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**Datasheet for the decision  
of 20 October 2021**

**Case Number:** T 2230/17 - 3.2.02

**Application Number:** 11250406.3

**Publication Number:** 2371299

**IPC:** A61B17/072, A61B17/28

**Language of the proceedings:** EN

**Title of invention:**  
Surgical instrument

**Patent Proprietor:**  
Covidien LP

**Opponent:**  
ETHICON ENDO-SURGERY, INC.

**Headword:**

**Relevant legal provisions:**  
EPC Art. 100(a), 54, 56

**Keyword:**  
Novelty - (yes)  
Inventive step - (yes)

**Decisions cited:**

T 0681/01, T 1538/05

**Catchword:**



**Beschwerdekammern**

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Case Number: T 2230/17 - 3.2.02

**D E C I S I O N**  
**of Technical Board of Appeal 3.2.02**  
**of 20 October 2021**

**Appellant:** Covidien LP  
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**Decision under appeal:** **Interlocutory decision of the Opposition  
Division of the European Patent Office posted on  
1 August 2017 concerning the maintenance of  
European Patent No. 2371299 in amended form**

**Composition of the Board:**

**Chairman** M. Alvazzi Delfrate  
**Members:** D. Ceccarelli  
N. Obrovski

## **Summary of Facts and Submissions**

I. The patent proprietor and the opponent have appealed against the Opposition Division's decision, posted on 1 August 2017, that, account being taken of the amendments according to the first auxiliary request made by the patent proprietor during the opposition proceedings, European patent No. 2 371 299 and the invention to which it related met the requirements of the EPC.

II. Oral proceedings took place on 20 October 2021 by videoconference.

The appellant/patent proprietor ("the proprietor") requested that the decision under appeal be set aside and that the patent be maintained as granted or, in the alternative, that it be maintained on the basis of the first or the second auxiliary request, which had been filed with the submission dated 4 December 2017, or the third auxiliary request, filed with the submission dated 20 April 2018.

The appellant/opponent ("the opponent") requested that the decision under appeal be set aside and that the patent be revoked.

III. The following documents are mentioned in this decision:

E1: EP-A-1 997 440

E2: EP-A-1 854 418

E3: EP-A-1 915 957

E4: EP-A-1 508 306

E5: US-A-5,710,870

E6: US-A-5,692,668

IV. Claim 1 of the patent as granted reads as follows:

"A surgical instrument (10) comprising:

a housing (12);

an elongated portion (16, 28) extending distally from the housing (12) and defining a longitudinal axis (A-A);

an end effector (26) operably coupled to the elongated portion (16, 28);

a proximal mounting assembly (102) pivotably coupled to a distal end of the elongated portion (16, 28), the proximal mounting assembly (102) defining a first pivot axis (B-B) intersecting the longitudinal axis (A-A);

a distal mounting assembly (104) pivotably coupled to the proximal mounting assembly (102) and coupled to the end effector (26), the distal mounting assembly (104) defining a second pivot axis (C-C);

a movable gear (118a) coupled to the end effector (26), the distal mounting assembly (104) being pivotable with respect to the proximal mounting assembly (102); and

an articulation member (128) coupled to the proximal mounting assembly (102) so that movement of the articulation member (128) pivots the proximal mounting assembly (102) and the distal mounting assembly (104) with respect to the longitudinal axis (A-A), **characterized in that** said surgical instrument further comprises a stationary gear (112a) coupled to the elongate portion (16, 28), the proximal mounting assembly (102) being pivotable with respect to the

stationary gear (112a)."

- V. The proprietor's arguments, where relevant to the present decision, can be summarised as follows:

*Novelty*

Claim 1 of the patent as granted defined a surgical instrument with a proximal and a distal mounting assembly and required that an articulation member be coupled to the proximal mounting assembly. In E1, collar 116, identified as the articulation member within the meaning of claim 1 by the Opposition Division and the opponent, was only operably coupled to link 134, identified as the proximal mounting assembly, via a further pivot link. Claim 1 distinguished between what was coupled and what was pivotably linked. The term "coupled" in the claim implied a primary and direct association, qualified by the requirement for the articulating member to rotate the proximal mounting assembly. This was in accordance with every example of the surgical instrument in the patent. If this were not the case, specifying that an element was coupled to another element would be meaningless, since all the elements of the instrument would be coupled. The articulation member acted directly on the proximal mounting assembly, thus fulfilling the functional requirement of coupling. In E1, collar 116 was only coupled to link 134 in the sense that both elements were present in the same instrument. There was no functional attachment of these two parts which went beyond the attachment of any other two parts.

It followed that E1 did not disclose an articulation member coupled to the proximal mounting assembly as defined in claim 1 of the patent as granted.

*Inventive step*

Starting from E1, the subject-matter of claim 1 of the patent as granted was inventive, because E1 was solely concerned with a passively articulating stapler. The skilled person would have no incentive to modify such a device to provide an actively articulated stapler as implied by the claim. Moreover, the construction of the stapler of E1 differed substantially from that of the instrument of the opposed patent.

Starting from E2 or E3, these documents did not disclose a stationary gear as defined in the claim. In the context of the claim, the definition of the stationary gear implied that the gear did not move when used to control motion. Hence, the stationary gear was a technical feature and contributed to the solution of the technical problem as defined in paragraph [0005] of the patent. Compared with the patent, the mechanisms disclosed in E2 and E3 were completely different. There was no obvious reason to implement a stationary gear in those mechanisms.

- VI. The opponent's arguments, where relevant to the present decision, can be summarised as follows:

*Novelty*

E1 disclosed all the features of claim 1 of the patent as granted. In particular, E1 disclosed a proximal mounting assembly exemplified by a pivot link 134 and an articulation member in the form of a short sleeve 146. Element 126 or collar 148 was a distal mounting assembly, gear 610 was a movable gear and gear 620 was a stationary gear as defined in the claim. Pivot link 134 was associated with short sleeve 146 via tab 126.

The result was that moving short sleeve 146, e.g. by pressing against tissue, rotated pivot link 134 and tab 126. Thus, short sleeve 146 and pivot link 134 fulfilled the requirement of an articulation member coupled to a proximal mounting assembly (via tab 126) as defined in the claim.

The term "coupled" was not given a precise meaning in the patent. It would be understood by the person skilled in the art to refer simply to an association between components. The association could be direct or indirect, e.g. via intermediary components. Paragraphs [0020] and [0033] and claim 6 of the patent even stated that two members could be "coupled" or "operably coupled" by a further link. Such a coupling was also shown in the figures. Therefore, the expressions "coupled" and "operably coupled" should be considered equivalent and did not require any primary and direct interaction. If not, the use of the word "operably" in the claim could at most qualify and limit the term "coupled", with the result that the term "coupled" would be broader than "operably coupled". It was established case law that a restrictive feature could not be read into the claim if it was not suggested by the explicit wording of the claim (T 681/01).

#### *Inventive step*

The subject-matter of claim 1 of the patent as granted was not inventive when starting from E2 or E3.

The only distinguishing feature of the surgical instrument as defined in the claim compared with E2 or E3 was the presence of a stationary gear coupled to an elongate portion of the surgical instrument. Since the claim did not specify any function of the stationary



gear, it covered a situation in which the stationary gear was attached to the elongate portion for purely decorative purposes, without any technical effect. Hence the distinguishing feature did not solve any technical problem and could not contribute to inventive step in accordance with established case law, as explained in particular in decision T 1538/05.

The surgical instrument could achieve a greater degree of articulation only if the stationary gear and the movable gear interacted in the way described in detail in the patent but not defined in claim 1. An operative engagement between the two gears was only defined in claim 2.

Moreover, it would have been obvious to include a mechanism as disclosed in E5 to eliminate backlash or a mechanism as disclosed in E6 to prevent inadvertent articulation of the surgical instruments according to E2 or E3. That would have resulted in the provision of a stationary gear in those instruments.

The subject-matter of claim 1 of the patent as granted was not inventive when starting from E1, either.

As an alternative to pivot link 134, the proximal mounting assembly within the meaning of claim 1 could be identified as the proximal end of dog bone link 160 in Figure 5 of E1. The distal mounting assembly would be the distal end of dog bone link 160. The only distinguishing feature of the subject-matter of claim 1 of the patent as granted over this construction of the device of E1 was that the distal mounting assembly was pivotable with respect to the proximal mounting assembly.

However, it would have been obvious to replace dog bone link 160 with a vertebral column forming part of an articulation joint of the instrument disclosed in E4 to improve the distribution of the bending angle permitted by the articulated surgical instrument disclosed in E1.

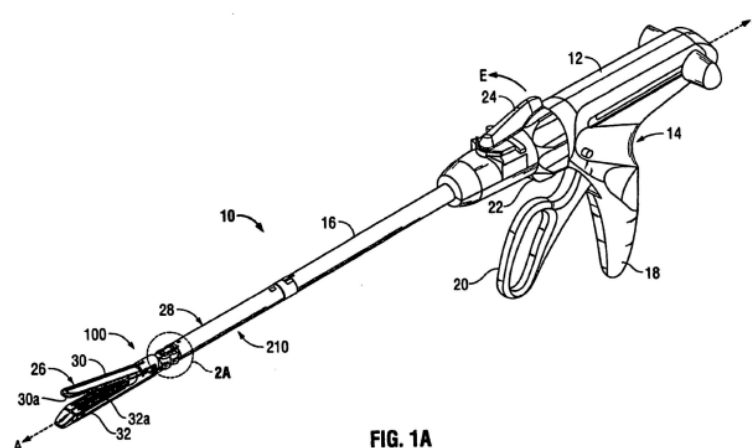
Moreover, it would have been obvious to include a mechanism as disclosed in E6 to prevent inadvertent articulation of the surgical instrument according to E1. That would have resulted in a surgical instrument as defined in claim 1 of the patent as granted.

### Reasons for the Decision

1. The invention

The invention relates to an elongated surgical instrument with an articulated end effector.

Such a surgical instrument, exemplified by a stapler as depicted in Figure 1A of the patent, reproduced below, is typically employed in laparoscopic procedures in which the end effector is inserted into a body cavity for performing a certain task.



The claimed surgical instrument comprises a housing (12) and an elongated portion (16, 28), extending distally from the housing and defining a longitudinal axis (A-A). An end effector (26) is operably coupled to the elongated portion.

The invention focuses on the articulation between the end effector and the elongated portion. An embodiment of an articulation as claimed is shown in Figure 3, reproduced below.

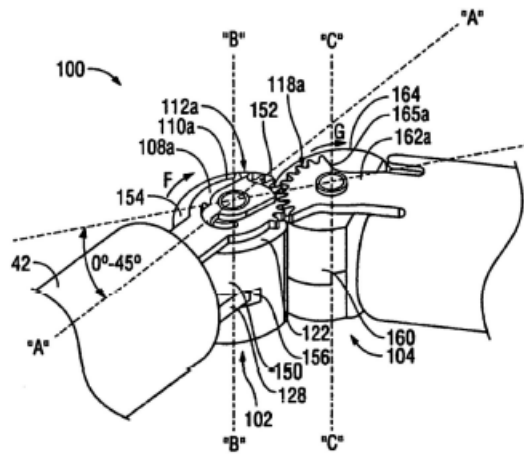


FIG. 3

At its distal end, the elongated portion is pivotably coupled to a proximal mounting assembly (102) which defines a first pivot axis (B-B) intersecting the longitudinal axis.

At its proximal end, the end effector is coupled to a distal mounting assembly (104), which is pivotably coupled to the proximal mounting assembly and defines a second pivot axis (C-C).

The distal mounting assembly is pivotable with respect

to the proximal mounting assembly.

A movable gear (118a) is coupled to the end effector and a stationary gear (112a) is coupled to the elongated portion.

An articulation member (128) is coupled to the proximal mounting assembly so that movement of the articulation member pivots the proximal mounting assembly and the distal mounting assembly with respect to the longitudinal axis.

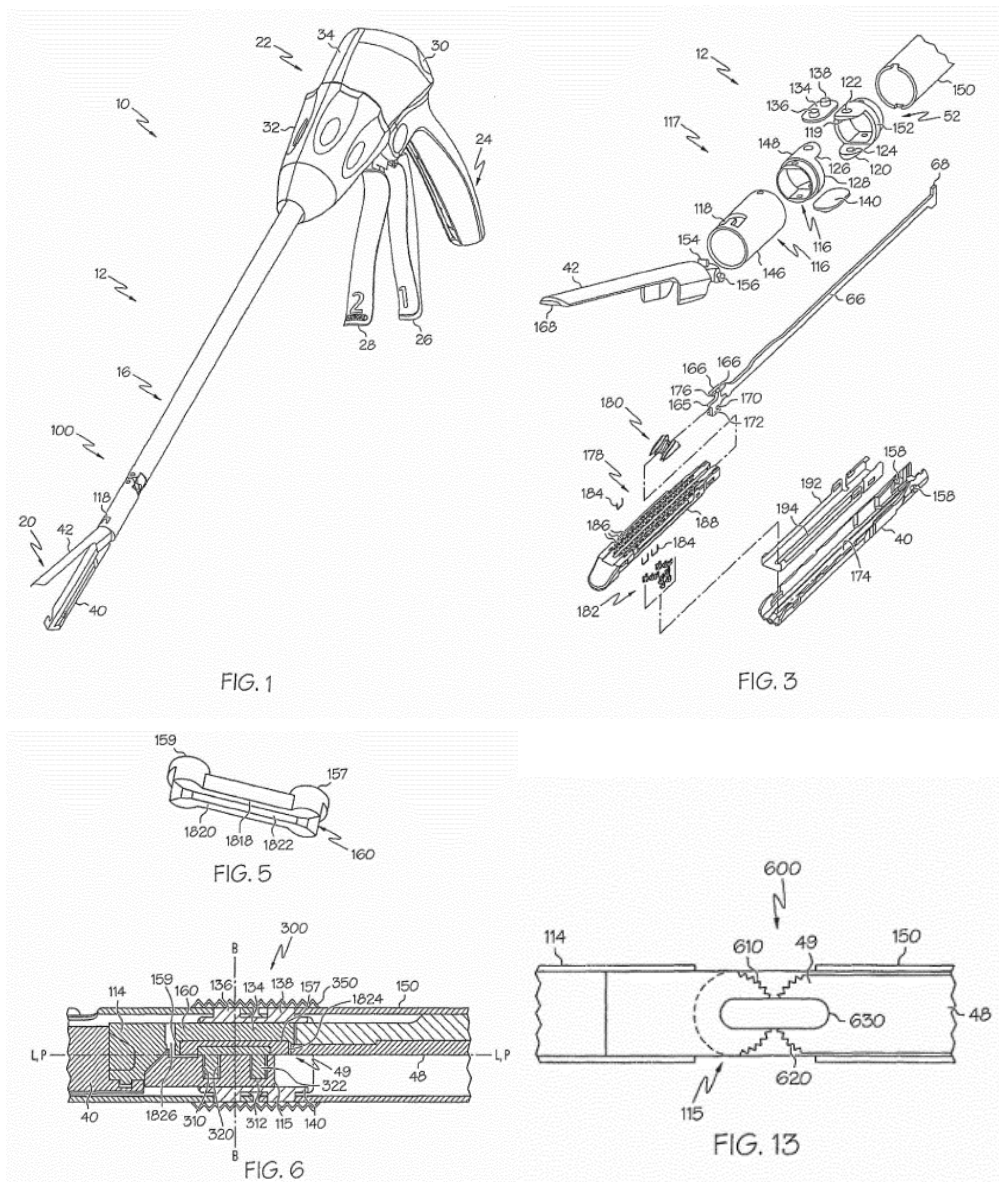
By actively moving articulation member 128 of the articulation shown in Figure 3, which can be done by acting upon articulation lever 24 shown in Figure 1A, proximal mounting assembly 102 pivots around axis B-B. By virtue of the engagement between the complementary convex and concave configurations of pivoting members 150 and 160 of proximal mounting assembly 102 and distal mounting assembly 104 respectively, the movement causes distal mounting assembly 104 also to pivot around pivot axis B-B. Because of the engagement between gears 112a and 118a, distal mounting assembly 104 will additionally pivot around axis C-C.

According to the patent (paragraph [0046]), the presence of two mounting assemblies defining two pivot axes makes it possible to achieve an increased amount of articulation, which may provide a user with a greater mechanical advantage when manipulating tissue.

## 2. Novelty

The opponent argued that the subject-matter of claim 1 lacked novelty over E1.

2.1 E1 discloses a surgical instrument with an elongated portion and an articulated end effector. The surgical instrument and the details of various embodiments of the articulation are shown in particular in Figures 1, 3, 5, 6 and 13, reproduced below.



It is common ground that E1 discloses passive articulations (100, 300, 600): the degree of articulation of the end effector (20) with respect to the elongated portion (16) is not actively controlled.

Articulation is permitted when a force transverse to the axis of the elongated portion is applied to the end effector.

The opponent argued that pivot link 134 could be considered a proximal mounting assembly, and short sleeve 146 could be considered an articulation member, within the meaning of claim 1 of the patent as granted. Element 126 (or the whole collar 148) was a distal mounting assembly, gear 610 was a movable gear and gear 620 was a stationary gear as defined in the claim.

- 2.2 Claim 1 of the patent as granted specifies that the articulation member is "coupled to the proximal mounting assembly (102) so that movement of the articulation member (128) pivots the proximal mounting assembly (102) and the distal mounting assembly (104) with respect to the longitudinal axis (A-A)".

The meaning of the term "coupled" in this passage is a crucial point of dispute between the parties. The claim uses this term on several occasions. The first of these is the definition of an end effector which is "operably coupled" to the elongated portion. It goes on to define the proximal mounting assembly and the distal mounting assembly as "pivotably coupled" to a distal end of the elongated portion and the proximal mounting assembly respectively. Moreover, it specifies that the distal mounting assembly and the movable gear are each "coupled" to the end effector, and that the stationary gear and the articulation member are "coupled" to the elongated portion and the proximal mounting assembly respectively.

The Board's view is that, in the context of the claim, "operatively coupled" may imply any kind of mechanical

link, but that when only "coupled" or "pivotably coupled" is used, a more primary and direct association is meant. More specifically, when the claim states that two elements are "coupled" (as opposed to "operatively coupled"), this means that none of the other elements defined in the claim can be interposed between those two elements.

Such an interpretation gives a limiting effect, and hence a technical meaning, to the term "coupled" as used in the claim. Indeed, if the opponent's general interpretation was accepted, the term "coupled" alone would be devoid of any limiting effect, since all the elements of the claimed surgical instrument would necessarily be "coupled" to each other.

The Board's understanding of the claim is also supported by the patent as a whole. Paragraphs [0020] and [0033], referred to by the opponent, recite that "one link may couple the first pivoting member to the second pivoting member" and that an "[a]rticulation assembly 100 includes a proximal mounting assembly 102 and a distal mounting assembly 104 operably coupled to each other by at least one link". Claim 6 employs wording similar to that of paragraph [0020]. When a further element is involved in the coupling between two elements, the patent expressly mentions it and identifies the two elements as being "operably coupled".

The opponent's argument that the word "operably" in the claim could at most qualify and limit the term "coupled", so that the term "coupled" would be broader than "operably coupled", is not convincing. In the context of the patent in general, and of the claim in particular, "operably" broadens the scope of the term

"coupled" alone, as it introduces the possibility that further claimed elements may be involved in the coupling, i.e. interposed between the elements referred to as being coupled together. This is in accordance with paragraph [0033] analysed above.

The opponent, making reference to decision T 681/01, argued that a restrictive feature could not be read into the claim if it was not suggested by the explicit wording of the claim. The Board agrees with this argument in general, but notes that the claim wording in question must not be considered in isolation but read in context, which, as explained above, implies a limiting effect of the term "coupled".

- 2.3 E1 does not disclose that the articulation member in the form of short sleeve 146 is coupled to the proximal mounting assembly in the form of pivot link 134 within the meaning of claim 1 of the patent as granted, since the distal mounting assembly in the form of collar 148 is interposed between them.

For this reason, the opponent's novelty objection on the basis of E1 cannot succeed.

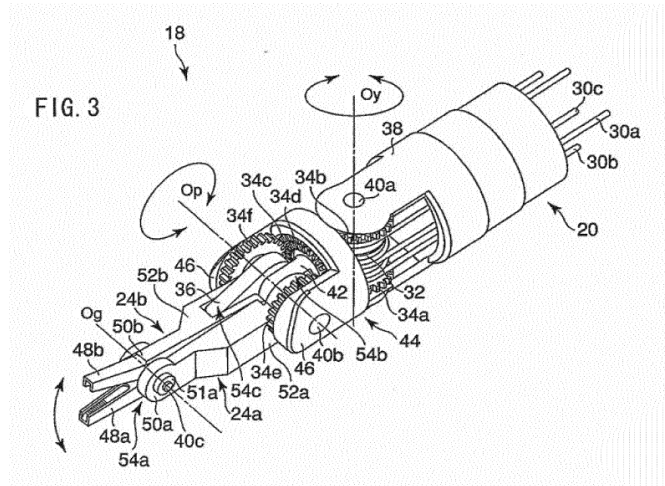
Hence, the ground for opposition of lack of novelty (Article 54 EPC) raised by the opponent under Article 100(a) EPC does not prejudice the maintenance of the patent as granted.

### 3. Inventive step

The opponent argued that the subject-matter of claim 1 of the patent as granted was not inventive when starting from E2 or E3, or when starting from E1.



3.1 E2 discloses a surgical instrument with an articulated joint comprising several moving gears, as depicted in Figure 3 reproduced below.



E3 discloses a similar articulated joint (Figure 3).

It is common ground that neither E2 nor E3 discloses a stationary gear coupled to an elongated portion of the surgical instrument, wherein a proximal mounting assembly of the instrument is pivotable with respect to the stationary gear.

It is true that claim 1 of the patent as granted does not explicitly define any function of the stationary gear in relation to the movement of the end effector with respect to the elongated portion: however, the person skilled in the art, who reads the claim in a technically sensible manner and takes account of the disclosure of the patent as a whole, will understand that the stationary gear cannot be an element with a purely decorative purpose, as submitted by the opponent, but must be a component of the surgical instrument that plays a role in the articulation. The definition of the stationary gear and the movable gear in the claim, with their claimed relationship with the

end effector and the elongated portion, already implies that they are directly or indirectly coupled for the purpose of controlling motion, at least when the surgical instrument is articulated. This is all the more so because gears are normally intended for such a purpose. Claim 2, referred to by the opponent, further specifies that the gears are in operative engagement. The coupling between the gears implied in claim 1, together with the coupling between the distal and the proximal mounting assembly, makes it possible to achieve a greater degree of articulation between the end effector and the elongated portion, overcoming the disadvantages of a limited range of articulation, which are explained in paragraph [0005] of the patent as granted.

It follows that the stationary gear has a technical character and can contribute to inventive step.

In view of its technical effect, the claimed stationary gear solves the objective technical problem of more easily reaching tissue that has to be manipulated.

Providing a stationary gear in the articulation joints of E2 or E3 would require a complete re-design of the joints. Moreover, neither E5 nor E6 cited by the opponent teaches the provision of a stationary gear as claimed for solving the objective technical problem.

It follows that the skilled person would have had no obvious reason to implement a stationary gear as claimed in the surgical instruments of E2 or E3.

3.2 Starting from E1, in the discussion of inventive step the opponent adopted a different understanding of the disclosure of this document, and considered the

proximal end and the distal end of dog bone link 160 (Figure 5) as the proximal and the distal mounting assemblies within the meaning of claim 1 of the patent as granted.

It is common ground that, under this understanding, the claimed subject-matter differs from E1 in that the distal mounting assembly is pivotably coupled to the proximal mounting assembly.

The pivotal coupling between the distal and the proximal mounting assembly, together with the presence of the movable and the stationary gear, makes it possible to achieve a greater degree of articulation between the end effector and the elongated portion.

This solves the objective technical problem of more easily reaching tissue that has to be manipulated.

Providing a pivotal coupling instead of a single element in the form of dog bone link 160 in E1 would require a complete re-design of the articulation between the end effector and the elongated portion. E4 or E6 cited by the opponent concern active articulations. Without hindsight, the person skilled in the art would have not applied their teaching to passive articulations such as those disclosed in E1. Moreover, E4 and E6 do not teach the provision of the distinguishing feature of the claim for solving the objective technical problem.

It follows that the skilled person would have had no obvious reason to implement the claimed pivotal coupling instead of dog bone link 160 in the surgical instrument of E1.

- 3.3 Hence, the ground for opposition of lack of inventive step (Article 56 EPC) raised by the opponent under Article 100(a) EPC does not prejudice the maintenance of the patent as granted.
4. In conclusion, the patent is to be maintained as granted, since none of the raised grounds for opposition prejudice it (Article 101(2) EPC).

## Order

### **For these reasons it is decided that:**

1. The decision under appeal is set aside.
2. The patent is maintained as granted.

The Registrar:

The Chairman:



D. Hampe

M. Alvazzi Delfrate

Decision electronically authenticated