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File No.: T 0535/92 - 3.2.3
Application No.: 85 105 836.2
Publication No.: 0 161 654
Classification: E05B 27/00, E05B 35/10
Title of invention: Flat key cylinder lock with anti-burglar features,
particularly for use with master key locking systems

D E C I S I O N
of 26 October 1993

Applicant: -
Proprietor of the patent: C.I.S.A. Costruzioni Italiane Serrature Affini
S.p.A.
Opponent: EVVA-Werk Spezialerzeugung von Zylinder- und
Sicherheitsschlössern Gesellschaft mbH & Co. KG
Headword:
EPC: Art. 56
Keyword: "Inventive step (yes)" - "Withdrawal of the opposition"

Headnote
Catchwords



Case Number: T 0535/92 - 3.2.3

D E C I S I O N
of the Technical Board of Appeal 3.2.3
of 26 October 1993

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Decision under appeal: Decision of the Opposition Division of the
European Patent Office dated 16 April 1992
revoking European patent No. 0 161 654 pursuant to
Article 102(1) EPC.

Composition of the Board:

Chairman: C.T. Wilson
Members: J. du Pouget de Nadaillac
L.C. Mancini

Summary of Facts and Submissions

- I. The appeal is directed against the decision dated 16 April 1992 of the Opposition Division of the EPO revoking the European patent No. 0 161 654 (issued on the patent application No. 85 105 836.2) on the ground that the subject-matter of Claim 1, as granted, does not imply an inventive step in the light of the disclosure of documents D1 and D2, included in the following documents on which the opposition was based:
- D1: AT-B-371 883 (corresponding German application = DE-A-3 014 183)
- D2: AT-B-372 473
- D3: DE-C-1 260 340
- D4: DE-C-2 003 059.
- II. The Appellant (Patentee) lodged the appeal on 11 June 1992, the appeal fee having been paid on 9 June 1992. The Statement of Grounds was received on 5 August 1992.
- III. In a communication dated 20 April 1993 of the Board pursuant to Article 11(2) of the Rules of Procedure of the Board of Appeal, the Board set out its provisional view, expressing doubts about the novelty of the subject-matter of Claim 1, in the light of the disclosure of D1.
- On 23 September 1993, the Appellant submitted new claims and new pages of the description.
- IV. By telefax dated 22 October 1993 and confirmed by a letter on 26 October 1993, the Respondent (Opponent) informed the Board that the opposition was withdrawn, that he agreed with the newly filed patent documents and that he would not be attending the planned oral

proceedings. According to the jurisprudence of the Boards of Appeal (see T 629/90, OJ EPO 1992, 654), the Board continued the proceedings.

Oral proceedings took place on 26 October 1993. In the course of these proceedings, the Appellant submitted a complete set of patent documents, comprising:

- Claims 1 to 3
- Description, columns 1 to 4
- Figures 1 to 4.

V. The only independent Claim 1 reads as follows:

"A cylinder lock for preventing operation by a bogus key having deceptive continuous lateral longitudinal groove formations and deceptive continuous lateral longitudinal land formations, said cylinder lock comprising:

a) a casing (1) having an axial cylindrical bore defining an inner wall, a cylinder plug (2) rotatably arranged in said bore, a channel (3) axially formed in said plug for receiving therein a proper key including lateral land formations and lateral notch formations, main tumbler pin means, at least one first auxiliary locking pin unit (13, 17) in said plug and said casing, wherein said first auxiliary unit is of the type including therein a locking member (17) cooperating with said plug (2) and said casing (1) and positionable between a locking position preventing rotation of said plug with respect to said casing and a releasing position allowing rotation of said plug with respect to said casing, said first auxiliary unit including further a controlling member (13) in said plug (2) for controlling the position of said locking member (17), said controlling member (13) having an actuation formation (15) to be actuated by land formations of the

proper key, said actuation formation (15) normally protruding into said channel (3) at a predetermined height of said channel (3) when the proper key is removed from the channel and when said locking member (17) is positioned by said controlling member (13) to prevent rotation of said plug with respect to said casing, said controlling member (13) releasing said locking member (17) to reach said releasing position thereof when said actuation formation (15) of said controlling member (13) is engaged by a land formation of the proper key when the proper key is inserted in said channel (3) and

b) wherein said cylinder lock further comprises at least a second auxiliary locking pin unit (9, 18, 19) of a type different from said first auxiliary locking pin unit (13, 17),

characterized in that

c) at least one of said first auxiliary locking pin unit (13, 17) and at least one of said second auxiliary locking pin unit (9, 18, 19) are both arranged on the same side of said channel (3) at an axial distance from each other,

d) said second auxiliary locking pin unit (9, 18-19) including therein a locking member (9, 18) and an actuation formation (9a, 19), said locking member (9, 18) being positionable between a releasing position allowing rotation of said plug (2) with respect to said casing (1) and a locking position preventing rotation of said plug (2) with respect to said casing (1),

e) said actuation formation (9a, 19) protruding into said channel (3) substantially at said predetermined height of said channel (3) when said

locking member (9, 18) is in said releasing position both when the proper key is removed from said channel and when the proper key is inserted in said channel (3) and the notch formations on the same side thereof skip said actuation formation (9a, 19) of said second auxiliary pin unit (9, 18, 19),

f) thereby, when the proper key is inserted in said channel (3), a land formation provided on the same side of the proper key engages said actuation formation (15) of said first auxiliary locking unit (13, 17) arranged on the same side of the channel at an axial distance from said second auxiliary locking pin unit (9, 18, 19) thereby releasing said locking member (17), so that both the locking member (9) of the second auxiliary locking unit and the locking member (17) of said first auxiliary locking unit on the same side of the channel (3) are in their releasing positions, to allow rotation of said plug (2),

g) said locking member (9, 18) of said second auxiliary locking pin unit being positioned in said locking position thereof when a deceptive continuous longitudinal land formation of a first bogus key engages said actuation formation (9a, 19) of said second auxiliary locking unit when said first bogus key is inserted in said channel (3), and said locking member (17) of said first auxiliary locking pin unit (13, 17) arranged on the same side of said channel (3) being positioned in said released position thereof when said deceptive longitudinal lateral land formation of said first bogus key engages said actuation formation (15) of said locking member (17) on the same side of the channel (3),

h) thereby only said second auxiliary locking unit (9, 18-19) preventing rotation of said plug (2) when said first bogus key having deceptive continuous longitudinal land formations facing the same side of said channel (3) is inserted in said channel (3),

k) said locking member (9, 18) of said second auxiliary locking pin unit being positioned in said releasing position thereof when a deceptive continuous longitudinal lateral groove formation of a second bogus key skips said actuation formation (9a, 19) of said second auxiliary locking unit when said second bogus key is inserted in said channel (3) and said locking member (17) of said first auxiliary locking pin unit arranged on the same side of said channel (3) at an axial distance from said second auxiliary locking pin unit (9, 18-19) being positioned in said locking position thereof when said groove formation of said bogus key skips said actuation formation (15) of said locking member (17) arranged on the same side of the channel (3),

l) thereby only said first auxiliary locking pin unit (17, 13) preventing rotation of said plug (2) when said second bogus key having deceptive continuous longitudinal lateral groove formations facing the same side of the channel (3) is inserted in said channel.

VI. The Appellant's submissions can be summarised as follows:

Document D1 indeed discloses a cylinder lock which comprises, in addition to the main tumbler pin means, two types of auxiliary locking units. However, both these types of auxiliary locking units are arranged on different sides of the lock channel, and the replacement of one type by the other is not suggested, so that a further combination of both types on the same side of

the channel is not obvious. Moreover, the auxiliary locking units according to this prior art have their actuation formations, which protrude at different levels into the channel and not at the same height as is the case with the present invention. Further, the locking units of the second type, namely those which allow rotation of the cylinder plug when the key is removed, do not work in the same way as the corresponding locking units of the present invention: In the lock according to document D1, when no key is in the channel, a burglar can recognise with the help of a tool whether a locking unit is movable or not and, thus, determine the type of locking units, since the first type in a lock according to this prior art is still movable, whereas the second type is not movable in this state of the lock. In the present invention, on the contrary, both types are still movable, so that the burglar does not know with which type he is faced. Thus, the results are not the same between the present invention and the lock according to document D1, in which the locking units are easily detectable, since they are not on the same side of the channel, not at the same height and, further, do not move in the same way.

It is only the result of hindsight to interpret the passage on page 5, lines 5 to 12, of the description of document D1 in the sense that both types of locking units can be arranged on the same side of the key channel. The figures of the document do not support this interpretation and, if the author of this document had wished to give this meaning, he would have included the word "alternatively".

The locking units according to document D2 are arranged outside of the plug, namely in its casing. This document, moreover, as all the other documents cited in the procedure, is not concerned with the problem of

preventing operation of a cylinder lock by means of a so-called "relieved" bogus key, and does not provide or suggest a solution for this problem.

VII. The Appellant requested that the decision under appeal be set aside and that the patent be maintained on the basis of documents submitted at the oral proceedings.

Reasons for the Decision

1. The appeal is admissible.
2. The new Claim 1 contains all the features of the granted Claim 1 and further additional features, which are mainly drafted in terms of the functions of the auxiliary locking pin units when either the proper key or a first or second bogus key is removed or inserted in the channel of the lock. Structural limitations are also added, such as the protrusion of the pins at a predetermined height of the channel (or key) and the protrusion of the locking pins of the second type when the key is removed, said locking pins being in a releasing position. These new features are supported by the description and drawing of the original application. In particular, the protrusion of the locking pins at the same height of the channel are visible on the figures.

These features being supported by the original application and restricting, moreover, the scope of the granted Claim 1, it follows that present Claim 1 complies with Article 123(2) and (3) EPC. The amendments brought in the description and drawings comply, also, with this Article.

3. The preamble of Claim 1 is based upon the state of the art known from document D1. In this citation, two types of auxiliary locking are described.

The hereafter called "first type" comprises the locking pin units which **prevent** rotation of the plug when the key is removed, whereas, in the second type, the locking pin units **permit** rotation of the plug when the key is removed. Figures 4 to 10 of this document D1 show embodiments of the first type, for example pins (22) and (6). On page 4, lines 38, 39, it is indicated that this type of pin can be arranged on one side of the key channel, one unit behind the other. Figure 12 shows an example of the second type, referenced (46). However, as can be seen from Figure 12, this second type of locking unit does not fulfil the structural feature a) of present Claim 1 of the patent in suit, according to which the actuation formation of the locking member of the second type protrudes into the channel "when said locking member is in its **releasing** position (which, according to feature a), allows rotation of the plug), both when the proper key is removed and when it is inserted ...". From Figure 12 of document D1, it is clear that the pin of the second type is not in its "releasing position", when the key is removed, since it rests in the recess of the casing and is consequently in its locking position.

Already, for this reason, the novelty of the subject-matter of Claim 1 is to be recognised.

4. Document D1 does not teach or suggest to arrange both types of auxiliary locking units on the same side of the key channel.

Indeed, the following passage can be found on page 5, lines 32 to 34, of document D1, after the detailed description of Figure 12:

"In the embodiments according to Fig. 1 to 12, separate locking elements, i.e. cylinders (12) or balls (32) always act on the feeler pins (locking pins) (6) **or (22) and (44)**, which are arranged **one behind the other** within the lock."

However, the interpretation of this passage in the sense that different types of auxiliary locking units may be arranged on the same side of the key channel appears to be the result of a hindsight analysis. The sentence which follows this passage suggests to replace the different locking elements by a single common locking rod arranged on one side of the plug, parallel to its axis, for **all** the locking units. Such a common rod can be actuated, only when a single type of locking unit is used and, therefore, this passage has to be interpreted with the meaning that either one type or the other is used, having its pins one behind the other. Thus, the idea of providing different types of locking units on the **same** side of the channel is not given.

Moreover, there is no suggestion to locate all the actuation surfaces of the locking units at a predetermined height. Claim 1 of document D1 teaches only to arrange the different possible actuation surfaces of the key concerning the auxiliary locking units at **different** levels with respect to the height of the key.

5. Therefore, the cylinder lock according to Claim 1 of the patent in suit differs from the lock described in document D1, at least, in that

- (a) different types of auxiliary locking units are arranged on the same side of the key channel (feature a));
- (b) their actuation surfaces are disposed at a predetermined height of the channel (feature e));
- (c) the actuation formations of the auxiliary pin units of the second type protrude into the channel with the locking members of these units being in their releasing position when the key is removed (feature e)).

6. The objective problem to be solved by the present invention is therefore to provide a lock having auxiliary locking pins which can resist burglary efforts using deceptively "relieved" keys.

According to the description of the patent in suit, a "relieved" key is obtained by milling out the flank of a key longitudinally, i.e. forming a longitudinal groove or land formation on the flank of the key over its entire length and at a given height. This problem is already suggested and solved by the lock device according to document D1, but the present invention aims at improving this solution, since a burglar can identify the heights of the locations of the different types of auxiliary locking units of a lock according to document D1 by taking macro-photographs of the channel, and he can, moreover, with the help of sophisticated tools using either the impression technique or the probe procedure, determine the depth of each location within the plug and the type of locking unit. The burglar can, then, prepare two kinds of bogus keys, i.e. a first kind provided with a "relieved" longitudinal groove throughout the length of the key at appropriate height received from the macro-photograph and a second kind of bogus key provided with a "relieved" length or rib

formation throughout the length of the key at the appropriate height. The present invention overcomes this drawback of prior art known locks.

7. The above problem is solved with the features as set out in present Claim 1:

When on the same side of the key channel different types of auxiliary locking units are provided, the relieved bogus key of any one of the above types will be enabled to correctly match and maintain or push into opening position **only** one kind of auxiliary locking unit, but will not be enabled to correctly operate in an opening position the other type of auxiliary locking unit, arranged on the same side of the channel and **at the same height**, since the relieved bogus key has on one side thereof at said height either a groove extending throughout the entire length of the key or a land formation, such that only one type of locking unit could be correctly operated.

Moreover, with the specific kind of locking unit of the second type (new feature c) in point 5) which moves in the channel in the same way as the locking units of the first type, the burglar cannot determine whether a locking unit is of the first or second type.

8. This combination of features a) to c) is also not suggested by the other opposed document D2.

Indeed, this document teaches to provide at one edge or lateral side of a key channel different embodiments of locking units **alternatively** one behind the other. However, an examination of the functions of these locking units shows that, even if two different embodiments are described, they are both of the second type, since they both allow a rotation of the plug as

soon as the key is removed. The lock according to this prior art, as a matter of fact, functions on the basis of quite a different principle, since, when a relieved bogus key is used, one locking embodiment (ball 10) prevents rotation of the plug as soon as a land formation of the bogus key is faced with this embodiment, whereas the other embodiment (balls 14, 21) prevents a rotation only after a rotation about 180° of the plug, and the bogus key cannot, then, be removed. Moreover, the locking units are located inside the casing and not in the cylinder plug.

Thus, this prior art D2 does not consider at all auxiliary locking units, which are at least similar to both types according to document D1 and cannot, therefore, suggest any modification of these types of locking units. Even if it were supposed, nevertheless, that a person skilled in the art had taken from document D2 the very general idea of arranging different locking units on the same flank of a key channel, alternatively one behind the other, he would not have reached the subject-matter of present Claim 1 of the patent in suit, since the suggestion of further employing a particular kind of locking unit of the second type is still missing.

9. The other citations, which have not been referred to in the appeal proceedings, are less relevant and cannot give any lead to the invention as claimed. They were only cited in the opposition proceedings in order to show that the above-mentioned particular kind of locking unit of the second type *per se* was known, however in different contexts.


10. Hence, it follows that the subject-matter of Claim 1 involves an inventive step within the meaning of Article 56 EPC. Dependent Claims 2 and 3 concern particular embodiments and are therefore likewise allowable.

Order

For these reasons, it is decided that:

1. The contested decision is set aside.
2. The case is remitted to the first instance with the order to maintain the patent on the basis of the documents submitted during the oral proceedings.

The Registrar:



N. Maslin

The Chairman:



C.T. Wilson