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(11)

**EP 0 841 446 A1**

(12)

**EUROPEAN PATENT APPLICATION**

(43) Date of publication:  
13.05.1998 Bulletin 1998/20

(51) Int. Cl.<sup>6</sup>: **E05B 11/00**, E05B 15/08,  
E05B 15/02

(21) Application number: **96830574.8**

(22) Date of filing: **08.11.1996**

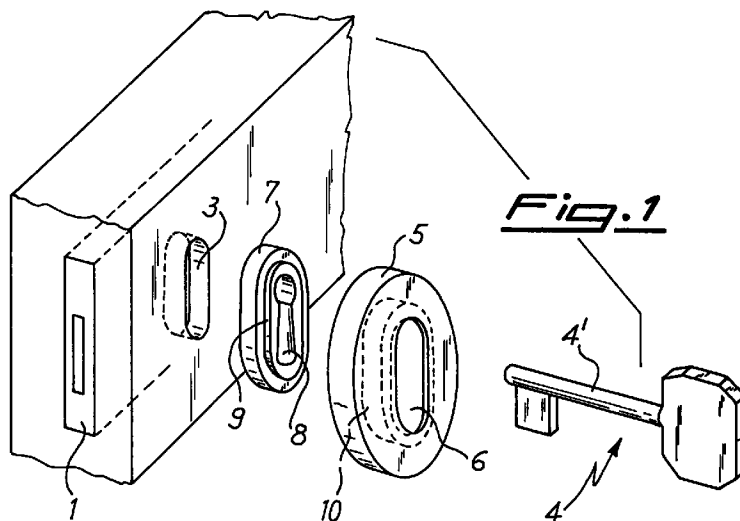
(84) Designated Contracting States:  
**AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC  
NL PT SE**  
Designated Extension States:  
**AL LT LV RO SI**  
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**(54) Fitting assembly for a lock**

(57) In a fitting assembly for locks, comprising a first converging element (5) having at least one through hole (6) aligned with the keyhole (3) of the lock (1) and a second element (7) also having a through hole (8) aligned with the hole (6) of the first element (5), at least part of the inside surface (8') of the hole (8) of the second ele-

ment (7) is in contact with at least part of the external surface (4') of the key (4) inserted in the keyhole (3) of the lock (1), and the second element (7) is made of material which applied friction to the external surface (4') of the key (4).



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## Description

The present invention relates to a fitting assembly for a lock and, in particular, a fitting assembly for the keyhole of the respective lock mounted on a door.

In traditional locks, above all in those applied to doors of furniture or furniture components generally, there are usually keyhole fitting elements that surround the keyhole of the lock applied to the door.

During locking and unlocking of the lock, however, the key enters into contact with the fitting element, with consequent deterioration of the external surface of the key. Since the keys are often made of plated alloy stamping, e.g. zama with a brass coating, deterioration of the same coating occurs, detracting from the aesthetic appearance both of the key itself and of the piece of furniture as a whole. To overcome this drawback, it is already known the use of an insert made of a plastic material to line the edge of the through hole in the fitting element.

But keys usually remain constantly inserted into locks, above all in the case of locks applied to furniture. Because of the weight of the key itself and of the hand-grip that remains outside, the key tends to hang at an angle with respect to the ideal alignment with keyhole axis and to rest on the edge of the hole in the fitting element or on the possible insert covering it. That gives an unpleasant aspect to the piece of furniture as a whole. This being stated, the aim of the present invention is to produce a fitting assembly for locks that overcomes the drawbacks of the known art.

In particular, an object of the present invention is to produce a fitting assembly that prevents the deterioration of the external coating of the key.

Another object of the present invention is to produce a fitting assembly for locks that holds the key correctly aligned in the lock.

These objects are achieved by the present invention, which relates to a fitting assembly for locks, of the type comprising a first covering element with at least one through hole aligned with the keyhole of the lock and a second element coupled to the first, also having one through hole aligned with the hole of the first element, characterized in that at least part of the inside surface of the hole of the second element is in contact with at least part of the external surface of the key inserted into the keyhole of the lock, and that the second element is made with a material which exerts friction on the external surface of the key.

The key, as well as being separated from the hole of the covering element, remains correctly lined up with the hole of the lock, so as to confer a more pleasant overall appearance on the piece of furniture.

Furthermore, the friction between the key and the surface of the hole in the second element prevents the key from accidentally falling out of the keyhole, thus preventing possible damage to the key as a consequence of the impact with the floor. This is particularly true for

those types of key decorated with friezes or other delicate ornamentation, e.g. enamels, murrhine glass, or similar.

The second element is preferably made of a rubber or plastic material and the hole is substantially similar in shape to the outline of the key that is to be inserted. Other materials able to cause friction without causing abrasion of the key are equally suited, such as the particular coatings that confer such properties to the surface of the hole in the second element, e.g. coatings obtained by flocculation or similar.

The second element is preferably lodged in a seat in the first (or covering) element, and comprises a contour portion of the hole substantially flush with the external surface of the first element. This prevents contact in any case between the surface of the hole in the first fitting element and the key inserted in the lock.

The hole of the second element advantageously comprises a tapered portion of the surface which slants toward the hole of the lock to facilitate the alignment of the key with the hole of the second element during extraction of the key itself.

Further advantages and characteristics of the invention will be more evident from the following description, made for illustrative but not limiting purpose with reference to the attached schematic drawings in which:

- Figure 1 is a perspective view, with elements separated, of an application of the fitting assembly according to a first embodiment of the present invention;
- Figure 2 is a view in cross-section of the fitting assembly shown in Figure 1 as a completed assembly;
- Figures 3A and 3B are elevation views, taken respectively from the front and rear of one of the elements of the fitting assembly shown in the Figures 1 and 2;
- Figures 4A-4D are views of a fitting assembly according to another embodiment of the invention; in particular, Figure 4A is a front view, Figure 4B is a cross-section view in the plane B-B of Figure 4A, Figure 4C is a rear view and Figure 4D is a plan view from the top in the direction indicated by the arrow D in Figure 4A; and
- Figure 5 is a front view of an element of the fitting assembly shown in Figures 4A-4D.

Figure 1 shows schematically a lock 1 mounted on a door 2, in which there is provided a hole 3 that allows a key 4 to be inserted into the lock 1. The latter, in the representation shown in Figure 1, is embedded in the door 2 but it is obvious that alternatively it can also be mounted as a projecting part, or inserted into a recess cut-out, on the inside surface of the door.

According to the embodiment shown in Figure 1, the fitting assembly comprises a first covering element 5

having at least one through hole 6 aligned with the key-hole 3 for the key 4 in the lock 1, together with a second element 7 also having one through hole 8 aligned with the holes 3 and 6.

According to the invention, at least part of the inside surface of the hole 8 of the second element 7 comes into contact with at least part of the external surface of the key 4 inserted into the keyhole 3 of the lock, in a such way as to cause friction on the external surface of the key. Making the element 7 from rubber, or from a suitable plastic material, gives light friction without damaging the external coating of the key.

As is shown also in Figures 3A and 3B, the hole 8 is substantially similar in form to the outline of the key 4, with a portion of the inside surface 8' of circular shape to exert friction on the shank 4' of the key 4. The translation movement of the key 4 is thus braked during insertion and extraction from the lock, while it can easily be rotated to operate the same lock without coming into contact with the edge of the hole 6 of the covering element 5.

In fact, the element 7 comprises a contour portion 9 of the hole 8 substantially flush with the external surface of the covering element 5, in such a way as to prevent contact between the key 4 and the inside edge of the hole 6.

The element 7 is housed in a seat 10 of the covering element 5, the latter then being fixed to the surface of the door 2 through known means (not shown in the Figures). The element 7, which is larger in plan than the keyhole 3 in the door 2, it is thus locked between the door 2 and the covering element 5, as it is evident from the section view of Figure 2.

There is preferably an inclined portion 8'' of the surface in the hole 8 of the element 7 slanted toward the keyhole 3 of the lock, to facilitate the alignment of the key 4 with the hole 8 during the extraction of the key itself.

In Figures 4A-4D it is illustrated a fitting assembly according to another embodiment of the invention. Like to the embodiment already seen, the fitting assembly consists of a covering element 25 and a second element 27, the latter made of rubber or plastic material.

The element 27 is provided with a hole 28 substantially similar to the one present in the element 7 of the embodiment already illustrated, comprising a surface portion 28' apt to cause friction on the key, together with a inclined portion 28'' in the rear which helps to facilitate the removal of the key. Likewise to the preceding embodiment, there is also an edge 29 that protects the key from contact with the edge of the through hole in the covering element 25.

In this case, the element 27 is provided with a pair of fins 31, which engage in suitable recesses of the covering element 25 so as to lock the element 27 between the surface of the door and the covering element 25 when the assembly is complete. In this embodiment, the covering element 25 is provided with a projecting por-

tion 35 (Figure 4D), comprising two semi-portions 35' and 35'' (Figure 4C) which retain the element 27, which is restrained in a suitable seat of the door. A pair of threaded holes 34 allows fixing screws to be used to further attach the covering element 25 to the door or to the lock.

Alternatively to the only two fins 31, the element 27 can be provided with a flange 31' (shown in Figure 5 by the broken line) which also allows the element 27 to be locked between the surface of the door and the covering element 25. In this case, the portion 35 of the covering element 25 must be suitably modified to make it suitable to the different number of fins of the element 27 or, if necessary, eliminated.

In Figures 4B and 4C there is an elastic ring 32, consisting for instance of a classical O-ring, which locks the element 27 onto the covering element 25 before the fitting assembly is applied to the door. The ring 32, if present, is preferably retained in a groove on the back part of the covering element 25 and on the fins 31 in such a way that it doesn't jut out from the rear of the covering element 25.

## Claims

1. Fitting assembly for a lock, of the type comprising a first covering element with at least one through hole aligned with the keyhole of the lock and a second element, coupled to said first element, also having one through hole aligned with the hole of said first element, characterized in that at least part of the inside surface of the hole of the second element is in contact with at least part of the external surface of the key inserted into the keyhole of the lock, and that the second element is made with a material which exerts friction on the external surface of the key.
2. A fitting assembly according to Claim 1, characterized in that said second element is made with rubber or plastic material.
3. A fitting assembly according to Claim 1 or 2, characterized in that said second element is housed in a recess in said first element.
4. A fitting assembly according to any of the preceding Claims, characterized in that at least the hole of said second element has a shape substantially similar to the outline of said key.
5. A fitting assembly according to any of the preceding Claims, characterized in that said second element comprises a contour portion of said hole which is substantially flush with the external surface of said first element.
6. A fitting assembly according to any of the preceding

Claims, characterized in that said second element comprises one or more portions to lock said second element between said first element and the surface on which the fitting assembly is fixed.

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7. A fitting assembly according to any of the preceding Claims, characterized by comprising further means for locking said second element to said first element.

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8. A fitting assembly according to any of the preceding Claims, characterized in that the hole of said second element comprises an inclined portion of the surface slanted toward the hole of the lock for facilitate the alignment of the key with the hole of said second element during the extraction of the key itself.

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9. Sealing door for environments and/or for furniture, characterized by comprising a fitting assembly for locks according to any of Claims 1 to 8.

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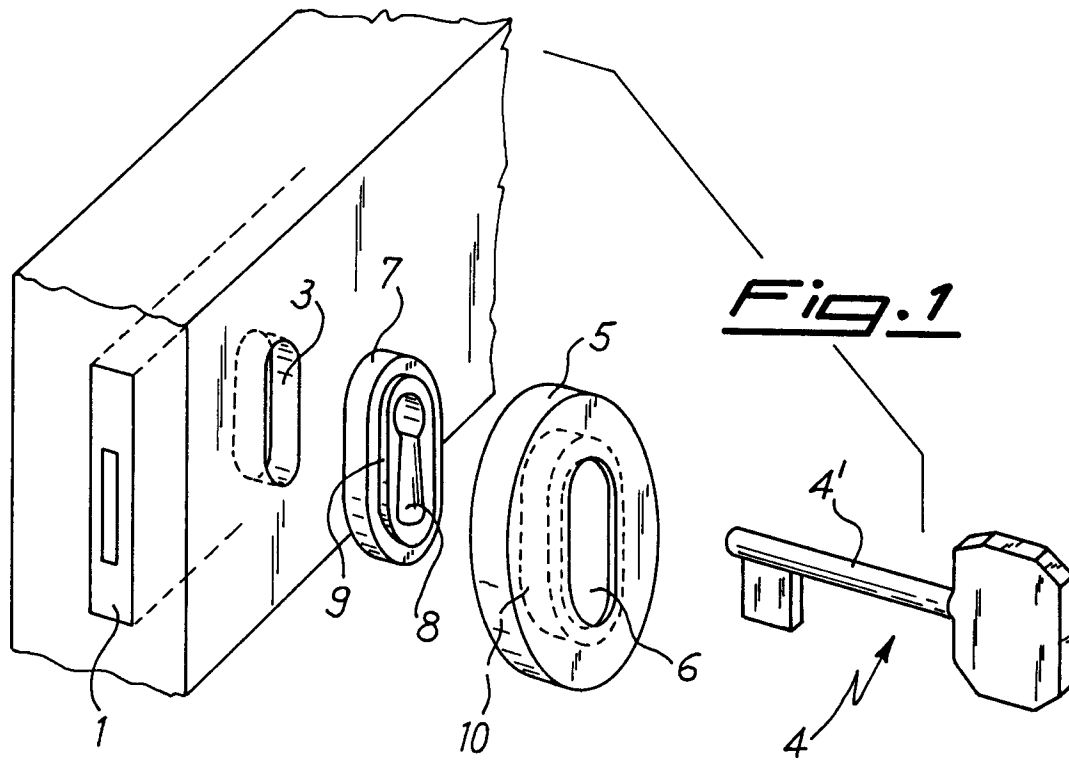
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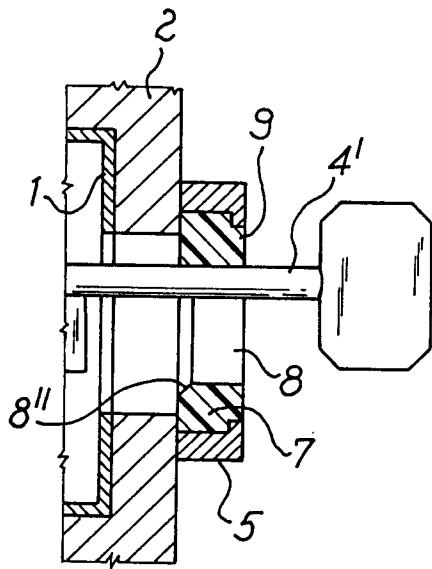
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**Fig. 2**



**Fig. 3A**

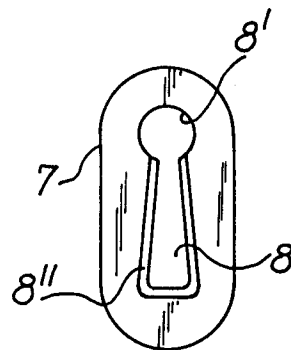
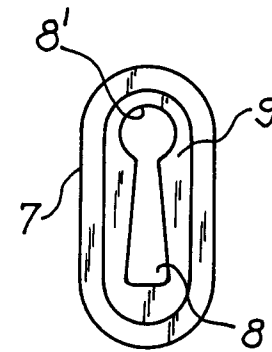


Fig. 4A

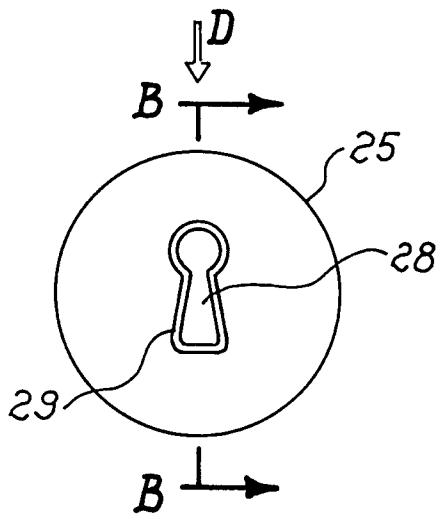


Fig. 4B

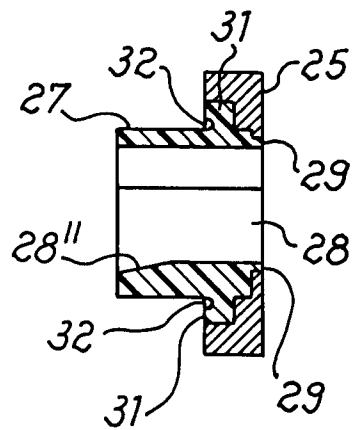


Fig. 4C

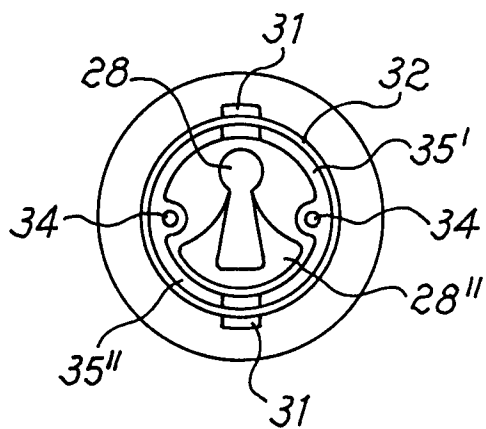


Fig. 4D

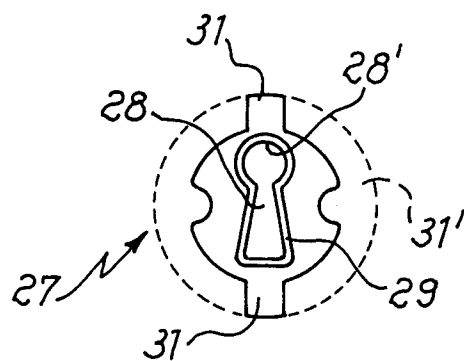
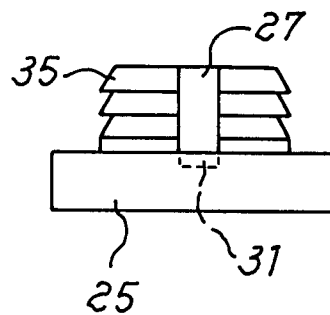


Fig. 5



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# EUROPEAN SEARCH REPORT

Application Number  
EP 96 83 0574

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	DE 19 46 572 A (WUNSCH FRIEDGARD, DRANO-VALSOLDA) * the whole document * ---	1-9	E05B11/00 E05B15/08 E05B15/02
X	DE 20 12 354 A (LAIB ALBERT) * the whole document * ---	1-4,6,7, 9	
X	CH 443 963 A (LEIMER HUGO) * the whole document * ---	1-4,6,7, 9	
X	DE 20 12 473 A (JÖRGER ALWIN) * the whole document * ---	1,7,9	
X	DE 25 08 457 A (SCHOENER ANTON) * the whole document * ---	1,7,9	
A	DE 43 24 023 A (DAIMLER BENZ AG) * column 1, line 18 - line 41 * -----	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			E05B
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 21 March 1997	Examiner PEREZ MENDEZ, J
<p><b>CATEGORY OF CITED DOCUMENTS</b></p> <p>X : particularly relevant if taken alone  Y : particularly relevant if combined with another document of the same category  A : technological background  O : non-written disclosure  P : intermediate document</p> <p>T : theory or principle underlying the invention  E : earlier patent document, but published on, or after the filing date  D : document cited in the application  L : document cited for other reasons  .....  &amp; : member of the same patent family, corresponding document</p>			

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