Internal distribution code:

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

Datasheet for the decision of 6 April 2022

Case Number: T 2181/17 - 3.2.02

Application Number: 06795186.3

Publication Number: 1909650

IPC: A61B10/00, A61B19/00

Language of the proceedings: EN

Title of invention:
MEDICAL APPARATUS SYSTEM HAVING OPTICAL FIBER LOAD SENSING CAPABILITY

Patent Proprietor:
St. Jude Medical International Holding S.à r.l.

Opponent:
Aechter, Bernd

Headword:

Relevant legal provisions:
EPC Art. 54(2), 54(3), 56, 83, 123(2)
RPBA Art. 12(2), 12(4)
RPBA 2020 Art. 13(1), 13(2)

Keyword:
Sufficiency of disclosure - (yes)
Amendments - allowable (yes)
Novelty - (yes)
Inventive step - (yes)
Late-filed objection - admitted (no)

Decisions cited:
G 0001/03, G 0001/15, T 2387/13

Catchword:

Europäisches Patentamt
European Patent Office
Office européen des brevets

Beschwerdekammern

Boards of Appeal

Chambres de recours

Boards of Appeal of the
European Patent Office
Richard-Reitzner-Allee 8
85540 Haar
GERMANY
Tel. +49 (0)89 2399-0
Fax +49 (0)89 2399-4465

Case Number: T 2181/17 - 3.2.02

D E C I S I O N
of Technical Board of Appeal 3.2.02
of 6 April 2022

Appellant: (Patent Proprietor)	St. Jude Medical International Holding S.à r.l. 4, rue Dicks 1417 Luxembourg (LU)
Representative:	Valea AB Box 1098 405 23 Göteborg (SE)
Appellant: (Opponent)	Aechter, Bernd Nymphenburgerstrasse 4 80335 München (DE)
Representative:	Ter Meer Steinmeister & Partner Patentanwälte mbB Nymphenburger Straße 4 80335 München (DE)
Decision under appeal:	**Interlocutory decision of the Opposition Division of the European Patent Office posted on 19 July 2017 concerning maintenance of the European Patent No. 1909650 in amended form.**

Composition of the Board:

Chairman	M. Alvazzi Delfrate
Members:	A. Martinez Möller
	N. Obrovski

Summary of Facts and Submissions

I. Appeals were filed by the patent proprietor and the opponent against the interlocutory decision of the Opposition Division finding that, account being taken of the amendments made by the patent proprietor according to the then auxiliary request 1, the patent and the invention to which it related met the requirements of the EPC.

II. Oral proceedings took place on 6 April 2022.

The appellant/proprietor ("the proprietor") requested that the decision under appeal be set aside and that a patent be granted on the basis of the main request filed with the statement of grounds of appeal, one of auxiliary requests 1-5 filed with the submission dated 13 April 2018 or one of auxiliary requests 6-21 filed with the submission dated 30 September 2020.

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

III. Claim 1 of the **main request** reads as follows:

"A device for introduction into a vessel or organ having a tissue wall, comprising:
a deformable elongate body (1) for traversing a body passageway, the elongate body being a catheter and having a distal extremity (5) for contacting a tissue wall of the vessel or organ;
a deflection mechanism (88) disposed in the elongate body, the deflection mechanism configured to deflect

the elongate body at a location proximal of the distal extremity,
characterised in that said device comprises
at least two optical fiber contact force sensors (9) disposed in the distal extremity configured to deform responsive to contact forces, said optical fiber contact sensors configured for resolution of a multi-dimensional force vector corresponding to a contact force between the distal extremity and tissue wall of the organ or vessel by means of processing logic (6) operatively coupled to receive an output of the optical fiber contact force sensors,
said device further comprising a storage device (2a) having stored thereon a force-strain conversion matrix obtained by subjecting the distal extremity of the elongate body to a series of known forces during manufacture of the elongate body,
the processing logic being programmed to apply the force-strain conversion matrix to compute said multi-dimensional force vector from the output of the optical fiber contact force sensors."

IV. The following documents are relevant for this decision:

D3: US 11/237,053 (priority application)
D5: WO 2006/092707 A1
D6: Peirs, J. et al., "A micro optical force sensor for force feedback during minimally invasive robotic surgery", Sensors and Actuators A 115 (2004) 447-455
D7: US 2004/0165810 A1
D8: Fernandez Fernandez, A. et al., "Multi-component force sensor based on multiplexed fibre Bragg grating strain sensors", Meas. Sci. Technol. 12 (2001) 1-4
D9: Zhang, L. et al., "On SDM/WDM FBG Sensor Net for Shape Detection of Endoscope", Proceedings of the IEEE,

International Conference on Mechatronics and Automation, Niagara Falls, Canada, July 2005
D10: WO 01/74252 A2
D11: WO 01/33165 A1
D12: Peirs, J. et al., "A flexible distal tip with two degrees of freedom for enhanced dexterity in endoscopic robot surgery", Proceedings of the MME'02, The 13th Micromechanics Europe Workshop, October 6-8, 2002, Sinaia, Romania
D13: US 2004/0225298 A1

V. The opponent's arguments relevant to the decision can be summarised as follows.

Sufficiency of disclosure

The skilled person found no indication in the opposed patent on how to resolve a multi-dimensional force for dimensions higher than two with only two force sensors. This was in fact technically impossible. Hence, the invention could not be performed in the whole area claimed.

As a further line of argument, the patent specification did not teach how the distal extremity should be designed so that a force along the axial direction of the elongate body could be resolved. This submission defined new arguments which should be admitted into the proceedings.

Added subject-matter

Page 7, lines 9-20 of the originally filed application disclosed that when using at least two optical fibre contact force sensors, the processing logic could only compute an at least two-dimensional force vector. Page

8, lines 7-14 further disclosed that the dimensions of the force vector which could be computed depended upon the number of fibre contact force sensors. Hence, the combination of at least two sensors with the resolution of a "multi-dimensional force vector" in claim 1 resulted in added subject-matter.

Novelty over D5

The priority claimed from document D3 was not valid. Thus, D5 was prior art under Article 54(3) EPC. D5 disclosed the subject-matter of claim 1.

Novelty over D6

The subject-matter of claim 1 was not novel over D6. D6 had to be constructed in view of the endoscopic instrument disclosed in D12 and referred to in D6. The flexible tip of the endoscope/instrument driver after the bending degrees of freedom defined the distal extremity within the meaning of claim 1. The three optical fibre sensors in D6 were provided at the distal extremity and measured a multi-dimensional contact force between the distal extremity and the tissue wall. D6 disclosed in section 5 how the calibration was done, with a short rod fixed to the distal extremity for applying torque. This would result in the same calibration matrix as when subjecting the distal extremity to known forces.

Inventive step in view of D6 and common general knowledge or D13

D6/D12 disclosed an endoscope. It was known that an endoscope could cause complications during its introduction due to excessive pressure on the tissue.

The different calibration of the force sensor to measure the contact force at the distal extremity allowed reducing complications during the introduction of the endoscope. The problem to be solved was thus the provision of an endoscope which could be introduced without complications. The person skilled in the art would realise that this could be achieved by using a different sensor calibration.

Alternatively, the problem to be solved could be regarded as providing an endoscope facilitating endoscope positioning and enabling therapies including contact forces. D13 taught that it was advantageous to measure the contact force between the endoscope and the tissue. The person skilled in the art would know that this can be done in the endoscope of D6/D12 by using a different sensor calibration.

Thus, the subject-matter of claim 1 was not inventive over D6 and the common general knowledge, nor over the combination of D6 and D13.

Inventive step in view of D7 and common general knowledge or D8

The features distinguishing the subject-matter of claim 1 from D7 solved the problem of providing an endoscope which can be accurately monitored to avoid tissue damage and complications. The person skilled in the art was aware that this could be done either by monitoring the shape of the insertion tube or by monitoring the contact forces, as taught by D13 which reflected the common general knowledge. The person skilled in the art would thus have considered using the sensor cable of D7 to measure a three-dimensional force vector. D8, as proof of general technical knowledge or considered on

its own, taught that the same sensor could be used to measure a force and disclosed the relationship between strains and forces using a calibration matrix.

Inventive step in view of D9 and D8

The subject-matter of claim 1 lacked an inventive step in view of D9 and D8, as argued in the notice of opposition.

Inventive step starting from D10

The subject-matter of claim 1 was not inventive in view of D10 and D8 for the same reasons indicated for the combination of D7 with D8.

Moreover, the subject-matter of claim 1 was not inventive starting from D10 in view of D8 because the skilled person would use the force sensor of D8 to provide a force sensor insensitive to electromagnetic noise.

Inventive step in view of D11, D13 and common general knowledge

The technical problem solved by the distinguishing features was providing a catheter allowing for accurate and effective treatment of an intracavitary target site while avoiding injuries.

The skilled person would incorporate the deflection mechanism taught in D13. Moreover, for the same reasons indicated for D7, the skilled person would use the optical fibre sensors of D11 to measure a three-dimensional force vector using common general knowledge as shown in D8.

VI. The proprietor's arguments relevant to the decision can be summarised as follows.

Sufficiency of disclosure

Claim 1 did not require that the skilled person be able to calculate a three-dimensional force vector from only two sensors. The skilled person would recognise from the teaching of the patent that three force sensors could be used to resolve a three-dimensional force vector.

Added subject-matter

"Multi-dimensional" in claim 1 meant at least two dimensions. The patent application thus disclosed at least two sensors combined with the resolution of a multi-dimensional force vector.

Novelty over D5

D3 and D5 were virtually identical. In accordance with G 1/15, D5 did not constitute prior art for any subject-matter that validly claimed priority from D3. Hence, the subject-matter of the claims was novel over D5.

Novelty over D6

The subject-matter of claim 1 was novel over D6 when constructed in view of D12. The tip of the instrument driver of D6/D12 was not designed for contact with the patient's tissue. It was instead the surgical tool inserted through the instrument driver which made

contact with the tissue. Thus, the calibration in D6 was done by fixing a rod to the tip of the instrument.

Inventive step in view of D6 and common general knowledge or D13

The instrument driver of D6/D12 was designed to be introduced through a trocar in minimally invasive surgery. The tip of the instrument driver of D6/D12 was not to come into contact with the patient's tissue. It would thus be contrary to the teaching and purpose of D6 to calibrate it differently to measure the contact force at the tip of the instrument driver. If the skilled person combined D6 with D13, they would not adapt the sensor of D6 but incorporate the pressure transducer of D13.

Inventive step in view of D7 and common general knowledge or D8

D7 did not suggest using the optical sensors to detect a contact force at the distal extremity. The sensor and construction disclosed in D7 to measure bending would not be suitable for measuring the contact force at the distal extremity. The insertion tube's tip in D7 was rigid and the sensor cable was slidable, so contact forces could not be determined using the sensor cable of D7. The skilled person would have no motivation to consult D8, which was in a remote technical field.

Inventive step in view of D9 and D8

The subject-matter of claim 1 was inventive in view of D9 and D8 at least for the same reasons indicated when starting from D7, *mutatis mutandis*.

Inventive step starting from D10

The subject-matter of claim 1 was inventive in view of D10 and D8 at least for the same reasons indicated when starting from D7, *mutatis mutandis*. Moreover, the opponent's new line of argument constituted an amendment to the party's appeal case which should be deemed inadmissible.

Inventive step in view of D11, D13 and common general knowledge

The subject-matter of claim 1 was inventive in view of D11, D13 and common general knowledge at least for the same reasons indicated when starting from D7, *mutatis mutandis*.

Reasons for the Decision

1. The invention

The invention relates to a device for introduction into a vessel or organ. The device comprises a deformable elongate body, a deflection mechanism disposed in the elongate body, at least two optical fibre contact force sensors disposed in a distal extremity of the elongate body, a storage device and processing logic.

The processing logic is programmed to apply a force-strain conversion matrix stored in the storage device to compute, from the output of the optical fibre contact force sensors, a multi-dimensional force vector corresponding to a contact force between the distal extremity and tissue wall of the organ or vessel.

Computing the forces applied to the distal extremity permits carrying out measurements or treatments while applying an optimal contact force between the distal extremity and the tissue wall. This is relevant for example in the treatment of atrial fibrillation by selective ablation, both during the preliminary mapping and treatment phases.

2. Sufficiency of disclosure

2.1 Paragraphs [0029]-[0030] of the patent specification teach that the processing logic computes a two- or three-dimensional force vector depending upon the number of optical fibre sensors employed and that three optical fibre sensors permit the computation of a three-dimensional force vector.

The person skilled in the art thus derives from the patent specification that a force vector having more than two dimensions cannot be computed if only two sensors are used. The person skilled in the art wanting to carry out the invention as defined in claim 1 would thus not envisage such an option among the large number of conceivable alternatives and would find guidance in the same paragraphs [0029]-[0030] of the patent specification towards appropriate alternatives, for example, using three sensors to compute a three-dimensional force vector. It follows that the presence of non-working embodiments is in this case of no harm (see also G 1/03, point 2.5.2 of the Reasons).

2.2 The opponent's letter dated 9 October 2018 addresses, within the discussion of the main request in section I. 2, a further objection under Article 83 EPC. The Board decided not to admit this objection to the main request using its discretion under Article 13(1) RPBA 2020 in

view of the following circumstances:
a) a similar objection to auxiliary request 1 was not admitted into the opposition proceedings by the Opposition Division
b) the further objection not only includes new arguments, as argued by the opponent, but also constitutes a new objection which raises new and complex factual issues
c) the opponent did not justify why this objection to the main request was only submitted at this late stage of the proceedings

2.3 It follows that the patent specification discloses the invention in a manner sufficiently clear and complete for it to be carried out by a person skilled in the art.

3. Added subject-matter

Basis for the processing logic being programmed to compute a "multi-dimensional vector" combined with the feature "at least two optical fiber sensors" is provided on page 7, lines 9-20 of the application as originally filed. The wording "at least a two-dimensional force vector" on page 7, lines 17-18 refers, in the context of the application as filed, to a force vector having at least two dimensions. It is thus equivalent to the term "multi-dimensional force vector" in claim 1. The fact that a later passage on page 8, lines 7-14 describes the dependency between the number of sensors and the dimensionality of the force vector computed has no impact on the disclosure of page 7, lines 9-20.

It follows that claim 1 does not include added subject-matter.

4. Novelty

4.1 Novelty over D5

It was disputed whether and to what extent the priority claimed from document D3 was valid and, in consequence, whether and to what extent D5 belonged to the state of the art within the meaning of Article 54(3) EPC.

In this case, in light of decision G 1/15, D5 belongs to the state of the art in accordance with Article 54(3) EPC if and to the extent which the priority claimed from D3 is not valid.

D3 and D5 disclose the same technical content. Hence, D5 cannot disclose any subject-matter for which the priority from D3 is not valid. It follows that, irrespective of the extent of validity of the priority claimed from D3 and thus irrespective of the precise disclosure of D3/D5, D5 cannot destroy the novelty of claim 1 (see also T 2387/13, point 2.1.1).

4.2 Novelty over D6

D6 addresses the problem of providing tactile feedback to the surgeon during minimally invasive robotic surgery (see page 447, right column, second paragraph). D6 discloses a sensor using three optical fibre contact force sensors, the sensor being designed to be mounted at the tip of a 5 mm diameter instrument driver, in front of two bending degrees of freedom (see D6, Figure 5 and section 3.1 on page 450). The sensor and the instrument driver on which it is to be mounted each comprise an internal channel through which surgical instruments can be inserted. D6 refers to D12 for the

instrument driver, so it is appropriate to construe the instrument driver of D6 taking into account the disclosure of D12.

In the instrument driver of D6/D12, the "distal extremity" within the meaning of claim 1 is defined by the tip of the instrument driver, that is, the part after the bending degrees of freedom where the sensor is to be mounted. The sensor of D6 is intended to measure the forces acting at the tip of a surgical instrument to be inserted through the internal channel of the instrument driver (see D6, last sentence of section 3.1 on page 450). This is why the sensor calibration in D6 is done having a 15 mm rod fixed to the tip acting as lever for applying torque, 15 mm being the distance between the tip of the surgical instrument and the sensor front (see the first two sentences of section 5 on pages 453-454).

Hence, the sensor of D6 is not calibrated by subjecting the distal extremity of the instrument driver to known forces but by applying the forces to the added rod. This results in a different calibration matrix because the torque resulting at the sensor's position, and thus the measurements obtained by the sensor, are different when the force is applied at the two different locations.

Consequently, the processing logic of D6 is not programmed to compute a force vector corresponding to a contact force between the distal extremity and the tissue wall but instead to compute a force vector corresponding to a contact force between a surgical instrument - located further distally than the distal extremity of the instrument driver - and the tissue wall.

It follows that D6 does not disclose the feature "at least two optical fiber contact force sensors ... configured for resolution of a multi-dimensional force vector corresponding to a contact force between the distal extremity and tissue wall of the organ or vessel ... by means of processing logic" (emphasis added by the Board). Hence, the subject-matter of claim 1 is novel over D6.

5. Inventive step

5.1 Inventive step in view of D6 and common general knowledge or D13

5.1.1 The technical effect and technical problem submitted by the opponent related to reducing complications due to tissue damage during the introduction of the device of D6/D12.

It is correct that what D6 refers to as an "instrument driver" is named an "[e]ndoscope arm" in the legend of Figure 11 of D12 and, according to the title of D12, it is made for "endoscopic robot surgery". While it is known that the displacement of an endoscope within a body passageway may cause complications due to excessive pressure on the tissue and may even lead to tissue perforation, this cannot be extrapolated to the situation for which the instrument driver/endoscope arm of D6/D12 is envisaged, as explained below.

The instrument driver of D6/D12 is used in minimally invasive robotic surgery. It is inserted in a linear motion through a trocar towards the relevant organ in a set-up comparable to that of Figure 1 of D12.

It is not disclosed in D6/D12 whether a surgical instrument is already in place within the inner channel of the instrument driver during insertion of the instrument driver into the body. Even if, as argued by the opponent, the instrument driver was inserted into the body before inserting the surgical instrument into its inner channel, there is no suggestion in D6/D12 that the insertion of the instrument driver would involve complications, nor is there any reason to assume this. The instrument driver requires no contact with the tissue before the surgical instrument is inserted in its inner channel, so that a mere forward motion performed with the minimal care to be expected during surgery would suffice to bring it through the trocar without complications.

Moreover, the patent specification and D6 are both concerned with determining the contact force after insertion of the device into the body, once the catheter (patent specification) or instrument driver/ endoscope arm (D6/D12) are already at the relevant tissue/organ and interacting with it.

Hence, neither is the distinguishing feature associated with the technical effect of reducing complications during insertion of the device, nor would the person skilled in the art starting from the instrument driver/ endoscope arm of D6/D12 envisage the problem submitted by the opponent. Thus, the submitted objection is not convincing.

5.1.2 As to the combination of D6 and D13, the opponent argued that the problem solved by the distinguishing feature would be to provide an endoscope which improves endoscope positioning and is suitable for therapies including contact forces.

This submission disregards that when using the instrument driver of D6/D12, no contact between the instrument driver and the tissue wall is needed or sought. Hence, the contact force between the instrument driver and the tissue wall is irrelevant for positioning and therapy. Relevant for the minimally invasive surgery for which the instrument driver of D6/D12 is envisaged is instead the force between the surgical instrument inserted in the inner channel of the instrument driver and the tissue wall (see D6, page 447, right column, second paragraph). Hence, the person skilled in the art starting from D6 would not be faced with this problem either.

5.1.3 The distinguishing feature is related instead to the different design and intended use of the devices of the invention and D6/D12. The part of the device which has to interact with the patient's tissue and for which the contact force is to be determined is different in each case. In the claimed invention, it is the distal extremity of the elongate body, while in D6/D12 it is a surgical instrument to be introduced through the inner channel of the instrument driver and which will stick out of the instrument driver's distal extremity.

The person skilled in the art starting from the instrument driver for minimally invasive surgery disclosed in D6/D12 would not reach the subject-matter of claim 1 without changing the design and intended use of the instrument driver, which would then serve a different purpose and not be an instrument driver anymore. Such fundamental changes to the intended purpose and use are, in the absence of any prompt in the prior art, not conceivable without use of inventive skill.

5.1.4 It follows that the subject-matter of claim 1 is inventive in view of D6 and common general knowledge or D13.

5.2 Inventive step in view of D7 and common general knowledge or D8

5.2.1 D7 discloses an elongated flexible member such as the insertion tube of an endoscope in which a sensor cable with two pairs of fibre Bragg gratings strands is inserted for detection of three-dimensional shapes of the insertion tube (see Figures 6 and 7 as well as paragraphs [0008]-[0009] and [0032]-[0034] of D7).

It is common ground that D7 does not disclose at least a processing logic programmed to apply a force-strain conversion matrix to compute a multi-dimensional force vector corresponding to a contact force between the distal extremity and the tissue wall of the organ or vessel (see the last feature of claim 1 in view of the definition of the multi-dimensional force vector given earlier in claim 1).

5.2.2 The person skilled in the art starting from the device of D7, if faced with the problem submitted by the opponent of providing an endoscope which can be accurately monitored to avoid tissue damage and complications, would find no suggestion in D7 to measure the contact force between the distal extremity of the insertion tube and the tissue. Let alone to compute this contact force as a multi-dimensional vector using the output provided by the sensor cable included in the device of D7.

The opponent submitted that D13 reflected common general knowledge on the relevance of the contact force at the distal end for reducing tissue damage. However, if in view of such common general knowledge the person skilled in the art starting from D7 considered the measurement of the contact force at the distal end, they would find no suggestion in D7 or using common general knowledge to use the sensor cable employed for shape sensing in D7 to determine the contact force at the distal end of the insertion tube.

It is correct that D8 employs the same sensor technology, i.e. fibre Bragg gratings strain sensors, to measure forces. However, D8 does this for controlling industrial robots in electromagnetically noisy environments (see Abstract and Introduction). D8 can thus not be regarded as common general knowledge in the field of endoscopic tubes. The person skilled in the art starting from D7 and faced with the problem above would not consult D8 either. D8 is in a remote technical field and does not deal with the same problem. Moreover, although the underlying sensor technology is the same, the sensor taught in D8 differs from that of D7 not only in its use but also in its construction. D8 emphasises that the fibre Bragg gratings must be properly fixed by uniformly gluing them (see D8: page 2, left column, second paragraph and section 4). In contrast, the sensor cable in D7 cannot be glued without a major redesign because it is made to be slidably inserted through the biopsy channel of the insertion tube/endoscope (see paragraph [0033] of D7).

5.2.3 Hence, the objections of lack of inventive step in view of D7 and common general knowledge or D8 are not convincing.

5.3 Inventive step in view of D9 and D8

The objection of lack of inventive step in view of D9 and D8 was raised in the opponent's statement of grounds of appeal by reference to the notice of opposition.

The arguments in the notice of opposition are directed to claim 1 as granted. Hence, the submission disregards the amendments to claim 1 of the main request as compared to claim 1 as granted. Moreover, the impugned decision gives reasons under point 3.3.3 why the inventive-step objection to claim 1 of the auxiliary request 1 in view of D9 and D8 was not found convincing by the Opposition Division. The reasons provided likewise apply to claim 1 of the main request. The opponent did not explain why it considered this part of the decision to be incorrect. Therefore, this objection does not meet the requirements set out in Article 12(2) RPBA 2007. It is thus not taken into account by the Board under Article 12(2) and (4) RPBA 2007.

5.4 Inventive step starting from D10

In the statement of grounds of appeal, the opponent also raised an objection of lack of inventive step over the combination of D10 and D8 by reference to the notice of opposition. However, as pointed out by the Board in its communication of 28 July 2021 and not disputed by the opponent, this submission disregards the amendments to claim 1 of the main request as compared to claim 1 as granted, so it does not satisfy the requirements of Article 12(2) RPBA 2007. It is thus not taken into account under Article 12(2) and (4) RPBA 2007.

A detailed objection of lack of inventive step starting from D10 and referring to D8 and D6 was submitted by the opponent in the letter of 13 January 2022, after notification of the summons to oral proceedings. However, as pointed out by the proprietor in the letter of 4 February 2022 and not disputed by the opponent, this constitutes an amendment to the opponent's case in appeal. Since no cogent reasons justifying exceptional circumstances have been provided, this objection is not admitted into the proceedings (Article 13(2) RPBA 2020).

5.5 Inventive step in view of D11, D13 and common general knowledge

D11 deals with determining the bending and shape of a catheter using optical fibre sensors and thus deriving the position and orientation of the catheter.

It is common ground that D11 fails to disclose at least a deflection mechanism as defined in claim 1 as well as the same feature not disclosed in D7, i.e. a processing logic programmed to apply a force-strain conversion matrix to compute a multi-dimensional force vector corresponding to a contact force between the distal extremity and tissue wall of the organ or vessel.

As regards the latter feature, the disclosure of D11 is comparable to that of D7 in that fibre Bragg gratings are also used in D11 to determine the shape of the catheter but not the contact force at the distal extremity. Hence, as indicated by the Board in its communication and not disputed by the opponent, this objection suffers from the same issues indicated for

the objection starting from D7. Therefore, this objection is not convincing either.

6. It follows that none of the objections prejudices the maintenance of the patent on the basis of the main request.

Order

For these reasons it is decided that:

1. The decision under appeal is set aside.

2. The case is remitted to the Opposition Division with the order to maintain the patent with the following claims and a description and drawings to be adapted thereto:
- claims 1-20 of the main request filed with the patent proprietor's statement of grounds of appeal

The Registrar: The Chairman:

D. Hampe M. Alvazzi Delfrate

Decision electronically authenticated