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**Datasheet for the decision
of 18 February 2020**

Case Number: T 0919/17 - 3.2.08

Application Number: 03012920.9

Publication Number: 1369098

IPC: A61F2/95

Language of the proceedings: EN

Title of invention:

Controlled deployment delivery system

Patent Proprietor:

Medtronic Vascular, Inc.

Opponent:

Lang/Tomerius, Friedrich/Isabel

Headword:

Relevant legal provisions:

EPC Art. 54(2), 56

Keyword:

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Catchword:



Beschwerdekammern

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Case Number: T 0919/17 - 3.2.08

D E C I S I O N
of Technical Board of Appeal 3.2.08
of 18 February 2020

Appellant: Lang/Tomerius, Friedrich/Isabel
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Decision under appeal: **Decision of the Opposition Division of the
European Patent Office posted on 10 February
2017 rejecting the opposition filed against
European patent No. 1369098 pursuant to Article
101(2) EPC.**

Composition of the Board:

Chairwoman P. Acton
Members: G. Buchmann
Y. Podbielski

Summary of Facts and Submissions

I. With the decision posted on 10 February 2017 the opposition division rejected the opposition against the patent. The opposition division found that the patent as granted fulfilled the requirements of the EPC.

II. The opponent filed an appeal against that decision.

III. Oral proceedings took place before the Board on 18 February 2020.

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

The respondent (proprietor) requested that the appeal be dismissed or that the patent be maintained on the basis of one of the auxiliary requests 1, 5, 2, 3, 4 and 6 (in this order) filed with the reply to the appeal.

V. In the present decision, reference is made to the following documents:

D4 US 5415664 A
D5 US 5824041 A
D6 EP 0657147 A2
D8 US 5201757 A

VI. Subject-Matter of the Patent

(a) Claim 1 of the patent as granted (main request) reads as follows (feature references and emphasis have been added by the Board):

L1

A controlled stent-graft deployment delivery system (10; 50; 900), comprising:

L2

a **stent-graft** (30; 63);

L3

a **retractable primary sheath** (40)

L4

containing said stent-graft in a first constrained diameter configuration;

L5

an outer tube (18; 60)

L6

within the retractable primary sheath

L7

and within the stent-graft;

L8

an inner tube (20; 59)

L9

within the outer tube,

L10

wherein the inner tube and the outer tube both axially can move relative to the retractable primary sheath and to each other; characterized by

L11

a cap (15; 55)

L12

coupled to a distal end of the inner tube

L13

and configured to retain at least a portion of a proximal portion of the stent-graft in a radially compressed configuration,

L14

wherein a controlled relative axial movement between the outer tube and the inner tube releases

the proximal end of the stent-graft from the cap and from the radially compressed configuration.

(b) Auxiliary Request 1

In claim 1 of auxiliary request 1, it has been added at the end " , further comprising a retention mechanism attached to the outer tube for retaining a proximal end of a stent-graft in a constrained diameter configuration while the end of the stent graft is still located within the cap while still enabling axial and radial movement of the stent-graft" (**L15**).

Auxiliary Request 1 is a combination of granted claims 1 and 7.

(c) Auxiliary Request 5

In addition to claim 1 as granted, it has been added " further comprising a proximal lock (22; 62; 75) attached to the outer tube, wherein the stent-graft has a plurality of proximal spring apices at the proximal end of the stent-graft that remain latched onto the proximal lock in the radially compressed configuration while the plurality of spring apices remain within the cap, wherein the proximal lock further comprises a plurality of ribs (23; 61; 76) for retaining a plurality of apices of the proximal spring of the stent-graft" (**L16**).

Auxiliary Request 5 is a combination of granted claims 1, 4 and 5.

VII. The arguments of the appellant, as far as relevant, can be summarised as follows:

(a) Admittance of Late Filed Objections of the Appellant

The objections filed with letter dated 17 January 2020 should be admitted into the proceedings since they were a reaction of the appellant to the auxiliary requests filed by the respondent together with the reply to the grounds of appeal. It was correct that the auxiliary requests were filed during the opposition proceedings, however, the appellant could not be expected to guess beforehand which auxiliary requests the respondent would file in response to the appeal. Finally, the attacks were based on known documents and lines of argumentation so that the respondent and the Board could be expected to deal with them without adjournment of the oral proceedings.

(b) Main Request - Novelty

The subject-matter of claim 1 was not novel over D4.

D4 disclosed, according to the title, an apparatus for introducing a stent or a stent-graft. Moreover, the introductory portion of D4 referred to the delivery of a transluminal prosthesis which could be either a stent or a stent-graft (column 1, lines 1-22) (Feature L2).

The embodiment of **Fig. 5** (column 5, lines 1-56) comprised all features of claim 1. In particular, it disclosed a control member 48 made of a metal

tube (column 5, line 30) which represented an inner tube according to the claim (Feature L8). An outer sheath was disclosed by Fig. 5a (Feature L3).

Also the embodiment of **Fig. 8** comprised all features of claim 1. In particular, the coil (342) had to be regarded as a particular embodiment of a tube so that the coil (342) was an outer tube according to the claim (Feature L5). This was supported by the "summary of the invention" of D4 (column 3, lines 21-39) which described the apparatus to have 3 concentric tubes, one of them corresponding to the coil (342) of Fig. 8. Furthermore, the coil (342) had the same functionality as the outer tube which was present in the other embodiments of D4. Therefore, the coil had to be regarded as a tube.

(c) Auxiliary Request 1 - Inventive Step

Even if regarded as novel, the subject-matter of claim 1 was not inventive over the embodiment of Fig. 8 of D4.

D4 disclosed the axial and radial movement according to the feature which had been added in claim 1 of the auxiliary request. D4, column 8, lines 39ff, described that the stent can be relocated in the distal direction (line 61) which corresponded to an axial movement, and that it is first partially deployed and then fully deployed, which corresponded to a radial movement.

The coil of Fig. 8 of D4 obviously had the same function as the outer tube of the claim, having no additional technical effect. The use of a tube

instead of a coil was therefore an obvious alternative.

(d) Auxiliary Request 5 - Amendments

A feature containing the term "fixed" had been deleted from claim 9 and had not been fully replaced by the term "attached" in claim 1. The term "attached" was broader than the term "fixed", because it did not necessarily mean a permanent fixation. This broadening contravened Art. 123(2) EPC.

(e) Auxiliary Request 5 - Inventive Step

Claim 1 of auxiliary request 5 was neither inventive over D4 (Fig. 8) in combination with D5 or D6, nor over D8 in combination with D5 or D6.

Starting from D4 as Closest Prior Art

Claim 1 differed from the system of D4 in that

- an outer tube was claimed instead of the coil of D4, Fig. 8 (which was already present in auxiliary request 1); and
- the stent-graft has apices, and
- the proximal lock has ribs for retaining the apices of the stent-graft inside the cap.

The outer tube on the one hand and the apices/ribs on the other hand solved different independent technical problems which could be treated

separately using the problem solution approach.

The outer tube represented an alternative solution having the same function as the coil of D4, Fig. 8, which was obvious as pointed out in the context of auxiliary request 1.

Regarding the apices/ribs, D4 disclosed that the tapered locking member retained the stent-graft by "engagement" inside the cap. There was, however, no detailed description of how this was technically achieved. Therefore, the problem to be solved had to be regarded as to find a specific implementation of the locking features which were not described in detail by D4. The locking features, including ribs for retaining apices of a stent-graft, were suggested by both, D5 and D6 which disclosed that a stent could be anchored onto a catheter shaft by providing a ring of penetrating stays (124) (D5, Fig. 13-15) or by a retention device 85 having spokes 81 (D6, Fig. 16a). For the skilled person, it would be obvious to transfer the retention mechanism of either D5 or D6 from the distal end of the stent to the proximal end of the stent, in order to implement the retention mechanism needed according to D4.

The device of D4 was for delivery of a stent-graft having a braid like structure (Fig. 1, 3). Such stents typically also terminated in apices which also act as springs. Also D6 disclosed a stent-graft having apices (e.g. Fig. 1) which were held by the retention device (85). Therefore, the feature of the stent-graft having apices was either already present in D4 or the skilled person would

apply the retention devices of D6 to the device of D4.

Starting from D8 as Closest Prior Art

D8 disclosed a deployment device for a stent. Fig. 2 of D8 showed a device wherein the detent (102) represented a proximal lock preventing axial travel of the stent. It could be assumed that the detent compressed the apices of the stent in order to engage the stent. The problem of the stent slipping out of the sheath was also addressed by D8, and was solved by the detents (102, 104). The ribs of claim 1 of auxiliary request 5 had no further technical effect, so that the problem to be solved had to be regarded as the provision of a technical implementation for the detents, and to transfer the apparatus to the field of stent-grafts. In the same way as argued for D4, the documents D5/D6 suggested to the skilled person an obvious solution to this problem.

VIII. The arguments of the respondent, as far as relevant, can be summarised as follows:

(a) Admittance of Late Filed Objections of the Appellant

The objections against the auxiliary requests filed with the letter dated 17 January 2020 should have been filed already during the opposition procedure. The auxiliary requests were based purely on combinations of claims already present in the granted patent, and had been filed already during the opposition proceedings. The appellant could and should have filed objections against the dependent

claims as granted during the opposition proceedings and at the latest together with the grounds of appeal. Therefore, these objections should not be admitted into the proceedings.

(b) Main Request - Novelty

All embodiments of D4 referred to a stent, not to a stent-graft. Therefore, D4 did not disclose Feature L2.

A rod was a solid elongate body which was not hollow like a tube. The description of the embodiment shown in Fig. 5 mentioned that the control member (48) was a rod, not a tube (column 5, line 9). The list of possible materials given in column 5, lines 26-34, referred to the "tube or the control member". Hence, there was no specific disclosure of the combined selection of "metal tubing" and "control member" together. Furthermore, the embodiment of Fig. 5 was a stiff apparatus which did not need guidance by a guide wire. Hence, one would not use a tube for the control member but stay with the rod suggested in line 9. If a tube were used instead of a rod, then it would bend in use between first and second handle (58, 60). Therefore, the embodiment of D4, Fig. 5, did not comprise an inner tube (Feature L8).

Fig. 5 of D4 did not show an outer sheath (Feature L3).

(c) Auxiliary Request 1 - Inventive Step

The feature added in this request allowed a radial

movement of the stent (i.e. a re-compression) even if it was already partially deployed. This was due to the retention mechanism which retained the proximal end of the stent graft in its compressed state inside the cap. This function was not present in D4.

The coil disclosed in D4, Fig. 8, had mechanical properties which were much different from a tube as defined in the claim: For release of the proximal end of the stent-graft, the coil had to be pulled by the user against the frictional force between the retention mechanism and the stent-graft and the inner surface of the cap. This pulling caused a longitudinal extension of the coil which snapped back upon release of the retainer from the cap. Such a functionality did neither represent controlled movement of the coil with respect to the inner tube, nor a controlled release of the stent-graft. The problem to be solved was therefore to provide an apparatus which was suitable for a more precise positioning of the stent-graft. D4 did not teach a solution to this problem. A metal tubing as suggested for the embodiment of Fig. 5 was not fit for the purpose, because it was too rigid and would kink and buckle when used in a flexible device.

(d) Auxiliary Request 5 - Amendments

The feature of "a proximal lock fixed to the outer tube" had been deleted from claim 9 of auxiliary request 5 in order to avoid redundancies. A corresponding feature, even if using the term "attached" instead of "fixed", was already present in claim 1.

In this context, "attached to" was a synonym for "fixed to", so that the replacement did not contravene Art. 123(2) EPC.

(e) Auxiliary Request 5 - Inventive Step

Starting from D4 as Closest Prior Art

The teachings of D4 and D6 were not compatible, because D4 allowed axial positioning after partial release of the stent-graft in a mid portion first, while D6 disclosed release of the proximal end first which prevented axial positioning of a partially released stent. Additionally, in D6, the retention device (85) with the spokes 81 was located at the distal end of the stent instead of the proximal end. Furthermore, a braided stent as disclosed in D4 was not suitable to be latched on spokes (81), because it had not a small number of apices but an undefined end structure of the braid.

In view of the formulation of the problem, D4 described with sufficient detail how the retention mechanism is to be carried out. Hence, the problem to be solved was not simply to find an implementation for a retention mechanism. To the contrary, the combination of the inventive features allowed a more controlled release of the stent-graft and a retention requiring smaller forces compared to the frictional fit of D4. This led to a different objective technical problem. Therefore, the argumentation of the appellant was not convincing.

Starting from D8 as Closest Prior Art

Similarly to D4, also D8 disclosed a stent which didn't have apices at its end portions. This stent was held in the outer sheath by friction (column 3, lines 34-38) and deployed at its mid portion first. This was again not compatible with the deployment procedure shown in D5 or D6.

The detents (102, 104) of D8 only served as an abutment for the ends of the stent (column 5, line 55ff, column 6, line 50ff), so that axial travel is prevented by the cooperation of both detents, not by a single detent. No further locking means were present according to D8. This led to a deployment which was not controlled in the sense of the patent, because the stent was moving out of the cap when overcoming the frictional forces. Hence, the problem to be solved was not simply to find an implementation for a retention mechanism. To the contrary, the inventive features allowed a more controlled release of the stent-graft and a retention requiring smaller forces compared to the frictional fit of D4. This led to a different objective technical problem.

As the detents of D8 form only an abutment and no active locking mechanism, the skilled person would not use the device of D8 for a stent-graft, because a stent-graft would be pulled out of the cap (82) by the blood pressure acting on a partially deployed stent-graft. Furthermore, the deployment of the mid portion first was not adequate to treat aneurysms where stent-grafts are normally used.

Reasons for the Decision

1. Admittance of Late Filed Objections of the Appellant

The respondent requested that the appellant's objections against the auxiliary requests, which were submitted with letter dated 17th January 2020, be not admitted into the proceedings. It argued that, since the requests were based on granted claims and since the same requests had already been filed during the opposition proceedings, the objections should have been raised already during those proceedings and at the latest together with the grounds of appeal.

The auxiliary requests were filed during the opposition proceedings on 26th October 2016, and thus only 42 days before the oral proceedings which took place on 6th December 2016. Hence, the opponent (now appellant) had only a short time to react to the newly filed requests and was under no obligation to file its objections in writing before the oral proceedings. Given that the auxiliary requests were not discussed during the oral proceedings before the opposition division, the opponent had no opportunity to raise the objections orally.

It is correct that the appellant did not file any objections against the auxiliary requests together with its grounds of appeal. However, it was under no obligation to do so. Since the opposition had been rejected, the appellant correctly argued in its grounds of appeal as to why the decision of the opposition division to reject the opposition was wrong. At that point in time the appellant could not have foreseen

which lines of defence the patent proprietor would adopt during the appeal proceedings and there was no reason to assume that it would file the same auxiliary requests as during opposition proceedings.

Since these objections have been filed after the grounds of appeal, their admission into the proceedings has to be considered under Article 13 RPBA 2020. Since the parties were notified of the summons to oral proceedings before the entry into force of the RPBA 2020, the transitional provisions under Article 25(3) RPBA apply, according to which Article 13(2) RPBA 2020 shall not apply. Instead, Article 13 RPBA 2007 shall continue to apply.

Therefore, when deciding about the admittance of the objections against the auxiliary requests, the Board's discretion shall be exercised in view of the complexity of the new subject-matter and considering whether they raise issues which the Board and the other party cannot reasonably be expected to deal with without adjournment of the oral proceedings.

In the present case the objections rely on a limited number of documents which had already been filed together with the grounds of appeal, and are based on lines of argument similar to those submitted together with the grounds of appeal. Therefore, it is not considered to be an undue burden for the respondent or for the Board to deal with them in the one month between their submission and the oral proceedings, i.e. without any adjournment of the oral proceedings.

Therefore, the objections against the auxiliary requests filed with letter dated 17th January 2020 are admitted into the proceedings.

2. Main Request - Lack of Novelty

2.1 D4 discloses a delivery system for stent grafts.

The description, column 1, lines 7-22 mentions that the system is for deployment of prostheses which are described explicitly as being stents or stent grafts (line 21).

Also the closing remark of the description (column 9, lines 56-60) clearly refers to the invention being "useful for the deployment and delivery of a stent graft". This is an explicit disclosure that the embodiments showing a "stent" apply to the delivery of a "stent-graft" as well (Feature L2).

Therefore, D4 (Fig. 5 and 5a and column 5, lines 1-56) discloses

L1

A controlled stent-graft deployment delivery system, comprising:

L2

a stent-graft (10) (not shown in Fig. 5).

The Board agrees with the appellant's submissions that Fig. 5a shows a sheath 70 for use with the apparatus of Fig. 5 in a deployment procedure which is shown in Fig. 11. This figure, together with the corresponding part of the description (column 8, lines 41-47), discloses that the sheath 70 is retracted.

Therefore, the system of D4, Figs. 5 and 5a, comprises

L3

a retractable primary sheath (70).

Regarding the use of the apparatus of Fig. 5, column 5,

line 53, refers to Fig. 10. In view of Fig. 10, column 8, lines 41-47, describe that the primary sheath (70)

L4

contains said stent-graft in a first constrained diameter configuration.

The embodiment of Fig. 5 further comprises

L5

an outer tube (hollow tube 42)

L6

within the retractable primary sheath

L7

and within the stent-graft;

(L8)

a control member (48)

L9

within the outer tube (column 5, line 11),

L10

wherein the control member and the outer tube both axially can move relative to the retractable primary sheath (Fig. 10) and to each other (column 5, lines 20-25);

and

L11

a cap (54)

L12

coupled to a distal end of the control member (column 5, lines 10-13)

L13

and configured to retain at least a portion of a proximal portion of the stent-graft in a radially compressed configuration (column 5, lines 24-25, 43-45 and Fig. 10),

L14

wherein a controlled relative axial movement between the outer tube and the control member (controlled by

handle member 58 and lever 60) releases the proximal end of the stent-graft from the cap and from the radially compressed configuration.

- 2.2 In view of Feature **L8**, it is noted that according to D4, column 5, line 9, the use of a rod as control member is merely optional. Therefore, the use of a different object as control member is conceivable as well. The list of possible "materials" given in column 5, lines 26-34, is equally valid for both the hollow tube and the control member. Hence, the choice of a metal tube for the control member of the system of Fig. 5 is a simple selection from a short list of possibilities, not a combined selection from two lists as argued by the respondent.

It is true that the embodiment of Fig. 5 is not explicitly disclosed for the use with a guidewire. However, the apparatus of Fig. 5 may either be stiff or flexible (column 5, lines 27-28). Therefore, the choice of a metal tube is appropriate in view of the use of a guidewire. The bending or kinking between the handles 58, 60 which would occur according to the respondent, is not an existing problem, because for engaging the stent-graft, a pulling force is applied on the control member, not a compression.

Therefore, a metal tube is one of the unambiguously disclosed options for the control member of the embodiment of D4, Fig. 5.

- 2.3 For these reasons, all features of claim 1 as granted are disclosed by D4 and its subject-matter lacks novelty.

3. Auxiliary Request 1 - Lack of Inventive Step

3.1 Even when assuming to the respondent's benefit that the outer tube represents a distinguishing feature of claim 1 with respect to the embodiment shown in Fig. 8 of D4, the subject-matter of the claim lacks an inventive step for the following reasons:

3.2 Figs. 8-11 and the corresponding description of D4 (column 6, line 65 - column 9, line 7) disclose:

L1

A controlled stent-graft deployment delivery system, comprising:

L2

a stent-graft (see main request);

L3

a retractable primary sheath (70)

L4

containing said stent-graft in a first constrained diameter configuration;

(L5)

an outer coil (342)

L6

within the retractable primary sheath

L7

and within the stent-graft;

L8

an inner tube (348)

L9

within the outer coil,

L10

wherein the inner tube and the outer coil both axially can move relative to the retractable primary sheath and to each other; further including

L11

a cap (354)

L12

coupled to a distal end of the inner tube

L13

and configured to retain at least a portion of a proximal portion of the stent-graft in a radially compressed configuration,

L14

wherein a controlled relative axial movement between the outer tube and the inner tube releases the proximal end of the stent-graft from the cap and from the radially compressed configuration.

- 3.3 Claim 1 according to auxiliary request 1 differs from claim 1 of the main request in Feature **L15** according to which

"a retention mechanism [is] attached to the outer tube for retaining a proximal end of a stent-graft in a constrained diameter configuration while the end of the stent graft is still located within the cap while still enabling axial and radial movement of the stent-graft".

This feature only defines that radial and axial movement of the stent-graft is possible while its proximal end is retained in the cap. There is no indication to any partial deployment or even re-compression of the stent-graft, as argued by the respondent. As a consequence, the axial movement during insertion of the apparatus in a vessel falls under this definition of axial movement. The expansion of the stent during retraction of the sheath (see e.g. Fig. 11 of D4) falls under the definition of radial movement. Such an axial and radial movement is described in D4, see column 8, lines 39-54, and it takes place while a proximal end of the stent-graft is retained in a

constrained diameter configuration while the end of the stent graft is still located within the cap (column 8, lines 47-49).

Therefore, Feature L15 is disclosed by D4.

- 3.4 Therefore, subject-matter of claim 1 differs from the embodiment of Fig. 8 of D4 only in that the outer coil (342) is replaced by an outer tube (Feature L5).

A coil can fulfill the same function as a tube in the present stent-graft delivery system, as is supported by the fact that D4 discloses hollow tubes (Figs. 5, 6) or a coil (Figs. 7, 8) having the same function.

Therefore, the tubes do not have any technical effect compared to the coil and the objective technical problem solved by the distinguishing feature is the provision of an alternative embodiment for the outer coil.

- 3.5 When looking for an alternative, it is obvious for the skilled person to chose one of the outer tubes suggested for the embodiments of Fig. 5 or 6.

The argument of the respondent that for release of the retention mechanism, the user had to pull at the coil which caused the coil to longitudinally expand, and upon release, the coil would snap back, is speculative. It can be assumed that the embodiment shown in Fig. 8 does not have such an uncontrolled function. To the contrary, in order to retain the stent-graft the coil must be pressed into the cap, and for its release only small forces are needed. The "controlled release" is achieved by releasing the pushing force from the coil. Therefore, there is no functional difference between

the coil of Fig. 8 and a tube, both being disclosed by D4 for the same purpose.

Contrary to the respondent's assumption, for the embodiment of Fig. 5 not only a rigid tube is suggested, but the apparatus is described as either rigid or flexible (column 5, lines 27-28). Also the outer tube of the embodiment of Fig. 6 is obviously flexible, because it is described as guidable by a guidewire (column 6, lines 9-10). Hence, the tubes of the embodiments of Figs. 5 and 6 are suitable for the flexible system of Fig. 8.

3.6 Therefore, the subject-matter of claim 1 of auxiliary request 1 lacks an inventive step over D4 alone.

4. Auxiliary Request 5

4.1 Amendments - Art. 123(2) EPC

In claim 9 of auxiliary request 5, the feature of "a proximal lock fixed to the outer tube", was deleted. A corresponding feature was added to claim 1, originating from claim 4 as filed, which includes "the proximal lock attached to the outer tube".

The appellant argued that the term "attached" was an unallowable broadening compared to the term "fixed".

In the context of the patent, there is, however, no additional technical information or subject-matter. Both terms include a removable and a non-removable mounting of the proximal lock to the outer tube in a way that it can fulfill its function as described.

Therefore, auxiliary request 5 fulfills the requirements of Art. 123(2) EPC.

4.2 Inventive Step - Art. 56 EPC

4.2.1 Taking D4 as Closest Prior Art

- (a) Claim 1 according to auxiliary request 5 differs from claim 1 of the main request in the Feature **L16** according to which the system is

"further comprising a proximal lock (22; 62; 75) attached to the outer tube, wherein the stent-graft has a plurality of proximal spring apices at the proximal end of the stent-graft that remain latched onto the proximal lock in the radially compressed configuration while the plurality of spring apices remain within the cap, wherein the proximal lock further comprises a plurality of ribs (23, 61, 76) for retaining a plurality of apices of the proximal spring of the stent-graft" had been added to claim 1 of auxiliary request 5.

- (b) In addition to the features discussed above, Fig. 8 and the corresponding description of D4 disclose that the system further comprises a proximal lock (347) attached to the flexible coil (342).

The subject-matter of claim 1 of auxiliary request 5, therefore, differs from the prior art in that

L5

the outer coil is replaced by an outer tube, and in that

the stent-graft has a plurality of proximal spring

apices at the proximal end of the stent-graft that remain latched onto the proximal lock in the radially compressed configuration while the plurality of spring apices remain within the cap, wherein the proximal lock further comprises a plurality of ribs for retaining the plurality of apices of the proximal spring of the stent-graft (part of feature **L16**).

- (c) The distinguishing features which form part of feature **L16**, have the effect that the stent-graft needs not be held by frictional fit inside the cap, but it can be held by a form fit between the apices of the stent graft and the ribs of the lock. The problem to be solved is therefore regarded as the provision of a system which can control the retention and release of the stent-graft easier.

- (d) In view of the formulation of the problem to be solved, there is, contrary to the appellant's opinion, a clear technical effect of the locking mechanisms of claim 1 compared to the compressing engagement of D4. The mechanism with the ribs latched onto the apices provides a form fit retention of the stent-graft in the cap, so that the retention can be achieved with lower forces and the release can be achieved in a better controlled way. Compared to that, the engagement according to D4 relies on frictional forces for the retention. Therefore, the problem to be solved is not simply to find a concrete implementation for the retention mechanism shown in D4, but to provide a system wherein the retention and release of the stent-graft can be controlled easier.

D4 does not disclose the stent-graft to have apices

which could interact with the ribs or stays of D5 or D6. The prior art stents shown in figs. 1-2 of D4 are braided stents, the end portions of which are neither shown nor described. The presence of spring apices at their end portions is a matter of speculation.

Contrary to the system disclosed in D4, the documents D5 and D6 show the retention mechanism at the distal end of the stent. In D5 and D6, the retention mechanism cooperates with the retractable outer sheath and not with a cap at the end of the catheter as it is the case in the patent in suit, and the complete loading and deployment mechanism of D5 and D6 is inverse to the mechanism disclosed in D4.

In order to arrive at the subject-matter of claim 1, the skilled person would have to isolate the retention mechanism of D5 or D6 from its technical context and transfer it to the other end of the stent. The ribs of the retention mechanism would then have to cooperate with the cap, not with the outer sheath. Additionally, the skilled person would have to use the system with a different stent-graft, namely a stent-graft having apices to be latched onto the spokes 81 of the retainer 85 (D6) or onto the stays 50 (D5). This means that two steps are necessary to arrive at the invention when starting from D4: The isolation of a single feature from the system of D5 or D6 in order to transfer it to the system of D4, and the modification of further technical features of the system of D4, namely the use of a different stent-graft having spring apices.

Therefore, the skilled person would not arrive at the invention as defined in claim 1 of auxiliary request 5 without performing an inventive step.

4.2.2 Taking D8 as Closest Prior Art

(a) D8 discloses (Fig. 2-4, column 6, line 35ff)

L1

a stent deployment delivery system (74),
comprising:

(L2)

a stent (18);

L3

a retractable primary sheath (outer catheter 76)

L4

containing said stent in a first constrained
diameter configuration;

L5

an outer tube (intermediate catheter 100)

L6

within the retractable primary sheath

L7

and within the stent;

L8

an inner tube (inner catheter 78)

L9

within the outer tube,

L10

wherein the inner tube and the outer tube both
axially can move relative to the retractable
primary sheath and to each other; further
comprising

L11

a cap (distal sleeve 82 and tip 84)

L12

coupled to a distal end of the inner tube

L13

and configured to retain at least a portion of a proximal portion of the stent in a radially compressed configuration,

L14

wherein a controlled relative axial movement between the outer tube and the inner tube releases the proximal end of the stent from the cap and from the radially compressed configuration (Fig. 4),

and two detents (102, 104) attached to the outer tube which lock the stent in its position (column 6, lines 50-54).

- (b) The subject-matter of claim 1 of auxiliary request 5 differs from this prior art in that the stent is replaced by a stent-graft having a plurality of proximal spring apices at its proximal end that remain latched onto the proximal lock in the radially compressed configuration while the plurality of spring apices remain within the cap, wherein the proximal lock further comprises a plurality of ribs for retaining a plurality of apices of the proximal spring of the stent-graft.

- (c) The plurality of spring apices cooperating with the ribs of the proximal lock have the effect that the stent(-graft) needs not be held by frictional fit inside the cap, but that it can be held by a form fit between the apices of the stent(-graft) and the ribs of the lock. The problem to be solved is therefore regarded as to provide a system which can control the retention and release of the stent(-graft) easier.

The detent (102) of D8 does not have an active retaining function but it only serves as a stop for the stent in the axial direction. The appellant's assumption that the detent holds the end portion of the stent by compression, is speculative. To the contrary, the stent is held by friction relative to the outer tube (column 5, lines 61-68).

Consequently, the cooperating apices and ribs according to the claim have a technical effect which is different from the one achieved by the detent (102) in D8. The problem to be solved, therefore, is not simply to find a concrete implementation for the detent, but, as mentioned above, the provision of a system which can control the retention and release of the stent-graft easier.

- (d) Neither D5 nor D6 suggest to the skilled person to modify the system of D8 in a way as to arrive at the subject-matter of claim 1 of auxiliary request 5 without performing an inventive step. The reasons are the same as given above in respect of the combination of D4 with D5 or D6.

4.2.3 Therefore, the subject-matter of claim 1 of auxiliary request 5 involves an inventive step.

Order

For these reasons it is decided that:

The decision under appeal is set aside. The case is remitted to the opposition division with the order to maintain the patent as amended in the following version:

Claims

No. 1-11 of auxiliary request 5 filed with
letter dated 10 November 2017

Description

columns 1, 2, 4, 5, 7-11 of the patent specification and
columns 3 and 6 as filed during the oral proceedings
before the Board

Figures

No. 1-9 of the patent specification.

The Registrar:

The Chairwoman:



C. Moser

P. Acton

Decision electronically authenticated