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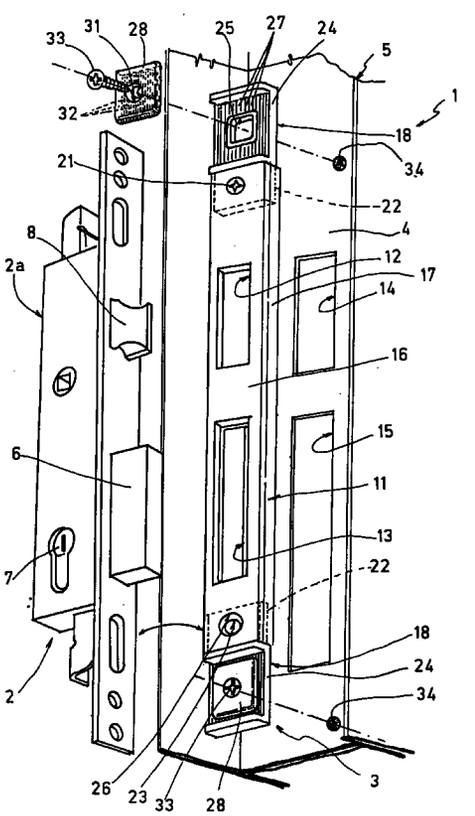
(54) A lock assembly

(57) A lock assembly includes a lock (2) fitted to a door and having at least one element (6, 8) operable to move from a retracted position to an extended position, a striker plate (3) fitted to a fixed structure (5) and having at least one seating (12, 13) for engagement by the movable element (6, 8) of the lock (2), and means for fixing the striker plate (3) to the fixed structure (5). The fixing means include two through-slots (25) formed in the longitudinal ends of the striker plate (3), two plates (28), one for each through-slot (25), each having a respective through-hole (31) and two screws (33) screwed through the corresponding said hole (31) and the corresponding slot (25) into threaded holes (34) formed in the structure (5) so as to press each plate (28) against the corresponding end of the striker plate (3) thereby fixing it to the structure (5). The perimeter of the slot (25) is greater than the circumference of the stem of the screw (33) making it possible, by loosening the screws (33), to adjust the position of the striker plate (3) relative to the structure (5).



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Description

The present invention relates to a lock assembly.
Lock assemblies are known to comprise:

a lock including 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 fitted to a fixed structure, often constituted by a metal section. The striker plate comprises a plate in which the two said seatings are formed, with two holes formed through the said plate and two screws screwed through the said holes into threaded holes in the metal section.

A main disadvantage of the lock assembly described above consists in the fact that the means fixing the striker plate to the section do not allow for any adjustment of the position of this striker plate. This means that if the distance between the holes formed in the section differs from that between the holes through the plate, it is not possible to fix the plate to the section. It could also happen that the holes were equally spaced but were not aligned vertically, with the result that, once fitted to the section, the longitudinal axis of the plate would be inclined to the vertical. In such a case, the housings formed in the plate could not be aligned with the bolt and the latch, so that they would be unable to accept these elements of the lock. It should be emphasized that the holes and the housings in the plate are drilled by machine tools with a high degree of precision, while the threaded holes in the section are formed by the person fitting the lock, who may not always be able to make them totally accurately. It must also be pointed out that it is not always possible to form additional threaded holes once the first threaded holes are found not to be accurately positioned.

The object of the present invention is to provide a lock assembly free of the aforesaid disadvantage.

The object of the invention is achieved by providing a lock assembly which includes:

a lock fitted to a door with at least one element operable to move from a retracted to an extended position;
a mechanical striker plate fitted to a fixed structure and having at least one seating for engaging the said element of the said lock;
means for fixing the said striker plate to the said fixed structure;
characterised in that the said fixing means include two slots formed through the longitudinal ends of the said striker plate, two plates, one for each of the said slots and each having a first respective through-hole, and two screws screwed through the corresponding said first hole and the corresponding said slot into a respective second threaded hole in the said structure so as to press the said plates against the said end of the said striker plate and thereby fix it to the said structure; the perimeter of the said slot being greater than the circumference of the stem of the said screw making it possible, by loosening the said screws, to adjust the position of the said striker plate in relation to the said structure.

The invention will now be described with reference to the appended drawing, which illustrates a perspective view of a preferred non-limitative embodiment of the invention.

In the appended drawing, a lock assembly is generally indicated 1 which includes a lock 2 of known type manufactured by the Applicant and a mechanical striker plate 3 supported by a fixed structure, in particular by a flat vertical wall 4 of a metal section 5. The lock 2 includes a casing 2a, a bolt 6, a mechanism, not-illustrated, for controlling the translation of the bolt 6 from a retracted position to an extended position and vice versa, a cylinder 7 which is controlled by a key, not-illustrated, and is operable to control the said mechanism, a latch 8, and a device, not-illustrated, (which normally has a handle) for controlling translation of the latch from a retracted to an extended position and vice versa.

With reference to Figures 1 and 2, the striker plate 3 comprises an elongate metal plate 11 for fixing to the said flat wall 4 and having, along a substantially vertical longitudinal axis, a first through-slot 12 for engagement of the latch 8 in its extended position and a second through-slot 13 for engagement of the bolt 6 in its extended position. Two housings 14 and 15 are formed in the flat wall 4, aligned with the slot 12 and the slot 13 respectively, for engagement by the latch 8 and the bolt 6. The plate 11 is C-shape in cross section and therefore has a rectangular base wall 16, parallel with the wall 4, in which are formed the housings 12 and 13 and two narrow side walls 17 perpendicular to and in contact with the wall 4.

The striker plate 3 also includes means for fixing the plate 11 to the wall 4. These means include two metal elements 18 fixed by screws 21 to respective longitudinal ends of the plate 11; the longitudinal axis of the elements 18 is aligned with the longitudinal axis of the plate 11. In particular, each element 18 comprises a first flat, rectangular portion 22 with a threaded hole 23 in its centre region , and a second flat, rectangular portion 24 with a through-slot 25 in its centre region; the said portions 22 and 24 are parallel to and in contact with the wall 4. The portion 22 is inserted into an end of the space defined by the plate 4 and the screw 21 is screwed into the hole 23 through a hole 26 formed through the base wall 16. The portion 24 lies outside the space enclosed by the plate 11 and has, on the surface opposite that in contact with the surface 4, a plurality of grooves 27 parallel to the longitudinal axis of the element 18.

For each element 18, the fixing means also include a rectangular plate 28 which, in use, is pressed against the grooved surface of the portion 24. The plate 28 has a through-hole 31 in its central area and has a plurality of longitudinal teeth on the surface in contact with the portion 24, for engaging the grooves 27. A screw 33 is screwed through the hole 31 and then the slot 25 and into a threaded hole 34 in the wall 4. It should be emphasized that the slot 25 measures more than the diameter of the stem of the screw 33 along both its horizontal and its vertical axis and the perimeter of the slot 25 is greater than the circumference of the stem of the screw 33. In addition, the surface area of the plate 28 is greater than that of the slot 25. In the example illustrated, the slot 25 has a rectangular perimeter but it is clear that the perimeter could be a different shape from that illustrated (circular for example).

In use, the holes 34 are first formed in the wall 4 of the section 5 after which the striker plate 3 is fixed to the said surface 4. In order to fix the striker plate correctly, the screws 33 are screwed a few turns into the corresponding hole 34 so as to keep the plates 28 spaced from the respective portions 24, the plate 11, which already carries the elements 18, is then adjusted manually until it is positioned correctly and then the plate 11 is held in position while the screws 33 are fully tightened in the respective holes 34, thereby coupling the plates 28 and the respective portions 24 thanks to the grooves 27.

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

In particular, a mechanical striker plate is provided with means for fixing it to a fixed structure which enable the position of the striker plate itself to be adjusted relative to the said fixed structure. The adjustment is ample since there is considerable clearance in several directions between the screw 33 and the perimeter of the slot 25. This type of adjustment makes it easier to mount the striker plate to the fixed structure as it eliminates the problem of precision when drilling the holes 34.

Claims

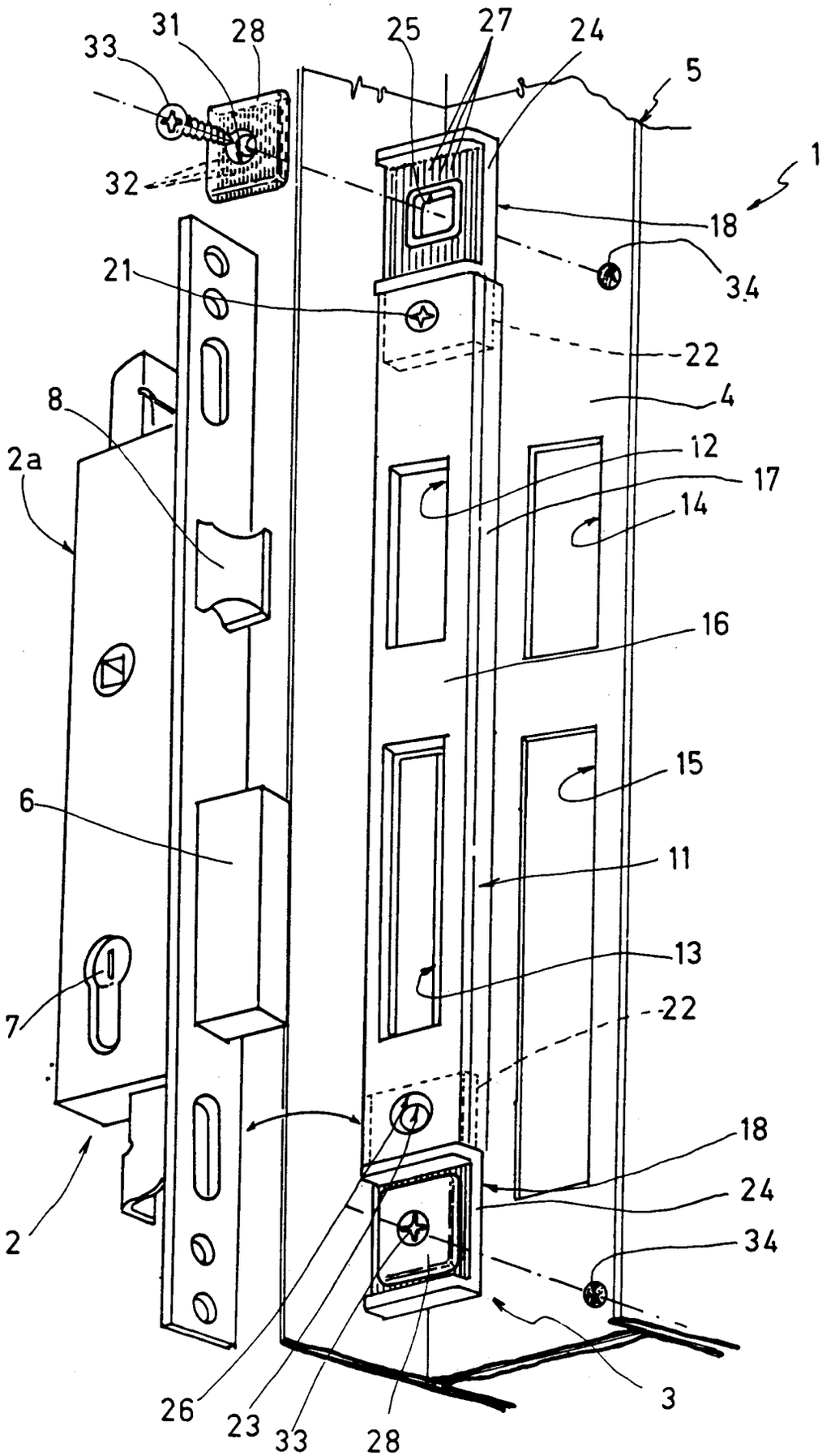
1. A lock assembly including:

   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 having at least one seating (12, 13) for engagement by the said element (6, 8) of the said lock (2);
   means for fixing the said striker plate (3) to the said fixed structure (5);
   characterised in that the said fixing means include two slots (25) formed through the longitudinal ends of the said striker plate (3), two plates (28) one for each of the said slots (25) and each having a respective first through hole (31), and two screws (33) which are screwed through the corresponding said first hole (31) and the corresponding said slot (25) into respective second threaded holes (34) in the said structure (5) so as to press the said plates (28) against corresponding said ends of the said striker plate (3) and thereby fix the latter to the said structure (5); the perimeter of the said slot (25) being greater than the circumference of the stem of the said screw (33) thereby making it possible, by loosening the said screws (33), to adjust the position of the said striker plate (3) relative to the said structure (5).

2. A lock assembly characterised in that the said slot (25) has a rectangular perimeter.

3. A lock assembly according to Claim 1 and/or Claim 2, characterised in that grooves (27) are formed in one surface of the said ends of the said striker plate (3), engaged by teeth (32) formed on one surface of the corresponding plate (28).

4. A lock assembly according to any preceding claim, characterised in that the said striker plate (3) comprises a plate (11) in which the said seating (12, 13) is formed, and two end bodies (18) fixed to the longitudinal ends of the said plate (11); each of the said bodies (18) having a portion (24) representing the said longitudinal end of the said striker plate.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