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D E C I S I O N
of 27 January 1994

Case Number: T 0083/91 - 3.2.3

Application Number: 84901454.3

Publication Number: 0169204

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Language of the proceedings: EN

Title of invention:
Lock device

Patentee:
Pettersson-Beudat, Marianne Margareta

Opponent:
Fritz Fuss GmbH & Co.

Headword:
-

Relevant legal norms:
EPC Art. 52, 56

Keyword:
"Inventive step (yes)"

Decisions cited:
-

Catchword:
-

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Case Number: T 0083/91 - 3.2.3

D E C I S I O N
of the Technical Board of Appeal 3.2.3
of 27 January 1994

Appellant: (Proprietor of the patent)
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Decision under appeal: **Decision of the Opposition Division of the European Patent Office dated 18 September 1990 with the written grounds sent on 26 November 1990, revoking European patent No. 0 169 204 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 present appeal is directed against the decision of the Opposition Division of the EPO dated 18 September 1990 and posted on 26 November 1990, revoking European patent No. 0 169 204 (issued on European patent application No. 84 901 454.3), as granted.

II. Claim 1 of this patent, as granted, reads as follows:

"Lock device including an electrically operable lock unit (2) having at least one lock bolt (15,15') which by means of electrical influence can be moved between a retracted and an extended position relative to the lock unit (2), said lock unit (2) being movable between two positions relative to a surrounding housing (1) when an adjacently located lock mechanism (3) is manually operated,

characterised in that

the lock unit (2) is movable from a first position relative the surrounding housing (1) and adjacent to a coacting striking plate to a second position away from the striking plate only when the manually operated lock mechanism (3) is operated,

thereby permitting a manual opening operation while the at least one lock bolt (15,15') is not being electrically influenced and is maintaining an extended position from the lock unit(2), the lock unit otherwise being prevented from moving from said first position and in that the lock unit (2) includes an electric motor whose rotary movement is transformed by means of a mechanical transmission gear into a linear movement of the at least one lock bolt (15,15'), permitting an opening operation with the lock unit (2) in the first position and without influencing the manually operated lock mechanism (3),

said mechanical transmission gear also preventing attempts to move the at least one lock bolt (15,15') from an extended position relative to the lock unit (2) when the electric motor is not operated."

III. According to the contested decision, the subject-matter of Claim 1 does not imply an inventive step in the light of the disclosure of documents (4) and (7), included in the following documents which were considered during the opposition procedure:

(1) US-A- 608 321
(2) DE-C- 328 736
(3) US-A-3 947 060
(4) DE-C- 136 461
(5) US-A-3 854 310
(6) US-A-3 266 278
(7) US-A-3 767 240.

The Opposition Division considered document (4) as representing the closest prior art and held that the subject-matter of Claim 1 differs from this prior art solely by the provision of an electric motor whose rotary movement is transformed by means of a mechanical transmission gear into a linear movement of the at least one lock bolt, said mechanical transmission gear also preventing attempts to move the at least one lock bolt from an extended position relative to the lock unit when the electric motor is not operated. This was however considered to be disclosed in document (7) to solve the same problem.

IV. The Appellant (Patentee) lodged the appeal on 25 January 1991 and paid the appeal fee. The Statement of Grounds was received on 25 March 1991. Auxiliary requests were submitted therewith.

V. In response to a communication dated 8 February 1993 of the Board asking for technical information concerning a feature of Claim 1 solely defined by functional terms and expressing its provisional view on the inventive step implied, the Appellant filed an answer on 21 April 1993 and the Respondent (Opponent) cited the new following document:

(8) US-A-657 211.

In response to a communication dated 4 August 1993 of the Board pursuant to Article 11(2) of the Rules of Procedure of the Boards of Appeal, both parties filed answers.

VI. Oral proceedings took place on 27 January 1994.

VII. The Appellant requested that the decision under appeal be set aside and that the patent be maintained, either as granted or in accordance with one of two auxiliary requests.

His arguments in support of this request can be summarised as follows:

The electrical means of the lock device known from document (1) exercises a direct influence on the lock bolt of this device and causes this bolt to move linearly with it, whereas in the lock device according to document (4) the electrical means only releases locking means of the lock bolt and has no direct influence on the lock bolt, which further is a rotatable lock bolt. This last device cannot be referred as an electrical lock. Therefore, document (1) is to be considered as the closest prior art. Until the present invention, motor driven locks with gear means were only used in bank doors, as shown by document (7), and not in

ordinary doors, since with these kinds of locks it was not considered possible to open the doors in a very short time, particularly in case of a failure of the electrical circuit. The present invention is, therefore, a novel combination of a sledge with an electrical system, which was previously regarded as unsuitable for doors which had to be openable manually and quickly in a emergency.

VIII. The Respondent requested that the appeal be dismissed and put forward the following arguments:

First of all, the subject-matter of Claim 1 encompasses all kind of doors, and not only apartment or ordinary doors. The wording of this claim is also very broad, since it mainly defines features by functional terms. For example, the lock unit is said to be "otherwise prevented from moving". No means therefor are mentioned in Claim 1 and, when the corresponding structural means are sought in the description of the contested patent, the only means, which can fulfil this function, is the spring which pushes the lock unit against the coacting striking plate of the door, that is to say exactly the same means as those described in document (4). Another example concerns the rack and cog wheel system, namely the manually operated lock mechanism: No means are disclosed in the claim or in the description, which allows the lock unit to move **only when** the manually operated lock mechanism is operated, as mentioned in Claim 1. If, on the other hand, it is accepted that all these kinds of means are so well known in the art that it is sufficient to define them in functional terms, then the corresponding features of Claim 1 are obvious.

Document (4) represents the closest prior art, since it goes beyond the teaching of document (1) by disclosing mechanical means and electrical means for opening the

door, which are independent from one another, whereas in the lock according to document (1) the door can be opened only when both means are simultaneously actuated. For this reason, it is always possible to manually open a door having the lock according to document (5), even in case of interruption of the electrical power, and, thus, the emergency problem underlying the contested invention is already solved in this prior art.

The second problem underlying the contested invention is to prevent unauthorised persons from opening the door. However, the closest prior art, namely document (4), solves this problem, at least partly:

It is well known that in the mechanical field two principles can prevent a movement: Either a force is used, or the form of an element of the device hinders any movement. Both means are equivalent. In the lock according to document (4), the first possibility is applied, namely a spring which prevents the lock unit from moving back into the housing of the lock device, see in this respect column 2, lines 8 to 10 of this prior art. Thus, the function mentioned in Claim 1, namely "the lock unit is otherwise prevented from moving from said first position" is fulfilled in this known device. Claim 1 does not specify the necessary forces and a spring applies a force, which is sufficient to overcome the force applied by means, for example, of a credit card, on the lock bolt.

It follows that the subject-matter of Claim 1 differs from the lock device known from document (4) only in that the lock unit includes an electric motor and a mechanical gear, namely the two last features of Claim 1. An electro-motor powered linear movement of a lock bolt is well known in the art, see documents (6) and (7), and it is a matter of choice for the person

skilled in the art to replace the arrangement concerning the lock bolt shown in document (4) with that shown in documents (6) and (7), where circumstances make it desirable to drive the bolt directly.

Even if it is considered that a spring cannot constitute means for preventing the lock unit to be moved from its first position, the whole solution of the second problem cannot be considered as inventive. Document (4) discloses a lock device having two main moving components, namely the lock bolt and the lock unit. As seen above, because of the emergency requirement, the movements of both components are independent of each other. Therefore, the person skilled in the art, who is faced with the above problem, has no option: when an external force is applied against the lock bolt, he needs to prevent each movement and, thus, has two independent part problems to solve. With regards to the lock bolt, the skilled person knows, for example from document (7), that a motor driven lock bolt prevents attempts to move the lock bolt. For the lock unit, either the necessary means are well known in the art, as discussed above - see for example document (8) - or there is a lack of disclosure, since they are not disclosed in the contested patent. It is pointed out that the replacement of the magnet means according to document (4) by a motor driven system is completely independent of the means to prevent movement of the lock unit, showing thereby the independency of each part problems. Therefore, Claim 1 does not teach any unexpected combination, but its subject-matter shows only an aggregation of known features and, thus, cannot imply an inventive step.

Reasons for the Decision

1. The appeal is admissible.

2. *Novelty*

The novelty of the subject-matter of the granted Claim 1 is not disputed. Thus, the only issue to be decided is whether this subject-matter implies an inventive step as required by Articles 52 and 56 EPC.

3. *Closest prior art, problem and solution*

3.1 The Respondent alleges that, except for the features concerning the electric motor and the mechanical transmission gear, all other features of the granted Claim 1 are known from document (4), an allegation which is contested by the Appellant, who considers document (1) as representing the closest prior art.

3.2 Using the wording of Claim 1, document (4) discloses a lock device including an electrically operable lock unit having one lock bolt which can be moved between a retracted and an extended position relative to the lock unit when an electrical influence is applied, said lock unit being movable between a first position relative to a surrounding housing and adjacent to a coacting striking plate to a second position away from the coacting striking plate when an adjacent located lock mechanism is manually operated, thereby permitting a manual opening operation while the lock bolt is not being electrically influenced and is maintaining an extended position from the lock unit. The lock bolt, when moved, permits an opening operation with the lock unit in the first position and without influencing the manually operated lock mechanism. Due to the fact that

the lock bolt is secured within the lock unit by means of a pin and that electrically influenced stop means prevents a pivotal movement of said lock bolt, means are also provided in this known lock device, which "prevents attempts to move the lock bolt from an extended position relative to the lock unit, when no electrical influence is applied".

3.3 Contrary to the assertions of the Respondent and of the Opposition Division in the contested decision, the two following features are not anticipated by document (4):

(i) The lock bolt can be moved **by means of electrical influence** between its two positions; and

(ii) The lock unit is movable between its two positions **only** when the manually operated lock mechanism is operated, the lock unit **otherwise being prevented** from moving from its first position.

Concerning feature (i): The lock bolt in this closest state of the art is a spring loaded bolt of a semi-rotary type, mounted in the lock unit on a shaft or pin anchored in the lock unit, the spring acting so as to maintain the bolt in its extended position, namely the locking position. In this position, the lock bolt is locked by a rotatable armature of the lock unit. Subjected to the force of a spring, this armature acts as a stop member against a rotation of the lock bolt, but can be attracted by an electro-magnet against the force of its own spring, thereby releasing the lock bolt. The bolt is, then, free to move. However, in the absence of an additional force, it remains in position and is not displaced. Feature (i) is, therefore, not fulfilled, since the electrical influence does not move the bolt. It is only by pushing the door that the lock

bolt, acting as a spring biased latch, moves from its extended position to a retracted position.

Concerning feature (ii): This feature is to be interpreted in the light of the description. One object of the contested patent is to prevent intruders from opening the door by introducing a tool or the like through the door frame and, then, pushing back the lock bolt into the lock housing. The lock unit in said closest prior art, as is the case in the present invention, moves between its two positions by sliding within the lock housing and at least one spring acts on the lock unit in order to maintain it in its extended position. According to the Respondent, this spring forms means which prevents the lock unit from moving from its first position. In the context of the contested patent, this is however not accurate, since, as already seen, the lock unit must be able to move between its two positions, which necessitates a spring having a relatively low spring force, thus quite insufficient to prevent intruders from moving the lock unit. Moreover, the main function of said spring is to return the lock unit to its first position. Thus, whilst this spring may be said to resist movement of the lock unit, it cannot be said to suggest preventing movement, since as described it is intended to allow movement. Interpreted in the light of the object of the present invention, feature (ii) is, therefore, not fulfilled in the lock device according to document (4).

3.4 The distinguishing features of Claim 1 are therefore the two features (i) and (ii), and, further, the feature according to which "the lock unit includes an electric motor whose rotary movement is transformed by means of a mechanical transmission gear into a linear movement of the lock bolt". This last feature, in fact, amplifies feature (i) by describing the way to carry it out, so

that these two features are to be considered together and will thereinafter be referenced as feature (i).

3.5 As already mentioned, according to the description of the contested patent, one technical problem to be solved was to disclose a lock device, which meets existing requirements relating to security against outside influence. The Board is satisfied that this problem is solved by features (i) and (ii) of Claim 1. In the lock device according to document (4), for example, the application of force from a tool used by an intruder makes it possible to open the door, since the lock unit is not prevented from moving away from the first position. Feature (ii) of Claim 1 solves this problem. Indeed, although Claim 1 only defines this feature in terms of its function and the description of the contested patent describes no means of performing this function, the Appellant, following a request of the Board, has shown that the sole mention of this functional feature enables a person skilled in the technical field of lock devices to carry it out, since several embodiments fulfilling this function are well known in the art, as shown by the evidence submitted by the Appellant, namely document (8) and the citations of five other documents.

4. *Inventive step*

4.1 Although several ways for carrying out this function are known, the idea itself of carrying out this function for solving the technical security problem addressed in the disputed patent is not suggested by any one of the cited documents. As pointed out by the Respondent, two conditions are required to solve this security problem: the lock bolt and the lock unit are both to be prevented from moving. The lock device according to document (8), which describes means for performing the function of

feature (ii), does not solved the security problem, since no means prevents the lock bolt from moving, so that the person skilled in the art, faced with this problem, would not have considered this document. Important also is to notice that, in the lock device according to the closest prior art (4), the lock unit must be able to slide inside the lock housing in emergency situations, e.g. when a fire occurs, so that it appears to be contradictory to apply the idea of preventing it from moving. For all these reasons, it is quite doubtful whether, as argued by the Respondent, the person skilled in the art, faced with the security problem and deducing from an examination of the moving parts of the device according to document (4) that one solution would be to lock the lock unit, would have investigated more thoroughly in this direction and found the idea of feature (ii).

4.2 Considering only the security problem, feature (i) fulfils the same function as the means known from document (4), which prevents the lock bolt from moving relative to the lock unit. In this respect, but only in this respect, this feature could be considered as an equivalent means. However, contrary to the Respondent's opinion, feature (i) is not limited to this function, since it concerns also the driving means of the lock bolt, whereas in document (4) there is no identity between the above-mentioned known means for preventing a movement of the lock bolt (pin and stop means) and the means for actuating the bolt (manual movement of the door and spring). This feature is therefore more than merely an element of the aggregation of means mentioned by the Respondent: It solves two problems, namely a part of the security problem, as far as the lock bolt is concerned, and provides means for actuating the lock bolt in both directions of its linear movement.

4.3 As far as the security problem is concerned, there is no need in the lock device according to document (4) to replace by the feature (i) the already existing means for preventing the lock bolt from moving, so that the person skilled in the art is not led on this ground to the claimed feature (i).

4.4 Moreover, no document teaches that a lock driven by means of an electric motor combined with a gear transmission can at the same time be a part solution of the security problem of a lock device comprising manually operated means for operating the lock bolt. Document (7) describes a lock device for vault bank doors, in which the lock is located in the threshold of a door and has no manual opening mechanism. These doors are very heavy and need very strong lock mechanisms, so that only a motor driven lock bolt can be used. The problems are therefore quite different. With these kinds of doors, the safety problem in emergency situations, e.g. in event of a fire, is not considered. Another document, namely document (5), discloses an electrical control motor driven lock device, with which, in one embodiment, a manual opening is possible in case of power failure and which is intended to provide security against intruders, thus solving the same problems as the present invention. When no manual opening means are provided, the electric motor is combined with a transmission gear mechanism, whereas, with manual opening means, it is combined with a **differential** gear. Document (3) similarly teaches the use of a slip clutch between the electric motor and the gear in order to allow a manual opening of the door. Hence, each time that a manual opening is required, additional means are provided between the electric motor and the gear, which drives the lock bolt.

4.5 These documents, consequently, confirm the Appellant's assertion that, until the present invention, the use of a lock bolt directly driven by an electric motor combined with a transmission gear in a lock device including manual opening means was considered as an obstacle, since a main problem is encountered, namely how to open rapidly and manually a door locked by such a bolt in case of power failure. A prejudice against the use of an electric motor and a gear in such a case was existing and , therefore, the Respondent's argument that such a feature results immediately from a wish of having a directly driven lock bolt is to be seen as hindsight view. The inventive merit of the present invention is to be seen in having found that this problem can be overcome by combining an electric motor driven lock bolt with a known lock mechanism comprising a **movable** lock unit, as disclosed by documents (4) and (1).

4.6 The Board comes therefore to the conclusion that the subject-matter of granted Claim 1 of the contested patent implies an inventive step. Claims 2 to 9, which concern embodiments of the lock device, are based on Claim 1 and are valid also.

5. No other result is arrived at when starting from document (1), considered by the Appellant to represent the closest prior art.

6. Since the main request has been allowed, it is not necessary for the Board to consider the auxiliary requests.

Order

For these reasons, it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the first instance with the order to maintain the patent as granted.

The Registrar: The Chairman:

N. Maslin C.T. Wilson