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Datasheet for the decision of 24 November 2008

Case Number: T 0008/08 - 3.2.06

Application Number: 01104023.5

Publication Number: 1112955

IPC: B66B 11/00

Language of the proceedings: EN

Title of invention:
Traction sheave elevator

Patentee:
Kone Corporation

Opponent:
ThyssenKrupp Aufzugswerke GmbH

Headword:
-

Relevant legal provisions:
EPC Art. 123(2)
RPBA Art. 12(1), 12(4), 13(1)

Relevant legal provisions (EPC 1973):
EPC Art. 54, 56, 83, 84, 100(b), 100(c)

Keyword:
"Main request - inventive step (no)"
"First auxiliary request - inventive step (no)"
"Second to fourth auxiliary requests - not admitted"

Decisions cited:
G 0010/91, T 0301/87

Catchword:
-

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Beschwerdekammern | Boards of Appeal | Chambres de recours

Case Number: T 0008/08 - 3.2.06

D E C I S I O N
of the Technical Board of Appeal 3.2.06
of 24 November 2008

Appellant: (Opponent)	ThyssenKrupp Aufzugswerke GmbH Bernhäuser Strasse 45 D-73765 Neuhausen a.d.F. (DE)
Representative:	Grunert, Marcus Hössle Kudlek & Partner Patentanwälte Postfach 10 23 38 D-70019 Stuttgart (DE)
Respondent: (Patent Proprietor)	Kone Corporation Kartanontie 1 FI-00330 Helsinki (FI)
Representative:	Zipse Habersack Kritzenberger Patentanwälte Wotanstrasse 64 D-80639 München (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted 30 October 2007 rejecting the opposition filed against European patent No. 1112955 pursuant to Article 102(2) EPC 1973.**

Composition of the Board:

Chairman: G. Pricolo
Members: M. Harrison
W. Sekretaruk

Summary of Facts and Submissions

I. The appellant (opponent) filed an appeal against the opposition division's decision rejecting the opposition against European patent number 1 112 955.

With its grounds of appeal, the appellant cited *inter alia* the following documents:

D1: JP-63-4058-Y
D1A: Translation of D1 into English
D3: EP-A-0 631 968
D4: EP-A-0 631 967

II. The respondent (proprietor) requested dismissal of the appeal and filed *inter alia* the following documents in support of its arguments:

B2: EP-A-585 684
B3: WO-A-90/15009

III. In its letter of 22 August 2008, the appellant requested acceleration of proceedings due to the existence of parallel infringement proceedings for which an oral proceedings had been set in December 2008.

IV. Having informed the parties that it intended to treat the case on an accelerated basis, the Board issued a summons to oral proceedings.

V. In its letter of 16 October 2008, the appellant filed *inter alia* the following document:

Annex 6: "Untersuchung Rollenträger", test results relating to support element 19 taken from D1.

Additionally, the appellant requested that the patent be revoked on the basis of Article 100(c) EPC.

VI. The Board's communication of 22 October 2008 contained comments *inter alia* concerning Article 100(b) EPC, as well as comments on the objections to lack of novelty and inventive step.

VII. With its submission of 6 November 2008, the appellant filed an opinion from Prof. Dr.-Ing. E. Leidich, Technische Universität Chemnitz, relating to Annex 6.

This opinion is referred to below as Annex 6a.

VIII. In the respondent's submission dated 12 November 2008, a series of auxiliary requests 1 to 4 was filed together with *inter alia* the following further documents:

Annex B7: EP-A-0 585 684
Annex B8: WO-A-90/15009 (same as document B3 *supra*)

The respondent also refused its consent to the introduction of the ground of opposition under Article 100(c) EPC into proceedings.

IX. Oral proceedings were held before the Board on 24 November 2008, during which the appellant withdrew its objection under Article 100(b) EPC.

At the closure of oral proceedings, the following requests remained:

Appellant: revocation of the patent.

Respondent: dismissal of the appeal as a main request or alternatively maintenance of the patent in an amended form based on auxiliary request 1 as filed during the oral proceedings, or on one of the auxiliary requests 2 to 4 as filed with its letter of 12 November 2008.

X. Claim 1 of the main request (i.e. claim 1 as granted) reads as follows, whereby the lettering **(a)** to **(g)** has been inserted by the Board to identify particular features for later reference:

"**(a)** Traction sheave elevator
(b) in which the drive machinery (6, 106) with the traction sheave (7, 107) is placed in the elevator shaft (15)
(c) and the hoisting ropes (3, 103) go upward from the traction sheave (7, 107),
(d) whereby in the horizontal cross-section of the elevator shaft, the vertical projections of the elevator car (1, 101), counterweight (2, 102) and the traction sheave (7, 107) of the drive machinery are separate from each other,
(e) wherein the weight of the elevator car and the counterweight is at least partially supported by at least one guide rail,
(f) and the drive machinery is of a flat construction in the direction of the axis of rotation of the traction sheave

and/or
(g) is mounted on an elevator shaft wall."

XI. In independent claims 1 and 2 of auxiliary request 1, the following wording is added to claim 1 as granted:

claim 1:

", characterized in that the counterweight and hoisting machinery (106) are placed in the elevator shaft (15) on opposite sides of a plane passing through the elevator guide rails (110) and the elevator car (101) is suspended on the hoisting ropes (103) by means of diverting pulleys (108) from the same side of this plane passing through the elevator guide rails (110) as where the hoisting machinery is placed."

claim 2:

", characterized in that the counterweight and hoisting machinery (6) are placed in the elevator shaft (15) on opposite sides of a plane passing through the elevator guide rails (10) and the elevator car (1) is suspended on the hoisting ropes (3) by means of diverting pulleys (8) from the opposite side of this plane passing through the elevator guide rails (10) relative to where the hoisting machinery is placed."

XII. In the sole claim of auxiliary request 2, the following wording is added to claim 1 as granted:

", whereby the counterweight and hoisting machinery (106) are placed in the elevator shaft (15) on opposite sides of and in a distance to a plane passing through

the elevator guide rails (110), whereby the elevator car (101) is suspended on the hoisting ropes (103) by means of diverting pulleys (108) from the same or opposite side of this plane passing through the elevator guide rails (110) as where the hoisting machinery is placed."

XIII. In the sole claim of auxiliary request 3, the following wording is added at the end of feature (f) of claim 1 as granted, whereby feature (g) is incorporated therein:

"... in the direction of the axis of rotation of the traction sheave and its axis of rotation extends perpendicular to the adjacent elevator shaft wall and/or is mounted on an elevator shaft wall, whereby the counterweight and hoisting machinery (106) are placed in the elevator shaft (15) on opposite sides of a plane passing through the elevator guide rails (110), whereby the elevator car (101) is suspended on the hoisting ropes (103) by means of diverting pulleys (108) from the same or opposite side of this plane passing through the elevator guide rails (110) as where the hoisting machinery is placed."

XIV. The sole claim of auxiliary request 4 is the same as that of the third auxiliary request except that the wording "on opposite sides of a plane passing through" is replaced by the following wording: "on opposite sides of and in a distance to a plane passing through".

XV. The appellant's arguments may be summarised as follows:

Main request:

The subject matter of claim 1 lacked novelty over D1. Contrary to the opinion of the respondent, D1 did disclose features (b), (e), (f) and (g). Concerning feature (b), claim 1 defined merely drive machinery in the shaft, without requiring it to be "completely" in the shaft - the proprietor had filed at least one other patent application where the word "completely" was indeed used to define such an arrangement where this was intended; D1 disclosed in one embodiment that it was positioned in the shaft at the bottom of the hoistway and in a further embodiment stored in a notch. Regarding feature (e), D1 disclosed a single guide rail 9 fixed to the shaft wall, whereby rail 9 supported at least some of the weight taken via pulleys 14 and 15 attached to support 19; Annexes 6 and 6a confirmed that elevator car rail 4 also supported part of the weight. Feature (f) was disclosed since the term "flat" could only be regarded as meaning that the drive machinery extended into the shaft less than the counterweight, as shown in Fig. 4 of D1. The motor was anyway geometrically "flat", as could be seen from Fig. 4 when the lower right hand projection was ignored which should be done since it was not an essential part of the drive machinery as was clear from Fig. 3, which showed a dashed line for the sheave but no line for the projection. Feature (g) was an alternative to feature (f) due to the wording "and/or" in the claim.

Excluding the alternative feature (g) and assuming that features (b) and (f) were not disclosed in D1, the subject matter of claim 1 involved no inventive step. The objective problem to be solved in view of these differences when starting from D1 was how to save space.

D3 and D4 taught that space could be saved by using a flat motor placed in the shaft thereby omitting the machine room. Although the counterweight was placed above the motor in D3, this aspect was not functionally linked to the use of a flat motor. The teaching of D3 to a skilled person was such that a flat motor even taken alone had advantages; there was no teaching that the entire arrangement of D3 had to be used. The motor/sheave and machine room of D1 would simply be replaced by a flat compact motor without a machine room from D3. No positional change of the sheave axis was required, because ample space was available to fit a flat motor taught by D3. The relative dimensions shown in Fig. 1 of D3 were not to scale, as was clear from the rotor diameter described compared to the car height shown. Moreover the teaching of D3 was not limited to any specific dimension. If higher power were required, a higher speed could be used. If more space were necessary, only minor constructional changes would be necessary which were well within a skilled person's normal activities.

Auxiliary request 1

The request should not be admitted into proceedings; it was late-filed and not a reaction to a new fact or argument. Its subject matter was complex, due to the number of documents in proceedings and the problem to be solved by its features was unclear. Further, no reason existed for using two independent claims. Additionally the claims were unclear (Article 84 EPC) due to the amendments made, because the diverting pulleys were not clearly identified. An objection under Article 83 EPC 1973 also arose, because diverting pulleys were both on the guide rail and under the

elevator car, so the skilled person needed more information as to which pulleys should be used to carry out the invention.

No space-saving compared to the arrangement in D1 was achieved by the features defined, nor was any problem disclosed in the patent in connection with the relative positioning of the counterweight, drive machinery and guide rail plane. No space saving problem or other problem was solved by the defined placement of the diverting pulleys, so this was simply an obvious planning choice for a skilled person.

Auxiliary requests 2 and 4

The requests should not be admitted as they were late-filed and not allowable. Objections arose concerning the amendments since the expression "in a distance to" did not appear in the application as filed and, in as far as it could be deduced from the Figures, it was a generalisation of the specific arrangement of structural elements shown, contrary to Article 123(2) EPC. It was also unclear what was meant by "in a distance", contrary to Article 84 EPC 1973.

Auxiliary request 3

This request should also not be admitted as it was late-filed and not allowable. The claim was unclear (Article 84 EPC 1973) since the term "adjacent elevator shaft wall" did not clearly define which wall of the shaft was meant. The introduced feature was also disclosed in both D1 and D3, and thus its introduction contributed nothing to inventive step compared to claim 1 of the main request.

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

Main request:

Consent to introduce the ground of opposition under Article 100(c) EPC was refused. Introduction should not be permitted in accordance with G 10/91.

Features (b), (e), (f) and (g) were not disclosed in D1. Feature (b) meant that the drive machinery was not partly but completely in the shaft. This was the normal meaning. Whether other applications had been filed where the word "completely" had been used was not relevant to the interpretation of the present patent. The intended meaning was anyway clear from the purpose of the specific placement, as described in e.g. paragraph [0004] of the patent. The machinery in D1 extended through the shaft wall and was thus not in the shaft but partly outside it. The further embodiment disclosing storage of the hoist motor 13 in a notch in a middle section of the shaft wall also did not imply that the hoist motor 13 was located fully therein; this was not anyway possible due to its width compared to the thickness of the wall. Feature (e) was not disclosed in D1 since the part 9 shown with a broken line in Fig. 5 was not a guide rail 9 at that location, because the counterweight was not guided at that point, it was merely an attachment saddle of the guide rail. It was fastened to the wall but did not carry any part of the weight of the counterweight or car; instead it acted merely as a bracket to keep support member 19 generally horizontal. Any force due to weight occurring at the guide rail saddle connection to the wall was taken by the wall itself and not downwards in the guide rail as required by the patent. A sliding connection

was required at least for elevator guide rails 4 as shown in e.g. B2, B3 and Annex B7 in order to take account of distortion forces acting on the rails; Annexes 6 and 6a were based on schematic drawings in D1 and thus entirely irrelevant. In feature (f), the term "flat" meant the drive machinery had a thickness over its radial extent which was less than its extension radially; the hoist motor 13 in Figs. 1 and 4 of D1 did not meet this definition. Feature (g) was also not derivable from D1; nowhere was any wall mounting disclosed, the motor merely extended through the shaft wall. The subject matter of claim 1 was therefore novel.

Inventive step

Taking only features (b) and (f) of claim 1 to be novel over D1, these features in combination with the other features of claim 1 involved an inventive step. The objective problem to be solved starting from D1 could be regarded as how to save space. Whilst D3 disclosed a flat motor placed in the shaft thereby saving the space of a machine room, the arrangement of D3 also required the counterweight to be positioned directly above the motor, which would then not be in accordance with claim 1. The arrangement disclosed in D3 could not be modified and had to be taken exactly as it was shown. In doing so, there would be no space in the D1 system to use a flat motor because the rotor diameter would have to be bigger than the space available so as to generate the required torque and power necessary when providing the same capacity as the large motor 13 of D1. In D3, the rotor was even larger than the counterweight, as could be seen in Fig. 1 and its 800 mm diameter disclosed in column 4, lines 2 to 6 was approximately twice the diameter which would be used in the Japanese

lift system of D1. In using a necessarily large rotor from D3, the counterweight and guide rail in D1 would present an immovable obstacle to placement of a flat motor where motor 13 was positioned. The skilled person would not consider moving the drive sheave axis shown in the arrangement according to Fig. 3 of D1 because this would create wear problems on the ropes. The motor thickness would also have to be increased to provide the same capacity as the motor in D1, so other problems would be created in the wire runs and with respect to the elevator guide rail positioning. Although a smaller flat motor was depicted in D4, this was in a different position to that in D3 and the skilled person could only rely on the precise arrangement shown in D3. The skilled person would therefore only ever consider replacing the entire drive system in D1 with the entire drive system in D3 and thus would not arrive at the subject matter of claim 1 without hindsight, because the layout in D1 was itself entirely fixed in terms of its position for technical reasons. Even a mixing of features from the different systems in D1 and D3 was itself a hindsight approach, not least because D1 reflected 16 year old and thus outdated prior art. Improving old technology by use of the new concepts in lift systems was not how technical development was done.

Auxiliary request 1

This request should be admitted into proceedings. It contained only two independent claims, each one corresponding to one of the two alternatives defined in dependent claims 4 and 5 as granted. The subject matter was not complex and the appellant had filed its original opposition also against these claims. No objections could be validly made under Article 83 EPC

or Article 84 EPC since the subject matter of new independent claims 1 and 2 was necessarily the same subject matter as the granted claims. The request was filed as a response to the opinion given in the Board's communication.

As to inventive step, the problem to be solved was to provide further space saving. Regarding the particular arrangements defined in claims 1 and 2, these provided space saving effects, as was evident from e.g. paragraphs [0003, 0004 and 0005] especially when considering the Figures in their proper technical context. The arrangement in D1 required the guide rail 4 to be placed on relatively long brackets 4a so as to lie out of the path of the drive sheave, whereas positioning the counterweight and hoisting machinery on opposite sides of a plane through the guide rails, as claimed, allowed the elevator car guide rail to be placed between the sheave and the counterweight and thus closer to the shaft wall. No suggestion of the claimed arrangement existed in the prior art. The further features concerning the placement of the diverting pulleys were not *per se* relevant to the issue of inventive step.

Auxiliary requests 2 and 4

This request should be allowed into proceedings because the feature "in a distance to" was to be understood as meaning that sufficient distance was provided to allow the guide rail to be positioned between the counterweight and the hoisting machinery, which overcame the Board's reasoning regarding auxiliary request 1. It was clear for a skilled person what was meant and the terminology had been claimed exactly as

it was disclosed in all the Figures, so that the subject matter of the claim fulfilled the requirements of Article 84 EPC 1973 and Article 123(2) EPC.

Auxiliary request 3

This request should be allowed into proceedings. The arrangement of the traction sheave axis as now defined was disclosed in the Figures and the description. Its inclusion did not add anything extra than already stated for the other requests concerning inventive step.

Reasons for the Decision

1. Main request

Novelty

The disclosure in D1 of four features of claim 1, namely features (b), (e), (f) and (g), is disputed between the parties.

1.1 Feature (b) - "in which the drive machinery (6, 106) with the traction sheave (7, 107) is placed in the elevator shaft (15)":

This wording does not state explicitly that the drive machinery with the traction sheave is positioned so as to be "completely" in the shaft. However, the wording "placed in" would normally be understood to mean that the drive is placed such as to be entirely at the stated location and not only placed partly there. Moreover, in the context used in the patent, this appears to be the only intended and indeed the only reasonable interpretation which can be ascribed to the

word "in". For example, from column 1, lines 7 to 21 and lines 32 to 55, it is evident that no machine room./.machine space is to be used in the invention, which should have the direct result of saving building space due to the room/space being omitted. This only makes proper sense if the drive machinery, which would be housed in the separate machine room or machine space of the prior art when present, does not still extend outside the shaft when such room/space is omitted, since otherwise only part of the space of the machine room or machine space would be saved. Further, the appellant was unable to show any disclosure within the patent which could lead a skilled person to a different conclusion whereby only part of the motor might be understood as being in the shaft. All Figures in the patent show for example that the drive machinery is in the shaft and not only partly in it. Thus, in the circumstances of the present case, the Board concludes that the terminology "placed in the elevator shaft" can only be understood to mean that the drive machinery is placed such that it is completely in the elevator shaft.

The appellant's argument that the respondent had filed at least one other patent application where the word "completely" was used to make this distinction, and thus that the claim should be interpreted more broadly in the present case, is not found convincing by the Board. There may be many reasons that another application might include such terminology which is specific to the application in question. No evidence has been filed to demonstrate clearly that terminology chosen elsewhere is specifically related to the different terminology used in the present case.

Turning to D1/D1a, this discloses (see D1a in the clause bridging pages 5 and 6; and page 8, second paragraph) a hoist motor 13 located "at the bottom of the hoistway". The hoist motor 13, which the Board equates with the drive machinery in claim 1, extends beyond the wall 1e depicted in Fig. 4. Although the shaft wall 1e may be arranged differently at the bottom of the hoistway whereby it might divert and open out in some way so as to form a wider continuation of the shaft, such a conclusion cannot be unambiguously drawn from D1/D1a. As depicted, the hoist motor 13 extends through and beyond the shaft wall 1e and thus it has been placed so as to lie partly outside the shaft. The Board thus concludes that the drive machinery as shown and described does not correspond to the placement defined in feature (b).

Similarly, although page 8, second paragraph of D1a describes another embodiment where a notch is cut in the right wall 1e in the middle section of the hoistway so as to store the motor, the motor referred to in this section is seemingly the same "motor 13" of the previous embodiment which is depicted as having a width vastly in excess of the width of the wall. The Board therefore finds that the terminology "cutting a notch" and "to store the hoist motor" in this section cannot be taken unambiguously to mean that the drive machinery is entirely stored within the notch, such as might be the case where a special type of motor would be used or an altered wall thickness at that point. Instead this does not exclude the possibility that some part of the drive machinery projects through the wall on the side opposite the shaft.

1.2 Feature (e) - "wherein the weight of the elevator car and the counterweight is at least partially supported by at least one guide rail,":

In D1/D1a, the counterweight guide rail 9 is depicted as being fastened to the support member 9 which itself supports diverting pulleys 14 and 15, which, via the wires 17 and further diverting pulleys, take the weight of the car and counterweight. As disclosed on e.g. page 5 of D1a, last paragraph, the weight rail 9 has the shape of a saddle, whereby the leg sections of the saddle are fastened to the support member 19 and the (central) saddle section is fastened to the wall 1e. As further disclosed on page 7, last paragraph, the attachment of the support member to the counterweight rail 9 with several attachment points to the right wall by way of the rail, produces a "sturdy attachment". The weight of the counterweight and elevator car are thus passed into counterweight rail 9 and taken vertically at least in part by the wall. In order for forces to be taken down the wall due to the connection to the counterweight rail 9, the weight forces must also be transferred into rail 9 and are thus taken by rail 9 itself.

The appellant argued that rail 9 cannot be regarded as being a "guide rail" for the counterweight at the location where it is connected to the wall 1e, but merely as a bracket for rail 9, because the counterweight is not guided in any manner by the rail 9 at the point where it is attached to the wall. The Board finds this argument unconvincing, since the claim defines merely weight supported by a guide rail without specifying in which part of the guide rail such weight

must be supported. Nothing in D1/D1a indicates in any way that guide rail 9 is anything but a continuous member extending from the floor of the shaft up to its connection with the support member 19. Even if the counterweight movement path does not extend right up to the top end of rail 9 visible in Fig. 5, this does not alter the fact that rail 9 in its entirety forms a guide rail. Likewise the terminology of feature (e) does not require that the weight is supported in any particular manner by the guide rail, in particular it does not indicate that weight taken by the guide rail must pass down same, as was argued by the respondent. Column 4, lines 48 to 52 of the patent indeed explains the way in which weight is passed down via an elevator guide rail, but this is not the wording used in claim 1 and moreover relates to specific embodiments with their own particular arrangements. Furthermore, in as far as the respondent's arguments might be understood to indicate that the weight rail 9, and not only the weight rail 4, had to be supported in such a way that sliding clamps, as e.g. in B2, B3 and Annex B7 were necessary due to distortion forces which would otherwise be created in such rails, whereby such clamps prevented weight forces being taken vertically, this argument is not found convincing at least in the case of guide rail 9. The Board considers that the "sturdy" attachment which is formed by its connection to the wall 1e does not leave open a possibility preventing at least a part of the weight being taken by guide rail 9. Annex 6 and 6a supplied by the appellant in view of elevator guide rail 4 thus lack relevance, as it suffices for current considerations regarding the subject matter of claim 1 that D1/D1a discloses at least one rail, i.e. rail 9, which "at least partially"

supports the weight of the car and counterweight. It may also be added nevertheless that annex 6 and 6a are based upon assumptions made about dimensions taken from schematic drawings in D1 and thus any calculation based upon these assumptions has very limited value for the current purpose.

1.3 Feature (f) - "and the drive machinery is of a flat construction in the direction of the axis of rotation of the traction sheave"

The term "flat construction" has no defined meaning in the technical field of lifts, nor does the patent give a definition of what is to be understood by this term. Although it may be the case that some drive machinery may be termed "very flat", this does not provide a definition of the term "flat" itself, but is purely relative. The appellant argued that "flat" should be understood in relation to the passage in col. 3, lines 43 to 49 of the patent, but this is found unconvincing because the cited section only describes that in the Figure 2 embodiment the counterweight extends into the elevator shaft more than the sheave axis dimension. This is not a definition, but merely an explanation of what occurs in the case of flat drive machinery in that particular embodiment. The term "flat" in its normal meaning implies that a larger surface extension is present in a plane extending orthogonally or radially to the depth axis of the drive machinery. This is also the case for the embodiments shown in the patent and is also true for the example of flat drive machinery described in the patent at column 1, lines 22 to 31 by reference to D3.

The dimensions of the hoist motor 3 in D1a are not explained in the written text, although the hoist motor is shown schematically in Figures 3 and 4. From Fig. 3, insufficient information is available to determine the motor depth (in the sheave drive axis direction) compared to its dimensions orthogonally to this. In Fig. 4, the hoist motor 13 is somewhat flat at its upper end, but at its lower end has a very large extension in the sheave axis direction. The presence of the large extension 13 cannot be ignored, as had been argued by the appellant, because its function is not explained in any sense which would make the skilled person understand that it is unambiguously not part of the drive machinery. The argument from the appellant that the extension should be ignored because it is not shown in Fig. 3 by a line or other feature, is not considered convincing, not least because Fig. 3 shows a cross-sectional view through motor 13 without stating where the view is taken.

Thus, on the basis of the disclosure in D1/D1a, the Board concludes that feature (f) is not disclosed therein.

1.4 Feature (g) - "is mounted on an elevator shaft wall"

This feature is preceded by the words "and/or" in the claim. By virtue thereof it is, at least in one embodiment within the scope of claim 1, merely an alternative to feature (f). For the purposes of the present decision which concerns claim 1 including feature (f), feature (g) may be ignored.

1.5 The subject matter of claim 1 is thus novel over D1/D1a in view of features (b) and (f), feature (g) being ignored. Claim 1 therefore fulfils the requirement of Article 54 EPC 1973.

2. *Inventive step*

2.1 Both parties arrived at the same objective problem when starting from the prior art document D1 taking into account the differences (b) and (f), namely that the problem to be solved is how to save space in the D1 lift arrangement.

2.2 A skilled person searching for a solution to this problem is confronted with D3 as this discloses the same underlying problem (see col. 1, lines 4 to 22) caused by the use of a machine room or machine space in the prior art arrangements, it being noted that a particular space-saving advantage can be achieved when omitting the machine room (see e.g. col. 1, lines 30 to 51). In col. 3, lines 21 to 25, it is stated that "drive machine unit 6 placed below the counterweight 2 is of a flat construction as compared to the width of the counterweight, its width being preferably at most equal to that of the counterweight,...". Further in column 4, lines 1 and 2, it is further noted that the drive machine can be of a "very flat construction" having a diameter of 800 mm and a minimum thickness of "only about 160 mm". Immediately following this, it is explained that the "drive machine unit used in the invention" can easily be accommodated in the space according to the extension of the counterweight path. From at least the aforegoing, the skilled person is taught that the space used by the presence of drive

machinery located essentially in a machine room can be saved by the use of a flat drive machine placed in the shaft.

2.3 When presented with the machine room space and the drive machine 13 in D1/D1a, together with the teaching of D3, the skilled person immediately recognises that a space saving would be achieved by omitting the machine room and accommodating flat drive machinery in the shaft. The schematic drawings in D1/D1a in Figs. 3, 4 and 5 show the drive sheave 13a in a position where its drive axis projects outwards from the wall containing the drive machinery and counterweight wires, as does the drive machinery arrangement of D3. The skilled person wishing to achieve the advantages noted in D3 would therefore use this teaching and replace the motor and machine room of D1 therewith. Use of the teaching of D3 in this way by a skilled person is found by the Board to be obvious.

2.4 The respondent argued that a skilled person would not replace motor 13 by the flat drive machinery of D3 because D3 discloses only a complete arrangement in which the flat drive machine lies in the counterweight path, which was incompatible with the D1 drive system, and that a skilled person was limited to taking the D3 arrangement exactly as it was shown. However, the Board finds this argument unconvincing, since a skilled person is not restricted to exactly the arrangement which appears in depicted embodiments of a prior art document, nor is a skilled person restricted to taking an entire arrangement to necessarily replace an entire existing arrangement. On the contrary, when considering inventive step, a skilled person must consider the

teaching of a prior art document and not merely what is disclosed in certain embodiments. As stated above, the advantages obtained in D3 by the omission of a machine room/space are taught as resulting from the drive machinery being of a different type (i.e. flat) and being placed in the shaft. The position of the counterweight is not something which itself results in space used by the machine room being saved, even if the counterweight placement results in other advantages. A skilled person, presented with a lift system arrangement is not restricted to incorporating all elements of another arrangement when it is evident that a particular problem is solved by using only one or more of these elements.

2.5 The respondent also argued that the drive machinery of D3 had to be taken as it was, so that a skilled person could not use the rotor sheave 7 in D3 to take the position of rotor sheave 13a of D1 because the former would be too large for the space available, especially taking account of the large motor in D1 and the spacing to the adjacent counterweight. The Board is not convinced by this argument, since even if insufficient space were available to take the rotor of D1 into the existing drive axis position in D1, this is no barrier for a skilled person because a skilled person is able to make minor structural changes to accommodate different sized drive machinery parts as part of his normal skills. It may also be noted that Fig. 1 of D3 is not drawn to scale since the drive motor is depicted as being overly large compared to the elevator car, whereas the description discloses a drive sheave diameter of only 800 mm (see e.g. column 4, lines 1 to 6) for a load capacity of 800 kg; this can be compared

to D4, Fig. 1, showing a vastly different size relationship, yet disclosing the same rotor dimensions (see col. 7, lines 45 to 49). If the respondent's argument were accepted that the D3 rotor must be taken as it is disclosed, i.e. such that the drive sheave diameter of 800 mm is a fixed diameter and such that the drive sheave diameter in D1 must be about 400 mm based on a typical Japanese lift system, the drive sheave axis would anyway only need to be moved 20 cm to the left at maximum in the arrangement shown in Figure 3 of D1 to accommodate the D3 drive sheave whilst keeping the same distance to the counterweight path. Whilst such a modification might alter the rope path in some cases, this would only be a minor modification in terms of the angle subtended by the wires at the drive sheave. Even if a larger torque and power were also inherent in the D1 arrangement as compared to the arrangement shown in D3 (which already has an 800 kg capacity), albeit that this is not apparent to the Board from the lift arrangement disclosed in D1, the skilled person has other possibilities at his/her disposal which allow a larger torque and not just a larger power (which can be obtained by increasing rotational speed) to be achieved. For example, increasing the depth of the rotor for the same rotor diameter is possible, especially given the space available when considering the amount by which the hoist motor 13 projects beyond wall 1e into the shaft 1. Any such modifications are considered however to lie within the skilled person's normal activities which would not require the exercise of any inventive skill.

2.6 The respondent's further argument that D1 represents a 16-year old system and that a skilled person would

therefore not use single features from D3 therein is not agreed because this relies on a subjective and not an objective approach. The system of D1 uses a machine space behind wall 1e, which takes up space in the building. As soon as D3 was published, it would be evident to a skilled person that lift systems having a machine room/space would potentially benefit from using a flat sheave drive rotor, as this specific information underlies the teaching of D3. A skilled person wishing to install a D1 arrangement into a new building and wishing to save the space taken up by the machine room/space used in previous designs would immediately be taught that this can be done by using a drive system as in D3. The fact that motor efficiency and other factors may have changed between the publication of D1 and the publication of D3 would not cause the skilled person to ignore the system design of D1 nor the blatant applicability of the teaching of D3 to the problem to be solved. The further related argument of the respondent that using old technology and applying new concepts is simply not how technical development is done, is also a subjective view ignoring the objective problem to be solved; it is not relevant whether lift companies actually continue to use the D1 system or not with a flat motor drive of the type known from D3 or D4 or whether they turn to completely new systems, since there may be many other factors influencing such decisions, not least purely commercial ones.

2.7 The subject matter of claim 1 therefore lacks an inventive step when starting from D1 and combining this with the teaching of D3. The requirements of Article 56 EPC 1973 are therefore not fulfilled.

3. *Auxiliary request 1*

3.1 Introduction of late-filed auxiliary request 1 into proceedings:

Auxiliary request 1 was merely a slightly modified form of auxiliary request 1 filed with the respondent's reply of 12 November 2008 following the Board's communication of 22 October 2008. The slight modification resulted from an objection made during oral proceedings. It must however be noted that the Board gave no direction to the respondent to file an auxiliary request (see Article 12(1)(c) of the Rules of Procedure of the Boards of Appeal (RPBA)) when issuing its communication, such that the request does not necessarily have to be taken into account under Article 12(4) RPBA. Thus the request is to be considered as late-filed and as an amendment to the party's case which may only be admitted and considered at the Board's discretion (Article 13(1) RPBA). The Board's discretion should be exercised in view of *inter alia* the complexity of the new subject-matter, the current state of proceedings and the need for procedural economy.

The appellant argued that the request was complex since the problem to be solved by its features was unclear and that there were many documents in the proceedings which concerned possible problems to be solved, that the proceedings were very advanced because the requests had been filed only just before oral proceedings and that the request was not a reaction to the Board's communication and was not procedurally economic. However, the Board finds that the subject-matter is not

complex merely because no specific problem is given in the patent. Also, in the present case, the consideration of very few documents seems to be involved when determining whether either one of claims 1 or 2 involves an inventive step. Further, the claims are directly taken from granted claims 4 and 5, against which the appellant had filed its original opposition. The appellant's further argument concerning the fact that there is an increase to two independent claims in the request compared to only one as granted is also not a reason to refuse admittance into proceedings, because in this case the two independent claims relate to two incompatible alternatives which cannot be defined clearly in a single independent claim. Whilst it is correct that procedural economy must be observed, this aspect cannot be seen in isolation from the aspect that the subject matter is not complex and is indeed taken from the granted claims, and was filed in writing prior to the oral proceedings.

The auxiliary request 1 is thus admitted into the proceedings.

As to the appellant's objection that the claims are clearly not allowable under Article 84 EPC 1973, the Board notes that the subject-matter of present claims 1 and 2 is the same as that of granted claims 4 and 5. Any alleged lack of clarity is therefore not caused by an amendment arising out of the combination of the claims but would be present in the claims as granted. To allow such an objection to be considered would be tantamount to considering Article 84 EPC 1973 as being a ground of opposition against granted claims 4 and 5 (see e.g. T 301/87, Reasons items 3.7 and 3.8). The

objection made under Article 84 EPC 1973 therefore fails.

The further objection made under Article 83 EPC 1973 also fails since no objection under Article 100(b) EPC 1973 was made against claims 4 and 5 as granted when filing the opposition in conjunction with the fact that the objection does not arise out of the amendments made. Furthermore, the appellant's objection that the skilled person requires further identification of the diverting pulleys defined in the claims in order to carry out the invention anyway fails because Article 100(b) EPC 1973 is concerned with the disclosure in the patent, not merely the wording of the claims; the disclosure in the patent clearly explains how the elevator car can be suspended on the hoisting ropes by means of diverting pulleys numbered 108 (see e.g. col. 4, lines 30 to 32). The skilled person is therefore presented with sufficiently clear and complete information for carrying out the claimed invention.

3.2 *Inventive step:*

The respondent argued that the problem to be solved by the subject matter of the independent claims (e.g. claim 1) is to save further space, and that this is achieved by the claimed features because the elevator car guide rail can be positioned in the space that exists between the counterweight and the hoisting machinery. However the Board does not find this argument convincing since whilst claim 1 defines a plane through the elevator guide rails, it does not define in any sense how far on either side of such plane the counterweight and hoisting machinery might be

placed. They may for example be placed immediately on either side of this plane. Certainly there is nothing in the claim itself which would suggest that these parts need to be positioned sufficiently far on either side of such plane such that adequate room exists for a guide rail to be inserted between the counterweight and hoisting machinery and thereby save space. The description is also silent on the dimension of any such distance/space and contains no indication of a problem which is to be solved by the defined features. The respondent's argument that paragraphs [0003, 0004 and 0005] in some way disclose the problem to be solved is also unconvincing, since whilst saving in building space and economy of space utilization are discussed generally in these paragraphs, no specific correlation is made with guide rail positioning or locations of the counterweight and hoist machinery with respect thereto. The Figures in the patent do show that space is left on either side of the guide rail plane, but no convincing indication has been provided by the respondent to show that it is in some way disclosed to a skilled person that the purpose of the arrangement defined in present claim 1 is such as to allow the guide rail to be positioned between the counterweight and hoisting machinery to save space. Thus the Board cannot agree with the respondent's interpretation of claim 1 that a particular distance on either side of the guide rail plane must be understood as being present and that this distance must be sufficient to allow the guide rail to be placed closer to the shaft wall between the counterweight and hoisting machinery. The definition of these elements being positioned on either side of the guide rail plane seems if anything only relevant in that it forms a set of reference locations relating to

the following feature of the claim which concerns the positioning of the diverting pulleys in relation to this plane and the position of the hoisting machinery.

In D1, the guide rail plane is admittedly not at the location defined in claim 1. Its positioning at a location as defined in the claim cannot however be seen as anything more than a matter of simple layout choice without any particular advantage. Further, in D1, it is noted that the distance of the guide rail 4 from the shaft wall 1e is determined by the depth by which the counterweight extends into the shaft and not by the counterweight and hoisting machinery position.
In concordance with the submission of both the appellant and the respondent, the Board also concludes that the final feature of the claim relating to the position of the diverting pulleys adds nothing relevant to inventive step considerations. Therefore, since the positioning of the diverting pulleys on any particular side of the guide rail plane appears to be nothing more than a matter of appropriate design choice according to the particular circumstances of any particular lift layout, the Board is unable to attach any inventive significance to this feature when seen in combination with the other features of the claim.

Based on the above, the Board finds that the subject matter of claim 1 does not involve an inventive step and thus that the requirement of Article 56 EPC 1973 is not met.

4. *Auxiliary requests 2 and 4*

Introduction of late-filed auxiliary requests 2 and 4 into proceedings:

As explained above with regard to auxiliary request 1, the Board must exercise its discretion concerning whether to allow the late-filed requests into proceedings under Article 13(1) RPBA. The expression "in a distance to", which is used to further limit the claim to defining that the counterweight and hoisting machinery are each placed at a distance from the plane and not merely immediately on either side of the plane is however unclear (Article 84 EPC 1973), since how large the distance should be is not defined. In particular it is still not defined whether this distance is large enough to allow the guide rail to be positioned between the counterweight and the hoisting machinery. Since both auxiliary request 2 and auxiliary request 4 contain this feature, both auxiliary requests are clearly not allowable.

Furthermore, in as far as the feature "in a distance to" is alleged to have its basis in the application documents as filed, the respondent argued that the distance as defined now in the claims was disclosed in the Figures. However, whilst the Board concludes that counterweight and hoisting machinery are indeed positioned at a distance on either side of the guide rail plane in these Figures, this characteristic is merely one of many relating to the positional interrelationship of a combination of parts shown in each Figure. No basis in the disclosure can be found which indicates to a skilled person that this feature,

in isolation, can be taken from the combination of features shown in the Figures which include for example the arrangement of the diverting pulleys (4, 5 and 104, 105) set in a particular positional relationship to the counterweight and hoisting machinery. The amendment is thus an intermediate generalisation for which there is no basis in the application as filed contrary to Article 123(2) EPC.

Since the auxiliary requests were filed at a very late stage of proceedings and since the subject matter of the claim of each is clearly not allowable, the need for procedural economy lead to the Board exercising its discretion under Article 13(1) RPBA and deciding not to allow the party to change its case by introduction of these late-filed requests into proceedings.

5. *Auxiliary request 3*

As explained above the Board must exercise its discretion concerning whether to allow the late-filed requests into proceedings under Article 13(1) RPBA. The amendment made by way of auxiliary request 3 concerns the definition of the extension of the axis of rotation of the traction sheave perpendicular to the adjacent elevator shaft wall. Since, as explained *supra*, claim 1 lacks an inventive step when starting from D1 and combining this with the teaching of D3, nothing in this analysis is altered by defining the extension of the axis of rotation of the traction sheave, because in each of D1 and D3 the traction sheave also has its axis of rotation extending perpendicular to the adjacent elevator shaft wall. The respondent also agreed that the introduction of this feature did not affect the

reasoning regarding lack of inventive step which was given with regard to the subject matter of claim 1 of the main request.

Since the subject matter of the claim of this request is therefore clearly not allowable for the same reasons as apply to claim 1 of the main request, the Board exercised its discretion under Article 13(1) RPBA, as set out under item 4 above, not to allow the party to change its case by introduction of this late-filed request into proceedings.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The patent is revoked.

The Registrar: The Chairman:

M. Patin G. Pricolo