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DECISION
of 16 September 2003

Case Number: T 0545/01 – 3.2.1
Application Number: 94109887.3
Publication Number: 0631967
IPC: B66B 11/00, B66B 11/08, B66B 11/04
Language of the proceedings: EN

Title of invention:
Traction sheave elevator

Patentee:
Kone Corporation

Opponents:
Ziehl-Abegg GmbH & Co. KG
Heinzerling GmbH
Lödige Fördertechnik GmbH
Otis Elevator Company
Alois Kasper GmbH
LM Liftmaterial GmbH

Headword:
-

Relevant legal provisions:
EPC Art. 54, 56, 83, 84, 123(2)

Keyword:
"Amendments - added subject-matter (yes – main request; no – auxiliary request)"
"Disclosure - sufficiency (yes)"
"Claims - clarity (yes)"
"Novelty (yes)"
"Inventive step (yes)"
Decisions cited:
T 0011/82, T 0860/93, T 1041/98, T 0523/00

Catchword:
-
Case Number: T 0545/01 - 3.2.1

DECISION of the Technical Board of Appeal 3.2.1 of 16 September 2003

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Decision under appeal: Decision of the Opposition Division of the European Patent Office posted 1 March 2001 rejecting the opposition filed against European patent No. 0631967 pursuant to Article 102(2) EPC.

Composition of the Board:
Chairman: S. Crane
Members: J. Osborne
G. E. Weiss
Summary of Facts and Submissions

I. The appeals are directed against the decision of the Opposition Division posted 1 March 2001 to reject the oppositions filed against European patent No. 0 631 967.

II. The patent had been opposed on the grounds that the subject-matter of the patent extended beyond the content of the application as filed (Article 100(c) EPC), that the patent did not disclose the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art (Article 100(b) EPC) and that the subject-matter of the patent was neither new nor involved an inventive step (Article 100(a) EPC). All of these grounds were maintained during appeal.

III. The following prior art played a role during appeal:

D1: JP-Y-4/50297 with a translation into English


D9: DE-T-7395

D26: German standard DIN EN 81 Part 1


IV. In oral proceedings held 16 September 2003 the appellants requested that the impugned decision be set aside and that the patent be revoked. The respondent requested that the appeals be dismissed and that the patent be maintained as granted (main request) or that the patent be maintained on the basis of an auxiliary request submitted during the oral proceedings.

V. Claim 1 according to the respondent's main request (as granted) reads:

"Traction sheave elevator comprising an elevator car (1) moving along elevator guide rails (10), a counterweight (2) moving along counterweight guide rails (11), a set of hoisting ropes (3) on which the elevator car and the counterweight are suspended, and a drive machine unit (6) comprising a traction sheave (7) driven by the drive machine and engaging the hoisting ropes (3), wherein the drive machine unit (6) of the elevator is placed in the top part of the elevator shaft (15) in the space between the shaft space needed by the elevator car on its path and/or the overhead extension of the shaft space needed by the elevator car and a wall of the elevator shaft (15), characterized in that the hoisting ropes are passed under the elevator car by means of diverting pulleys, and that the elevator motor has a discoidal rotor (117, 317) and/or that the machine unit (6) is of a flat construction type and/or that the drive machine unit (6) is gearless."

Claim 1 according to the respondent's auxiliary request after correction of an obvious error indicated in italics reads:
"Traction sheave elevator comprising an elevator car (1) moving along elevator guide rails (10), a counterweight (2) moving along counterweight guide rails (11), a set of hoisting ropes (3) on which the elevator car and the counterweight are suspended, and a drive machine unit (6) comprising a traction sheave (7) driven by the drive machine and engaging the hoisting ropes (3) which are passed under the elevator car by means of diverting pulleys; wherein said drive machine unit (6) which is of a flat construction type is placed in the top part of an elevator shaft (15) in the space between the shaft space needed by the elevator car on its path and/or the overhead extension of the shaft space needed by the elevator car and a wall of the elevator shaft (15) so that the space requirement for the elevator in the building is substantially limited to the space required by the elevator car and counterweight on their paths including the safety distances and the space needed for the hoisting ropes."

The claims according to the auxiliary request additionally contain dependent claims 2 to 13 which define features additional to the subject-matter of claim 1.

VI. The arguments of the appellants can be summarised as follows:

Claim 1 according to the main request contains two features, namely that the elevator motor has a discoidal rotor and that the drive machine unit is gearless, each of which may be an alternative to the feature that the machine unit is of a flat construction
type. However, the original disclosure was only that the discoidal rotor and the gearless machine unit were not alternatives to but preferred embodiments of the flat construction type machine unit. Moreover, the original disclosure was not of a "flat construction type" per se but only of the machine unit being flat in comparison with the counterweight. Additionally, the description had been amended to include an acknowledgement of the disclosure of D1 and in which it was stated that the size of the D1 drive machine unit is rather large and that this necessitates a large distance between the cabin path and the shaft wall. Because the subsequent statement of the object of the patent included avoidance of "the above mentioned drawbacks" this required that the shaft should be smaller than in D1; this information was not contained in the application as originally filed. The requirements of Article 123(2) EPC therefore were not satisfied.

The disclosure of the invention is not sufficient within the meaning of Article 100(b) EPC because the term "flat" has no clear meaning for the person skilled in the art. The statement added at the end of claim 1 according to the auxiliary request leads to objections of both lack of clarity (Article 84 EPC) and insufficiency of disclosure (Article 100(b) EPC) because this merely states the problem to be solved, without indicating the necessary technical features. The added statement also includes the term "substantially" which renders the subject-matter of the claim unclear. Finally, it should be clarified that the term "safety distances" added to claim 1 according to
the auxiliary request, contrary to the assertions of the respondent, refers only to horizontal clearances.

The subject-matter of claim 1 according to the auxiliary request lacks novelty in comparison with the disclosures of both D9 and D31. According to the patent specification only "all essential parts" of the machine unit and its associated equipment are within the shaft space between the elevator car and the shaft wall and according to claim 1 the machine unit must be only "substantially" within this space. It can be seen from D9 figure 2 that these requirements are fulfilled. As regards the wall of the shaft it is not required by contested claim 1 that this be continuous; the machine room of D9 is no more than a niche in the shaft and the wall of the machine room forms a wall of the shaft in that region. Moreover, the machine unit of D9 has approximately the same relative proportions as specified in the patent specification column 7, lines 13 to 17 and so is to be regarded as being flat within the meaning of the patent. Indeed, in the final paragraph of D9 there is reference to the desirability of a small machine unit. As regards D31, the top clearance would typically be about 2m so the space requirement for the elevator is substantially as defined in contested claim 1.

If the subject-matter of contested claim 1 were to be found to be novel the added requirement beginning "so that ... " would be obvious for the skilled person in view of the expense of providing space in a building. Before the priority date of the contested patent it had been proposed to delete the regulatory requirement for a machine room and in the ensuing time of change the
skilled person would re-evaluate older elevator arrangements such as that known from D9. In so doing he would realise that in that elevator the machine unit does not extend beyond the boundary of the shaft wall and that as a result the machine room is empty. The skilled person would take the opportunity to change the arrangement of the shaft and provide a continuous wall. Alternatively, the motor according to D7, which was revolutionary at that same time of change, solved many problems and it would have been obvious for the skilled person to employ it in D9. As further alternatives the subject-matter of contested claim 1 is merely the result of the application of a motor according to D7 in an elevator according to D31 or D1 or the application of the teaching of D1 to the elevator of D9. It follows that the subject-matter of claim 1 lacks an inventive step.

VII. The respondent rebutted the arguments of the appellants by essentially reasoning as follows:

As regards the features which are presented as alternatives at the end of claim 1 according to the main request the skilled person knows that a discoidal rotor is a feature of a flat motor and the feature of a gearless motor was introduced in the original application in respect of an embodiment of the general elevator construction for which it was said that the motor merely "can be" flat. Moreover, in the original application the machine unit was described as flat in comparison with not only the counterweight; a general definition of the machine unit as "flat" is therefore justified. As regards the acknowledgement of D1 its
content was described as it was understood and the subsequent wording in the description was not changed.

The widespread acceptance in the industry of the teaching of the contested patent illustrates that the skilled person has had no difficulty in putting the teaching into effect. The wording added at the end of claim 1 according to the auxiliary request includes the technical features of the space for the counterweight and the safety distances. It is clear for the skilled person that the term "safety distances" applies in both the vertical and horizontal directions because both are the subject of regulations. The term "substantially" is one which is commonly used and accepted in patents.

As regards the alleged lack of novelty of the subject-matter of claim 1 according to the auxiliary request, D9 explicitly refers to a machine room and the opening between the shaft and the machine room does not render the far wall of the machine room a wall of the shaft; indeed, openings between the shaft and the machine room are specifically provided for in D26. The illustration of the machine unit in D9 is purely schematic and no conclusions can be drawn from the figures in respect of its dimensional proportions. Furthermore, the functional requirement specified in contested claim 1 is not met in D9. In D31 the machine unit is not placed in the space between the wall of the shaft and the shaft space needed by the elevator car or the overhead extension of that space because it is partly located above the car itself.
Whilst D26 required a machine room, this concerned electrically driven elevators only; no such requirement existed for hydraulically driven elevators. By comparison, D27 relates to both electrically and hydraulically driven elevators. The change of regulations proposed in D27 therefore was not tantamount to a proposal to delete the requirement for a machine room leading to a time of change in the way suggested by the appellants. Furthermore, whilst the elevator disclosed in D9 corresponds to the requirements of D26, D1 and D31 are both home elevators which were exempted from the requirement in D26 for a machine room; D1 and D31 therefore are not an indication of the result of the proposed change of regulations. Accordingly, even if a machine unit according to D7 were used in D9 there still would be no motivation to delete the machine room. In D31 the machine room is effectively the space above the shaft and, irrespective of which machine unit is used, according to the teaching of D31 it would be placed outside the vertical safety distance. Moreover, the lateral spacing of the components in the shaft exceeds the minimum value required by the wording of the claim. As regards the alleged combination of D9 and D1, the skilled person would not combine these teachings because they belong to separate technical fields of commercial and home elevators.

VIII. At the conclusion of the oral proceedings, the decision was announced that the decision of the Opposition Division is set aside and that the case is remitted to the first instance with the order to grant a patent on the basis of the claims according to the auxiliary request.
IX. On 17 September 2003 the respondent filed a letter requesting the insertion of the word "space" in claim 1 of the auxiliary request (see V above).

Reasons for the Decision

Main request

Compliance with the requirements of Article 123(2) EPC

1. None of the alternative features in the characterising portion of granted claim 1, namely that the elevator motor has a discoidal rotor, that the drive machine unit is gearless, and that the machine unit is of a flat construction type, was included in claim 1 as originally filed. Moreover, the application as originally filed did not contain expressis verbis the wording of the final part of granted claim 1, according to which these three features are linked by the expression "and/or". It is therefore necessary to consider the disclosure of the application as a whole.

1.1 Figures 1 to 4 show various views of traction sheave elevators installed in shafts whilst figures 5, 6 are limited to the machine units. At page 5, line 7 it is stated in respect of the perspective view of figure 1 that the machine unit 6, comprising the drive machine and its power and control equipment, is "of a flat construction compared to its width". Figure 2, which is described in a single paragraph, is a view from above of an elevator which corresponds generally to that shown in figure 1 and in particular has a machine unit.
having the same designation 6. Figure 3 shows in perspective view an arrangement of an elevator in its shaft. The elevator differs essentially from the arrangements shown in figures 1 and 2 in the layout of the diverting pulleys 4, 5 supporting the elevator car and in that the machine unit 6 according to page 8, lines 6 to 8 is "of a flat construction as compared to the width of the counterweight, its thickness being preferably at most equal to that of the counterweight". Figure 4a, which is described in a single paragraph, is a view in side elevation of an elevator which corresponds generally to that of figure 3 and in particular has a machine unit also having the designation 6.

1.2 The disclosure of the sections of the application as originally filed which have been mentioned above is exclusively of a motor unit which is flat. In separate paragraphs on page 6, beginning in line 5, and on page 9, beginning in line 27, both of which still refer to the machine unit using the same designation 6, it is stated that "a preferable drive machinery consists of a gearless machine ... ". There is no indication that this gearless machine is not also "flat" and the skilled person would understand that, in the light of the importance already placed on the flatness of the machine unit, the gearless construction would help in achieving this property. In a new paragraph beginning at the top of page 10 it is stated that the "machine unit 6 ... can be of a very flat construction" and an example is given of dimensions which would satisfy this requirement. Contrary to the argument of the respondent that this paragraph indicates that the machine unit "can be" flat, it reinforces the disclosure that the
machine unit is flat by emphasising that it can be "very flat". In the following description of gearless motors shown in figures 5 and 6 reference is again made to "the ... machine unit 6". The consistent teaching throughout the application that the machine unit should be flat together with the implicit teaching to the skilled person that the gearless motor would help in achieving a flat machine unit result in an overall disclosure that the machine unit is flat and that in a preferred embodiment thereof it is also gearless. Moreover, the single occurrence in the original application of the term "disc-shaped", from which the term "discoidal" in claim 1 was derived, was in respect of the motor shown in figure 6. As the respondent itself argued, the skilled person would understand that a discoidal rotor is a feature of a flat motor. It follows from the foregoing that the disclosure to the skilled person of the application as originally filed was that the flat machine unit was an essential feature which in preferred embodiments may be gearless or have a discoidal rotor.

1.3 Since claim 1 according to the main request defines elevators in which the flat machine unit is an optional feature it follows that the subject-matter of the patent extends beyond that of the application as originally filed, in contravention of Article 123(2) EPC and the request must be refused.
Auxiliary request

Compliance with the requirements of Article 123(2) EPC

2. According to claim 1 of the auxiliary request it is an essential feature of the elevator that the machine unit is of a "flat construction type". Contrary to the appellants' assertions the disclosure of the application as originally filed in respect of this feature is not limited to a comparison with the width of the counterweight, see the references under 1.1 above and the first paragraph on page 10 of the application as originally filed in which the machine unit is defined as "very flat". It follows that there is a basis in the application as originally filed for the subject-matter of claim 1 to define an elevator in which the machine unit is "flat" without restricting this by a comparison to the thickness of the counterweight.

3. In respect of the appellants' objection that the acknowledgement in the description of the disclosure of D1 results in an extension of the subject-matter of the patent beyond that of the application as originally filed the Board firstly points out that according to case law of the Boards of Appeal this is not the case as regards a mere addition to the description of a reference to prior art (see T 11/82, OJ EPO 1983, 479). According to that decision it would depend on the actual language used and the circumstances of the case whether the addition of a discussion of the advantages of the invention with reference to such prior art would constitute a contravention of Article 123(2) EPC.
3.1 In the present case in the application as originally filed the second paragraph of the description explained that the placement of elevator drive machinery in a machine room restricted the design of the building and increased building costs. In the fourth paragraph the aim of the invention was explained as being to provide an elevator "for which the space requirement ... is substantially limited to the space required by the elevator car and counterweight ... and in which the above-mentioned drawbacks can be avoided". The applicant subsequently added an acknowledgement of D1, in which the drive machine unit is located not in a machine room but on the head of the guide rails, before the fourth paragraph which remained unchanged. According to that acknowledgement "as the base surface of the drive machine unit is rather large a large distance has to be provided between the cabin path and the shaft wall ... necessitates a larger base surface". According to the appellants the reference in the subsequent statement that the aim of the invention is to avoid "the above-mentioned drawbacks", when read together with the acknowledgement and in application of Article 69(1) EPC introduces an additional requirement that the drive machine unit according to the contested patent is smaller than that according to D1.

3.2 The Board cannot agree with the appellants' assertion. According to the description as originally filed the space requirement in the building is substantially limited to the space required by the elevator car and counterweight on their paths including the safety distances and the space needed for the hoisting ropes and this requirement remains in the description of the patent specification. From this it follows that, since
according to the patent the drive machinery is located alongside the elevator car when viewed from above, it must be located within the minimum possible space between the elevator car and the shaft wall when allowing for safety distances. It can be seen from figure 3 of D1, on the other hand, that the drive machinery occupies the entire space between the elevator car and the shaft wall and the respective spacing between the counterweight 9 and the elevator car supporting frame 14 on the one hand and the wall of the shaft on the other hand is clearly greater than the safety distances which would have been necessary. It follows that the maximum space requirement for the drive machinery according to the patent remains as specified in the application as originally filed and the addition of the acknowledgement of D1 has not caused the addition of subject-matter within the meaning of Article 123(2) EPC.

Compliance with the requirements of Articles 84 (clarity) and 83 EPC

4. It is established case law of the Boards of Appeal that relative terms may be used in claims provided that the skilled person is able to understand their meaning in context (see T 860/93, OJ EPO 1995, 47 and T 1041/98, not published in OJ EPO). In the present case it is clearly derivable from the specification column 3, lines 53 to 59, the sentence bridging columns 5 and 6 and from column 7, lines 11 to 21 that the term "flat" has the meaning of "thin" and that it relates to the dimension in the space occupied by the counterweight between the elevator car and the shaft. In view of the additional definition in the claim regarding the
overall space requirement it is furthermore clear that the relevant dimension of the drive unit must not exceed the space available for the counterweight and hoisting ropes including safety distances. Contrary to the assertion of the appellants this additional definition is not merely a statement of the problem to be solved since it is a clear limitation on the dimensions of the shaft, dependent upon the relevant regulations.

5. The term "substantially" in claim 1 does not detract from the clarity of the claim. It is stated in the specification in column 6, lines 2 to 10 that "all essential parts ... are within the shaft space extension ... outside of this extension may only go some parts inessential to the invention such as the lugs needed to fix the machinery ...". The term "substantially" is wholly consistent with this section of the description and, when interpreted by the skilled person in the light of the description, fails to raise any doubts as to the subject-matter which it is intended to protect.

6. In respect of the term "safety distances" the Board again refers to the description at column 6, lines 2 to 10 where a statement that lugs to mount the drive machinery to the ceiling of the shaft, i.e. having a vertical mounting, may be outside of "the shaft space extension ... including safety distances" makes it clear that the safety distances have a vertical extent. In this respect the intended meaning of the term "safety distances" is clear from the specification and it is not important whether different terminology may be used.
elsewhere (see T 523/00, not published in OJ EPO, reasons point 2).

7. Claim 1 according to the auxiliary request therefore satisfies the requirement of Article 84 EPC in respect of clarity and the ground for opposition according to Article 100(b) EPC does not prejudice maintenance of the patent according to the auxiliary request.

Novelty

8. It is not disputed between the parties that all features of claim 1 of the auxiliary request are known from D9 with the exception of the following:

- that the drive machine unit is of a flat construction type;

- that the drive machine unit ... is placed ... in the space between the shaft space ... and/or the overhead extension of the shaft space ... and a wall of the elevator shaft; and

- that the space requirement for the elevator in the building is substantially limited to the space required by the elevator car and counterweight on their paths including the safety distances and the space needed for the hoisting ropes.

8.1 According to D9 a machine room is arranged beside and at the upper end of the elevator shaft. Between the shaft and the machine room is a cantilevered beam 12 on which the machine unit is mounted. The machine unit is shown in plan view as being contained within the
surface area of the beam and as having a smaller
dimension extending in the direction of the width of
the counterweight than in the direction orthogonal
thereto. However, D9 is silent as regards the
desirability of the unit being "flat" within the
meaning of the contested patent and even if despite the
schematic nature of the drawings it were possible to
derive proportions from them they would not correspond
to that given as an example in the specification of the
contested patent (D1 approximately 2:1; patent
specification 5:1). Moreover, the machine unit itself
does not form part of the teaching of D9 and the
reference to the size of the machine unit in the final
paragraph relates to the desirability of the underslung
support of the elevator car; it draws conclusions
merely in respect of the consequential effect on the
size and cost of the machine unit without concerning
itself with the relative dimensions. Therefore there is
no teaching in D9 that the machine unit is of a flat
construction type as required by contested claim 1.

8.2 According to D9 a dividing wall 15 between the machine
room and the shaft is optional and the appellants argue
that in the case in which this is not provided the wall
of the machine room forms the wall of the shaft. The
Board cannot agree with this argument because in the
absence of the dividing wall the upper portion of the
shaft is open to the machine room at that point and has
no wall.

8.3 As regards the overall space requirement of the
elevator in the building, it is true that a general aim
of D9 was to reduce the size requirement for an
elevator in a building. However, the teaching of D9
concentrates on the location of the machine room and does not include any suggestion that the cross-sectional dimensions of the shaft be reduced to the minimum possible within regulatory requirements.

9. D31 concerns a home elevator, i.e. one intended for use in a private house, which avoids the need for a machine room by providing a metal frame supported on the base of the shaft and on which the various elements of the elevator are mounted. The machine unit is provided at the upper end of the frame and in the plan view of figure 2 it can be seen that part of it, having the designation 3a, is above the path travelled by the elevator car. It follows that in the elevator according to D31 the machine unit is not "in the space between the shaft space needed by the elevator car on its path and/or the overhead extension of the shaft space needed by the elevator car and a wall of the elevator shaft" as required by present claim 1. Moreover, it is visible in the plan view of figure 2 that the space provided between the elevator car and the wall of the shaft is clearly not limited to the minimum necessary for the counterweight and hoist ropes including safety distances as required by present claim 1.

10. The subject-matter of contested claim 1 is therefore novel (Article 54 EPC).

Inventive step

11. The appellants' first attack begins from D9 as closest prior art and, as can be seen from 8 above, the subject-matter of contested claim 1 differs in three respects from that prior art disclosure.
11.1 A fundamental aspect of the appellants' argument is that already before the priority date of the contested patent it was being proposed to amend the European regulations to delete the requirement for a machine room and that the skilled person therefore was looking for ways of putting into effect elevators having no machine room. However, as can be seen from a comparison of D26 and D27, the amendment of the regulations was a change in the form of the regulation from generally constructional to generally functional requirements. Although the proposed amended regulation (D27) would permit the construction of an elevator without a machine room, it is not a suggestion to the skilled person to design such an elevator. On the basis of the evidence available to the Board it therefore cannot agree with the argument that the skilled person was motivated by the regulatory change to delete the machine room of D9.

11.2 However, even if he were to have done so, he would not have arrived at the subject-matter of contested claim 1, irrespective of whether the machine unit of D9 were also replaced by that known from D7. As the Board has already stated when considering novelty of the claimed subject-matter with respect to D9, there is no teaching in that document to contain the elevator within the minimum space as defined in claim 1. The appellants argue that this would be an obvious requirement for the skilled person in view of the cost of providing space in a building. However, not only does no cited document include any mention of the minimisation of the overall space requirement as required by present claim 1, but D31, which relates to a home elevator and in which
space efficiency is a consideration, shows in the figures an arrangement which clearly does not limit itself to the minimum space requirement.

11.3 In the light of the foregoing arguments, the subject-matter of contested claim 1 is not rendered obvious when beginning from D9 whether considered alone or together with D7 which merely relates to a motor which may satisfy the claimed requirement for a flat machine unit.

12. In respect of the appellants' contention that the subject-matter of contested claim 1 would be the obvious result of the application of a motor according to D7 in either of D1 or D31, the Board remarks that in neither of these combinations of documents is the feature relating to the minimum space requirement to be found, although both D1 and D31 relate to home elevators for which the space requirement is a significant design factor and in which the machine room already had been dispensed with in order to reduce the space requirement. The teaching of D31 as regards space efficiency of the elevator in its entirety has already been discussed under 11.2 above. Also in D1 there is no mention of reducing to the minimum the space occupied by the counterweight and hoisting ropes. In D1 figure 3 it can be seen that the spacing between the counterweight and elevator car is determined by the diameter of the traction sheave; the machine unit 3, which is larger than the diameter of the sheave, occupies essentially the entire space between the elevator car and the shaft wall. It follows that also in D1 there is no suggestion which would lead the skilled person in the direction of reducing the space
requirement in the way now claimed. For these same reasons a combination of the respective teachings of D9 and D1 would not lead to the claimed subject-matter. Moreover, the Board cannot recognise in either of D1 or D9 any incentive for the skilled person to combine the respective teachings, particularly in view of the fact that whereas D9 relates to an elevator in general, D1 concerns only a small lift such as for a dwelling house which may not be subject to the same regulations.

13. Based on the foregoing the subject-matter of claim 1 is not rendered obvious by the cited prior art. Since claims 2 to 13 contain all features of claim 1 this conclusion applies equally to those claims.

14. With reference to the letter filed on 17 September 2003 which is referred to in facts and submissions IX, the Board considers that the respondent's request should be treated by the first instance in charge of the implementation of the Board's decision which was taken at the oral proceedings on the basis of the auxiliary request submitted by the respondent.
Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the first instance with the order to maintain the patent on the basis of the following documents:

   - claims 1 to 13 submitted during the oral proceedings;

   - description submitted at the oral proceedings;

   - drawings as granted.

The Registrar: S. Fabiani

The Chairman: S. Crane