(19) Europäisches Patentamt
European Patent Office
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(11) **EP 2 989 272 B1**

(12) **EUROPEAN PATENT SPECIFICATION**

(45) Date of publication and mention of the grant of the patent:
31.05.2017 Bulletin 2017/22

(21) Application number: **14728809.6**

(22) Date of filing: **27.03.2014**

(51) Int Cl.:
E05B 9/04 *(2006.01)* ***E05B 17/20*** *(2006.01)*

(86) International application number:
PCT/BG2014/000015

(87) International publication number:
WO 2014/172760 (30.10.2014 Gazette 2014/44)

(54) **CYLINDER LOCK WITH A BRIDGE ELEMENT CONNECTING HOUSING PARTS**

ZYLINDERSCHLOSS MIT EINEM BRÜCKENELEMENT ZUM VERBINDEN VON GEHÄUSETEILEN

SERRURE À CYLINDRE COMPORTANT UN ÉLÉMENT PONT RELIANT DES PARTIES DE CORPS

(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: **23.04.2013 BG 240013**

(43) Date of publication of application:
02.03.2016 Bulletin 2016/09

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EP-A2- 0 281 519 **WO-A1-2006/063396**

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Printed by Jouve, 75001 PARIS (FR)

Description

Technical field

[0001] The invention relates to a cylinder lock, which can be implemented in the field of the light industry, especially in the field of the locking devices with an increased security for residential houses, public buildings etc., as well for cabinets, safes, padlocks etc., where a high degree of burglary resistance is required.

Background art

[0002] The typical double cylinder lock comprises a solid housing, in the inner and outer side of which there are mounted respectively an outer and inner core. Between both cores there is a rotating cam freely mounted in a channel formed in the housing to drive the lock elements by selectively rotation of the inner or outer core with a correct key inserted therein. It is known that by using such a cylinder lock, the central part of the housing is vulnerable to attack, because this part of the housing is usually the thinnest and therefore the weakest, because it is suited to accommodate said cam rotation, moreover therein is formed also a side bore for fixing to the lock. Should this part of the housing is broken, then the entire outer half of the cylinder lock can be removed, unless there were taken specific measures in the construction of the cylinder lock to resist this threat.

[0003] There are known a number of cylinder locks with a special construction where the housing central part under the cam is hardened, implemented as a separate element made of different than the housing part material resistant to destruction and bending. There are available both solid and modular connecting elements.

[0004] A cylinder lock [EP 0792981] is known, comprising of two separate housing parts - outer and inner, having rotatable mounted therein respectively an outer and inner cores. Between both housing parts there is mounted a cam. The outer and inner housing parts are joined by means of a solid bridge connecting element including a central thickened part with two lateral arms, as the central thickened part is disposed just below the cam and the arms are mounted in the longitudinal bores formed in both housing parts, furthermore in the central thickened part there is formed a bore for fixing to the lock. The arms of the connecting element are fixed to the housing parts in well-known manner, by means of transverse pins through transverse bores made in the arms and housing parts. However the fixing of the connecting element to the housing parts by means of pins generally reduces the cross sections of the elements and therefore the strength of the assembly, which could result in relatively easy pulling of the outer housing part from the connecting element in a forced entry.

Summary of the invention

[0005] The present invention seeks to provide an improved construction of a cylinder lock of the described modular type with reinforced central part and especially with improved construction of the bridge connecting element joining its two housing parts, with increased strength and burglary resistance, with easy installation and technological efficiency as well.

[0006] There is thus provided a cylinder lock comprising an outer and inner housing part having rotatable mounted therein respectively an outer and inner core. Between the housing parts there is mounted a cam. The housing parts are joined by means of a solid bridge connecting element comprising a central thickened portion with two lateral arms, as the central thickened portion is disposed just below the cam and the arms are mounted in longitudinal housing bores formed in the housing parts. In accordance with the invention the connecting element is fixed to the outer and inner housing parts through a screw fit by an external thread realised on its arms end portions and engaged in respective internal thread of fixing sleeves mounted in transversal slots formed in the housing parts. Furthermore, in accordance with the invention the connecting element is made of a high-strength steel.

[0007] The advantage of the cylinder lock, in accordance with the invention, consists in the realized tight screw fit of the connecting element with the both housing parts which provides a sufficient connection strength additionally reinforced by the high-strength proprieties of the connecting element's material.

Description of the figures in the drawings

[0008] The present invention is explained in details using the following enclosed drawings:

Fig. 1 represents a cross section of the cylinder lock with its basic parts in exploded view.
Fig. 2 represents a cross section of the cylinder lock with its basic parts in assembled view

Detailed description of the embodiments

[0009] In accordance with the invention, a preferred embodiment of a cylinder lock with a bridge connecting element is shown on Fig.1 and Fig.2.

[0010] A cylinder lock, comprising an outer housing part 1 and an inner housing part 2 having rotatable mounted therein respectively an outer core 3 and an inner core 4. Between the housing parts 1 and 2 there is mounted a cam 5. The housing parts 1 and 2 are joined by means of a solid bridge connecting element 6 comprising a central thickened portion 6a with two lateral arms 6b, as the central thickened portion 6a is disposed just below the cam 5 and the arms 6b are mounted in longitudinal housing bores 7 formed in the housing parts 1 and 2. In ac-

cordance with the invention the connecting element 6 is fixed to the outer and inner housing parts 1 and 2 through a screw fit by an external thread 6c realized on its arms 6b end portions and engaged in respective internal thread 9a of fixing sleeves 9 mounted in transversal slots 8 formed in the housing parts 1 and 2 as the connecting element 6 is made of a high-strength steel.

[0011] Final tightening of the screw fit is realized by means of a tightening key with two pins engaging into relevant technological openings 9b provided for this purpose, thus ensuring the tight and strong connection of the both housing parts, making enough difficult the burglary attacks and being able to meet the maximum standard requirements for burglary resistance.

[0012] In the so assembled cylinder lock, in the outer and inner housing parts 1 and 2 and in its respective outer and inner cores 3 and 4 there are disposed also details of a pin reversing mechanism recognizing the secrecy of a correct key inserted in the channel of the respective core which are not subject of the invention and are not described herein.

[0013] The invention can be used for protection against burglary attacks both in double cylinder locks and half cylinder locks, also in knob cylinder locks and in cylinder locks with special features - their implementations are equally included within the scope of the invention without size limitations and with any kind of the mounted in the cylinder lock pin reversing mechanisms for decoding the key.

Claims

1. A cylinder lock, comprising

- an outer housing part (1) with an outer core (3) rotatable mounted therein,
- an inner housing part (2) with an inner core (4) rotatable mounted therein,
- a cam (5), mounted between the housing parts (1) and (2),
- a solid bridge connecting element (6), joining the housing parts (1) and (2),
- the connecting element (6) comprises a central thickened portion (6a) with two lateral arms (6b),
- the central thickened portion (6a) is disposed just below the cam (5),
- the arms (6b) are mounted in longitudinal housing bores (7) formed in the housing parts (1) and (2),

characterized in that the connecting element (6) is fixed to the housing parts (1) and (2) through a screw fit by an external thread (6c), realized on the arms (6b) end portions, engaged in respective internal thread (9a) of fixing sleeves (9) mounted in transversal slots (8) formed in the housing parts (1) and (2).

2. A cylinder lock according to claim 1, **characterized in that** the connecting element (6) is made of a high-strength steel.

Patentansprüche

1. Ein Schließzylinder, bestehend aus:

- einem Außengehäuseteil (1) mit einem rotierend montierten Außenrotor (3),
- einem Innengehäuseteil (2) mit einem rotierend montierten Außenrotor (4),
- einem Bart (5), montiert zwischen den Gehäuseteilen (1) und (2),
- einem verbindenden einstückigen Brückenelement (6), das die Verbindung zwischen den Gehäuseteilen (1) und (2) herstellt,
- das verbindende Element (6) umfasst einen zentralen verstärkten Teil (6a) mit zwei Seitenschenkeln (6b),
- der zentrale verstärkte Teil (6a) befindet sich unmittelbar unter dem Schließbart (5),
- die Schenkel (6b) sind in längsförmigen Gehäuseöffnungen angebracht (7), die in den Gehäuseteilen (1) und (2) geformt sind,

und **dadurch gekennzeichnet** wird, dass das verbindende Element (6) fest zu den Gehäuseteilen (1) und (2) durch eine Schraubmontage mittels Außengewinde (6c), angefertigt an den Schenkelenden (6b), eingefasst in einem entsprechenden Innengewinde (9a) an Halterungshülsen (9), montiert in querverlaufende Einschnitte (8), geformt in den Gehäuseteilen (1) und (2) ist.

2. Ein Schließzylinder, gemäß Patentanspruch 1, der **dadurch gekennzeichnet** wird, dass das verbindende Element (6) aus hochfestem Stahl angefertigt worden ist.

Revendications

1. Serrure à cylindre, constituée de

- partie de boîtier extérieure (1) avec un rotor externe monté de manière rotative (3),
- partie de boîtier intérieure (2) avec un rotor interne monté de manière rotative (4),
- pouce (5), monté entre les parties de boîtier (1) et (2),
- élément de couplage monolithique de pontage (6), qui connecte les parties de boîtier (1) et (2),
- l'élément de couplage (6) comprend une partie centrale épaissie (6a) avec deux bras latéraux (6b),
- la partie centrale épaissie (6a) est situé immé-

diatement sous le pouce (5),
- les bras (6b) sont montés dans les ouvertures longitudinales du boitier(7), formées dans les parties de boîtier (1) et (2),

caractérisée en ce que, l'élément de couplage (6) est fixé sur les parties de boîtier (1) et (2) par assemblage à vis au moyen d'un filetage extérieur (6c), construit sur les parties d'extrémité des bras (6b), engagé dans un filetage interne correspondant (9a) des douilles de montage (9), montés dans des fentes transversales (8), formées dans les parties de boîtier (1) et (2).

2. Serrure à cylindre, selon la revendication 1, **caractérisée en ce que**, l'élément de couplage (6) est fabriqué en acier à haute résistance.

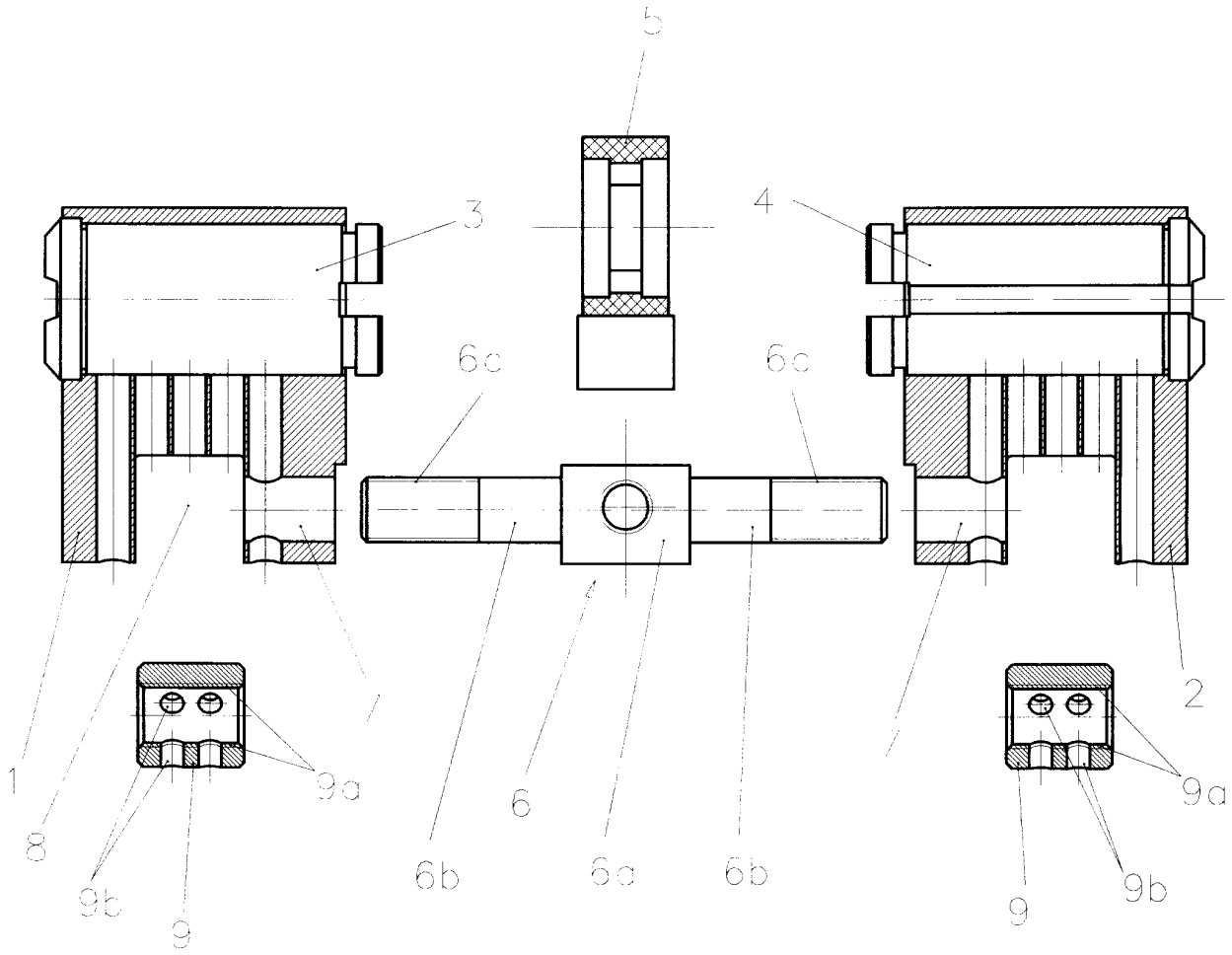


Fig. 1

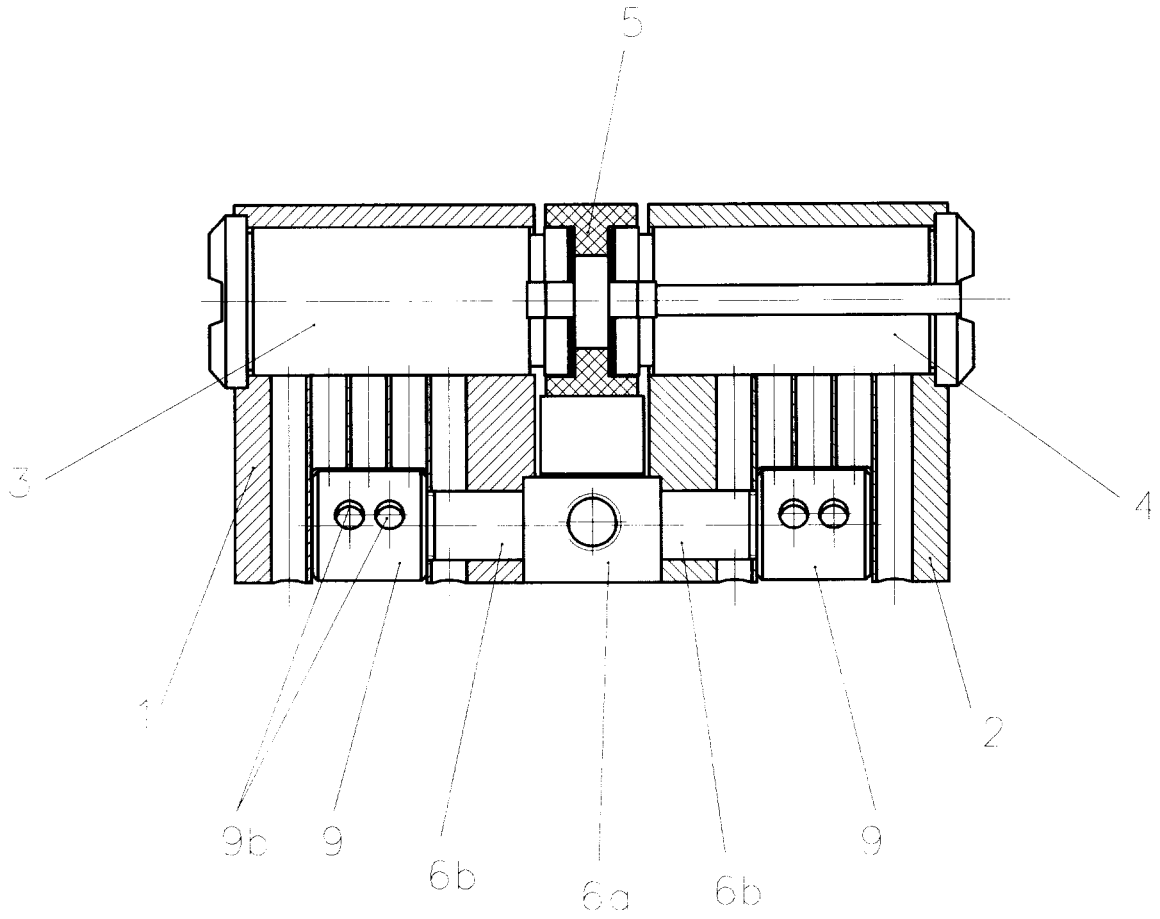


Fig. 2

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- EP 0792981 A **[0004]**