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# Datasheet for the decision of 21 April 2016

**Case Number:** T 0875/11 - 3.2.06

**Application Number:** 01999218.9

**Publication Number:** 1347930

**IPC:** B66B7/06

**Language of the proceedings:** EN

**Title of invention:**
ELEVATOR HOIST ROPE THIN HIGH-STRENGTH WIRES

**Patent Proprietor:**
Kone Corporation

**Opponents:**
ORONA E.I.C S. Coop.
INVENTIO AG
Otis Elevator Company

**Headword:**

**Relevant legal provisions:**
EPC 1973 Art. 100(b), 100(c), 111(1)
RPBA Art. 13(1)

**Keyword:**
Sufficiency of disclosure - (yes)
Amendments - added subject-matter (no)
Late-filed argument - admitted (no)
Remittal to the department of first instance - (yes)

**Decisions cited:**
T 0487/89, T 1018/05

**Catchword:**

Europäisches Patentamt
European Patent Office
Office européen des brevets

**Beschwerdekammern**
**Boards of Appeal**
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**Case Number: T 0875/11 - 3.2.06**

# D E C I S I O N
# of Technical Board of Appeal 3.2.06
# of 21 April 2016

| | |
|---|---|
| **Appellant:** (Patent Proprietor) | Kone Corporation<br>Kartanontie 1<br>00330 Helsinki (FI) |
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| **Respondent:** (Opponent 1) | ORONA E.I.C S. Coop.<br>Poligono Lastaola, s/n<br>E-20120 HERNANI (Guipùzcoa) (ES) |
| **Representative:** | Carpintero Lopez, Francisco<br>Herrero & Asociados, S.L.<br>Alcalá 35<br>28014 Madrid (ES) |
| **Respondent:** (Opponent 2) | INVENTIO AG<br>Seestrasse 55<br>6052 Hergiswil (CH) |
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| **Respondent:** (Opponent 3) | Otis Elevator Company<br>Ten Farm Springs Road<br>Farmington, CT 06032-2568 (US) |
| **Representative:** | Wohlfrom, Karl-Heinz<br>Klunker Schmitt-Nilson Hirsch<br>Patentanwälte |

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**Decision under appeal:** **Decision of the Opposition Division of the European Patent Office posted on 18 March 2011 revoking European patent No. 1347930 pursuant to Article 101(3)(b) EPC.**

**Composition of the Board:**

**Chairman** M. Harrison
**Members:** M. Hannam
M.-B. Tardo-Dino

## Summary of Facts and Submissions

I. An appeal was filed by the appellant (proprietor) against the decision of the opposition division revoking European patent No. 1 347 930 in which it found that the ground for opposition under Article 100(b) EPC prejudiced the maintenance of the patent. It requested that the decision under appeal be set aside and the patent be maintained as granted, or in the alternative that the patent be maintained on the basis of one of the auxiliary requests 1 to 3.

II. The respondents (opponents OI, OII and OIII) each requested that the appeal be dismissed, auxiliarily that the case be remitted to the opposition division for further prosecution.

III. The Board issued a summons to oral proceedings and subsequently a communication containing its provisional opinion, in which it indicated *inter alia* that the objections under both Articles 100(b) and 100(c) EPC appeared not to prejudice the maintenance of the patent as granted. It further stated that it envisaged remitting the case to the department of first instance for further prosecution if this provisional opinion were confirmed. As regards the auxiliary requests, the Board gave its provisional view that the requirement of Article 123(2) EPC did not appear to be met, together with an indication that a lack of clarity (Article 84 EPC) might also be present.

IV. Oral proceedings were held before the Board on 21 April 2016. The final requests of the parties were as follows:
The appellant requested that the decision under appeal be set aside and the case be remitted to the first

instance for further prosecution on novelty and inventive step.
The respondents (opponents OI, OII and OIII) each requested that the appeal be dismissed, and auxiliarily that the case be remitted back to the department of first instance for further prosecution.

V. Claim 1 of the main request reads as follows:

"Elevator, preferably an elevator without machine room, in which elevator a hoisting machine (6) engages a set of hoisting ropes (3) via a traction sheave, said set of hoisting ropes consists of hoisting ropes of substantially circular cross-section, said ropes having a load-bearing part twisted from steel wires of circular and/or non-circular cross-section, and in which elevator the hoisting ropes support a counterweight (2) and an elevator car (1) moving on their tracks, characterized in that the cross-sectional area of the steel wires of the hoisting ropes is larger than 0.015$mm^2$ and smaller than about 0.2 $mm^2$, and that the steel wires of the hoisting ropes (3) have a strength exceeding 2000$N/mm^2$."

VI. The appellant's arguments may be summarised as follows:
In agreement with the decision of the opposition division on this matter, the objections raised under Article 100(c) EPC did not prejudice the maintenance of the patent as granted. The replacement of 'comprising' by 'consisting of' in relation to the set of hoisting ropes originally claimed merely limited the scope of claim 1 to a subset of that previously claimed. Considering the disclosure on page 10 relating to the set of hoisting ropes which "consist of at least three parallel ropes", the skilled person would derive unambiguously that the subset was disclosed. The

deletion of the word 'about' limited the approximation of the wire cross-sectional area and strength to precise values.

The objections raised under Article 100(b) EPC also did not prejudice the maintenance of the patent. It was not necessary to provide details of how acceptable rope life, optimal bending characteristics, suitable wear behaviour or acceptable sheave pressure would be achieved in order to sufficiently disclose the invention. It was also not necessary, contrary to the finding of the opposition division, to provide an exemplifying embodiment of the invention disclosing, for example, a Warrington rope construction or similar. The claimed open range of wire strengths was not objectionable with those strengths outside the scope of practical application being immediately excluded by the skilled person. Further rope design features such as the lay of the rope, the number of ropes in the claimed set and any coating on a rope were features which the skilled person would only need to address when constructing a commercially viable hoisting rope and were not required to meet the requirement of sufficiency.

Remittal of the case for consideration of novelty and inventive step should be ordered, since this had not been part of the decision.

VII. The arguments of respondent OI can be summarised as follows:
As regards Article 100(c) EPC, it was necessary to consider that the proprietor was attempting to overcome a novelty objection when changing the wording 'comprising' to 'consists of'. In view of the uncertainty regarding what had changed through the

altered wording, the change appeared incompatible with the normal approach to added subject-matter.
As regards Article 100(b) EPC, high strength wires were claimed without any indication of how necessary safety considerations would be met, such as wire fatigue, corrosion and abrasion resistance or design safety factors. The skilled person would thus not be able to carry out the invention. A further problem concerned sheave pressure and the need to provide a coating on the sheave if a belt were not used to distribute the pressure. The open-ended range of wire strength also prevented the skilled person from carrying out the invention over its whole scope, since impossible strength values were included.
From page 6, 2nd paragraph of the response to the grounds of appeal, it was clearly inferred that it was not possible to reliably ascertain the cross-sectional area of thin wires. The attack based on this objection was thus not a change of case and should be allowed. Different measurement methods would provide different results, such that no reliable measurement of cross-sectional area could be made.

The arguments of respondent OII can be summarised as follows:
The open-ended wire strength range was claimed without any indication of how such high strengths could be achieved and incorporated into a hoisting rope; T1018/05 did not justify claiming such open-ended ranges since it concerned unrelated issues. No particular benefit of the broad range of wire cross-sectional areas claimed was apparent; the skilled person would not know how to select an appropriate area in conjunction with the other claimed parameters. The claimed high strength wires exhibited poor bending characteristics and the skilled person was given no

teaching in the patent of how to overcome this disadvantage. The hoisting rope diameter was also not indicated and could vary significantly through inclusion of fillers and coatings in the rope. The number of hoisting ropes to be included in the set of hoisting ropes was also not defined which left the skilled person unable to produce the claimed hoisting ropes. Should the objections under Article 100(b) EPC not prejudice maintenance of the patent, then an inventive step could consequently not be recognised; remittal of the case for such purpose was appropriate such that arguments on such Article 100(a) issues could be made.

The arguments of respondent OIII can be summarised as follows:
The patent did not disclose the invention sufficiently for it to be carried out by a skilled person. Particularly the open-ended range of wire strengths was not disclosed in combination with the other design conditions necessary to enable such a hoisting rope to be produced. The patent thus claimed something which had yet to be produced. Whilst it was true that open-ended ranges might be allowed in certain circumstances, the use of an open-ended range in the context of present claim 1, which had this parameter as its only inventive feature, should not be allowed as this provided a monopoly against future inventions where obtaining higher strengths might involve inventive activity.

## Reasons for the Decision

*Main request (patent as granted)*

1. Article 100(c) EPC 1973

The ground for opposition under Article 100(c) EPC 1973 does not prejudice the maintenance of the patent according to the main request.

1.1 The deletion of the word 'about' from the expressions 'larger than about 0.015mm$^2$' and 'exceeding about 2000N/mm$^2$' does not extend the subject-matter of claim 1 beyond the content of the application as filed. As filed, the absolute values of 0.015mm$^2$ and 2000N/mm$^2$ were preceded by the word 'about' which extended their scope to also include values surrounding these absolute values. Thus, after deletion of the word 'about', only the absolute value is now claimed as a limit value, which value, in each case, was itself clearly disclosed to a skilled person when considering the previous broader expressions of about 0.015mm$^2$ and about 2000N/mm$^2$.

1.2 The amendment of the expression 'set of hoisting ropes comprising hoisting ropes of substantially circular cross-section' to 'set of hoisting ropes consisting of hoisting ropes of substantially circular cross-section' is also not found to extend the subject-matter of claim 1 beyond the application as filed.
Firstly in this respect, for the purpose of legal certainty when drafting patent claims, the word 'comprise' is interpreted to mean 'include' or 'contain' i.e. to not be limited just to those

explicitly listed features. In contrast 'consists of' is interpreted to exclude the presence of elements in addition to those listed. As a consequence the amendment from 'comprising' to 'consists of' amounts to a restriction of the scope of the claim i.e. the set of hoisting ropes is limited to solely hoisting ropes of substantially circular cross-section.
Secondly, and specifically relating to the present case, there is no disclosure or suggestion in the application as filed that anything but ropes of circular cross-section make up the set of hoisting ropes. Wherever hoisting ropes are discussed in the application as filed, they are disclosed such that the hoisting ropes alone effectively make up any notional 'set' of ropes (see page 10, lines 1, 8 and 9, 13, 28 to 30; page 12, lines 11, 23; page 20, lines 7, 24, 33) with no reason to infer that anything other than circular cross-section ropes are included in such a set of ropes, this being so not least in view of page 18, lines 29 and 30 relating to the steel wire ropes 'of the invention' having substantially round cross-section. Thus, taken together, these sections of the description leave the skilled person in no doubt that the set of hoisting ropes may indeed 'consist of' hoisting ropes of substantially circular cross-section.

1.3 As regards opponent I's argument that the amendment was made to overcome a novelty objection, this is immaterial for the question of whether the amendment adds subject-matter. Furthermore, contrary to opponent I's opinion, the effect of the change can be understood, as indeed discussed in point 1.2 above, and this is found not to prejudice the maintenance of the patent under Article 100(c) EPC 1973.

2. Article 100(b) EPC 1973

The ground for opposition under Article 100(b) EPC 1973 does not prejudice the maintenance of the patent according to the main request.

2.1 There is no objection on file to that part of the invention relating solely to the features of the preamble of claim 1 under Article 100(b) EPC 1973, rather these are raised against the features of the characterising portion in the context of the invention defined in the preamble relating to an elevator, namely:
- the cross-sectional area of the steel wires of the hoisting ropes is larger than 0.015mm$^2$ and smaller than about 0.2mm$^2$, and that the steel wires of the hoisting ropes have a strength exceeding 2000N/mm$^2$.

2.2 The Board has no doubt, and indeed the parties concurred, that at the priority date of the patent wires of the claimed cross-sectional area and lower limit strength of 2000 N/mm$^2$ were commercially available. In view of this availability the respondents questioned, in the case that the disclosure were found to be sufficient, where the invention then lay. Whilst the Board appreciates the relationship alluded to between the objections under Article 100(b) EPC 1973 on the one side and inventive step on the other with respect to the claimed steel wires being commercially available, it is only objections under Article 100(b) EPC 1973 which are being addressed at this juncture, possible implications for inventive step being reserved for a decision on that ground for opposition.

2.3 As regards the objection raised by all the respondents, that the claimed wire strength was an open-ended range,

for which at higher strength values the skilled person would not be able to carry out the invention, this is not accepted. The Board finds that possible embodiments falling under the literal wording of a claim, but which the skilled person would immediately exclude as being clearly outside the scope of practical application of the claimed subject-matter, do not present a hindrance to the invention being carried out (see also T1018/05, reasons 2.3). The skilled person would construe the claim as not extending to those 'theoretical' embodiments. Such is the case with claims including an open-ended range for a parameter where it is clear for a skilled person that the open-ended range is limited in practice, for example by currently available steel wire production techniques. Such a claim must be seen as seeking to embrace values of the parameter as high as can be attained above the specified minimum level. Values of the parameter not obtainable in practice therefore do not need to be considered and thus do not justify an objection of insufficiency of disclosure.

This applies to the present case concerning wire strength with an open-ended upper range. For the skilled person wishing to manufacture hoisting ropes using high strength wires, an understanding of the implications on the further hoisting rope design factors will be understood such that these can be selected accordingly (see also T487/89, Reasons 3.5). As discussed *infra* the skilled person merely has to construct a set of hoisting ropes for an 'elevator' using the given parameters. Factors such as the weight of the elevator car, its purpose (e.g. small light loads or large heavy loads), the operational longevity of the elevator, the particular design of the traction sheave (e.g. its dimensions) are all not specific features of the claim which the hoisting ropes made of

the defined steel wires are required to fulfil, let alone simultaneously, even if many difficulties due to such factors might possibly arise with certain known and even technically reasonable commercial applications. As such, the open-ended range is in practice merely to be understood to be what the skilled person requires for constructing an elevator hoisting rope for an elevator within the broad possibilities specified in the claim.

2.4 As regards the respondents' objections that the appellant was claiming subject-matter including wire strengths which could not yet be made, this is not found to prevent the invention from being carried out in accordance with the claim. As already indicated in point 2.3 above, the skilled person would construe the claim as not extending to embodiments outside the scope of practical application of the claimed subject-matter. The as yet unobtainable wire strengths are thus understood by the skilled person to simply embody theoretical possibilities and that these do not lead to a justified objection of insufficiency of disclosure.

2.5 Regarding the objection of OIII that the invention lay solely in the high strength wires and that the upper limit should thus be defined in such a special case, the Board does not concur. If this argument were followed, the consequence would be that a patent applicant, in such cases, would have to establish where the absolute maximum wire strength lay, which would, the Board finds, be an unreasonable standard to expect in the present case. Also, in respect of the argument that 'the invention' lay solely in the open-ended wire strength and thus should be treated as a special case where an open-ended range should not be allowed, this is not the case. The invention is formed by the

combination of features defined in claim 1, not merely the single feature of wire strength. Furthermore, in the present case, even the cross-sectional area of the wires is a limiting feature of the claim which provides a further limitation on the individual wires *per se*, even when ignoring the combination of such wires with further features of the claim such as the rope cross-section itself. Thus the Board cannot see that a special case is provided here where a departure from the aforegoing principles is justified.

2.6 The argument raised by OI and OII that a number of hoisting rope design features being omitted from claim 1 led to the disclosure being insufficient is not persuasive. It is accepted that issues such as wire fatigue strength against bending and torsion, abrasion resistance, corrosion resistance, design safety factors and rope coatings etc. are of fundamental importance in the design of a safe and commercially viable hoisting rope. However, the omission of these features from claim 1 does not present a hindrance to carrying out the invention as claimed, the hoisting rope of which simply has steel wires of a particular cross-sectional area and strength. As partly mentioned above, there is no requirement in claim 1 for the elevator to be of a particular load carrying capacity, of a specific physical size or to have a particular design life such that the above issues necessary for a commercially viable hoisting rope have no bearing on being able to carry out the invention according to claim 1.

2.7 In its decision, as also mentioned by the respondents, the opposition division argued (end of page 14) *inter alia* that an enabling disclosure was not present since the minimum requirements of sufficiency of disclosure of at least one embodiment being disclosed were not met

and that this hindered the skilled person from carrying out the invention as claimed. Such an indispensable reliance on at least one embodiment of the invention is not justified. Of importance is whether the disclosure as a whole discloses a way of carrying out the claimed invention, allowing it to be carried out over its scope. In this respect it is perhaps of importance to mention that the requirement of Rule 42(1)(e) EPC is not necessary for fulfilling the requirement of sufficiency of disclosure. Whilst the rule states that 'the description shall describe in detail at least one way of carrying out the invention', the use of examples to do so is only required 'where appropriate'. The purpose of the 'examples' referred to in Rule 42(1)(e) EPC would be to complete a teaching which may otherwise be incomplete. In the present case there is nothing preventing the skilled person from using commercially available steel wires of the claimed cross-sectional area and strength in order to provide a hoisting rope as defined in claim 1. The skilled person is thus able to carry out the invention without reference to any specific embodiment or worked example defining possible rope classifications, constructions or rope types.

2.8 Further objections raised by the respondents concerning the hoisting rope diameter not being defined, the lay of the rope being undefined, the number of ropes in the set of hoisting ropes being unknown and the wire winding construction not being given, respectively also do not prejudice the sufficiency of disclosure of the invention defined in claim 1, to which objection has been made. Each of these factors may be seen as detailed design issues which the skilled person would resolve when designing an appropriate, commercially viable hoisting rope, which are however not required in order to carry out the invention as defined in claim 1.

Indeed, as already identified in point 2.6 above, there is no requirement in claim 1 for the elevator to be of a particular load carrying capacity, of a specific physical size or to have a particular design life such that issues necessary for a commercially viable hoisting rope have no bearing on being able to carry out the invention according to claim 1.

2.9 The argument of respondent OII that the broad range of wire cross-sectional area claimed hindered the skilled person from carrying out the invention is not accepted. As correctly calculated by OII, the high end of the range is over 13 times the cross-sectional area of the low end, yet this *per se* does not present a hindrance to the skilled person carrying out the invention. This range simply presents the desired cross-sectional area of the claimed wires which have to be met in conjunction with the other parameters of the claim, such as the wire strength. The skilled person could clearly choose wires of the claimed strength and of cross-sectional areas within this range from the, as accepted by all parties, commercially available wires. OII further suggested that no importance of this particular cross-sectional area range was presented in the patent. This argument however might perhaps be relevant to inventive step considerations, but does not affect whether the skilled person can carry out the invention with such a range of wire cross-sectional areas.

2.10 The Board thus finds that none of the objections on file under Article 100(b) EPC 1973 prejudices the maintenance of the patent as granted.

3. Admittance of new attack

3.1 As regards the attack of OI that the skilled person was unable to reliably measure the cross-section of thin wires, this was a new (written) attack presented for the first time just a month prior to oral proceedings. The suggestion of OI that this attack could be inferred from page 6, 2nd paragraph of its response to the grounds of appeal, and was thus not a change of its case in terms of Article 13(1) of the Rules of Procedure the Boards of Appeal (RPBA), is not accepted. In this paragraph, whilst the cross-sectional area of the wires is identified, this was in relation to an argument that such a range was commonplace for wires in elevator ropes, rather than that the measurement of the cross-section could not be reliably carried out. As a consequence, since this attack had not been included in OI's arguments in its letter of response to the appellant's letter of grounds of appeal, it involves an amendment to its case which, according to Article 13(1) RPBA, may be admitted and considered at the Board's discretion. Of importance with respect to how such discretion is exercised is at least in part whether *prima facie* the new attack would be highly likely to change the Board's opinion on this ground of opposition.

3.2 The Board can see no hindrance to the skilled person reliably measuring the cross-sectional area of the wires in order to carry out the invention. Cross-sectional area is not an abnormal parameter and whilst a degree of variation between various measurement methods is to be expected, and such variation was also conceded by the appellant, no evidence has been presented proving that such differences would be significant enough for the skilled person to question whether the invention had been reached or not. Without substantiation of e.g. the magnitude of differences

which might result from using the various measurement methods for calculating the wire cross-sectional area, and why such differences would e.g. cause an undue burden in carrying out the invention, there is no basis on which the Board can accept that the skilled person would be unable to carry out the invention.

3.3 The argument of OII in this respect was also not convincing. The reference to page 6 of its response to the grounds of appeal does indeed address the claimed range of wire cross-sectional area, although only with the conclusion that the range is not decisive for the invention. No conclusion can be drawn from this paragraph that the claimed range of cross-sectional area could not be reliably determined.

3.4 It thus follows that the attack whereby the cross-sectional area of the wires cannot be reliably determined, is not only a change of case but is, based on the evidence presented, *prima facie* not highly likely to prejudice maintenance of the patent under Article 100(b) EPC 1973. The Board thus exercised its discretion not to admit this line of argument characterising a change of case into the proceedings under Article 13(1) RPBA.

4. Remittal according to Article 111(1) EPC 1973

4.1 According to Article 111(1) EPC 1973, when deciding on an appeal, the Board may either exercise any power within the competence of the department which was responsible for the decision appealed or remit the case to that department for further prosecution.

4.2 In the present case, no decision was taken before the opposition division on the grounds for opposition under

Article 100(a) EPC 1973. If the Board itself carried out the examination as to patentability, the parties would lose the opportunity of having an examination of the claimed subject-matter before two instances. With remittal having been requested both by the appellant and all the respondents, the Board avails itself of its power under Article 111(1) EPC 1973 to refer the case back to the department of first instance for further prosecution.

**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 for further prosecution of the opposition.

The Registrar: The Chairman:

M. H. A. Patin M. Harrison

Decision electronically authenticated