The opinion in support of the decision being entered today
is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte LEONARD PINCHUK and JEAN-PIERRE DEREUME

Appeal 2007-1585
Application 10/383268
Technology Center 3700

Decided: August 20, 2007

Before DEMETRA J. MILLS, ERIC GRIMES, and
RICHARD M. LEBOVITZ, *Administrative Patent Judges*.

MILLS, *Administrative Patent Judge*.

DECISION ON APPEAL

This appeal under 35 U.S.C. § 134 involves claims 25-28, and 30-35 the only claims pending in this application. We have jurisdiction under 35 U.S.C. § 6(b).

Claims 34 and 35 are representative.

34. A modular endoluminal stent-graft system for bridging a lesion in a blood vessel, each stent-graft of said modular stent-graft system having a contracted state for intraluminal insertion into the vessel and an expanded state upon deployment in the vessel, said modular stent-graft system comprising, in its expanded state:

a first stent-graft having a first proximal end and a first distal end, wherein the first distal end is smaller than the first proximal end;

a second stent-graft having a second proximal end engaging the first distal end and a second distal end, wherein the second distal end is not larger than the second proximal end; and

a third stent-graft having a third proximal end engaging the second distal end and a third distal end, wherein the third distal end is smaller than the third proximal end.

35. A modular endoluminal stent-graft system for bridging a lesion in a blood vessel, each stent-graft of said modular stent-graft system having a contracted state for intraluminal insertion into the vessel and an expanded state upon deployment in the vessel, said modular stent-graft system comprising, in its expanded state:

a large stent-graft having a first end that is larger than a second end;

a small stent-graft having a first end that is larger than a second end; and

an intermediate stent-graft having a first end engaging the second end of the large stent-graft and a second end engaging the first end of the small stent-graft, wherein the intermediate stent-graft has a generally constant diameter between its first and second ends.

Cited Reference:

Fogarty	US 5,824,037	Oct. 20, 1998

Ground of Rejection

Claims 25-28, and 30-35 stand rejected under 35 U.S.C § 103(a) as obvious in view of Fogarty.

We affirm.

DISCUSSION

Claims 25-28 and 34

The Examiner contends that Fogarty teaches each of the three stent grafts claimed, but "that the claim language is not fully met in that the sealing end of graft module (92) (left side in figure 4) would have to be coupled to the left side of the graft module (94) in order to read on the claim language." (Answer 3.)

However, the Examiner also finds that

> Fogarty teaches that it was contemplated to vary the diameters at the end or use a constant diameter section in the system generally by the teachings associated with Figure 4. For example, Fogarty teaches that the "length, cross-section, axial bend angle, axial flexibility, resilient spring force . . . and the like" can be varied to offer a variety of prosthetic characteristics; see column 10, lines 52-56. Furthermore, barbs or windings can be obviously utilized to attach the sections together as was clearly contemplated by Fogarty; see Figures 3B to 3D and column 10, lines 16-33. The barbs or windings would make the outer diameter of module (92) larger than the rest of the constant diameter section because of the presence of the barbs or windings.
>
> On page 18, lines 7-17 of the specification, Appellant states that the order of the stent-grafts could be changed or the ends of the grafts could be reversed depending upon the situation. Since it is clear that there was no criticality to the

> order of the stents used by Appellant (see page 18, lines 7-17), the Examiner asserts that the claimed invention would have been considered at least clearly obvious in view of Fogarty alone.

(Answer 3-4.)

Appellants contend that the Examiner has not made out a prima facie case of obviousness. (Br. 8). The Appellants argue, "Examining Fogarty Fig. 4, the left-hand (distal) side of element (92), which would be the third stent-graft, is clearly not smaller than the right-hand (proximal) side of element (92), as required by claim 34." (Br. 8).

The Examiner responds, arguing that Fogarty states that, "the length, cross-section, axial bend angle, axial flexibility, resilient spring force …and the like" can be varied to offer a variety of prosthetic characteristics. (Answer 3-4). Fogarty, col. 10, ll. 52-56. Fogarty's Fig. 4 (as modified by the Examiner) is reproduced below:

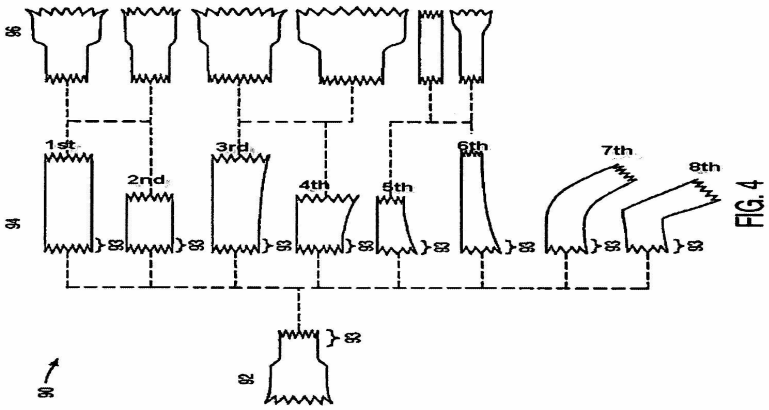

Fig. 4 depicts three rows of possible stent connections including various stent shapes and sizes. The Examiner asserts that it would have been "obvious to utilize a combination of module 92 connected to the 1st module 94, which is then serially connected to the 6th module to form a graft"… (Answer 7).

The test of obviousness is "whether the teachings of the prior art, taken as a whole, would have made obvious the claimed invention." *In re Gorman*, 933 F.2d 982, 986, 18 USPQ2d 1885, 1888 (Fed. Cir. 1991). Precise teachings directed to the specific subject matter of a claim are not required to reach a conclusion of obviousness. *KSR Int'l Co. v. Teleflex Inc.*, 127 Ct. 1727, 1741, 82 USPQ2d 1385, 1396 (2007). "[T]he teaching, motivation, or suggestion may be implicit from the prior art as a whole, rather than expressly stated in the references. . . . The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." *In re Kahn*, 441 F.3d 977, 987-988, 78 USPQ2d 1329, 1336 (Fed. Cir. 2006).

In our view, the combined disclosure of the individual modules in Figure 4 along with the disclosure in Fogarty that the modules are selected to conform to a blood vessel based on the patient's needs, would have led one of ordinary skill in the art to consider appropriate combinations of the modules in Figure 4, including that outlined by the Examiner, meeting the limitations of the stent-graft of claim 34. See also Fogarty, col. 1, ll. 47-49.

It is well settled that the "discovery of an optimum value of a result effective variable in a known process is ordinarily within the skill of the art," *In re Boesch*, 617 F.2d 272, 276, 205 USPQ 215, 219 (CCPA 1980) (citations omitted). In the present case, one of ordinary skill in the art reading Fogarty would have understood that the cross-section of a stent is a result effective variable. Specifically, Fogarty states that "[p]roper matching of the prosthesis to the blood vessel is critical to the treatment of an aneurysm." (Fogarty, col. 1, ll. 47-49). Fogarty further states that

"[m]odular sections of the prostheses, or 'prosthetic modules,' may be selectively combined to form a composite prosthesis having characteristics which are tailored to the specific requirements of the patient." (Fogarty, col. 3, ll. 9-16). Therefore, those of ordinary skill in the art would have considered it obvious to modify the shape of Fogarty's prosthesis in order to tailor it to the specific requirements of a patient.

Furthermore, we agree with the Examiner that Appellants read Figure 4 of Fogarty in too limited a manner. Fogarty states, "[i]n a particularly preferred embodiment, multiple prosthetic body modules 94 may be directly coupled together to form a single composite prosthesis." (Fogarty, col. 10, line 48-51). In our view, one of ordinary skill in the art reading Fig. 4 in conjunction with the disclosure, would have understood that Fogarty was not limited to the dashed line connections of Figure 4, but contemplated an entire prosthesis composed of modules 94, or comprising various module shapes selected based on the characteristics of the blood vessel to be treated. (Answer 6). *See KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1741, 82 USPQ2d 1385, 1396 (2007) (It is proper to "take account of the inferences and creative steps that a person of ordinary skill in the art would employ.").

"[W]hen the question is whether a patent claiming the combination of elements of prior art is obvious" the relevant question is "whether the improvement is more than the predictable use of prior art elements according to their established functions." *KSR Int'l Co. v. Teleflex Inc.*, 127 S. Ct. 1727, 1731, 82 USPQ2d 1385, 1396 (2007). In addition, "[w]hen there is a design need or market pressure to solve a problem and there are a finite number of identified, predictable solutions, a person of ordinary skill has good reason to pursue the known options within his or her technical grasp.

If this leads to the anticipated success, it is likely the product ... of ordinary skill and common sense." *Id.* at 1742.

In the present case, we find that the array of stent combinations depicted in Fig. 4, would have been available as a predictable technical solution to the problem of pairing the appropriate stent to the configuration size and shape of the blood vessel to be treated. Thus, one of ordinary skill in the art would have considered it obvious to use these available stent configurations for their established functions. Therefore, we are not persuaded by Appellants' arguments. We affirm the rejection as to claims 25-28 and 34.

Claims 30-33 and 35

Appellants group claims 30-33 and 35 together, and separately argue independent claim 35. (Br. 11). We select claim 35 as representative of this claim grouping.

Appellants contend that Fogarty fails to teach or suggest each limitation of the claimed invention. (Br. 11). Appellants argue "[n]one of the embodiments of Fogarty…teaches an intermediate stent-graft engaging the larger end of the small stent graft." (*Id*). Citing Fogarty at column 10, lines 1-15, Appellants further argue that "Fogarty teaches against providing an interface area (between the body module and either sealing module) that is larger than the sealing ends of the composite prosthesis" (Br. 12). Appellants conclude that, "Fogarty specifically teaches the desirability of limiting the interface ends to a smaller diameter than the sealing ends." (Br. 12-13).

However, regarding mating ends of the prosthetic modules, Fogarty indicates that "[i]deally, the interface ends are interchangeable, but they may alternatively comprise distinct inner and outer mating pairs. In a particularly preferred embodiment, multiple prosthetic body modules 94 may be directly coupled together to form a single composite prosthesis." (Fogarty, col. 10, ll. 48-51). Fogarty also states that, "the length, cross-section, axial bend angle, axial flexibility, resilient spring force … and the like" can be varied to offer a variety of prosthetic characteristics. (Fogarty, col. 10, ll. 52-56). Fogarty further states that "[m]odular sections of the prostheses, or 'prosthetic modules,' may be selectively combined to form a composite prosthesis having characteristics which are tailored to the specific requirements of the patient." (Fogarty, col. 3, ll. 9-16). Thus, as indicated above, one of ordinary skill in the art reading Fig. 4 in conjunction with the disclosure, would have understood that Fogarty was not limited to the dashed line connections of Figure 4, but contemplated an entire prosthesis composed of modules 94, or comprising various module shapes selected based on the characteristics of the blood vessel to be treated. The rejection of claim 35 is affirmed. Claims 30-33 fall with claim 35.

CONCLUSION

In summary, we:

Affirm the rejection of claims 25-28 and 30-35 over Fogarty.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a).

AFFIRMED

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