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D E C I S I O N
of 27 January 2005

Case Number: T 0499/03 - 3.2.1

Application Number: 95120246.4

Publication Number: 0719724

IPC: B66B 11/00

Language of the proceedings: EN

Title of invention:

Traction sheave elevator and machine space for a traction sheave elevator

Patentee:

Kone Corporation

Opponent:

Mitsubishi Electric Corporation

Headword:

-

Relevant legal provisions:

EPC Art. 56, 123(3)

Keyword:

"Inventive step - (yes) after amendment"

"Amendments - opposition proceedings"

Decisions cited:

T 0523/00, T 0500/01

Catchword:

-



Case Number: T 0499/03 - 3.2.1

D E C I S I O N
of the Technical Board of Appeal 3.2.1
of 27 January 2005

Appellant: Mitsubishi Electric Corporation
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Representative: HOFFMANN - EITLÉ
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Respondent: Kone Corporation
(Proprietor of the patent) Munkkiniemen Puistotie 25
FI-00330 Helsinki

Representative: Wahl, Hendrik, Dr.-Ing.
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Decision under appeal: Decision of the Opposition Division of the
European Patent Office posted 27 February 2003
rejecting the opposition filed against European
patent No. 0719724 pursuant to Article 102(2)
EPC.

Composition of the Board:

Chairman: S. Crane
Members: J. Osborne
G. E. Weiss

Summary of Facts and Submissions

I. The appeal is directed against the decision posted 27 February 2003 rejecting the opposition against European patent No. 0 719 724.

II. The following prior art cited during the opposition procedure played a role during the appeal:

D5: JP-U-4-50297 (translation into English)

D6: JP-U-61-1176 (translation into English)

D7: JP-U-1-30467 (translation into English).

III. Claim 1 as granted reads:

"Traction sheave elevator comprising an elevator car (1,101) moving along elevator guide rails (10), a counterweight (2) moving along counterweight guide rails (11), a set of hoisting ropes (3,103) on which the elevator car and counterweight are suspended in the elevator shaft (17,117) and a drive machine unit (6,106) driving a traction sheave (7,107) connected to the drive machine unit (6,106) and acting on the hoisting ropes (3,103), characterized in that the drive machine unit (6,106) is placed in a machine room (9,109) provided in the elevator shaft (17,117) or in the elevator shaft (17,117) and its shaft wall (15,115) so as to lie completely on the same side of the elevator shaft wall surface facing outwards from the elevator shaft as the elevator shaft itself, said machine room being provided for taking up the drive machine unit (6,106) or the drive unit (6,106) and its instrument

panel (8,108) and being substantially separated with a wall (14,114) from the rest of the shaft space."

IV. In the contested decision the Opposition Division found that the subject-matter of claim 1 as granted involves an inventive step because *inter alia* D5 does not disclose a machine room.

V. During oral proceedings held 27 January 2005 the appellant requested that the decision be set aside and that the patent be revoked. The respondent requested that the patent be maintained in amended form based on claims 1 to 7, description and drawings submitted at the oral proceedings.

VI. Claim 1 according to the respondent's request reads as follows:

"Traction sheave elevator comprising an elevator car (101) moving along elevator guide rails, a counterweight moving along counterweight guide rails, a set of hoisting ropes (103) on which the elevator car and the counterweight are suspended in the elevator shaft (117) and a drive machine unit (106) driving a traction sheave (107) connected to the drive machine unit (106) and acting on the hoisting ropes (103), characterized in that the drive machine unit (106) is placed in a machine space (109) provided in the elevator shaft (117) and its shaft wall (115) so as to lie completely on the same side of the elevator shaft wall surface facing outwards from the elevator shaft as the elevator shaft itself, said machine space being provided for taking up the drive machine unit (106) or the drive unit (106) and its instrument panel (108) and

being substantially separated with a wall (114) from the rest of the shaft space, and that the machine space extends partly into the shaft wall in the form of a cut-out."

Claim 1 is followed by claims 2 to 7 which define features additional to the subject-matter of claim 1.

VII. The appellant argued essentially:

The closest prior art is that known from D5. This discloses all features of the preamble of claim 1 together with the feature that the drive machine unit is placed in a machine space.

The drive machine unit according to D5 is exposed in the elevator shaft and so has neither sound insulation nor protection from contamination by dirt and dust. It falls within the normal knowledge of the skilled person to provide protection against dirt and it is therefore obvious to arrive at the claimed feature that the drive machine unit is substantially separated by a wall from the rest of the shaft space. Alternatively, D7 explicitly mentions the problem of needing to insulate to reduce noise transmission in an elevator shaft and the skilled person would readily apply this teaching to the arrangement according to D5.

As regards the feature of the machine space being partly provided in a cut-out in the shaft wall, D6 discloses a recess in the wall of the machine room at the base of the shaft in order to accommodate the drive unit. If the drive unit according to D5 were similarly too large for the space available the skilled person

would adopt a similar solution and so arrive at the subject-matter of claim 1.

D6 may also be considered as an alternative starting point for consideration of inventive step, the only difference from the subject-matter of claim 1 being that it employs a winding drum, not a traction sheave. However, these are well known alternatives and the skilled person would readily consider substitution of one by the other.

VIII. The respondent's counter arguments may be summarised as follows:

The elevator according to D5 is specially designed for use in small buildings such as homes and is intended as an alternative to other transport means such as a stair lift. Cost is therefore paramount and the skilled person would not consider the provision of unnecessary features. Noise is a problem only with conventional, high speed elevators. Moreover, D7 concerns itself only with airborne noise. Since the drive machine unit according to D5 is mounted on the guide rails the majority of noise transmission would be through them, not through the air. Contrary to the appellant's interpretation of D6 that document does not have a cut-out in the shaft wall. It has a machine room which is separated from the shaft and which is extended in order to accommodate the drive machine unit. Moreover, traction sheave elevators and drum-type elevators are conceptually different and the skilled person would not attempt to convert one into the other.

Reasons for the Decision

1. The only matter of dispute between the parties in this case is that of inventive step of the subject-matter of claim 1. Nevertheless, the Board considers it useful before considering that point to consider the implications of one of the amendments which have been made to claim 1 during the appeal procedure.
 - 1.1 The drive machine unit of a traction sheave elevator (hereafter "lift") conventionally has been provided in an area of a building which is external to the lift shaft and known as the machine room. The present patent relates to a lift in which the drive machine unit is mounted within the space required by the lift shaft itself, thereby avoiding the need for a machine room. In the application for the present patent as originally filed the expression "machine room" was used only in respect of prior art arrangements and the drive machine unit of the invention was consistently said to be located in a "machine space". During prosecution of the application the expression "machine space" in claim 1 was amended to read "machine room" in the claim as granted and the description was amended to include the wording "... machine room, hereinafter machine space ..." (patent specification column 1, lines 52, 53).
 - 1.2 The expression "machine room" in claim 1 as granted was an important factor in the Opposition Division's positive conclusion on inventive step, stating that D5 does not disclose such a feature (reasons 2.1(b), (c)). However, in the context of the patent specification as a whole and in particular the above-mentioned explicit

statement in column 1 the expression "machine room" in claim 1 as granted does not have the meaning conventional in the art but that of the original expression "machine space" (see T 523/00, reasons 2, 3rd paragraph and T 500/01, reasons 6, 3rd paragraph, neither published in OJ EPO). The amendment of claim 1 to now once again contain the expression "machine space" does not therefore change the subject-matter of the claim upon its proper interpretation and accordingly does not offend against the provision of Article 123(3) EPC.

2. The closest prior art for consideration of inventive step is that known from D5. This document addresses the problem of the excessive space demands of the machine room when a conventional traction sheave lift arrangement is used in small buildings such as houses. Its proposed solution is to locate the drive machine unit within the lift shaft on a mounting block on the upper end of the guide rails along which the lift car and counterweight travel. The entire specification of D5 is silent with respect to any covering for the drive machine unit and it is implicit that there would be greater transmission of airborne noise from the drive machine unit when exposed in the lift shaft than when located in a machine room. Although no machine room is present in D5 the drive machine unit clearly occupies space. D5 therefore discloses the features defined in the preamble of claim 1 together with the feature that the drive machine unit is placed in a machine space.

- 2.1 The characterising portion of claim 1 essentially comprises two sets of features. The first set relates to the location of the machine space within the shaft

and its wall and permits a reduction of the exterior dimension of the shaft for a given size of machine space or an increase in the size of the machine space for a given exterior dimension of the shaft. The second set of features relates to a wall which substantially separates the drive machine unit from the rest of the shaft space and may for example have the effect of providing sound insulation.

2.2 D7 relates to a drum type lift in which the drive machine unit is located in a machine room beside the lift shaft. The description acknowledges previous prior art of this type in which noise transmission from the machine room into the shaft is reduced by providing a sound-proof cover over the aperture. The teaching according to D7 itself is concerned only with improving the construction of the cover.

2.3 D6 relates to a lift arrangement in which the drive machine unit comprising a winding drum is located adjacent the shock absorber in a machine room at the lower end of the lift shaft in order to reduce noise levels within the building. A sound insulating plate separates the machine room from the remainder of the lift shaft in order to reduce the transmission of airborne noise. In the drawing Figure 1 it can be seen that the machine room is of greater cross-sectional area than the lift shaft itself in order to accommodate the drive machine unit. The upper portion of the machine room is reduced in size in order to match the size of the lift shaft.

2.4 From D6 and D7 it can be seen that noise transmission from a drive machine unit located in a machine room is

a known problem. This problem would be exacerbated in the arrangement according to D5 by the exposed mounting of the drive machine unit in the shaft and it would be an obvious measure for the skilled person to provide sound insulation and thereby substantially separate the drive machine unit from the rest of the shaft space by a wall. However, neither D6 nor D7 is concerned with minimising the space requirement of the lift in the same way as D5. The drive machine unit in both D6 and D7 is accommodated in a machine room and there is no suggestion to accommodate it in the lift shaft and in a cut-out in the shaft wall. Even if Figure 1 of D6 were to be considered as disclosing accommodation of the drive machine unit not in a machine room but in the foot of the shaft itself, the wall has been extended beyond the dimension of the lift shaft in order to accommodate the drive machine unit without providing a cut-out. Moreover, the extension increases the space requirement in the building, contrary to the aim of D5.

- 2.5 The Board therefore concludes that the subject-matter of claim 1 is not rendered obvious by the combination of D5 with D6 and/or D7.
3. The appellant's argument based on D6 as the closest and only prior art fails because, as explained in 2.4 above, there is no disclosure of the feature of the machine space being provided in the lift shaft and its wall.
4. Based on the foregoing the Board finds that the subject-matter of claim 1 involves an inventive step (Article 56 EPC). Since claims 2 to 7 contain all features of claim 1 the same conclusion applies to them.

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 amended in the following version:
 - claims 1 to 7, description and drawings submitted at the oral proceedings.

The Registrar:

The Chairman:

A. Vottner

S. Crane