Internal distribution code:

(A) [-] Publication in OJ
(B) [-] To Chairmen and Members
(C) [-] To Chairmen
(D) [X] No distribution

Datasheet for the decision of 13 May 2015

Case Number: T 1842/12 - 3.2.06

Application Number: 05396015.9

Publication Number: 1591406

IPC: B66B19/02

Language of the proceedings: EN

Title of invention:
Method and apparatus for changing the rope of a traction sheave elevator

Patent Proprietor:
Kone Corporation

Opponent:
INVENTIO AG

Headword:

Relevant legal provisions:
EPC 1973 Art. 54, 56
RPBA Art. 13(1)

Keyword:
Late-filed auxiliary requests - admitted (yes)
Novelty - auxiliary request (yes)
Inventive step - auxiliary request (yes)

Decisions cited:
T 0850/06, T 1129/97

This datasheet is not part of the Decision.
It can be changed at any time and without notice.

Catchword:

This datasheet is not part of the Decision.
It can be changed at any time and without notice.

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern
Boards of Appeal
Chambres de recours

European Patent Office
D-80298 MUNICH
GERMANY
Tel. +49 (0) 89 2399-0
Fax +49 (0) 89 2399-4465

Case Number: T 1842/12 - 3.2.06

D E C I S I O N
of Technical Board of Appeal 3.2.06
of 13 May 2015

Appellant: (Opponent)	INVENTIO AG Seestrasse 55 Postfach 6052 Hergiswil (CH)
Respondent: (Patent Proprietor)	Kone Corporation Kartanontie 1 00330 Helsinki (FI)
Representative:	Graf Glück Kritzenberger Hermann-Köhl-Strasse 2a 93049 Regensburg (DE)
Decision under appeal:	**Decision of the Opposition Division of the European Patent Office posted on 20 June 2012 rejecting the opposition filed against European patent No. 1591406 pursuant to Article 101(2) EPC.**

Composition of the Board:

Chairman	M. Harrison
Members:	M. Hannam
	W. Ungler

Summary of Facts and Submissions

I. An appeal was filed by the appellant (opponent) against the decision of the opposition division to reject the opposition to European patent No. 1 591 406. It requested that the decision be set aside and that the patent be revoked.

II. In its letter of response, the respondent (proprietor) requested that the appeal be dismissed, auxiliarily that the patent be maintained in an amended form according to one of auxiliary requests 1 to 13.

III. The Board issued a summons to oral proceedings followed by a communication containing its provisional opinion, in which it indicated *inter alia* that the ground for opposition under Article 100(c) EPC appeared to prejudice the maintenance of the patent as granted.

IV. With letter dated 16 March 2015 the respondent filed auxiliary request 14.

V. Oral proceedings were held before the Board on 13 May 2015, during which the respondent filed a replacement auxiliary request 14 and further auxiliary requests 15 and 16. The respondent subsequently withdrew the main request and the auxiliary requests 1 to 15, auxiliary request 16 thus being the sole request.

The appellant requested that the decision under appeal be set aside and that the European patent No. 1 591 406 be revoked.

The respondent requested that the decision under appeal be set aside and that the patent be maintained as amended in the following version:

Description: pages 2, 2a, 3 and 4 as filed during the oral proceedings of 13 May 2015; pages 5 and 6 as granted;
Claims: Nos. 1 to 10 of auxiliary request 16 filed during the oral proceedings of 13 May 2015;
Drawings: Figures 1 to 13 as granted.

VI. The following documents are relevant to the present decision:

D2 JP-A-2001 287877 (including English language abstract); and
D6 Elevator World Educational Package and Reference Library, 1990 Edition, Vol. 2, Elevator Maintenance and Traffic, pages II-55 to II-58, The 13 Steps in Reroping Today's Elevators.

VII. Claim 1 of auxiliary request 16 (the sole request) reads as follows:
"A method for changing the rope of a traction sheave elevator, in which the new rope (1) is fastened as an extension to the old rope (4) threaded over the diverting pulleys (2) and traction sheave (3), and the new rope is pulled by means of the old rope into the place of the old rope, and in which the old rope (4) of the traction sheave elevator is secured by both ends to a fixed overhead structure (5) and passed between the ends over diverting pulleys (2) provided on the elevator car (6) and on a possible counterweight (7) and over the traction sheave (3) driven by a drive apparatus (8), and in which method:
a) the elevator car (6) and possible counterweight (7) are supported on a fixed structure to ease the rope,
b) the old rope (4) is taken clear of contact with the rope groove (9) of the traction sheave (3) and continued to be passed over the traction sheave,

c) both ends of the old rope (4) are detached from the fixed overhead structure (5),
d) one of the detached ends of the old rope (4) is joined to the end of the new rope (1) in an end-to-end manner,
e) the old rope (4) and the new rope (1) connected as an extension to it are pulled so that the old rope and the new rope pass over the diverting pulleys (2) and traction sheave (3) until the new rope is in the former place of the old rope,
f) the ends of the old rope (4) and new rope (5) connected together are released from each other,
g) both ends of the new rope (1) are secured to the fixed overhead structure (5),
h) the new rope (1) is brought into tractive contact with the traction sheave (3), and
i) the support holding the elevator car (6) and the possible counterweight (7) is removed to allow them to be supported by the new rope (1), and wherein
before step e) a rope pulling device (12) is brought into tractive contact with the old rope (4) at a point near the end of the old rope, and in step e) the ropes are pulled by the rope pulling device (12), which rope pulling device is suspended on a fixed structure in the elevator shaft by working on top of the elevator car."

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

Auxiliary request 16 should not be admitted since it was filed at the very last moment possible (during oral proceedings) and fifteen higher ranking auxiliary requests had already been tabled. This auxiliary request could, and should, have been submitted within the time limit for final submissions indicated in the communication of the Board.

The subject-matter of claim 1 lacked novelty over D6. The term 'rope pulling device' was very general and should not be interpreted restrictively. Whilst [0044] of the patent disclosed a motorised rope pulling device, the scope of the claim was not so limited. According to T1129/97 the scope of the claims was defined by the claims alone without reference to the description. The guiding pulley transmitted the pulling force as indicated in Fig. 10. Thus, the rope on which the men at the bottom of the elevator shaft pulled in combination with the guiding pulley shown in Figs. 9 to 11 were to be seen as the 'rope pulling device' of D6. In fact the weight of the pulled rope alone could be considered as providing the motive force in D6.

Feature b) was also known from D6. The skilled person understood from the position of the man holding the new rope at the landing of Fig. 10, that his purpose was to free the old rope from contact with the rope groove of the traction sheave. As an implicit consequence of feature b) being disclosed in D6, feature h) - whereby the new rope is brought into tractive contact with the traction sheave once more - must also be known. Furthermore, the alleged chronology of the claimed alphabetically labelled method steps was not unambiguously to be understood as disclosing sequential method steps according to the alphabetic order.

The subject-matter of claim 1 lacked an inventive step when starting from D6 and combining this with the teaching of D2 as well as the general knowledge of the skilled person. Faced with the problem of changing the ropes with less effort whilst eliminating manual handling, Figs. 3 and 6 in combination with the abstract of D2 provided a teaching to lift the main ropes out of the drive sheave. Also in the patent the

rope was not taken clear of contact of the traction sheave; Fig. 8 merely showed a theoretical position of the rope on the sheave; in reality the rope would dip onto the sheave between the illustrated three relief devices. Since it was not contested that the skilled person also knew of the existence of motorised rope pulling devices, it was not necessary to rely on further documents (labelled F1 to F3 mentioned in the grounds of appeal) which confirmed such knowledge. The skilled person would thus simply have substituted a motorised rope pulling device for the manual labour involved in changing the ropes in D6. As found in T850/06 such an automation cannot be credited with an inventive step. The rope pulling device would also be positioned by the skilled person in the position of the guiding pulley i.e. suspended on a fixed structure in the elevator shaft, since it was replacing the guiding pulley.

The amended description failed to identify which features of claim 1 were not known from D6, thus not assisting the reader of the patent to understand where the invention lay.

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

Auxiliary request 16 filed during oral proceedings was made in response to the Article 123(2) EPC objection raised in the Board's preliminary opinion. It was furthermore a simplification of the auxiliary request 14 previously on file as the apparatus claims had been deleted.

The subject-matter of claim 1 was novel as D6 failed to disclose the following features of the claim:

b) the old rope being taken clear of contact with the rope groove of the traction sheave;
h) the new rope being brought into tractive contact with the traction sheave; and
a rope pulling device with which the ropes are pulled, which rope pulling device is suspended on a fixed structure in the elevator shaft.

The claim also involved an inventive step starting from D6 and considering the technical problem to be solved, also in light of the teaching provided in D2 taken together with the general knowledge of the skilled person. D2 provided no hint to lift the rope clear of the traction sheave, rather only reducing the friction between the rope and the sheave. It might be considered obvious to start from D6 and replace the manpower, positioned at the bottom of the elevator shaft, with a rope pulling device, but then only in the same location as where the pulling force was applied by the manpower. The skilled person received no suggestion of positioning the rope pulling device anywhere else.

Reasons for the Decision

1. Auxiliary request 16

1.1 Admittance of the request into proceedings.

1.1.1 According to Article 13(1) of the Rules of Procedure of the Boards of Appeal (RPBA), after filing the grounds of appeal or reply, any amendment to a party's case may be admitted and considered at the Board's discretion, such discretion being exercised *inter alia* in view of the complexity of the new subject-matter submitted, the current state of the proceedings and the need for

procedural economy.

1.1.2 The respondent filed auxiliary request 16 during oral proceedings before the Board. Its admittance is thus to be decided at the Board's discretion under Article 13(1) RPBA.

1.1.3 Auxiliary request 16 comprises method claims 1 to 10. Compared to auxiliary request 14 filed in response to the Board's preliminary opinion, the present request has all the apparatus claims deleted. The request thus presents less complex subject-matter than that previously on file through auxiliary request 16 at least in this regard.

The subject-matter of claim 1 of the present request was first filed as claim 1 of auxiliary request 14 in response to the Board's preliminary opinion. Since this opinion considered a particular aspect of the objection under Article 123(2) EPC for the first time, the respondent's action to overcome this objection with an amended claim 1 in auxiliary request 14 was appropriate and, contrary to the opinion of the appellant, timely. The request was filed after the respondent became aware of the objection and within the time limit set in the preliminary opinion of the Board and was essentially a combination of filed and granted claims 1, 2 and 6, together with the wording from paragraph [0018] of the application as filed (see the published A2-version of the filed application). The further amendment in this request compared to the method claims of auxiliary request 14, namely the deletion of claim 9 and renumbering claims 10 and 11 thereof as 9 and 10 (by means of which a repetition of wording contained in claim 1 was removed) was indeed not filed immediately when the claims of auxiliary request 16 were first

filed during the oral proceedings, but only after objection to claim 9 by the appellant. However this amendment was of no consequence for the examination of claim 1 and was a particularly non-complex matter of restoring conciseness required by Article 84 EPC resulting itself in no further objections; the Board thus did not see this as a reason not to admit the (final) form of the claims in this request.

1.1.4 In view of the above, the Board exercised its discretion under Article 13(1) RPBA to admit auxiliary request 16 into the proceedings.

1.2 Novelty

The subject-matter of claim 1 is novel (Article 54 EPC 1973) over D6.

1.2.1 D6 discloses (see Figs. 4 to 13):
A method for changing the rope of a traction sheave elevator (see entire document), in which the new rope is fastened as an extension to the old rope (Figs. 8 and 9) threaded over the diverting pulleys and traction sheave, and the new rope is pulled by means of the old rope into the place of the old rope (Figs. 10 and 11), and in which the old rope of the traction sheave elevator is secured by both ends to a fixed overhead structure (Fig. 1) and passed between the ends over diverting pulleys (Figs. 1, 3 and 4) provided on the elevator car and on a possible counterweight and over the traction sheave driven by a drive apparatus, and in which method:
a) the elevator car and possible counterweight are supported on a fixed structure to ease the rope (see Figs. 4 and 5),
c) both ends of the old rope are detached from the

fixed overhead structure (see Figs. 7, 9 and 10),
d) one of the detached ends of the old rope is joined to the end of the new rope in an end-to-end manner (see Figs. 8 and 9),
e) the old rope and the new rope connected as an extension to it are pulled so that the old rope and the new rope pass over the diverting pulleys and traction sheave until the new rope is in the former place of the old rope (Figs. 10 and 11),
f) the ends of the old rope and new rope connected together are released from each other (implicit from the need to remove the old rope),
g) both ends of the new rope are secured to the fixed overhead structure (Fig. 13),
i) the support holding the elevator car and the possible counterweight is removed to allow them to be supported by the new rope (implicit from completion of new rope pulling-in; see Fig. 13).

The respondent did not contest that these features were known from D6.

D6 fails to disclose the following features of claim 1:
- b) the old rope is taken clear of contact with the rope groove of the traction sheave and continued to be passed over the traction sheave;
- h) the new rope is brought into tractive contact with the traction sheave; and
- a rope pulling device is brought into tractive contact with the old rope at a point near the end of the old rope, and in step e) the ropes are pulled by the rope pulling device, which rope pulling device is suspended on a fixed structure in the elevator shaft by working on top of the elevator car.

1.2.2 The appellant's argument that feature b) was also known from D6 is not accepted. The man depicted holding the rope on the landing in Fig. 10 cannot unambiguously be seen as achieving the rope being taken clear of contact with the rope groove by some alleged rope shaking movement. Even if the skilled person were to recognise that the job of the man on the landing was easing the passage of the rope over the traction sheave (which is anyway not unambiguously disclosed to a skilled person), this would not imply that the rope was taken clear of contact with the rope groove, since a shaking of the rope, as allegedly suggested by the Fig. 10 depiction, would be likely to relieve the friction forces between the rope and the sheave but not necessarily clear the rope from the rope groove.

1.2.3 The appellant's contention that feature h) was also known from D6 was based on an assumption that the rope was taken clear of contact with the traction sheave in feature b), and that implicitly the tractive contact would thus need to be re-established. However, with no unambiguous disclosure of the rope being taken clear of contact with the traction sheave (see point 1.2.2 above) there can be no implicit disclosure of the re-establishment of tractive contact since the tractive contact was never lost. The appellant's further argument in this respect, that claim 1 did not disclose a clear chronology of method steps, is not convincing. As regards the feature b) concerning the rope being taken clear of the traction sheave, this enables the new rope to be pulled over the traction sheave, as included in feature e), before the new rope is brought back into tractive contact with the traction sheave, found in feature h). In this respect, and in fact with respect to all the features a) to i), there is a clear chronological logic to the order in which the method

steps in the claim are disclosed, which reflects the order in which the method steps must be carried out in order to enable the new rope to be pulled-in.

1.2.4 The appellant's argument that the claimed rope pulling device is not limited to the motorised device disclosed in para. [0044] of the patent can be accepted. Indeed it is a well established principle in case law of the Boards of Appeal that a non-specific definition in a claim should be given its broadest technically sensible meaning (see e.g. Case Law of the Boards of Appeal, 7th Edition, page 105). It has furthermore been consistently ruled that the claims be clear *per se* for a person skilled in the art with general knowledge of the technical field in question, without the need to refer to the description of the patent in suit. Thus the meaning of the wording of a claim must be fully evident from the actual terms of that claim (see e.g. T1129/97, Reasons 2.1.2). In this light, nevertheless, the appellant's arguments regarding a 'rope pulling device' being known from D6 cannot be accepted. It is first noted that the claimed 'rope pulling device' is further specified in claim 1 through the expression 'the ropes are pulled by the rope pulling device'. The Board finds that this makes it unambiguously evident that the rope pulling device itself is that which creates the pulling force experienced by the ropes. Whilst the appellant argued that the guide pulley attached to the overhead structure in Figs. 9 to 11 could be considered the rope pulling device, this was not convincing. A pulley is able to transmit a tension or a pulling force in a rope in such a way that the tension in the rope on the 'entry' to the pulley will be essentially the same as that on the 'exit' of the pulley. The guide pulley thus cannot be considered to perform the function of pulling the ropes as it simply

transfers the rope tension from 'entry' to 'exit'. The only motive pulling force being supplied to the rope in D6 is by way of the manpower from the bottom of the elevator shaft, whereby manpower cannot be equated with the claimed 'rope pulling device'.

1.2.5 The suggestion that the mass of the rope itself might provide the motive force is also not clearly derivable from D6. For this even to occur, the cumulative mass of rope hanging between the guide pulley and the bottom of the elevator shaft would have to present a greater force than the resistive force opposing such motion. Such resistive forces would be formed through the rope upstream of the guide pulley passing over numerous pulleys and being unwound from the new rope drum. There is no suggestion anywhere in D6 that the force applied through the cumulative mass of rope would exceed that of the resistive forces upstream of the pulley. In any case, such an argument seems not to properly take into account the wording of the claim, which provides a new rope, an old rope and a rope pulling device. It is thus illogical, given the definition in the claim, to regard the rope itself as being part of the rope pulling device, even when taking into account the appellant's argument that 'rope pulling device' is a broad term, since these are technically different terms in the claim.

1.2.6 It thus follows that the subject-matter of claim 1 is novel over D6. Objections to novelty based on other prior art were not raised by the appellant. The subject-matter of claim 1 is thus novel (Article 54 EPC 1973) over the cited prior art.

1.3 Inventive step

The subject-matter of claim 1 involves an inventive step (Article 56 EPC 1973).

1.3.1 Starting from D6 which, out of the cited documents, discloses the most features of claim 1, the subject-matter of this claim differs from D6 in that (see also point 1.2.1 above):
-b) the old rope is taken clear of contact with the rope groove of the traction sheave and continued to be passed over the traction sheave;
- h) the new rope is brought into tractive contact with the traction sheave; and
- a rope pulling device is brought into tractive contact with the old rope at a point near the end of the old rope, and in step e) the ropes are pulled by the rope pulling device, which rope pulling device is suspended on a fixed structure in the elevator shaft by working on top of the elevator car.

1.3.2 Based on these differentiating features, the objective technical problem may be seen as how to change the elevator ropes using lower forces whilst eliminating manual handling.

1.3.3 D2 fails to provide a hint to take the rope clear of contact with the rope groove of the traction sheave during re-roping. D2, which comprises only the patent abstract and Figs. 1 to 7 (a full translation of D2 having not been filed by the appellant), discloses the positioning of 'fitting bodies' 30a to 30f between the sheave 3a and the main ropes 4, 20 to reduce the friction force generated in the movement of the main ropes (see Fig. 3). Thus the rope is not, as required in feature b) of claim 1, taken clear of contact with the rope groove of the traction sheave, since frictional forces are still present. Indeed, there is

no location along the rope which is shown to be clear of the sheave. Fig. 6 of D2, contrarily to the arguments of the appellant, can also not provide a reliable teaching in this respect as the abstract fails to discuss this figure and thus precisely what the figure shows can only be surmised. Whether the arrangement shown in Fig. 6 is a mere alternative to the arrangement shown in Fig. 3, as argued by the appellant, or whether it represents something entirely unrelated cannot be unambiguously established.

1.3.4 The appellant's attempt to suggest that the re-roping method of the patent in fact failed to take the rope clear of the traction sheave is not persuasive. Whilst Fig. 8 of the patent is indeed to be seen just as an example of how the relief devices 10 lift the rope clear of the rope groove in the traction sheave, the possibility of the rope contacting the traction sheave between the relief devices is not of consequence; at least in the three depicted positions on the sheave, the rope is evidently clear of contact with the traction sheave (see para. [0040] of the patent). It is also mere conjecture that the rope, which has an undefined stiffness and diameter, will not follow the path depicted in Fig. 8 and remain clear of the traction sheave also between the relief devices, even if a sagging of the rope might be possible in certain non-disclosed arrangements to a sufficient degree for the sheave to be contacted.

1.3.5 The Board also finds that the skilled person is not guided in an obvious manner to the provision of a rope pulling device suspended on a fixed structure in the elevator shaft. Whilst simple automation of manual labour (as also found in T850/06) cannot be credited with involving an inventive step, such a simple

automation of the re-roping method of D6 would position the rope pulling device at the bottom of the elevator shaft i.e. in the location that the manpower being replaced is to be found. Therefore, whilst the provision of a rope pulling device itself may be obvious, its suspending from a fixed structure in the elevator shaft is not.

1.3.6 The appellant's suggestion that the skilled person would position the rope pulling device on a fixed structure since it was replacing the guide pulley in D6 is not accepted. The guide pulley in D6 is a passive device, providing no drive of the rope through the roping arrangement. It is thus not convincing, and the appellant was unable to show, why the skilled person would be motivated to place the rope pulling device at that location.

1.3.7 It thus follows that the subject-matter of claim 1 involves an inventive step (Article 56 EPC 1973) when starting from D6 and combining this with the teaching of D2 and the general knowledge of the skilled person.

No further inventive step attacks were presented by the appellant against this claim.

1.4 The description of the patent was adapted to the amended claims. The Board finds, contrary to the opinion of the appellant, that the acknowledgement inserted on page 2a of the adapted description, regarding the features of claim 1 known from D6, also makes it clear which features of claim 1 are not disclosed in D6. There is no need to reiterate *expressis verbis* which features of claim 1 are not known from D6, nor was the appellant able to indicate which Article or Rule of the EPC would not be fulfilled

if such reiteration were omitted.

No further objection to the adapted description was raised.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the department of first instance with the order to maintain the patent as amended in the following version:

   Description: pages 2, 2a, 3 and 4 as filed during the oral proceedings of 13 May 2015; pages 5 and 6 as granted;
   Claims: Nos. 1 to 10 of auxiliary request 16 filed during the oral proceedings of 13 May 2015;
   Drawings: Figures 1 to 13 as granted.

The Registrar: The Chairman:

M. H. A. Patin M. Harrison

Decision electronically authenticated