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(11)

**EP 1 008 709 A1**

(12)

**EUROPEAN PATENT APPLICATION**

(43) Date of publication:

**14.06.2000 Bulletin 2000/24**

(51) Int Cl.7: **E05B 15/02**

(21) Application number: **99204202.8**

(22) Date of filing: **08.12.1999**

(84) Designated Contracting States:

**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU  
MC NL PT SE**

Designated Extension States:

**AL LT LV MK RO SI**

(30) Priority: **08.12.1998 NL 1010760**

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(54) **Lock and escutcheon assembly with a sealing member between the lock and the door**

(57) Sealing member (6,16) to be arranged between the projecting part (4,14) of a lock which has been placed in a door (1) or the like and the edge of the open-

ing in said door. The sealing member (6,16) is clamped between the cover plate (2,11) and the door (1) and prevents moisture from penetrating into the door (1) via the opening for the projecting part (4,14) of the lock.

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## Description

**[0001]** The present invention relates to a lock/cover plate assembly to be arranged in a door or the like, said cover plate being designed, in the fitted position, to accurately delimit that part of the lock which projects out of the door or the like, said cover plate comprising a peripheral rim which is to be placed against said door or the like, and a cavity being delimited between the door and covering plate.

**[0002]** Such a lock/cover plate assembly is known in the prior art. Besides serving aesthetic purposes, cover plates are used to minimize unauthorized picking of the lock. As a result of a cover plate being put in place, it is no longer possible for unauthorized people to reach the lock from the side. The result is a tight fit between lock (cylinder) and its surroundings, making it very difficult to force the lock.

**[0003]** It has been found that in the event of burglary it is now attempted to force a cover plate of this nature. To prevent this from happening, the cover plate is becoming of increasingly heavy design.

**[0004]** In the case of doors which are exposed to the influence of weather, it is not unusual for moisture to penetrate into the space between cover plate and door during rain or other unfavourable weather conditions, or for moisture to be formed in this space due to condensation. In the prior art, it is customary to provide the peripheral rim of the cover plate with a small opening on its underside, through which such moisture can escape. After all, it is important that this moisture should be drained out.

**[0005]** However, it has been found that in the event of attempted burglary, this drain opening is used as an access point to begin forcing the lock. A small screwdriver or the like is introduced into this opening, and in this way the cover plate is forced, and then the lock is damaged in such a manner that unauthorized people can gain access to the room in question. Therefore, it is proposed, and for some structures now even laid down, that this opening should be omitted, so that the peripheral rim extends without interruption along the entire cover plate. This limits the risk of sabotage.

**[0006]** However, this means that moisture which is formed or penetrates into the space between cover plate and door can only take one route, namely via the space between the projecting part of the lock and the opening which has been formed in the door for accommodating this projecting part, since this space through which water can move is located at a lower level than the opening arranged in the cover plate through which the projecting part extends. In practice, it has been found that this penetrating moisture has a disastrous effect on the condition of the wood and also adversely affects the operation of the lock.

**[0007]** The object of the present invention is to provide a lock/cover plate assembly in which there is no possibility of the material of the door or the like, such as wood

or the like, being affected.

**[0008]** This object is achieved, in a lock/cover plate assembly as described above, in that there is a sealing member provided with an opening which substantially corresponds to the external dimension of that part of the lock which projects out of the door or the like and is designed to provide a seal between said projecting part of the lock and said door or the like.

**[0009]** According to the invention, the space between the projecting part of the lock and the opening in the door for accommodating that parts of the lock is filled with the sealing member according to the invention. Consequently, it is no longer possible for moisture to move through the gap between these two part into the interior of the door, with all the associated disastrous consequences. If the water cannot escape at the underside of the cover plate, the level of this water will rise and this water will leave again through the opening in the cover plate which serves to receive the projecting part.

**[0010]** Projecting parts of locks are found in all types of locks, but especially in cylinder locks, which are nowadays extremely widespread.

**[0011]** In order to provide an optimum seal between the sealing member and the gap-like space between the projecting part of the lock and the opening arranged in the door as described above, it is proposed for this sealing member to be of tapering design, so that it can easily be introduced into the gap-like space and, as a result of further pressure, for example from the cover plate, to be driven so far into this gap-like space that an optimum seal is ensured under all circumstances.

**[0012]** Preferably, the sealing member is made from a plastics material, more particularly a plastics material with rubber-like properties.

**[0013]** The thickness or height of the sealing member is preferably selected in such a manner that it is always ensured that it is pressed with sufficient force into the gap-like opening between the projecting part of the lock and the opening in the door.

**[0014]** The cover plate described above may comprise a single plate with an opening. However, it is also possible for this plate to be composed of two parts, a protective plate which is of comparatively heavy design and is attached to the door structure by bolts or the like and on which a closure plate is then positioned, which determines the appearance of the structure.

**[0015]** The invention also relates to a method for arranging a lock/cover plate assembly in/on a door or the like, consisting in arranging a lock in an opening which has been formed for this purpose in said door, which opening is designed to receive that part of the lock which projects from the door, placing a cover plate over said projecting part of the lock, and attaching this cover plate to the door, wherein said opening for receiving the projecting part of the lock is considerably larger than the projecting part of said lock, and wherein a sealing member is arranged in the space which is formed in this way

before said cover plate is put in place.

**[0016]** The invention will be explained in more detail below with reference to exemplary embodiments which are depicted in the drawing, in which:

Fig. 1 shows a perspective view of a lock/cover plate structure according to the invention which is to be arranged in a door;

Fig. 2 shows a cross section through the sealing member in the fitted position; and

Fig. 3 shows a perspective view of a variant of the sealing member in combination with the corresponding lock.

**[0017]** In Fig. 1, 1 denotes a door provided with a lock 3. Only the projecting part 4 of this lock is visible, and it can be seen that it is a cylinder lock. In the door 1, there is an opening 5 through which this lock part 4 projects. This opening 5 is slightly larger than the lock 4, so that it is possible to compensate for manufacturing tolerances.

**[0018]** Fig. 1 also shows the sealing member 6 according to the invention. This sealing member is provided with an opening 8 which substantially corresponds to the external dimension of the projecting part, but is slightly smaller. The sealing member consists of an elastomeric plastics material which can be positioned accurately around the projecting lock part 4. It can also be seen from Fig. 1 that the sealing member tapers, so that its thickness at the end directed towards the door 1 is smaller than the gap which is delimited between the outer circumference of the opening 5 and the outer circumference of the projecting part 4. This means that the sealing member can be pressed into the space between the door and the projecting part 4. In Fig. 1, 2 shows a conventional cover plate.

**[0019]** Fig. 2 shows the position after assembly. Cover plate 2 is held at a distance from door 1 by peripheral rim 7 which extends continuously along the entire periphery, i.e. is not provided with drainage holes. The sealing member 6 is pressed inwards by the pressure of the cover plate 2, providing a seal between the door 1 and the projecting part 4 of the lock.

**[0020]** Fig. 3 shows a variant in which the projecting part of the lock is arranged in a circular cutout. The lock is denoted overall by 13, and the projecting part is denoted by 14. The sealing member 16 is correspondingly provided with a circular outer circumference 18, and in this embodiment too is of tapered design. The cover plate in this case comprises a protective plate 11 which is attached to the door with bolts 10 or the like. A closure plate 13 is shown on top of the protective plate 11. The protective plate 11 is of comparatively heavy structure, and the closure plate 13 provides an encircling closure with respect to the door.

**[0021]** The structure described above prevents moisture from penetrating in any way into the space between the projecting part of the lock 4 or 14 and the opening

arranged in the door 1, as is evident from Fig. 2.

**[0022]** Although in the exemplary embodiments illustrated the sealing member or the seal is shown as a single part consisting of elastomeric material, it will be understood that this sealing member may comprise a number of different parts, optionally integral with one another. Moreover, it is possible for the seal between the projecting part of the lock and the door with the aid of the sealing member to be provided not in the gap between these two parts but as a result of the sealing member bearing against the front surface of the door. These and other modifications are deemed to lie within the scope of the appended claims.

## Claims

1. Lock (3, 13)/cover plate (2; 11, 12) assembly to be arranged in a door (1) or the like, said cover plate being designed, in the fitted position, to accurately delimit that part (4, 14) of the lock which projects out of the door or the like, said cover plate comprising a peripheral rim (7) which is to be placed against said door or the like, and a cavity being delimited between the door and covering plate, characterized in that a sealing member (6, 16) is provided with an opening (18) which substantially corresponds to the external dimension of that part (4, 14) of the lock which projects out of the door or the like and is arranged to provide a seal between the said projecting part of the lock and said door or the like.
2. Lock/cover plate assembly according to Claim 1, in which said lock is a cylinder lock.
3. Lock/cover plate assembly according to one of the preceding claims, in which said peripheral rim of said cover plate extends without interruption along the entire plate.
4. Lock/cover plate assembly in which the thickness of the outside of the sealing member tapers towards the door or the like.
5. Lock/cover plate assembly, wherein said sealing member comprises a rubber material.
6. Lock/cover plate assembly, wherein the thickness of the sealing member is at least twice the height of the peripheral rim of the cover plate.
7. Lock/cover plate assembly, wherein said cover plate comprises a protective plate (11) for attaching to said door or the like, and a closure plate (12) arranged on said protective plate.
8. Sealing member according to one of the preceding claims, for use in a lock/cover plate assembly ac-

ording to one of the preceding claims.

- 9. Method for arranging a lock/cover plate assembly in/on a door or the like, consisting in arranging a lock in an opening which has been formed for this purpose in the said door, said opening being designed to receive that part of the lock which projects from the door, placing a cover plate over the said projecting part of the lock, and attaching this cover plate to the door, characterized in that said opening for receiving the projecting part of the lock is considerably larger than the projecting part of the lock, and in that a sealing member is arranged in the space which is formed in this way before said cover plate is put in place.

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fig-1

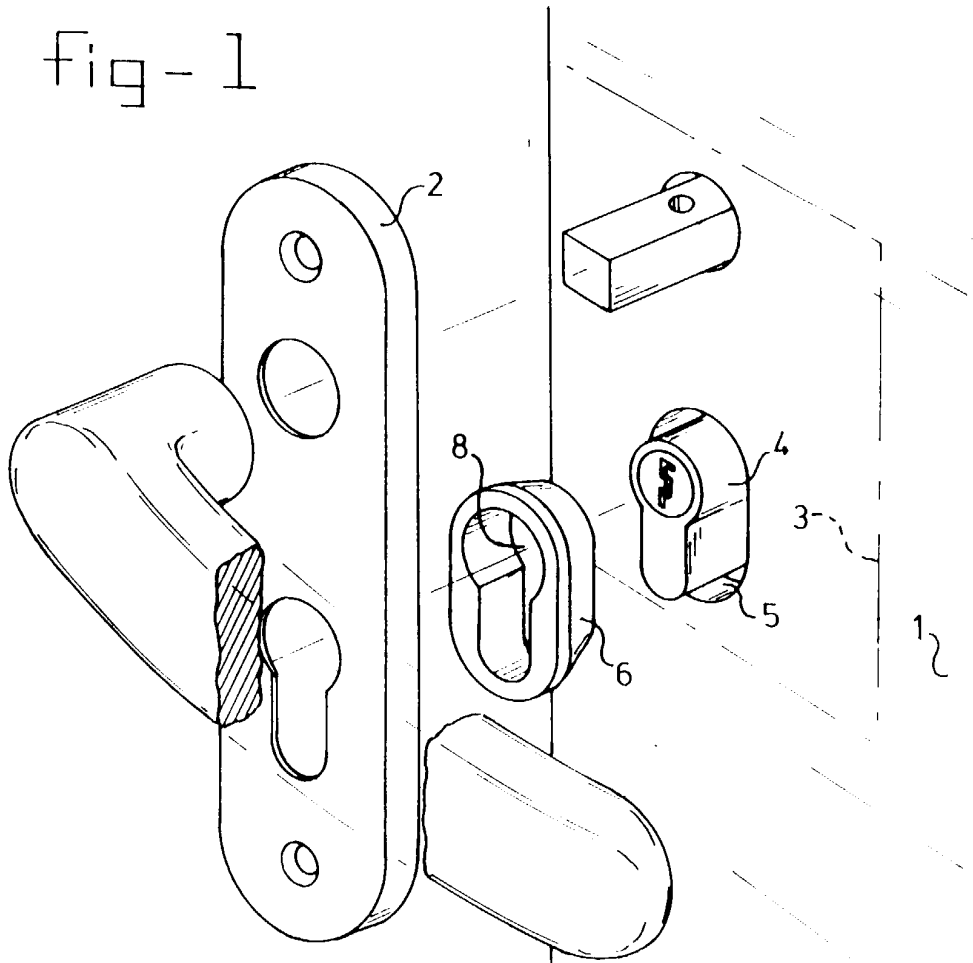


fig-2

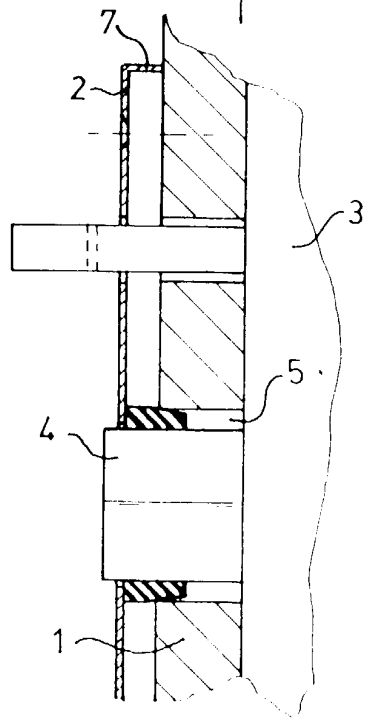
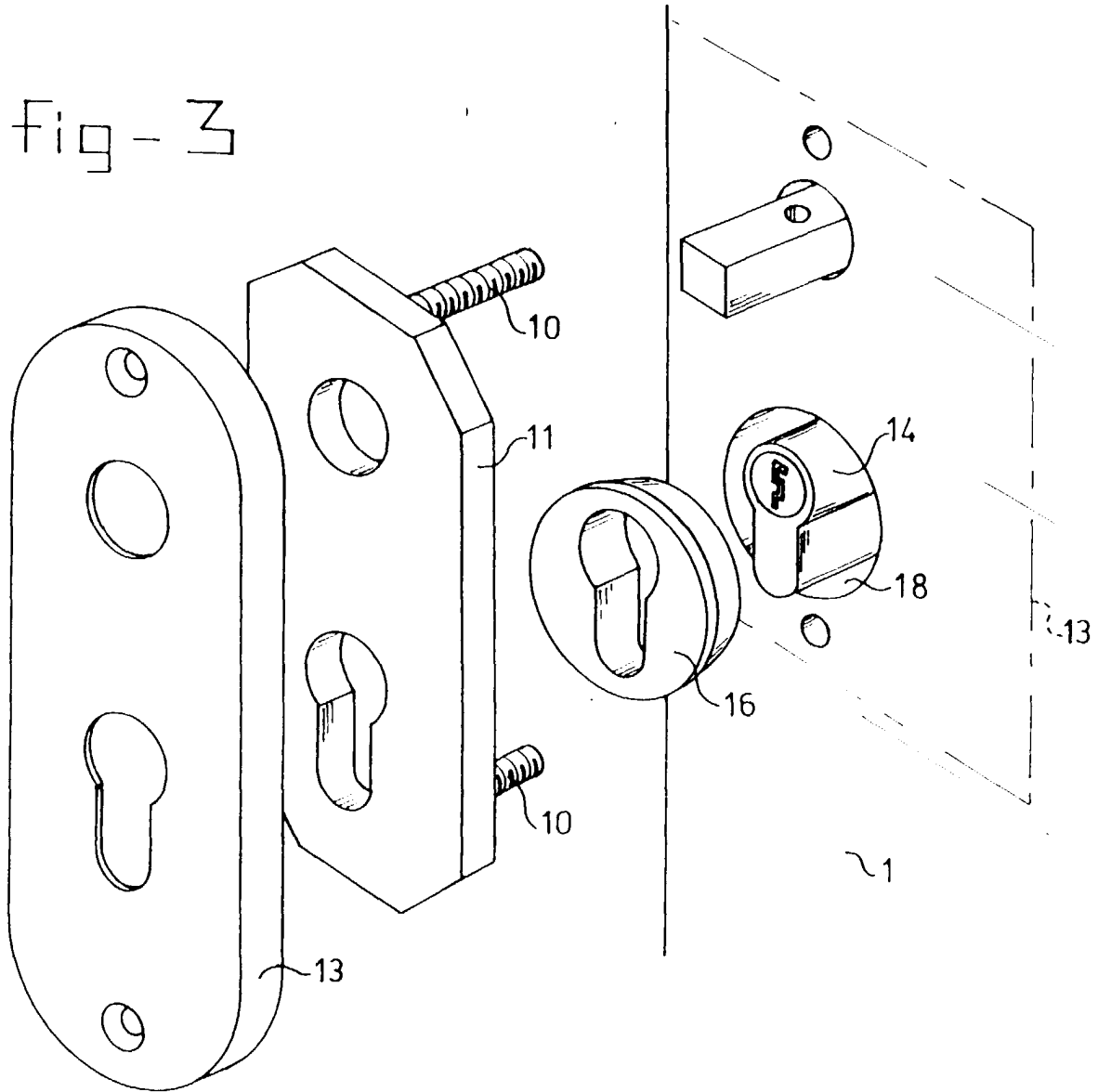


Fig - 3





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EUROPEAN SEARCH REPORT

Application Number  
EP 99 20 4202

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Place of search THE HAGUE		Date of completion of the search 28 March 2000	Examiner Westin, K
CATEGORY OF CITED DOCUMENTS 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		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 ..... & : member of the same patent family, corresponding document	

EPO FORM 1503 03/02 (F04/C01)

ANNEX TO THE EUROPEAN SEARCH REPORT  
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28-03-2000

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EPO FORM P0459

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