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

(11) **EP 2 778 321 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
30.11.2016 Bulletin 2016/48

(51) Int Cl.:
E05B 17/18 *(2006.01)* ***E05B 13/04*** *(2006.01)*
E05B 17/14 *(2006.01)*

(21) Application number: **14158993.7**

(22) Date of filing: **11.03.2014**

(54) **Protection device for locks**

Schutzvorrichtung für Zylinderschlösser

Dispositif de protection pour mécanisme de serrure à cylindre

(84) Designated Contracting States:
AL AT BE BG CH CY CZ DE DK EE ES FI FR GB GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO PL PT RO RS SE SI SK SM TR

(30) Priority: **13.03.2013 IT GE20130031**

(43) Date of publication of application:
17.09.2014 Bulletin 2014/38

(73) Proprietors:
- **Bozzano, Simone**
  15010 Prasco (AL) (IT)
- **Bozzano, Cristian**
  15010 Prasco (AL) (IT)

(72) Inventor: **Bozzano, Simone**
15010 Prasco (AL) (IT)

(74) Representative: **Karaghiosoff, Giorgio Alessandro**
Studio Karaghiosoff e Frizzi S.r.l.
Via F. Baracca 1R 4° piano
17100 Savona (IT)

(56) References cited:
DE-U1- 8 701 770
US-A- 3 630 053
US-A- 3 882 702
US-A1- 2010 326 149

EP 2 778 321 B1

Printed by Jouve, 75001 PARIS (FR)

Description

[0001] The present invention relates to a safety and protection device for door locks.

[0002] Locks currently on the market have reached considerably important and safe technological levels, but the problem is that however even the most sophisticated locks can be subjected to tampering by expert housebreakers, by means of particular instruments such as picklocks, even electric ones, which can open each type of door within a relatively short time.

[0003] From US 3,630,053 a safety lock construction to prevent tampering is known, it discloses a casing and a key-operated cylinder together with associated key-operated tumbler elements, the cylinder having a key insert face, in combination with a safety assembly against "picking" of the lock and comprising a bar-like member slidingly mounted in a passageway of the casing offset from the cylinder, a head construction carried by the bar-like member and adapted to engage and rotate a key entering said key insert face of the cylinder, said bar-like member being movable to an inward position in the casing at which it blocks said key insert face, a safety lock tumbler movable in a passage in the casing and also movable into a cylinder seat and a seat in the bar-like member by rotation of the cylinder, said safety lock tumbler locking the cylinder in outward positions of said bar-like member and until the head of the latter is positioned in blocking of the key insert face of the cylinder.

[0004] The aim of the present invention is to provide for an alternative protection device.

[0005] The present invention achieves the above aims by providing a safety and protection device for door locks comprising:

> a plate positioned on the lock, which plate provides an aperture provided at the hole of the lock, there being provided a slide intended to be placed between two limit stop positions, of which a first position and a second position, the slide being movable in a direction parallel to the door.

[0006] The slide has a slit such that when the slide is in the first position it prevents the key from being used for opening the door and it prevents the lock from being accessed.

[0007] Moreover the slide comprises a structure rotatable about an axis perpendicular to the door, which has a slit, such that when the slide is in the second position the key inserted into the lock is housed at least partially inside the structure such to rotate by rotating said structure.

[0008] The structure comprises a knob inside which knob a turret is housed, inside which turret a core is housed, the knob being coupled to the core, such that the rotation of the knob about an axis perpendicular to the door causes the core to rotate.

[0009] According to a possible embodiment the turret is made as one piece with said slide.

[0010] The structure, as it will be described by some shown embodiments, can be made in a manner different than what mentioned above.

[0011] According to a variant embodiment the structure is formed without the core, the structure providing the knob inside which the turret is housed, the turret being coupled to the knob such that the rotation of the knob about an axis perpendicular to the door causes the turret to rotate.

[0012] Advantageously the plate can have a frame placed around the aperture, such that the slide moves inside the space identified by the frame.

[0013] According to an improvement, the plate is fastenable to a further plate by means of fastening members.

[0014] According to a possible embodiment the slide, in its lower part is provided with a slot, at the slit intended to contain the shape of the revolving plug of the cylinder previously arranged for the coupling.

[0015] Preferably the present invention relates to a metal device or the like for protecting locks.

[0016] Particularly the device is composed of a base plate made of metal with a frame on it containing a second plate, with a reduced size, said plate is called as slide since it can slide inside the frame in its longitudinal direction.

[0017] The slide is provided with a slit at its center in the longitudinal direction, such slit continues in the side of the tube-like cylinder placed perpendicularly at one end of the slide, that we called as turret; the turret passes through the thickness of the slide forming a single body, at its top said turret is partially closed and at its center it has a hole. Said turret inside contains the core that completely takes the space thereof, maintaining the possibility of rotating and it goes out from the turret through the above mentioned hole by a short shank at one end thereof, while at the opposite end it has a slit passing through it by the center; the outside of the turret is contained in the knob, which is also provided with a slit in its side statically corresponding with the resulting slit in said core since they are firmly connected with each other by means of threaded parts, this creates such a condition that the knob and the core have equally the ability to rotate, the knob outside the turret and the core inside the turret.

[0018] From what just disclosed it is noted that no objects intended for tampering can be used, since said device prevents any objects from rotating except for its key and the head thereof inserted into the KTC (knob/turret/core) arrangement.

[0019] Moreover the device of the present invention can also be produced with materials different from each other, for example it can be partially made of plastic material and partially of metal material, that is some components are of plastic material and other ones are made of metal material.

[0020] In order to have a proper operation, the head of the key has to be inserted into the knob, therefore at the center of the KTC (Knob/turret/core) arrangement.

[0021] Particularly the key has to be inserted into the KTC arrangement by moving the slide within the frame in its longitudinal direction.

[0022] The operation is guaranteed by the fact that the knob and the core have the slits that perfectly fit with each other and by rotating they coincide with the slit, allowing the key to be inserted into the arrangement (KTC).

[0023] The invention will be now described by way of example and not as a limitation with the aim of satisfying the validity of the project.

[0024] Fig. 1 shows the device as a whole, in which the knob is in the position A and it shows the key inserted into the slit 5 of the slide 3, clearly unable to rotate.

[0025] Fig.2 shows the knob in the position B obtained by moving the slide, wherein the key, by sliding in the slit 5, is inserted into the knob 10, in which there is the turret, that in turn contains the core; the core and the knob are firmly connected with their slits that perfectly fit with each other but are free to be manually rotated one outside of and the other one inside of the turret.

[0026] The key that got inserted into the KTC (knob/turret/core) arrangement achieves the possibility of rotating, therefore moving the mechanism of the lock consequently opening of the door.

[0027] Fig.3 shows an exploded view of the mechanism wherein 1 is the base plate, with the frame 2 containing the slide 3 firmly connected thereto, 4 is the turret, which forms a single body with the slide, 5 is the unique slit between the slide and the turret, 6 is the core having the slit 7 that passes through it in the center, 8 is the shank of the core, which is connected, at the top of the turret, through the aperture 9, to the knob 10 by means of the threaded pin 12 and the threaded hole 13 of the core (fig.4), 11 is the slit of the knob, 14 is the counterplate for fastening the device by means of screws 15 connected to the studs 16, 17 is the centering aperture with the lock cylinder. The TAB. 2 shows a second model wherein the turret 4 is not a single body with the slide 3 but it can rotate since its base is provided with the flange 4a which is received in the seat 4b, formed in the thickness of the slide, it defines the stability and compactedness when it is placed inside the frame.

[0028] The turret is not hollow inside it, but it is solid and provided with the slit 5a that passes through it by the center without coming out from the opposite side, the turret is also provided with a threaded hole 13a at the opposite end that allows the knob to be positioned by means of the threaded pin 12.

Claims

1. Safety and protection device for door locks, comprising :

   a plate (1) positioned on the lock, which plate provides an aperture (17) provided at the hole of the lock,
   there being provided a slide (3) intended to be placed between two limit stop positions, of which a first position (A) and a second position (B), the slide (3) being movable in a direction parallel to the door, which slide (3) has a slit (5) such that when the slide (3) is in the first position (A) it prevents the key from being used for opening the door and it prevents the lock from being accessed,
   the slide (3) comprising a structure rotatable about an axis perpendicular to the door, which structure has a slit, such that when the slide (3) is in the second position (B) the key inserted into the lock is housed at least partially inside the structure such to rotate by rotating said structure,
   said structure comprising a knob (10) inside which knob (10) a turret (9) is housed, inside which turret a core (6) is housed, the knob (10) being coupled to said core (6), such that the rotation of the knob (10) about an axis perpendicular to the door causes the core (6) to rotate.

2. Device according to claim 1, wherein said turret (9) is made as one piece with said slide (3).

3. Safety device according to claim 1, wherein said structure is formed without said core (6), said structure providing the knob (10) inside which knob (10) the turret (9) is housed, the turret (9) being coupled to the knob (10) such that the rotation of the knob (10) about an axis perpendicular to the door causes the turret (9) to rotate.

4. Device according to one or more of the preceding claims, wherein the plate (1) has a frame (2) placed around said aperture (17), such that said slide (3) moves inside the space identified by said frame (2).

5. Device according to one or more of the preceding claims, wherein said plate (1) is fastenable to a further plate (14) by means of fastening members (15, 16).

6. Device according to one or more of the preceding claims, wherein the slide (3) in its lower part is provided with a slot (5b), at the slit (5) intended to contain the shape of the revolving plug of the cylinder previously arranged for the coupling.

Patentansprüche

1. Sicherheits- und Schutzvorrichtung für Türschlösser, die Folgendes umfasst:

   eine Platte (1), die an dem Schloss positioniert

ist, wobei die Platte eine Öffnung (17) aufweist, die am Loch des Schlosses angeordnet ist,
wobei ein Schieber (3) vorhanden ist, der dafür vorgesehen ist, zwischen zwei Begrenzungsstopp-Positionen angeordnet zu werden, von denen eine erste Position (A) und eine zweite Position (B) ist, wobei der Schieber (3) in einer Richtung parallel zu der Tür beweglich ist, wobei der Schieber (3) einen solchen Schlitz (5) hat, dass, wenn der Schieber (3) in der ersten Position (A) ist, er verhindert, dass der Schlüssel zum Öffnen der Tür verwendet werden kann, und er einen Zugang zu dem Schloss verhindert, wobei der Schieber (3) eine Struktur umfasst, die um eine Achse gedreht werden kann, die senkrecht zu der Tür verläuft, wobei die Struktur einen solchen Schlitz hat, dass, wenn der Schieber (3) in der zweiten Position (B) ist, der in das Schloss gesteckte Schlüssel mindestens teilweise im Inneren der Struktur aufgenommen ist, dergestalt, dass er sich dreht, indem die Struktur gedreht wird,
wobei die Struktur einen Knauf (10) umfasst, wobei sich im Inneren des Knaufs (10) ein Revolverkopf (9) befindet, wobei sich im Inneren des Revolverkopfes ein Kern (6) befindet, wobei der Knauf (10) mit dem Kern (6) gekoppelt ist, so dass die Rotation des Knaufs (10) um eine Achse, die senkrecht zu der Tür verläuft, bewirkt, dass sich der Kern (6) dreht.

2. Vorrichtung nach Anspruch 1, wobei der Revolverkopf (9) einstückig mit dem Schieber (3) ausgebildet ist.

3. Sicherheitsvorrichtung nach Anspruch 1, wobei die Struktur ohne den Kern (6) ausgebildet ist, wobei die Struktur den Knauf (10) umfasst, wobei in dem Knauf (10) der Revolverkopf (9) untergebracht ist, wobei der Revolverkopf (9) so mit dem Knauf (10) gekoppelt ist, dass die Rotation des Knaufs (10) um eine Achse, die senkrecht zu der Tür verläuft, bewirkt, dass sich der Revolverkopf (9) dreht.

4. Vorrichtung nach einem oder mehreren der vorangehenden Ansprüche, wobei die Platte (1) einen Rahmen (2) hat, der so um die Öffnung (17) herum angeordnet ist, dass sich der Schieber (3) im Inneren des Raumes bewegt, der durch den Rahmen (2) vorgegeben wird.

5. Vorrichtung nach einem oder mehreren der vorangehenden Ansprüche, wobei die Platte (1) mittels Befestigungselementen (15, 16) an einer weiteren Platte (14) angebracht werden kann.

6. Vorrichtung nach einem oder mehreren der vorangehenden Ansprüche, wobei der Schieber (3) in seinem unteren Teil mit einer Nut (5b) an dem Schlitz (5) versehen ist, die dafür vorgesehen ist, die Form des Drehbolzens des Zylinders aufzunehmen, der zuvor für die Kopplung vorgesehen war.

Revendications

1. Dispositif de sécurité et de protection pour serrures de portes,
comprenant :

une plaque (1) placée sur la serrure, ladite plaque comportant une ouverture (17) située au niveau du trou de la serrure,
une coulisse (3) étant destinée à être placé entre deux positions de fin de course, dont une première position (A) et une seconde position (B), la coulisse (3) étant mobile dans une direction parallèle à la porte, ladite coulisse (3) comportant une fente (5) de façon que, lorsque la coulisse (3) est dans la première position (A) elle empêche à la clé d'être utilisée pour ouvrir la porte et empêche tout accès à la serrure,
la coulisse (3) comprenant une structure pouvant tourner autour d'un axe perpendiculaire à la porte, ladite structure comportant une fente de façon que, lorsque la coulisse (3) est dans la seconde position (B), la clé insérée dans la serrure est logée au moins en partie à l'intérieur de la structure, de manière a tourner en réponse à la rotation de ladite structure,
ladite structure comprenant un bouton (10), une tourelle (9) étant logée à l'intérieur dudit bouton (10), un noyau (6) étant logé à l'intérieur de ladite tourelle, le bouton (10) étant accouplé audit noyau (6), de façon que la rotation du bouton (10) autour d'un axe perpendiculaire à la porte engendre la rotation du noyau (6).

2. Dispositif selon la revendication 1, dans lequel ladite tourelle (9) est formée en une seule pièce avec ladite coulisse (3).

3. Dispositif de sécurité selon la revendication 1, dans lequel ladite structure est formée sans ledit noyau (6), ladite structure comportant le bouton (10), ladite tourelle (9) étant logée à l'intérieur du bouton (10), la tourelle (9) étant accouplée au bouton (10) de façon que la rotation du bouton (10) autour d'un axe perpendiculaire à la porte engendre la rotation de la tourelle (9).

4. Dispositif selon une ou plusieurs des revendications précédentes, dans lequel la plaque (1) comporte un cadre (2) placé autour de ladite ouverture (17), de façon que ladite coulisse (3) se déplace à l'intérieur de l'espace défini par ledit cadre (2).

5. Dispositif selon une ou plusieurs des revendications précédentes, dans lequel ladite plaque (1) peut être fixée à une autre plaque (14) au moyen d'éléments de fixation (15, 16).

6. Dispositif selon une ou plusieurs des revendications précédentes, dans lequel la coulisse (3) est munie d'une rainure (5b) dans sa partie inférieure, au niveau de la fente (5) destinée à contenir la forme du panneton tournant du cylindre préparé préalablement à l'accouplement.

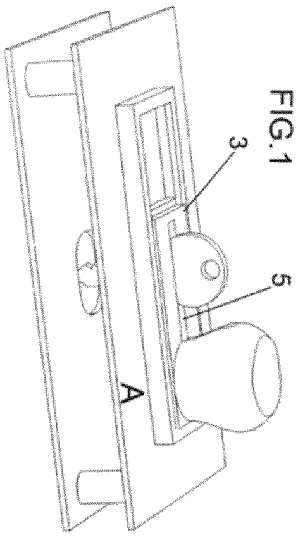

FIG.1

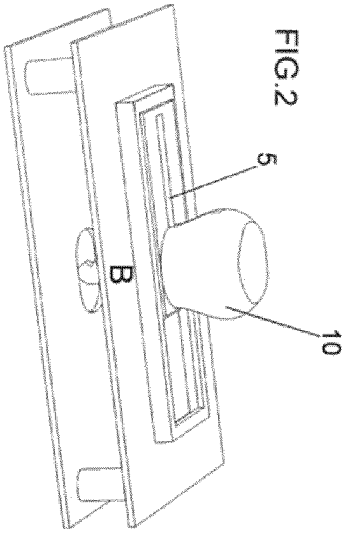

FIG.2

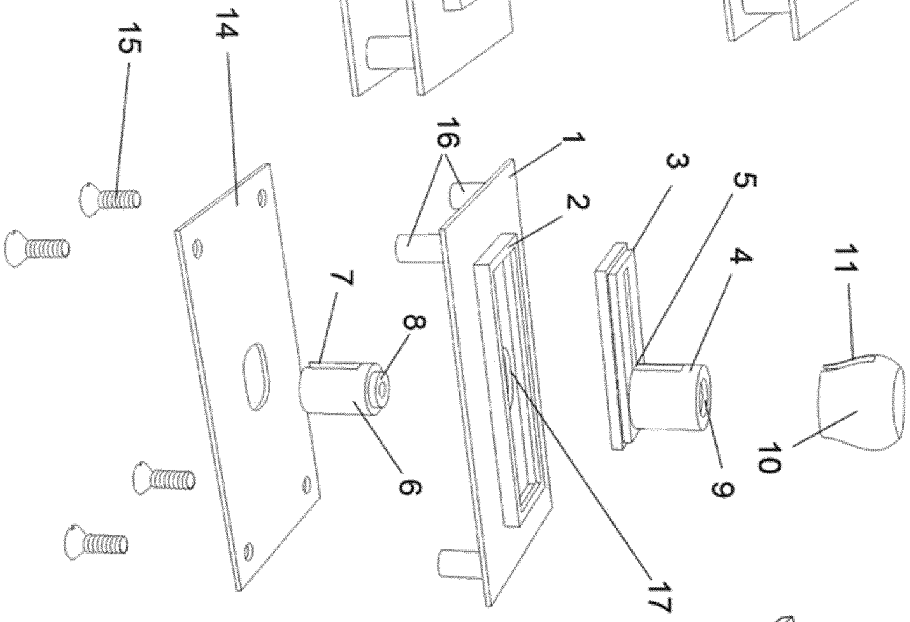

FIG.3

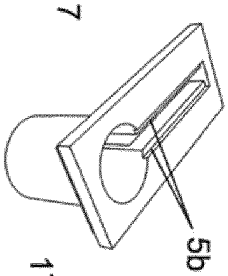

FIG.3a

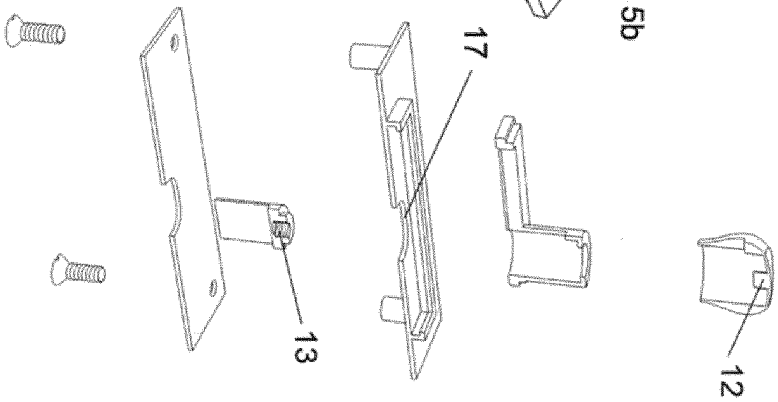

FIG.4

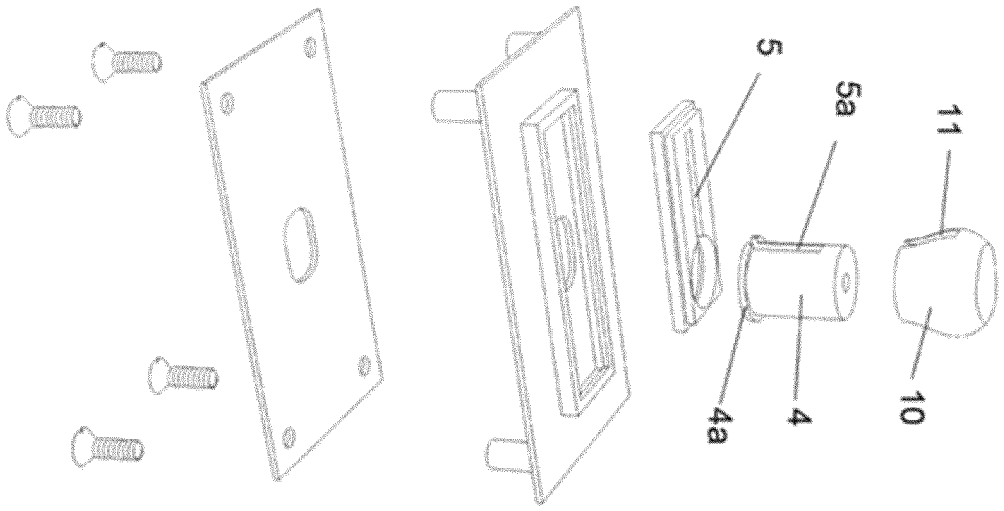

Fig. 5

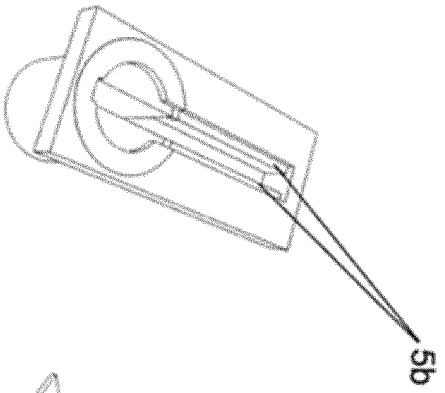

Fig. 6

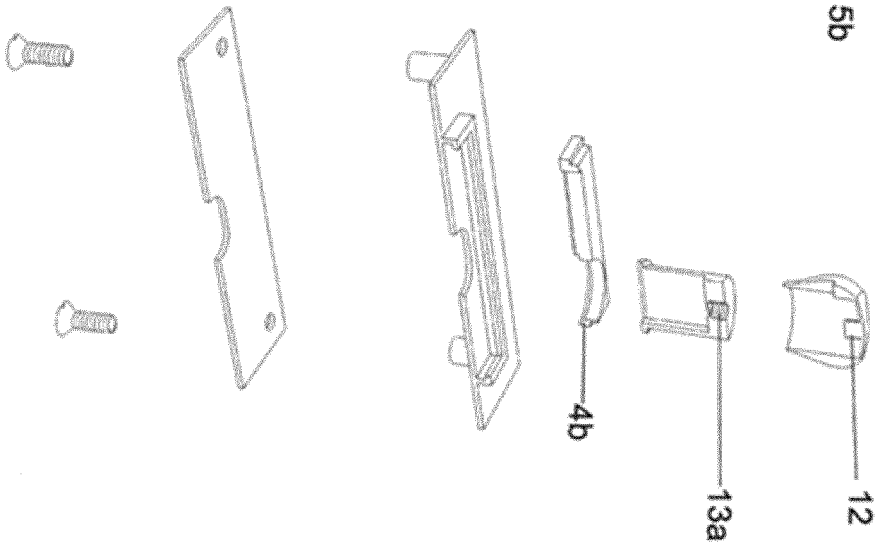

Fig. 7

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

- US 3630053 A **[0003]**