open and communicates with an outwardly open front cavity 6 of body 3.

**[0014]** With reference to Figures 1 to 3, body 3 defines an inner chamber 7 housing a remote control (not shown), and comprises two half-shells 8, 9 fixed to each other in conventional manner not shown, e.g. by click-on fasteners and/or one or more screws screwed into respective threaded seats 11 (Figure 3).

**[0015]** Half-shells 8, 9 comprise respective walls 12, 13 facing each other and spaced apart in a direction perpendicular to walls 12, 13. And half-shell 9 comprises an annular wall 15, which projects in one piece from wall 13, defines chamber 7 laterally, is fitted in fluidtight manner along one edge to half-shell 8, and comprises a front portion 16 outwardly defining cavity 6.

**[0016]** Half-shell 9 also comprises two pins 17, 18, which project in one piece from wall 13, inside cavity 6, along respective parallel axes 19, 20 spaced apart and perpendicular to direction 5, and are aligned axially with a pin 21 and an opening 22, respectively, forming part of half-shell 8.

**[0017]** Pins 17 and 21 define a hinge to allow key 2 to rotate, about axis 19 and by a predetermined angle, in particular of 180°, between an extracted position and a withdrawn position (not shown). Key 2 comprise a flat shaped stem, which lies substantially in a plane parallel to axis 19; and a base or drum 24, integrally connected to an end 23 of the stem. In the extracted position, the stem of key 2 projects in direction 5 with respect to the body 3 for insertion inside a lock; in the withdrawn position, the stem of key 2 is located alongside body 3 and housed inside recess 4.

**[0018]** Drum 24 at least partly engages cavity 6 and has an axial through hole 25 to fit in rotary and axially fixed manner onto pins 17, 21. Drum 24 is bounded by two substantially flat surfaces 26, 27 resting on walls 12, 13 respectively, and by a curved convex lateral surface 28 facing portion 16. More specifically, an elastic device (not shown) is interposed between drum 24 (or the stem) and body 3, and is preloaded to push key 2 into the extracted position.

**[0019]** Key-holder 1 also comprises an angular retaining device 30 for retaining key 2 in the withdrawn position in opposition to said elastic device; and a release button 31, which extends along axis 20, and, when pressed

manually, is movable axially with respect to body 3 from a raised rest position to a lowered release position to release device 30 and allow key 2 to be rotated automatically into the extracted position by the elastic device.

**[0020]** More specifically, device 30 is at least partly carried by button 31, and provides for retaining key 2 even when key 2 is in the extracted position. Key 2 is therefore restored to the withdrawn position by pressing button 31 to release key 2; pushing the stem of key 2, in opposition to the reaction of the elastic device, into the withdrawn position, while keeping button 31 pressed; and, finally, releasing button 31 to re-engage device 30.

**[0021]** Button 31 comprises a disk-shaped head 32 defining a circular outer surface 33; and a rod 34, which extends along axis 20 from head 32, on the opposite side to surface 33, and through opening 22.

**[0022]** At the opposite end to head 32, rod 34 terminates with an axially hollow portion 35, which is engaged and guided by pin 18, is located alongside drum 24, between surface 28 and portion 16, and houses a spring (not shown) interposed axially between head 32 and pin 18 to push button 31 into the raised position.

**[0023]** Rod 34 is maintained in a fixed angular position with respect to body 3 by a lock device 37 comprising two flat faces 38, 39 resting on each other : face 38 radially defines one side of rod 34, and face 39 defines an appendix 40 forming part of half-shell 9.

**[0024]** Device 30 comprises two diametrically-opposite slots 43, 44 on drum 24; and a tooth 42 carried by button 31 and located alongside portion 35 in a radial direction 45. When button 31 is raised, tooth 42 selectively engages slots 43, 44 to retain key 2 in the extracted and withdrawn position respectively.

**[0025]** In the Figure 2 embodiment, tooth 42 extends in one piece directly from portion 35, and slots 43, 44 are formed along an edge 46 joining surfaces 27, 28. In the Figure 4 and 5 variation, tooth 42 extends parallel to axis 20 towards head 32 from a radial arm 48, which in turn extends in one piece from portion 35, projects axially with respect to portion 35, and axially faces edge 46; and slots 43, 44 are formed in surface 27 and radially inwards of edge 46.

**[0026]** With reference to Figure 3, when button 31 is pressed down, tooth 42 releases slot 43, 44 to permit rotation of key 2, and, together with portion 35, engages a recess 47 formed on wall 13. Once key 2 is rotated 180°, button 31 is pushed back into the raised position by the spring housed in portion 35, and tooth 42 engages the other slot 44, 43. In the Figure 4 and 5 variation, recess 47 comprises a through opening 49 to permit downward movement of arm 48.

**[0027]** As shown in Figure 2, opening 22 is defined by a slot, which is bounded by a lateral wall 22a forming part of half-shell 8 and extending in one piece crosswise to wall 12. In a radial direction 50 perpendicular to direction 45, slot 22 is shaped and large enough to permit axial insertion, during assembly, of portion 35, tooth 42, and another diametrically-opposite tooth 52 carried by rod 34. More specifically, in direction 50, slot 22 comprises two portions 51, diametrically opposite with respect to rod 34, to permit insertion of respective teeth 42, 52 during assembly.

**[0028]** In the Figure 2 condition, tooth 52 rests tangentially against a shoulder 22b defined by wall 22a, and rests axially against a shoulder 22c also defined by wall 22a. Engagement of shoulder 22c by tooth 52 defines the fully raised position of button 31.

**[0029]** Portions 51 are engaged respectively by the ends of appendix 40 and a diametrically-opposite appendix 53. Appendixes 40, 53 extend in one piece from wall 13, and are positioned alongside rod 34 and aligned with head 32.

**[0030]** Wall 22a is aligned with teeth 42, 52 in a direction parallel to axis 20 to prevent withdrawal of button 31 during assembly. More specifically, key-holder 1 is assembled by:

- fitting drum 24 onto pin 21 so that it rests on wall 12, with key 2 in the extracted position and the elastic device preloaded;
- inserting portion 35, with teeth 42, 52, axially inside slot 22 so that head 32 rests on wall 12;
- rotating button 31, by sliding tooth 42 over edge 46 on surface 27, so that tooth 52 rests tangentially against shoulder 22b;
- axially inserting tooth 42 inside slot 43 (if head 32 is kept facing downwards, insertion is automatic by force of gravity) so that tooth 52 rests axially on shoulder 22c;
- inserting the spring inside the axial cavity of portion 35;
- fitting half-shell 9 to half-shell 8 by inserting pin 17 inside hole 25, compressing the spring by means of pin 18, and inserting the ends of appendixes 40, 53 inside portions 51.

**[0031]** Alternatively, button 31 may be inserted first inside opening 22, and drum 24 then inserted between tooth 42 and wall 12.

**[0032]** As shown in Figure 1, button 31 is far enough away from the edges of body 3 to form a relatively large surface 33 on which to apply or stamp a trademark or logo. By virtue of the location of axis 20, key-holder 1 is therefore much more aesthetically pleasing than known solutions in which the release button is coaxial with the hinge axis of the key.

**[0033]** The attractiveness of the key-holder is also enhanced by button 31 being angularly fixed with respect to body 3, so that the trademark or logo on surface 33 is always oriented the same way. Moreover, in the Figure 4 and 5 variation, slots 43, 44 are concealed at all times by wall 13.

**[0034]** Not being coaxial with drum 24, button 31 can be located as required, and may be customized, by being angularly fixed and independent of the shape of drum 24. In particular, button 31 need not necessarily be cir-

cular in shape to permit rotation.

**[0035]** Key-holder 1 comprises relatively few component parts, and is relatively easy to assemble, mainly on account of tooth 42, for angularly locking drum 24, being carried by button 31, and by virtue of the design of opening 22 and rod 34.

**[0036]** Though the Figure 1-3 solution is more compact and has fewer restrictions in terms of geometry and design, the Figure 4 and 5 variation provides for concealing slots 43, 44.

**[0037]** As will be clear from the above description, key-holder 1 is also relatively compact and easy to use.

**[0038]** Clearly, changes may be made to key-holder 1 as described herein without, however, departing from the scope of the present invention as defined in the accompanying Claims. In particular, device 30 may only lock key 2 angularly in the withdrawn position.

**[0039]** Also, head 32 and surface 33 need not necessarily be circular, as shown.

## Claims

**1.** A key-holder (1) comprising:

a) a supporting body (3);
b) a key (2) hinged to said supporting body (3) to rotate about a hinge axis (19) between an extracted position for insertion inside a lock, in particular a vehicle lock, and a withdrawn position alongside said supporting body (3); the key comprising:

- a hinge drum (24) hinged to said supporting body (3) about said hinge axis (19), and
- a stem integrally connected to said hinge drum (24) ;

c) angular retaining means (30) for retaining said key (2) in at least one of said withdrawn and extracted positions;
d) a release button (31) movable along a release axis (20) from a raised rest position to a lowered release position to release said angular retaining means (30) and permit rotation of said key (2); said hinge axis (19) and said release axis (20) being parallel and spaced apart; said release button (31) comprising:

- a head (32) which can be manually pushed along said release axis (20), and
- a rod (34) extending from said head (32) along said release axis (20) and located alongside said hinge drum (24);

e) locking means (37) for preventing rotation of said release button (31) about said release axis (20) with respect to said supporting body (3);

said angular retaining means (30) comprising:

- at least one slot (43) carried by said hinge drum, and
- a tooth (42), which is carried by said rod (34), is located at a rod end (35) axially opposite said head (32), and engages said slot (43,44) for angularly retaining said key (2);

**characterized in that** said tooth (42) projects parallel to said release axis (20) and towards said head (32) from a radial arm (48) integral with said rod end (35).

**2.** A key-holder as claimed in Claim 1, **characterized in that** said slot (43) is located on a face (27), which defines said hinge drum (24) and is transversal to said hinge axis (19); said slot (43) being located in a position which is inner and radially spaced with respect to an edge (46) that joins said face (27) to a lateral external surface (28) of said hinge drum (24).

**3.** A key-holder as claimed in anyone of the preceding Claims, **characterized in that** said locking means (37) comprise a first and a second flat face (38,39) resting on each other; said first flat face (38) radially defining one side of said rod (34), and said second flat face (39) defining an appendix (40), which forms part of a half-shell (9) of said supporting body (3).

**4.** A key-holder as claimed in anyone of the preceding Claims, **characterized in that** said supporting body (3) comprises a first and a second half shells (8,9) comprising a first and, respectively, a second wall (12,13), which are spaced apart along said hinge and release axes (19,20); said first half shell (8) defining an opening (22), which is engaged by said release button (31) and is shaped and large enough to permit axial insertion of said rod end (35) and said tooth (42) during assembly.

**5.** A key-holder as claimed in Claim 4, **characterized in that** said first half shell (8) comprises a third wall (22a), which bounds said opening (22), extends in one piece crosswise to said first wall (12) and has a first shoulder (22c); said rod (34) carrying a radial tooth (52), which axially rests against said first shoulder (22c) when said release button (31) is located in the raised rest position.

**6.** A key holder as claims in claim 5, **characterized in that** said radial tooth (52) and said tooth are diametrically opposite; and **in that** said opening (22) comprises two lateral portions (51), which are diametrically opposite with respect to said rod (34) and permit axial insertion, respectively, of said tooth (42) and said radial tooth (52) into said opening (22) during assembly.

**7.** A key-holder as claimed in Claim 6, **characterized in that** said second half shell (8) comprises two appendixes (40, 53), which are carried by said second wall (13), are positioned alongside said rod (34), aligned with said head (32), and have respective ends engaging said lateral portions (51).

**8.** A key-holder as claimed in anyone of Claim 5 to 7, **characterized in that** said third wall (22a) has a second shoulder (22b); said radial tooth (52) resting tangentially against said second shoulder (22b).

**9.** A key-holder as claimed in anyone of claims 4 to 8, **characterized in that** said first and second half-shells (8,9) comprise respective hinge pins (21,17), which project coaxially along said hinge axis (19) from said first and, respectively, second wall (12,13).

**10.** A key-holder as claimed in anyone of the preceding Claims, **characterized in that** said supporting body (3) comprises a first and a second half shells (8,9) comprising a first and, respectively, a second wall (12,13), which are spaced apart along said hinge and release axes (19,20); said second half-shell (9) comprising a pin (18), which projects in one piece from said second wall (13); said rod end (35) being axially hollow and being engaged and guided by said pin (18).

**11.** A key-holder as claimed in Claim 10, **characterized in that** said rod end (35) houses a spring, which is interposed axially between said head (32) and said pin (18) to push said button (31) into the raised position.

**12.** A key holder as claimed in anyone of the preceding Claims, **characterized in that** said stem is flat shaped and lies substantially in a plane parallel to said hinge axis (19).

**13.** A key holder as claimed in anyone of the preceding Claims, **characterized in that** said radial arm (48) projects axially with respect to said rod end (35).

**Patentansprüche**

**1.** Schlüsselhalter (1), der Folgendes umfasst:

a) einen Stützkörper (3);
b) einen Schlüssel (2), der so an dem Stützkörper (3) angelenkt ist, dass er sich um eine Scharnierachse (19) zwischen einer ausgeklappten Position zum Einführen in ein Schloss, insbesondere ein Fahrzeugschloss, und einer eingeklappten Position entlang dem Stützkörper (3) drehen kann; wobei der Schlüssel Folgendes umfasst:

- eine Scharniertrommel (24), die an dem Stützkörper (3) um die Scharnierachse (19) herum angelenkt ist, und
- einen Dorn, der integral mit der Scharniertrommel (24) verbunden ist;

c) ein gewinkeltes Haltemittel (30) zum Halten des Schlüssels (2) in der eingeklappten und/oder der ausgeklappten Position;
d) eine Entriegelungstaste (31), die entlang einer Entriegelungsachse (20) aus einer erhöhten Ruheposition zu einer abgesenkten Entriegelungsposition bewegt werden kann, um das gewinkelte Haltemittel (30) zu lösen und eine Drehbewegung des Schlüssels (2) zu ermöglichen; wobei die Scharnierachse (19) und die Entriegelungsachse (20) parallel und voneinander beabstandet verlaufen; wobei die Entriegelungstaste (31) Folgendes umfasst:

- einen Kopf (32), der manuell entlang der Entriegelungsachse (20) gedrückt werden kann, und
- einen Stab (34), der sich von dem Kopf (32) entlang der Entriegelungsachse (20) erstreckt und neben der Scharniertrommel (24) angeordnet ist;

e) ein Verriegelungsmittel (37), um eine Drehbewegung der Entriegelungstaste (31) um die Entriegelungsachse (20) relativ zu dem Stützkörper (3) zu verhindern; wobei dass gewinkelte Haltemittel (30) Folgendes umfasst:

- zumindest einen von der Scharniertrommel gehaltenen Schlitz (43) und
- einen Zahn (42), der von dem Stab (34) getragen ist und der am Ende (35) axial gegenüberliegend von dem Kopf (32) angeordnet und in dem Schlitz (43, 44) zusammenwirkt, um den Schlüssel (2) winkelig zu halten,

**dadurch gekennzeichnet, dass** sich der Zahn (42) von einem radialen Arm (48), der integral mit dem Ende (35) ausgebildet ist, parallel zu der Entriegelungsachse (20) und in Richtung des Kopfes (32) erstreckt.

**2.** Schlüsselhalter nach Anspruch 1, **dadurch gekennzeichnet, dass** sich der Schlitz (43) an einer Fläche (27) befindet, welche die Scharniertrommel (24) definiert und quer zu der Scharnierachse (19) verläuft; und dass sich der Schlitz (43) an einer Position befindet, die innen und radial beabstandet von einer Kante (46) liegt, die sich an die Fläche (27) anschließt und zu der äußeren Seitenfläche (28) der Scharniertrommel (24) verläuft.

3. Schlüsselhalter nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** das Verriegelungsmittel (37) eine erste und eine zweite flache Fläche (38, 39) umfasst, die aneinander liegen, wobei die erste flache Fläche (38) radial eine Seite des Stabes (34) definiert und wobei die zweite flache Fläche (39) einen Fortsatz (40) definiert, der einen Teil einer Halbschale (9) des Stützkörpers (3) bildet.

4. Schlüsselhalter nach einem der vorangegangenen Ansprüche, **dadurch gekennzeichnet, dass** der Stützkörper (3) eine erste und eine zweite Halbschale (8, 9) aufweist, die eine erste und eine zweite Wand (12, 13) aufweisen, die entlang der Scharnier- und der Entriegelungsachse (19, 20) voneinander beabstandet sind; wobei die erste Halbschale (8) eine Öffnung (22) definiert, die durch die Entriegelungstaste (31) in Eingriff genommen wird und eine solche Form und Größe aufweist, dass das Ende (35) und der Zahn (42) während des Zusammenbaus axial eingeschoben werden können.

5. Schlüsselhalter nach Anspruch 4, **dadurch gekennzeichnet, dass** die erste Halbschale (8) eine dritte Wand (22a) aufweist, die an die Öffnung (22) grenzt und sich in einem Stück quer zur ersten Wand (12) erstreckt und eine erste Schulter (22c) aufweist; wobei der Stab (34) einen radialen Zahn (52) trägt, der axial gegen die erste Schulter (22c) gelagert ist, wenn die Entriegelungstaste (31) sich in der erhöhten Ruheposition befindet.

6. Schlüsselhalter nach Anspruch 5, **dadurch gekennzeichnet, dass** der radiale Zahn (52) und der Zahn diametral entgegengesetzt angeordnet sind; und dass die Öffnung (22) zwei laterale Abschnitte (51) aufweist, die diametral entgegengesetzt zu dem Stab (34) angeordnet sind und welche während des Zusammenbaus ein axiales Einschieben des Zahns und des radialen Zahns (52) in die Öffnung (22) erlauben.

7. Schlüsselhalter nach Anspruch 6, **dadurch gekennzeichnet, dass** die zweite Halbschale (8) zwei Fortsätze (40, 53) aufweist, die durch die zweite Wand (13) getragen werden und entlang des Stabes (34) mit dem Kopf (32) schluchtend angeordnet sind und jeweils Enden aufweisen, die mit den lateralen Abschnitten (51) in Eingriff stehen.

8. Schlüsselhalter nach einem der Ansprüche 5 bis 7, **dadurch gekennzeichnet, dass** die dritte Wand (22a) eine zweite Schulter (22b) aufweist und dass der radiale Zahn (52) tangential gegen die zweite Schulter (22b) gelagert ist.

9. Schlüsselhalter nach einem Ansprüche 4 bis 8, **dadurch gekennzeichnet, dass** die erste und die zweite Halbschale (8, 9) jeweilige Scharnierbolzen (21, 17) aufweisen, die koaxial entlang der Scharnierachse (19) von der ersten und zweiten Wand (12, 13) vorstehen.

10. Schlüsselhalter nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** der Stützkörper (3) eine erste und eine zweite Halbschale (8, 9) aufweist mit einer ersten und einer zweiten Wand (12, 13), die entlang der Scharnier- und der Entriegelungsachse (19, 20) voneinander beabstandet sind; wobei die zweite Halbschale (9) einen Bolzen (18) aufweist, der in einem Stück von der zweiten Wand (13) vorsteht; wobei das Ende (35) axial hohl ausgebildet und mit dem Bolzen (18) in Eingriff steht und durch diesen geführt ist.

11. Schlüsselhalter nach Anspruch 10, **dadurch gekennzeichnet, dass** das Ende (35) eine Feder aufnimmt, die axial zwischen dem Kopf (32) und dem Bolzen (18) angeordnet ist um die Taste (31) in die erhöhte Position zu drücken.

12. Schlüsselhalter nach einem der vorhergehenden Ansprüche, **dadurch gekennzeichnet, dass** der Dorn flach geformt ist und im Wesentlichen in einer Ebene parallel zur Scharnierachse (19) liegt.

13. Schlüsselhalter nach einem der vorgehenden Ansprüche, **dadurch gekennzeichnet, dass** der radiale Arm (48) axial im Verhältnis zum Stabende (35) vorsteht.

**Revendications**

1. Porte-clé (1), comprenant:

a) un corps de support (3);
b) une clé (2) disposée en charnière sur ledit corps de support (3), de façon à pouvoir tourner autour d'un axe de charnière (19) entre une position d'extraction permettant de l'insérer dans une serrure, notamment une serrure de véhicule, et une position de retrait la plaçant le long dudit corps de support (3) la clé comprenant:

- un tambour de charnière (24) disposé en charnière sur ledit corps de support (3), autour dudit axe de charnière (19), et
- un tronc solidaire dudit tambour de charnière (24);

c) des moyens de rétention angulaires (30) pour retenir ladite clé (2) dans au moins une desdites positions de retrait et d'extraction;
d) un bouton de libération (31) pouvant être dé-

placé, le long d'un axe de libération (20), d'une position supérieure d'arrêt à une position inférieure de libération, pour relâcher lesdits moyens angulaires de rétention (30) et permettre de tourner ladite clé (2); ledit axe de charnière (19) et ledit axe de libération (20) étant parallèles et espacés l'un de l'autre; ledit bouton de libération (31) comprenant:

- une tête (32) pouvant être poussée manuellement le long dudit axe de libération (20), et
- une tige (34) s'étendant de ladite tête (32) le long dudit axe de libération (20) et longeant ledit tambour de charnière (24);

e) des moyens de verrouillage (37) empêchant ledit bouton de libération (31) de se mettre en rotation autour dudit axe de libération (20), par rapport audit corps de support (3);
lesdits moyens de rétention angulaires (30) comprenant:

- au moins une encoche (43) portée par ledit tambour de charnière, et
- une dent (42), portée par ladite tige (34), qui est située à une extrémité de tige (35) axialement opposée à ladite tête (32), et qui engage ladite encoche (43, 44) afin de retenir angulairement ladite clé (2);

**caractérisé en ce que** ladite dent (42) fait saillie parallèlement audit axe de libération (20) et en direction de ladite tête (32) à partir d'un bras radial (48) intégré à ladite extrémité de tige (35).

**2.** Porte-clé selon la revendication 1, **caractérisé en ce que** ladite encoche (43) est située sur une face (27) qui définit ledit tambour de charnière (24) et est transversale audit axe de charnière (19); ladite encoche (43) étant située dans une position qui est intérieure et radialement espacée par rapport à un bord (46) qui joint ladite face (27) à une surface externe latérale (28) dudit tambour de charnière (24).

**3.** Porte-clé selon l'une quelconque des revendications précédentes, **caractérisé en ce que** lesdits moyens de verrouillage (37) comprennent une première et une deuxième faces plates (38, 39) qui reposent l'une sur l'autre; ladite première face plate (38) définissant radialement une premier côté de ladite tige (34), et ladite deuxième face plate (39) définissant un appendice (40) qui fait partie d'une demi-coque (9) dudit corps de support (3).

**4.** Porte-clé selon l'une quelconque des revendications précédentes, **caractérisé en ce que** ledit corps de support (3) comprend une première et une deuxième demi-coques (8, 9) comprenant une première et, respectivement, une deuxième parois (12, 13), qui sont espacées l'une de l'autre le long desdits axes de charnière et de libération (19, 20); ladite première demi-coque (8) définissant une ouverture (22), qui est engagée par ledit bouton de libération (31) et qui est configurée et suffisamment grande pour permettre une insertion axiale de ladite extrémité de tige (35) et de ladite dent (42) pendant l'assemblage.

**5.** Porte-clé selon la revendication 4, **caractérisé en ce que** ladite première demi-coque (8) comprend une troisième paroi (22a), qui délimite ladite ouverture (22), s'étend d'une seule pièce transversalement à ladite première paroi (12) et comporte un premier épaulement (22c); ladite tige (34) portant une dent radiale (52), qui repose axialement contre ledit premier épaulement (22c) lorsque ledit bouton de libération (31) est situé dans la position supérieure d'arrêt.

**6.** Porte-clé selon la revendication 5, **caractérisé en ce que** ladite dent radiale (52) et ladite dent sont diamétralement opposées; et **en ce que** ladite ouverture (22) comprend deux parties latérales (51), qui sont diamétralement opposées par rapport à ladite tige (34) et qui permettent une insertion axiale, respectivement, de ladite dent (42) et de ladite dent radiale (52) dans ladite ouverture (22) pendant l'assemblage.

**7.** Porte-clé selon la revendication 6, **caractérisé en ce que** ladite deuxième demi-coque (8) comprend deux appendices (40, 53), qui sont portés par ladite deuxième paroi (13), qui sont positionnés le long de ladite tige (34), qui sont alignés avec ladite tête (32) et qui présentent des extrémités respectives engagées avec lesdites parties latérales (51).

**8.** Porte-clé selon l'une quelconque des revendications 5 à 7, **caractérisé en ce que** ladite troisième paroi (22a) comporte un deuxième épaulement (22b); ladite dent radiale (52) reposant tangentiellement contre ledit deuxième épaulement (22b) .

**9.** Porte-clé selon l'une quelconque des revendications 4 à 8, **caractérisé en ce que** lesdites première et deuxième demi-coques (8, 9) comprennent des broches de charnière respectives (21, 17), qui font saillie coaxialement le long dudit axe de charnière (19) à partir de la première et, respectivement, deuxième parois (12, 13).

**10.** Porte-clé selon l'une quelconque des revendications précédentes, **caractérisé en ce que** ledit corps de support (3) comprend une première et une deuxième demi-coques (8, 9) comprenant une première et, respectivement, une deuxième parois (12, 13), qui sont

espacées l'une de l'autre le long desdits axes de charnière et de libération (19, 20); ladite deuxième demi-coque (9) comprenant une broche (18), qui fait saillie d'une seule pièce à partir de ladite deuxième paroi (13); ladite extrémité de tige (35) étant axialement creuse et étant engagée et guidée par ladite broche (18).

**11.** Porte-clé selon la revendication 10, **caractérisé en ce que** ladite extrémité de tige (35) contient un ressort, qui est interposé axialement entre ladite tête (32) et ladite broche (18) afin de pousser ledit bouton (31) dans la position supérieure.

**12.** Porte-clé selon l'une quelconque des revendications précédentes, **caractérisé en ce que** ledit tronc est de forme plate et est situé sensiblement dans un plan parallèle audit axe de charnière (19).

**13.** Porte-clé selon l'une quelconque des revendications précédentes, **caractérisé en ce que** ledit bras radial (48) fait saillie axialement par rapport à ladite extrémité de tige (35).

FIG. 1

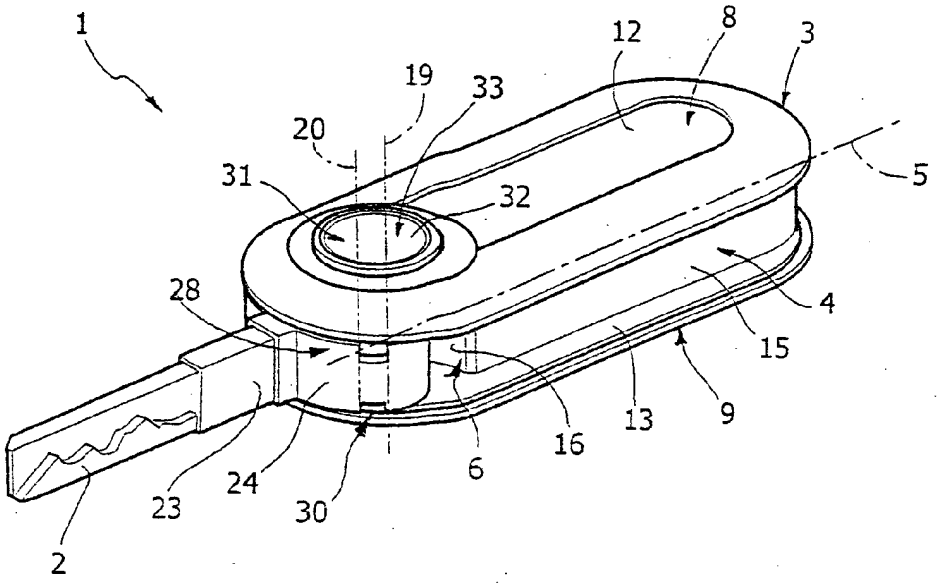

1
12
8
3
19
33
20
31
32
5
28
4
15
16
13
9
6
23
24
30
2

FIG. 3

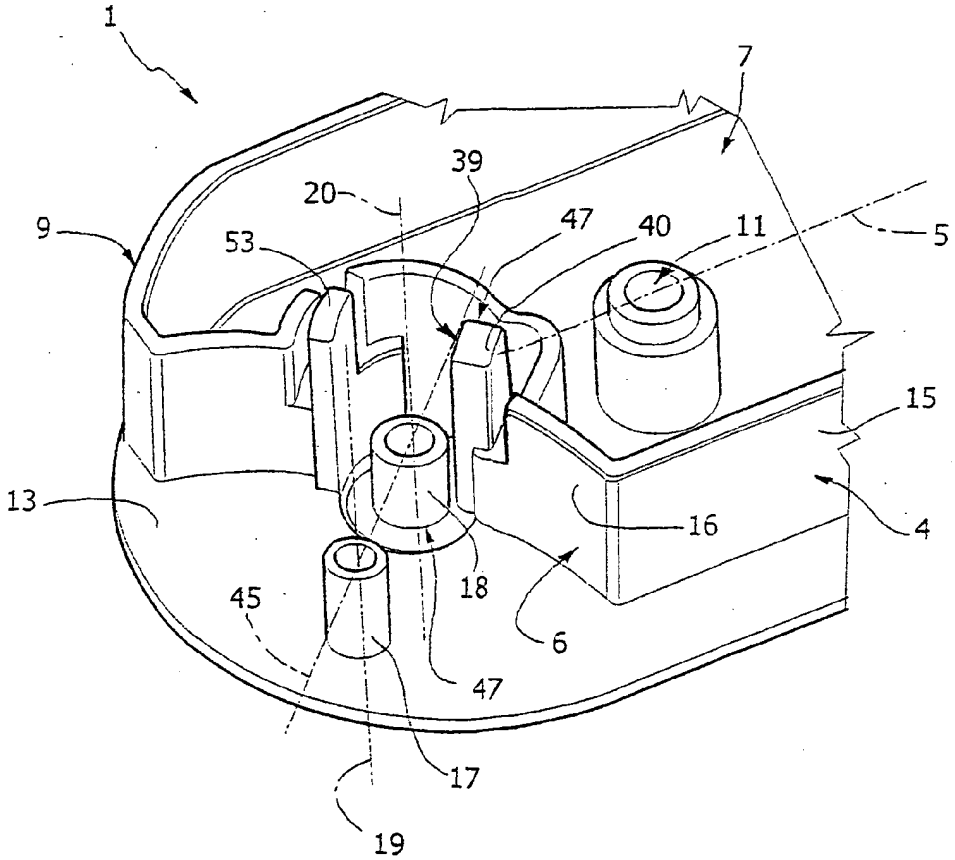

1
7
39
20
9
53
47
40
11
5
15
13
16
4
18
6
45
47
17
19

FIG. 2

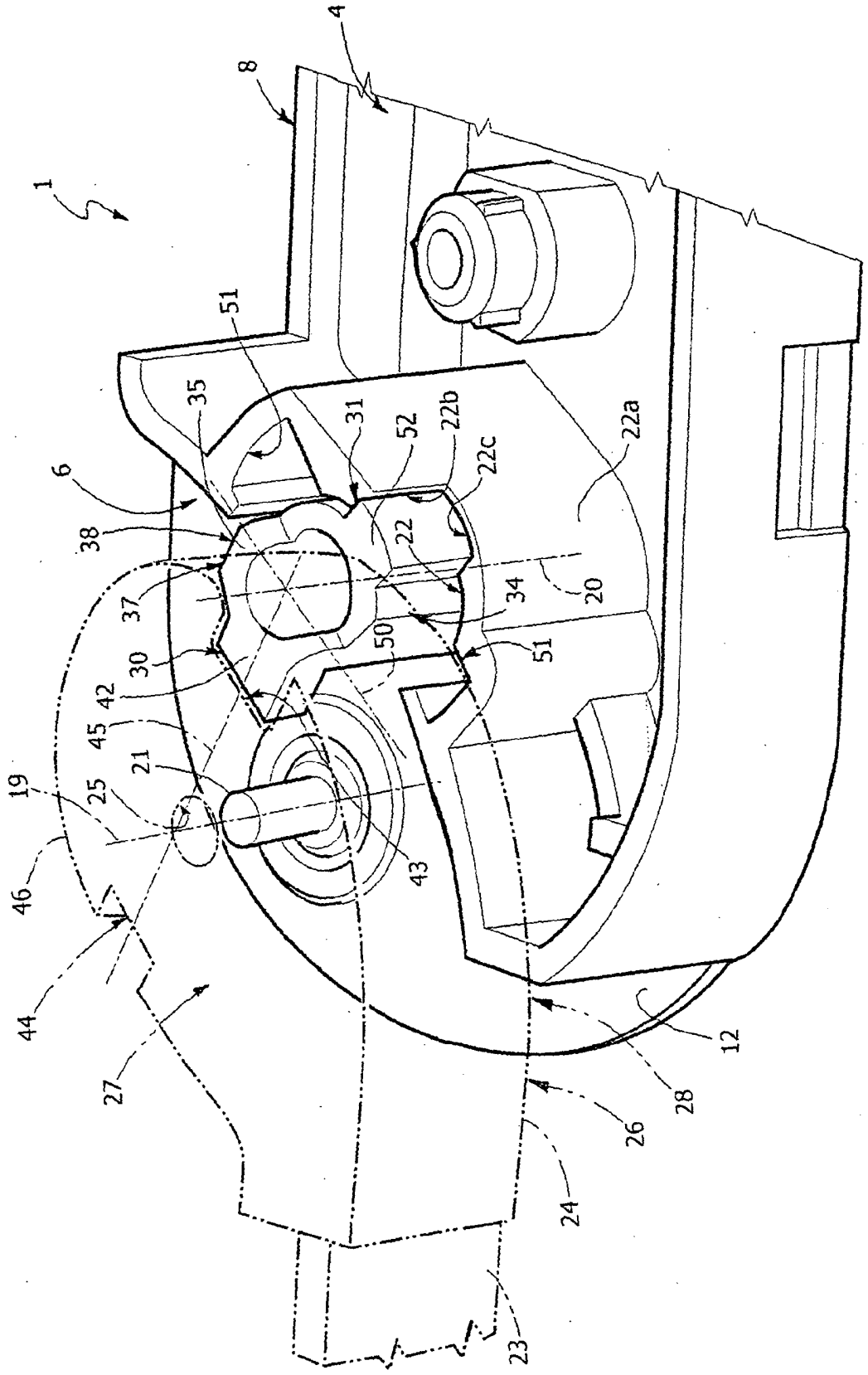

1
4
8
51
35
31
52
22b
22c
22a
6
38
22
34
20
37
50
51
30
42
45
21
19
25
43
46
44
27
12
28
26
24
23

FIG. 4

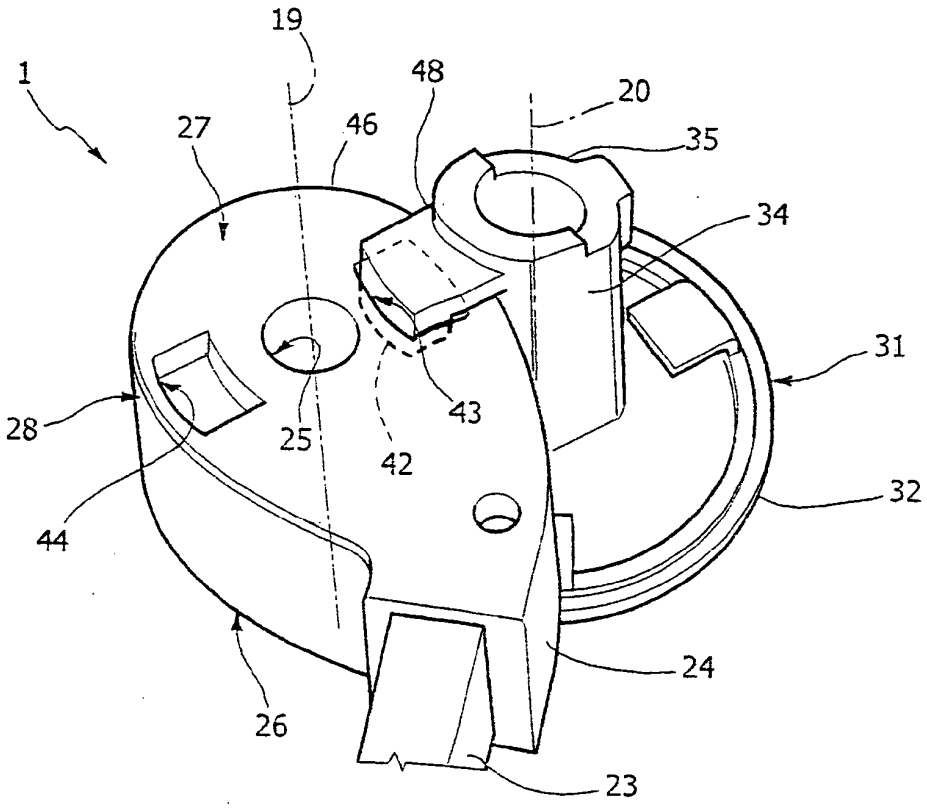
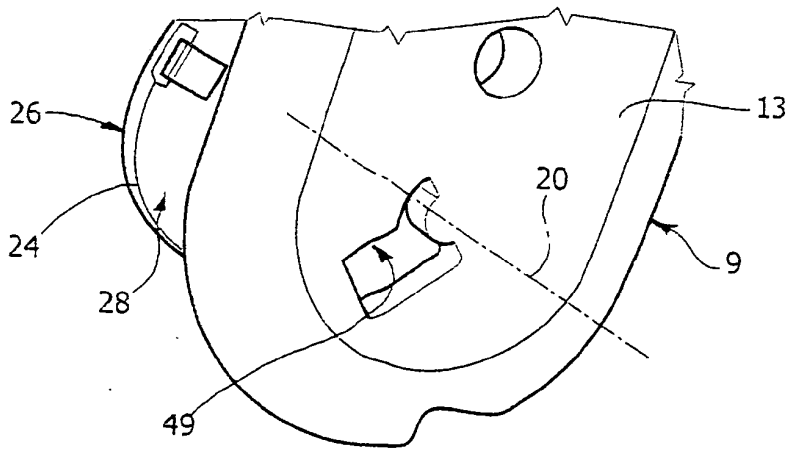



FIG. 5



## REFERENCES CITED IN THE DESCRIPTION

*This list of references cited by the applicant is for the reader's convenience only. It does not form part of the European patent document. Even though great care has been taken in compiling the references, errors or omissions cannot be excluded and the EPO disclaims all liability in this regard.*

### Patent documents cited in the description


- WO 2005108721 A2 **[0008]**