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**Datasheet for the decision  
of 29 May 2008**

**Case Number:** T 0155/07 - 3.2.06

**Application Number:** 99936066.2

**Publication Number:** 1023236

**IPC:** B66B 7/06

**Language of the proceedings:** EN

**Title of invention:**

Traction elevator system using a flexible, flat rope and a permanent magnet machine

**Patentee:**

Otis Elevator Company

**Opponent:**

INVENTIO AG

**Headword:**

-

**Relevant legal provisions:**

EPC Art. 56  
RPBA Art. 13

**Keyword:**

"Inventive step (yes)"  
"Late filed request (admissible)"  
"Documents filed in the appeal proceedings"

**Decisions cited:**

-

**Catchword:**

-



Case Number: T 0155/07 - 3.2.06

**D E C I S I O N**  
of the Technical Board of Appeal 3.2.06  
of 29 May 2008

**Appellant:** Otis Elevator Company  
(Patent Proprietor) 10 Farm Springs  
Farmington  
CT 06032 (US)

**Representative:** Leckey, David Herbert  
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**Respondent:** INVENTIO AG  
(Opponent) CH-6052 Hergiswil NW (CH)

**Decision under appeal:** Decision of the Opposition Division of the  
European Patent Office posted 20 November 2006  
revoking European patent No. 1023236 pursuant  
to Article 102(1) EPC.

**Composition of the Board:**

**Chairman:** P. Alting Van Geusau  
**Members:** G. Pricolo  
R. Menapace

## Summary of Facts and Submissions

- I. The appeal is from the decision of the Opposition Division posted on 20 November 2006 revoking European patent No. 1 023 236, granted in respect of European patent application No. 99 936 066.2.
- II. The opposition division considered that the main and first auxiliary request of the patent proprietor were not allowable for lack of inventive step having regard to the disclosure of documents
- D5: "Hannover Messe: Neue Idee von ContiTech-Hubgurte für Aufzüge", Contitech, April 1998, pages 14-16;
- D3: "Design of Brushless Permanent-Magnet Motors", J.R. Hendershot Jr., TJE Miller, Magna Physics Publishing and Clarendon Press, Oxford, 1994, pages 1-1 and 15-2, 15-3.
- III. The appellant (patent proprietor) lodged an appeal on 30 January 2007. Payment of the appeal fee was recorded on the same day. With the statement setting out the grounds of appeal, received at the EPO on 30 March 2007, the appellant requested that the decision under appeal be set aside and the patent be maintained on the basis of the main request (corresponding to the first auxiliary request considered by the Opposition Division in the decision under appeal) or one of the first to third auxiliary requests filed therewith.
- IV. With letter dated 3 August 2007 the respondent (opponent) filed two new documents:

D11 : European Standard EN 81-1: 1998; and

D12 : JP-A-7-117957, filed together with the English abstract and a computer generated translation in English.

V. Summons for oral proceedings to be held on 29 May 2008 were issued on 25 February 2008.

VI. With letter dated 24 April 2008 the respondent filed additional documents, namely

D13: EP-B1-0 688 735;

D14: "Tractielift zonder machinekamer", article by Frank de Groot and Joop Wilschut published in BouwWereld nr. 19 of 11 October 1996; and

D15: English translation of JP-A-9-21084.

VII. In its letter dated 13 May 2008 the appellant commented documents D12 to D15 and requested that they not be admitted because filed late and not sufficiently relevant.

In a following letter dated 19 May 2008 the appellant further commented D13 to D15 and submitted fifth and sixth auxiliary requests of maintenance of the patent in amended form.

VIII. With letter dated 20 May 2008 the respondent filed an English translation of document D14.

IX. Oral proceedings, at the end of which the decision of the Board was announced, took place on 29 May 2008.

The appellant requested that the decision under appeal be set aside and that the patent be maintained with the amended description and claims 1 to 7 ("Main Request") both as submitted during the oral proceedings, and Figs. 1 to 3 as granted.

The respondent (opponent) requested that the appeal be dismissed.

X. Claim 1 under consideration according to the sole request of the appellant reads as follows:

"1. An elevator system (10) having a car (12) and a counterweight (16) disposed within a hoistway (23) defined by hoistway walls (30), the elevator system including:

a rope (20) engaged with the car (12) and the counterweight (16) so as to suspend the car and counterweight, the rope including one or more load-carrying members (52), wherein the load-carrying members (52) are formed from steel wires having a diameter of 0.25 mm or less, and a sheath (54), wherein the sheath is formed from a non-metallic material; and

a machine (22) arranged within the hoistway and including a traction sheave (36) and a motor having a rotor (44) and a stator (42), wherein the rotor (44) is spaced radially inward of the stator (42), and further including an air gap (50) between the rotor (44) and stator (42), the traction sheave (36) being directly connected with the rotor (44) for concurrent rotation and engaged with the rope (20) to drive the rope

through traction between the rope and traction sheave, and thereby drive the car (12) through the hoistway (23), wherein the rotor (44) is formed in part from permanent magnets (48);

wherein the rope (20) has a width  $w$ , a thickness  $t$  measured in the bending direction, and an aspect ratio, defined as the ratio of width  $w$  relative to thickness  $t$ , greater than one."

XI. The arguments of the appellant in support of its request can be summarized as follows:

Document D12, which represented the closest prior art, disclosed an elevator system comprising a permanent-magnet motor which outer rotor was directly engaged with conventional ropes. D12 did not disclose the features of claim 1 concerning the use of a flat rope formed from steel wires and a sheath of non-metallic material, the dimensions of the steel wires included in the rope, and the provision of a rotor spaced radially inward of the stator. The latter feature implied that the traction sheave was axially spaced from the rotor. These features not only allowed to reduce the space occupied by the machine but also prevented heat generated from being conducted straight into the ropes. This latter effect was very important for ropes having a sheath of non-metallic material, as such materials deteriorated rapidly when heated. The skilled person would not consider replacing the motor of D12 with a motor according to D10 because the whole thrust of D12 was in providing the traction sheave directly on the outer surface of the rotor. Moreover, neither D10 nor D12 were concerned with the problem of avoiding heating

of the ropes, as both related to conventional steel ropes which were not susceptible to heat.

When starting from D5 the skilled person would have no reason to consider reducing the space occupied by the motor as D5 was silent about the placement of the motor and further because it related to elevators having no walls, i.e. for which there were no space constraints at all. Therefore, the skilled person would have no incentive for, firstly, including the motor arrangement of D10 in the elevator system of D5 and secondly, arranging it within the hoistway. Also, D5 included no reference to the diameter of the steel wires that should be included in the rope.

D13 and D14 were not relevant to the claimed subject-matter because they disclosed an elevator system comprising a machine having a relatively flat construction, in which the rotor was not radially but axially spaced from the stator. D15 related specifically to a flat rope intended for use in the field of looms and thus there was no reason for which the skilled person could or would apply the teaching of D15 to the design of an elevator system.

XII. The respondent objected that the appellant's request was not admissible because filed late and also that the appellant's request was not allowable for lack of inventive step. Starting from D5 and faced with the problem of reducing the space occupied by the machine, the skilled person would be led by the disclosure of document

D10: JP-A-9-142761 (and English translation thereof),

to provide a motor having a rotor formed in part from permanent magnets. For the same purpose, the skilled person would consider reducing as much as possible the dimensions of the steel wires included in the rope, thereby arriving in an obvious manner at the subject-matter of claim 1.

In a second approach starting from D12, the skilled person faced with the problem of reducing the space occupied by the machine would consider using a motor of the kind disclosed by D10, having the rotor inside the stator and a separate sheave, rather than a rotor spaced radially outward of the stator and directly engaged with the rope as disclosed by D12. For the same purpose, the skilled person would consider using flat ropes as disclosed by D5, and also reducing as much as possible the dimensions of the steel wires included in the rope, thereby arriving in an obvious manner at the subject-matter of claim 1. Furthermore, D10 was concerned with the problem of reducing the heat generated by the motor. In any event, the fact that a flat rope would be less subject to the heat generated by the motor if the sheave was separated from the motor, was a side effect of the obvious provision of both these features in the elevator system according to D12.

In a further approach, the claimed subject-matter was obvious in view of documents D13 to D15. Although late-filed, these documents were prima facie relevant so that they must be introduced into the proceedings. In particular D13 and D14 related to the same elevator system in which the rotor was spaced radially inward of the stator.



## **Reasons for the Decision**

1. The appeal is admissible.
2. *Admissibility of the document D12 and of the appellant's request*
  - 2.1 During the discussion at the oral proceedings of the first auxiliary request filed by the appellant with its grounds of appeal, the Board decided to take into consideration document D12 (Article 12(4) of the Rules of Procedure of the Boards of Appeal and Article 114(1) EPC), which had been filed by the respondent during the written phase of the appeal proceedings (see point IV above), in view of its relevance to the claimed subject-matter under consideration. The admissibility of D12, which was questioned by the appellant during the written proceedings, was no longer contested by the appellant at the oral proceedings.
  - 2.2 Claim 1 under consideration corresponds to claim 1 of the auxiliary request 6 filed with letter dated 19 May 2008, with the addition of the feature that the machine is arranged within the housing. The filing of this claim constituted a reaction to Board's decision taken during the discussion of the first auxiliary request at the oral proceedings to admit document D12, and to the objection made by the Board during the discussion of auxiliary request 6 that this request was not convergent (in the sense that the amendments made did not appear to constitute a further restriction of the subject-matter claimed in the requests previously discussed). Furthermore, since as compared to claim 1

of the first auxiliary request, the amendments made to claim 1 only consisted in the introduction of features of granted dependent claims, claim 1 could be reasonably dealt with without substantially delaying the proceedings.

For these reasons the Board decided to exercise its discretion pursuant to Article 13 RPBA in favour of the appellant by admitting its request.

3. *Amendments*

3.1 Claim 1 combines the features of granted claims 8 (independent), 13 (dependent on any of claims 1 to 10) and 14 (dependent on claim 13), 3 and 4 (the features of which are found in claims 18, 19, 23, 24, 11 and 12, respectively, of the application as filed).

Claim 1 further includes the following additional features:

- (i) a counterweight;
- (ii) the hoistway is defined by hoistway walls;
- (iii) the rope is engaged with (*the car, as recited by claim 1 as granted, and additionally with*) the counterweight so as to suspend the car and the counterweight;
- (iv) the machine is arranged within the hoistway.

Features (i), (iii) and (iv) can be undisputedly derived from the application as filed (see in particular the last paragraph of page 4 of the original application).

Feature (ii) can also be derived from the application as filed, which mentions "a wall of the hoistway" (see page 5, line 11 of the application as filed) and in Fig. 1 clearly shows a plurality of walls. During the oral proceedings the respondent raised an objection under Article 123(2) EPC in respect of this feature, however only in connection with claim 1 of a previous request which was later abandoned by the appellant. That claim covered the embodiment of Figs. 4 and 5 for which one wall only is disclosed. This embodiment is no longer covered by claim 1 of the request under consideration (it has been excised from the description and drawings) and therefore the respondent's objection does not necessitate further comments.

3.2 Dependent claims 2 to 7 correspond to granted dependent claims 10, 15 to 18 and 7, respectively.

3.3 The description was amended to reflect the restrictions introduced in claim 1 and to acknowledge the relevant prior art disclosed by D5 and D12.

3.4 Therefore, the amendments made do not give rise to objections under Article 123(2) and (3) EPC.

#### 4. *Novelty*

The board is satisfied that none of the cited prior art documents discloses the claimed subject-matter. Since novelty was not at dispute in the appeal proceedings, detailed reasons need not be given in this respect.

5. *Inventive step*

5.1 In general, the problems underlying the patent in suit are to provide an elevator system that efficiently utilize the available space and meet the duty load and speed requirements over a broad range of elevator applications (see par. [0007] of the patent in suit) and to reduce energy consumption (see par. [0013]) without negatively impeding the safety requirements or service intervals of the elevator system.

5.2 Document D12 constitutes the closest prior art because it relates to an elevator system of the same kind as that of claim 1, namely an elevator system with a machine arranged within a hoistway which comprises a permanent-magnet motor, and is concerned with the same problems of the patent in suit of efficiently utilizing the available space and reducing energy consumption (see the paragraph [0006] to [0008] of the computer generated translation, see the English abstract).

The respondent submitted that D5, alternatively, could be regarded as the closest prior art. D5, however, although disclosing an elevator system including flat ropes (i.e. in which the aspect ratio of the rope is greater than one), is silent about the emplacement of the machine, about the kind of motor used, and in particular about any concerns about the space occupied by the machine and the efficiency thereof. Therefore, it constitutes a less appropriate starting point for the assessment of inventive step.

5.3 Using the wording of claim 1 of the patent in suit, document D12 discloses (see Figs. 1 to 3) an elevator

system having a car (4) and a counterweight (6) disposed within a hoistway (1) defined by hoistway walls, the elevator system including:  
a rope (8) engaged with the car (4) and the counterweight (6) so as to suspend the car and counterweight,  
a machine (15) arranged within the hoistway and including a traction sheave (18) and a motor having a rotor (18) and a stator (17), and further including an air gap between the rotor and stator, the traction sheave (18) being directly connected with the rotor (it being integral therewith, see Fig. 7) for concurrent rotation and engaged with the rope (8) to drive the rope through traction between the rope and traction sheave, and thereby drive the car (4) through the hoistway (1), wherein the rotor (18) is formed in part from permanent magnets (see Fig. 7: the elements 25 are permanent magnets, see also the last page of the computer generated translation).

According to the teaching of D12, the ropes used are of the conventional type (see Fig. 7) including steel wires, and the motor has an outer rotor (18) and an inner stator (17).

Therefore, the subject-matter of claim 1 of the patent in suit is distinguished from the elevator system according to D12 by the following features:

- (i) the rotor is spaced radially inward of the stator;
- (ii) the rope includes one or more load-carrying members, wherein the load-carrying members are formed from steel wires and a sheath, wherein the sheath is formed from a non-metallic material;

(iii) the steel wires have a diameter of 0.25 mm or less;

(iv) the rope has a width  $w$ , a thickness  $t$  measured in the bending direction, and an aspect ratio, defined as the ratio of width  $w$  relative to thickness  $t$ , greater than one.

5.4 Features (ii) and (iv) define a type of rope different from the conventional one used in D12, namely a type of rope which does not have a circular cross section but a width greater than its thickness and in which steel wires are included in a sheath of non metallic material. Contrary to the appellant's view, the use of this different type of rope does not have as a necessary result the provision of a traction sheave of smaller diameter and, as a consequence, it does not necessarily lead to a machine of smaller dimensions (cf. par. [0013] of the patent in suit). In fact, these features do not necessarily imply that the rope is "flat" (note that the patent in suit mentions that it is a "flat" rope that allows a smaller diameter traction sheave, see col. 2, line 21 ff.). According to the wording of the claim, the rope might for instance consist of more load-carrying members having an oval cross section that would require essentially the same sheave configuration as that disclosed by D12. Furthermore, even the use of a flat rope does not necessarily imply the use of smaller traction sheave, but only allows the corresponding design possibility. Claim 1 indeed does not exclude that a relatively large traction sheave is used. Moreover, the provision of a smaller traction sheave not only depends on the use of a flat rope but also on other design options (such as the motor type, materials chosen, etc.). From the above it follows that

features (ii) and (iv) can only be seen to have the effect of providing a different type of rope.

The fact that the rotor is spaced radially inward of the stator implies necessarily that the traction sheave, which is directly connected with the rotor, is provided at a location axially spaced from the portion of the rotor which interacts with the stator and which is the main heat source of the motor (see par. [0015] of the patent in suit). Therefore, as compared to the arrangement of D12, feature (i) results in that the rope is less subject to heat generated by the motor. Heat generated by the motor does normally not represent a problem for conventional ropes mainly formed from steel wires, but it may lead to degradation of the rope if the latter has a sheath of non-metallic material in accordance with distinguishing feature (ii) (see par. [0015] of the patent in suit). Accordingly, feature (i) interacts with feature (ii) in that it reduces the risk of deterioration and premature failure of the rope due to heat.

By selecting the diameter of the steel wires in accordance with feature (iii), a rope is obtained which has a good flexibility (see par. [0022] of the patent in suit). Although using a more flexible rope allows the design possibility of using a smaller traction sheave (see par. [0024] of the patent in suit), the latter feature is not a direct consequence of the use of a rope which is more flexible. In fact, a flexible rope might also be used on large traction sheaves.

Therefore, the distinguishing features result in the provision of a different type of rope which has good flexibility and durability.

Accordingly, starting from the closest prior art disclosed by D12, the objective technical problem solved by the above-mentioned group of distinguishing features can be seen in providing an alternative rope type which has good flexibility and durability.

- 5.5 The skilled person looking for an alternative rope type would consider the disclosure of document D5 which specifically relates to ropes for use in elevator systems instead of the conventional ropes, and which consist of steel wires enclosed in a rubber sheath (see page 15, first par. of the 2<sup>nd</sup> column). In view of the specific advantages of these ropes mentioned in D5 (see page 15, 2<sup>nd</sup> and 3<sup>rd</sup> column), the skilled person would consider replacing the conventional ropes of the elevator system according to D12 by the ropes in accordance with D5. In performing this obvious step, the skilled person would simultaneously include distinguishing features (ii) and (iv) in the elevator system according to D12.

The Board further takes the view that also the inclusion of distinguishing feature (iii) would be obvious to the skilled person. Document D5 does not specify the diameter of the steel wires used.

Accordingly, when implementing the teaching of D5 in the elevator system of D12, the skilled person would be faced with the practical problem of finding appropriate dimensions for the steel wires. Since the claimed range for the diameter of the steel wires does not provide



any particular technical effects but only leads to a certain flexibility of the rope, and since a certain flexibility is clearly desirable for any elevator rope engaging a sheave, the skilled person, taking into account other design requirements such as the elevator capacity, would arrive at steel wires having a diameter within the claimed range by the mere exercise of normal design procedures.

However, in the Board's judgment there is no hint in the prior art which would lead the skilled person to provide, in addition to distinguishing features (ii) to (iv), distinguishing feature (i) in the elevator system according to D12. A specific teaching of D12 is to achieve a substantial reduction of the space occupied by the machine by using an outer rotor motor which directly engages the rope (see page 11, par. [0045] of the computer generated translation; see the patent abstract). Document D10 discloses a machine for an elevator comprising a rotor which is spaced radially inward of the stator and a traction sheave which is axially spaced from the motor (see Fig. 1). However, there is no indication in D10 which would lead the skilled person to consider that the disclosed arrangement would provide any advantages over the arrangement disclosed by D12. In fact, the advantages of the elevator machine disclosed by D10, in particular size reduction, improved efficiency, reduced voltage source capacity, are achieved by the use of a permanent-magnet motor (see par. [0017] and [0018] of the translation). Since also the motor of D12 is of the permanent-magnet type, the skilled person would consider that the machine of D10 would not provide any further advantages in the elevator system of D12, but

only the disadvantage of an increased axial size due to the provision of a traction sheave which is disposed at an axial distance of the rotor rather than being integral therewith as in D12. Moreover, since the elevator's machine according to D10 includes conventional ropes, there is no basis in D10 for recognizing that the provision of a motor with an inner rotor and a traction sheave at a distance from the interacting portions of rotor and stator in the elevator system of D12 modified by the provision of a rope having a non-metallic sheath as disclosed by D5, would provide a substantial technical advantage, namely a reduction of the risk of degradation of the rope by the heat generated by the motor with the resulting negative effect on safety and service intervals. Not necessarily would this problem be recognized when replacing the ropes of the elevator system of D12 by flat ropes in accordance with D5. In such a case, considering that D12 makes use a permanent-magnet motor which is an efficient type of motor, the problem of heating the ropes would only become apparent in that context when providing a relatively small sized sheave, which implies the provision of an electric motor being relatively small in diameter, i.e. a motor which, for a comparable power, heats more than a motor of larger diameter. In the absence of any indication in the cited prior art from which the skilled person could immediately recognize that the inclusion of feature (i) in the elevator system of D12 would provide a substantial technical advantage, in particular in regard of greater design flexibility in respect of the sheave diameter (this also being supported by feature (iii) of the rope), the skilled person would have regarded such modification in the context of the

combination of D12 and D10 as disadvantageous only and would have refrained from carrying it out. Since the reason for carrying out this modification is the non-obvious recognition of the above mentioned technical effect, the claimed modification involves an inventive step.

- 5.6 Even under the assumption that document D5 is an appropriate starting point, in accordance with the alternative approach of the respondent, the skilled person would not arrive in an obvious manner at the subject-matter of claim 1.

Using the wording of claim 1 of the patent in suit, D5 undisputedly discloses an elevator system having a car and a counterweight, the elevator system including: a rope engaged with the car and the counterweight so as to suspend the car and counterweight, the rope including one or more load-carrying members, wherein the load-carrying members are formed from steel wires and a sheath formed from a non-metallic material; and a machine including a traction sheave and a motor having a rotor and a stator, wherein the rope has a width  $w$ , a thickness  $t$  measured in the bending direction, and an aspect ratio, defined as the ratio of width  $w$  relative to thickness  $t$ , greater than one.

Contrary to the appellant's view, D5 also discloses that the car and the counterweight are disposed within a hoistway defined by hoistway walls. D5 does not show elevators having a totally enclosed shaft but relates to industrial elevator systems for displacing automobile bodies in a factory (see the figures on page 15) and to "glass elevators" (see the figure on

page 14 and page 16, first par.), i.e. elevators having a glass car providing panoramic views while travelling in the elevator. Although not necessary in an elevator provided in an industrial environment, it is clear for the skilled person that some kind of partial enclosure (in particular at the basis of the elevator) must be present in glass elevators for security reasons. Such enclosure, even if it does not extend all the way along the travel path of the elevator, can be seen as defining the contour of a hoistway, which contour is generally defined by hoistway walls (the expression "hoistway defined by hoistway walls", which was not present in the granted claims, is to be interpreted broadly).

Accordingly, the subject-matter of claim 1 differs from the elevator system according to D5 in that the steel wires of the rope have a diameter of 0.25 mm or less, the machine is arranged within the hoistway, the rotor is spaced radially inward of the stator, the motor includes an air gap between the rotor and stator, the traction sheave is directly connected with the rotor for concurrent rotation and engaged with the rope to drive the rope through traction between the rope and traction sheave, and thereby drive the car through the hoistway, wherein the rotor is formed in part from permanent magnets.

These distinguishing features solve the problem of improving the efficiency of the machine (due to the use of a permanent-magnet motor, see col. 1, lines 26 to 28 of the patent in suit), finding a suitable emplacement for the machine (i.e. within the hoistway) and a suitable motor type.

D5 does not disclose where the machine should be provided. In the case of the elevators for use in industrial environments for displacing automobile bodies shown in the figures on page 15, a hoistway is neither recognizable nor necessary and therefore these embodiments do not suggest to provide the machine within the hoistway. As regards glass elevators, for which as stated above a hoistway contour can be defined, there is no reason why the skilled person would consider placing the machine within the hoistway. In fact, in the absence of a totally enclosed shaft and thus of design restrictions in terms of space availability, and in view of the fact that the emplacement of the machine in glass elevators is dictated mainly by esthetical reasons (see D5, page 16, first paragraph), the skilled person would not consider placing the machine in an immediately and well visible location such as within the hoistway. Furthermore, there is no indication in the cited prior art that the particular selection of the rotor/stator arrangement and traction sheave directly connected with the rotor would provide a technical advantage, namely reducing the risk of heating the rubber sheath of the rope (see page 15, first par. of the middle column) of the elevator system according to D5.

- 5.7 The respondent submitted that D10 was concerned with the problem of reducing the heat generated by the motor and therefore the skilled person would consider it as advantageous to replace the motor of the elevator system according to D12 with the motor disclosed by D10. However, in accordance with the teaching of D10 the reduction of the heat generated by the motor is due to

the provision of a permanent-magnet motor (see par. [0017] and [0018] of the English translation). Since the elevator system according to D12 also has a permanent-magnet motor, no advantages that could be attributed to the motor of D10 in terms of heat reduction would be apparent to the skilled person.

The respondent further submitted that the reduced heating of the rope, and thus the effect of reducing the risk of degradation of the non-metallic sheath of the rope, was to be regarded as a mere side effect of the obvious provision of a motor according to D10 in the elevator system according to D12. However, as explained above, such modification is per se not an obvious one.

5.8 Given that the subject-matter of claim 1 cannot be considered as being obvious, it is concluded that it involves an inventive step (Article 56 EPC).

6. *The late-filed documents D13-D15*

6.1 Documents D13 to D15 were filed by the respondent after oral proceedings had already been appointed. They constitute late-filed documents which pursuant to Article 13(1) RPBA may be admitted and considered at the Board's discretion. The criteria for exercising this discretion are the complexity of the new subject-matter submitted, the current state of the proceedings and the need for procedural economy (see Article 13(1) RPBA, second sentence).

6.2 The respondent submitted that these documents were prima facie highly relevant to the claimed subject-

matter: the elevator system according to D13 and D14 did not comprise a flat rope, but the latter feature was obvious in view of D15.

Contrary to the respondent's view, the disclosure of documents D13 and D14 further importantly differs from the claimed elevator system in that they are concerned with the provision of a motor in which the stator (9, which comprises core packet 12, see Fig. 2 of D13) is axially spaced from the rotor (14, which comprises permanent magnets 23). The air gap forms a plane 16 perpendicular to the shaft 7 of the motor (see par. [0016] of D13). Such motor configuration does not correspond to the motor configuration according to claim 1 of the patent in suit, wherein the rotor is spaced radially inward of the stator. The respondent submitted that in the Figures of D13 the rotor was contained within the housing of the stator and thus also radially spaced from the stator. It is true that in these Figures a portion of the rotor, including the permanent magnets (23), is shown to be radially inwardly of an outer portion of the stator housing. The wording of claim 1 cannot however be interpreted in such broad manner, but as requiring that the rotor as a whole, or at least the main components thereof including the permanent magnets, is spaced radially inward of the stator as a whole, or at least the main components thereof including the electrical windings. This is not the case in the motor according to D13 and D14 where the electrical windings of the stator axially face the permanent magnets of the rotor.

Accordingly, on a prima facie appraisal, the combination of D13/D14 with D15 suggested by the

respondent is not such to lead the skilled person to the claimed subject-matter, i.e. it is not such to invalidate the above conclusion in respect of inventive step.

Therefore, for reasons of lack of sufficient relevance and procedural economy, the Board exercises its discretion not to admit documents D13 to D15 into the proceedings.

7. For these reasons the patent documents in accordance with the sole request of appellant form a suitable basis for maintenance of the patent in amended form.



## Order

### For these reasons it is decided that:

1. The decision under appeal is set aside.
2. The case is remitted to the opposition division with the order to maintain the patent as follows:
  - claims 1 to 7,
  - amended description (columns 1 to 6),both submitted during the oral proceedings before the Board,
  - Figures 1 to 3 as granted.

The Registrar:

The Chairman:

M. Patin

P. Alting van Geusau