



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) **EP 0 851 082 A2**

(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
01.07.1998 Bulletin 1998/27

(51) Int. Cl.⁶: **E05B 63/00**

(21) Application number: **97122786.3**

(22) Date of filing: **23.12.1997**

(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 MK RO SI

(72) Inventor: **Cavestri, Elio**
40100 Bologna (IT)

(74) Representative:
Jorio, Paolo et al
STUDIO TORTA S.r.l.,
Via Viotti, 9
10121 Torino (IT)

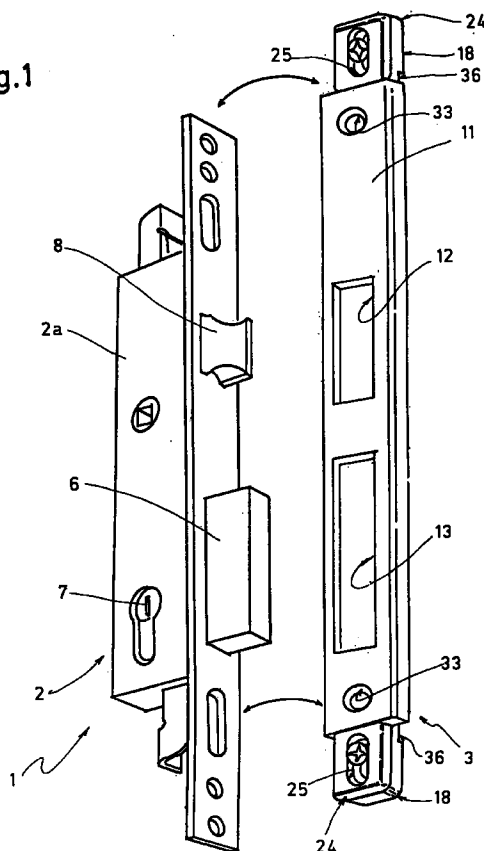
(30) Priority: **31.12.1996 IT TO961106**

(71) Applicant:
NUOVA F.E.B. S.r.l. Fabbrica
Elettroapparecchiature Bologna
40138 Bologna (IT)

(54) **A lock assembly**

(57) A lock assembly includes a lock (2) fitted to a door and having at least one element (6, 8) movable between a retracted position and an extended position, a mechanical striker plate (3) fitted onto a fixed structure (5) and comprising a plate (11) in which at least one seating (12, 13) is formed for engagement by the movable element (6, 8) of the lock (2), and means for fixing the plate (11) to the fixed structure (5) which include two bodies (18) fixed by first screws (21) to respective longitudinal ends of the plate (11). Each body (18) has a first portion (22) with a first slot (23) formed through its central region which houses an internally-threaded sleeve (32) into which is screwed a first screw (21), and a second portion (24) having a second slot (25) formed through its central region which has a longitudinal axis perpendicular to that of the first through-slot (23) and is able to accommodate a second screw (34) screwed into a threaded hole (35) formed in the structure (5).

Fig.1



EP 0 851 082 A2

Description

The present invention relates to a lock assembly.
It is well known that lock assemblies comprise:

a lock with a latch, a bolt and means for moving the latch and the bolt; and
a striker plate with a first seating for the latch and a second seating for the bolt.

The lock is fitted to an edge of a door and the striker plate is installed on a fixed structure, often constituted by a metal section. The striker plate consists of a plate in which the two said seatings are formed as two holes in the said plate with two screws passing through the said holes into threaded holes formed in the metal section.

One of the main disadvantages of a lock assembly as described above consists in the fact that the means for fixing the striker plate to the section do not allow for adjustment of the position of the said striker plate. Essentially, if the threaded holes formed in the section are spaced differently from the holes in the striker plate, it is not possible to fix the plate to the section. In addition, it may happen that even if the holes have the same spacing, the holes formed in the section may not be vertically aligned and therefore once the plate is fixed to the section its longitudinal axis is inclined to the vertical. In such a case, the seatings formed in the plate would not be aligned with the bolt and the latch so that the said seatings would be unable to accept these lock elements. It should be emphasized here that the holes and the seatings in the striker plate are formed by machine tools and are therefore made with high precision, while the threaded holes in the section are made by the person fitting the lock who may not always manage to achieve a high degree of accuracy, also because the section may often have projections which interfere with drilling the holes. Finally, it should be pointed out that it is not always possible to drill additional threaded holes once the first threaded holes are found not to be accurate.

The object of the present invention is to provide a lock assembly which is free of the disadvantage described above.

This object is achieved according to the present invention by providing a lock assembly which includes:

a lock fitted to a door and having at least one element operable to move from a retracted to an extended position;
a mechanical striker plate fitted to a fixed structure and comprising a plate in which at least one seating is formed for engagement by the said element of the said lock;
means for fixing the said plate to the said fixed structure which include two bodies fixed by first screws at respective longitudinal ends of the said

plate;

characterised in that each of the said bodies has a first portion with a first slot formed through the central region thereof for receiving an internally threaded sleeve into which the said first screw is screwed, and a second portion with a second slot formed through the central region thereof so that its longitudinal axis is perpendicular to that of the first slot and so that a second screw may pass through it to be screwed into a threaded hole in the said structure.

The invention will now be described with reference to the appended drawings, which illustrate a preferred but non-limitative embodiment, in which:

Figure 1 is a perspective view of a lock assembly constructed according to the requirements of the present invention; and

Figures 2 and 3 are exploded perspective views of part of the striker plate of the lock assembly of Figure 1 fitted to a fixed structure.

In Figure 1, a lock assembly is generally indicated 1, including a lock 2 of a known type, manufactured, in particular by the Applicant, and a mechanical striker plate 3; the lock 2 being fitted to a door, not illustrated, and the striker plate 3 being supported by a fixed structure, in particular (Figure 2) a vertical wall 4 of metal section 5 having two projections 5a which are L-shape in cross section; a first portion of the projections 5a is perpendicular to the wall 4 and a second portion is parallel to the wall 4 and faces the second portion of the other projection 5a. The lock 2 includes a casing 2a, a bolt 6, a mechanism, not-illustrated, for controlling translation of the bolt 6 from a retracted position to an extended position and vice versa, a cylinder 7 controlled by a key, not-illustrated, for operating the aforesaid mechanism, a latch 8 and a device, not-illustrated, (which normally has a handle) for controlling translation of the latch 8 from a retracted to an extended position and vice versa.

With reference to Figures 2 and 3, the striker plate 3 includes a rectangular metal plate 11 for fixing to the said wall 4, in which a first through slot 12 for receiving the latch 8 in its extended position and a second through-slot 13 for receiving the bolt in its extended position, are formed along a substantially vertical longitudinal axis. Two housings 14 are formed in the wall 4, aligned with the slot 12 and the slot 13 respectively, for engagement by the latch 8 and the bolt 6. The width of the plate 11 is greater than the distance between the facing edges of the second portions of the projections 5a.

The striker plate 3 also includes means for fixing the plate 11 to the wall 4. These fixing means include two metal bodies 18 fixed by screws 21 to respective longitudinal ends of the plate 11; the longitudinal axes of

the bodies 18 are aligned with the longitudinal axis of the plate 11. In particular, each body 18 comprises a first rectangular portion 22 with a slot 23 through its central region (Figure 3) having its longitudinal axis perpendicular to that of the plate 11, and a second rectangular portion 24 with a slot 25 through its central region having its longitudinal axis parallel to that of the plate 11. The portion 22 has a first surface facing and in contact with the inner surface of the plate 11 and a second surface facing the wall 4 with a rectangular cavity 26 formed in it at the site of the slot 23, having grooves 27 in its base perpendicular to the longitudinal axis of the slot 23. The fixing means consist of a rectangular metal plate 28 for housing in the cavity 26 and provided with teeth 31 operable to engage the grooves 27. An internally threaded sleeve 32 extends from the central portion of the plate 28, perpendicular thereto, into the slot 23. The screw 21 passes through a through-hole 33 in the plate 11 and is screwed into the sleeve 32 thereby fixing together the plate 11, the portion 22 and the plate 28. The portion 24 is outside the space enclosed by the plate 11 and has one part 24a which is coplanar with the portion 22 and of the same thickness and width, and one part 24b which is wider than the part 24a. The part 24b thus forms a shoulder 24c along both its vertical sides. The part 24b is of substantially the same thickness as the plate 11 and in use lies coplanar to the plate 11 as a longitudinal extension thereof. In use, the portion 22 and the part 24a are in contact with the wall 4 inside the space defined by the projections 5a, while the plate 11 and the shoulders 24c lie against the aforesaid second portions of the projections 5a. A screw 34, with a head larger than the slot 25, is screwed through the slot 25 into a threaded hole 35 formed in the wall 4 thereby fixing the latter to the striker plate 3. A channel 36 is formed in the surface facing the wall 4 between the portion 22 and the part 24a, engaged by the central portion of a C-shape element 37 with two side portions which embrace the body 18 and interfere with the facing edges of the second portions of the projections 5a.

In use, the holes 35 are first drilled in the wall 4 of the section 5 and then the striker plate 3 is fixed to the said wall 4. In order to carry out this operation correctly, the screws 21 are first screwed a few turns into the corresponding sleeves 32 so as to keep the plates 28 spaced from the respective portions 22, the screws 34 are then screwed a few turns into the corresponding holes 35, after which the position of the plate 11 is adjusted by hand until it is correctly positioned and, finally, the screws 21 and 34 are fully tightened, while the plate 11 is held in position, the screws 21 determining the slotted coupling between the plates 28 and the bases of the cavities 26.

The advantages provided by the present invention are apparent from the above description.

In particular, a mechanical striker plate is provided with means for fixing it to a fixed structure, which means enable the position of the striker plate to be adjusted in

relation to the said fixed structure. There is ample scope for adjustment as considerable clearance is available both along the longitudinal axis of the plate 11 (screws 21 and edge of the slots 23) and along an axis perpendicular to this longitudinal axis (screws 34 and slots 25). This type of adjustment enables the striker plate to be more easily fitted to the fixed structure, without the problem of having to ensure that the holes 35 are accurate and despite the lack of space owing to the presence of the projections 5a.

Claims

1. A lock assembly including:

a lock (2) fitted to a door and having at least one element (6, 8) operable to move from a retracted to an extended position;
a mechanical striker plate (3) fitted to a fixed structure (5) and comprising a plate (11) in which at least one seating (12, 13) is formed for the engagement of the said element (6, 8) of the said lock;
means for fixing the said plate (11) to the said fixed structure (5) which include two bodies (18) fixed by first screws (21) to respective longitudinal ends of the said plate 11;
characterised in that each of the said bodies (18) has a first portion (22) with a first slot (23) through its central region for housing an internally threaded sleeve (32) into which the said first screw (21) is screwed, and a second portion (24) with a second slot (25) through its central region, having a longitudinal axis perpendicular to that of the first slot (23) and operable to receive a second screw (34) screwed into a threaded hole (35) in the said structure (5).

2. A lock assembly according to Claim 1, characterised in that the longitudinal axis of the said first slot (23) is perpendicular to the longitudinal axis of the said plate (11).

3. A lock assembly according to Claim 2, characterised in that a cavity (26) is formed in the surface of the said first portion (22) facing the said structure (5) for housing a plate (28) from which the said sleeve (32) extends.

4. A lock assembly according to Claim 3, characterised in that a plurality of grooves (27) are formed in the base of this cavity (26) engaged by a plurality of teeth (31) on the plate (28).

5. A lock assembly according to any one of the preceding claims, characterised in that the said second portion (24) is outside the space defined by the said

plate (11) and has a first part (24a) which is coplanar with and of the same thickness and width as the said first portion (22), and a second part (24b) which is wider than the said first part (24a) and is substantially as thick as the plate (11) with which it is coplanar and aligned longitudinally.

6. A lock assembly according to Claim 5, characterised in that between the said first portion (22) and the said first part (24a) a channel (36) is formed in the surface facing the said structure (5), engaged by the central portion of an element (37) which is C-shape with two lateral projections embracing the said body (18) and interfering with the sides of a housing (5a) formed in the said structure (5).

20

25

30

35

40

45

50

55

Fig.1

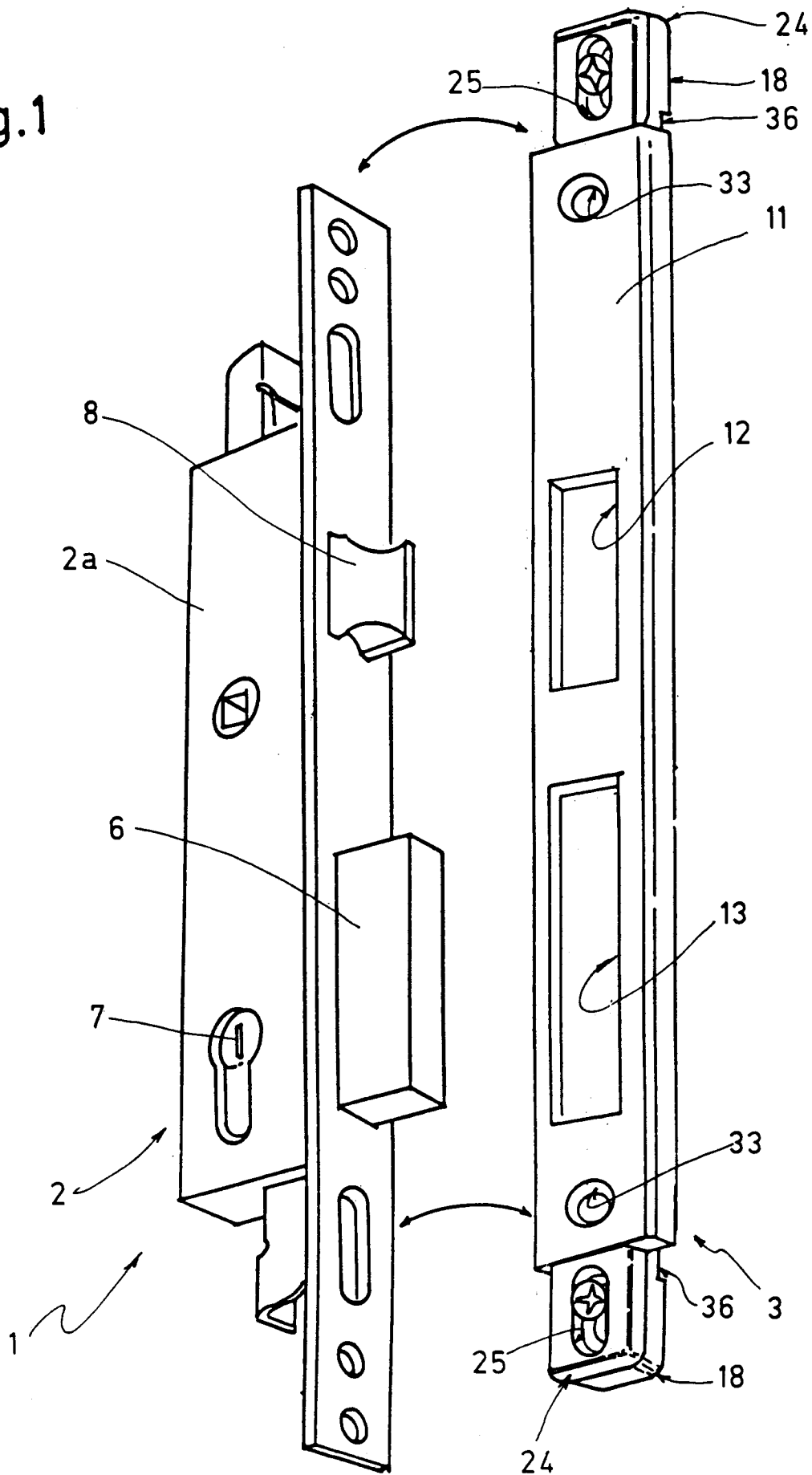


Fig.2

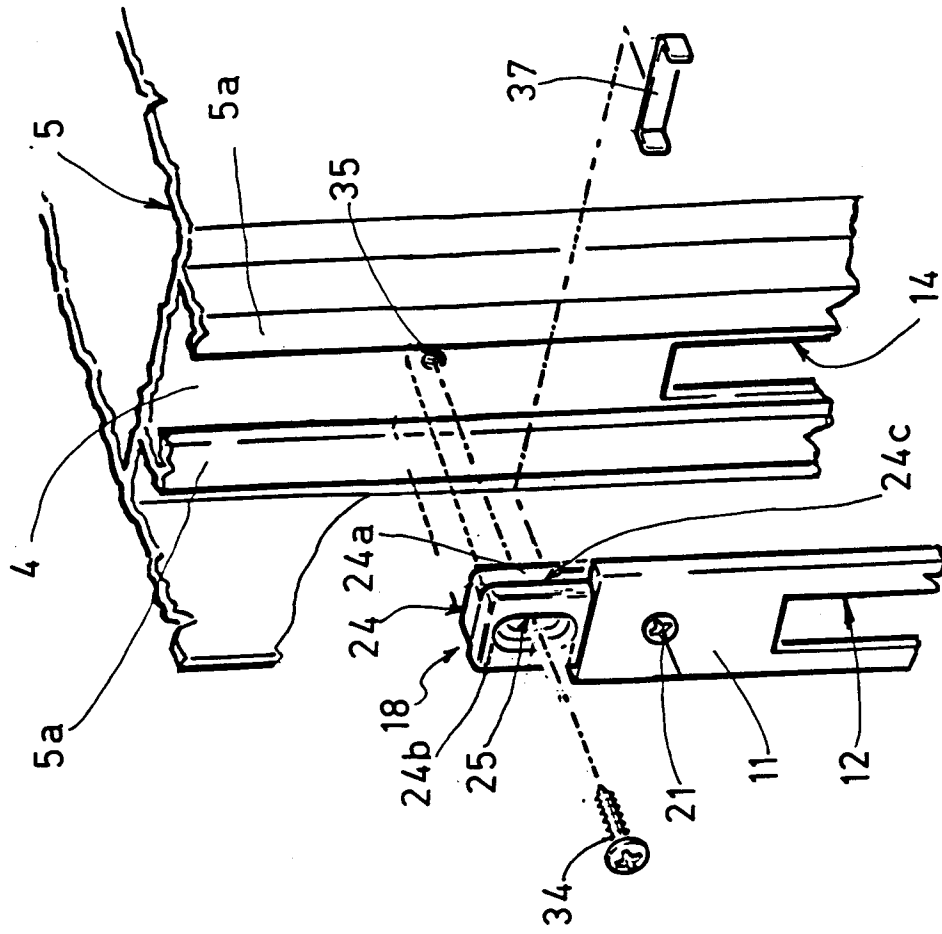


Fig.3

