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Paper 9
Date: February 18, 2016

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE PATENT TRIAL AND APPEAL BOARD

ENDOLOGIX, INC.
Petitioner,

v.

LIFEPORT SCIENCES LLC,
Patent Owner.

Case IPR2015-01722
Patent 8,192,482 B2

Before JOSIAH C. COCKS, JAMES B. ARPIN, and MICHAEL L. WOODS, *Administrative Patent Judges.*

COCKS, *Administrative Patent Judge.*

DECISION
Institution of *Inter Partes* Review
37 C.F.R. § 42.108

I. INTRODUCTION

Endologix, Inc. ("Petitioner") filed a Petition (Paper 1, "Pet.") requesting *inter partes* review of claims 1–9, 12, 13, 21, 22, and 30 of U.S. Patent No. 8,192,482 B2 (Ex. 1001, "the '482 patent"). LifePort Sciences LLC ("Patent Owner") did not file a Preliminary Response. We have jurisdiction under 35 U.S.C. § 314.

To institute an *inter partes* review, we must determine that the information presented in the Petition shows "a reasonable likelihood that the petitioner would prevail with respect to at least 1 of the claims challenged in the petition." 35 U.S.C. § 314(a). For the reasons set forth below, we conclude that the information presented in the Petition establishes a reasonable likelihood that Petitioner will prevail in showing that claims 1–9, 12, 13, 21, 22, and 30 of the '482 patent are unpatentable. Pursuant to 35 U.S.C. § 314, we hereby institute an *inter partes* review as to claims 1–9, 12, 13, 21, 22, and 30.

Our factual findings and conclusions at this stage of the proceeding are based on the evidentiary record developed thus far. This is not a final decision as to patentability of the claims for which *inter partes* review is instituted. Our final decision will be based on the entire record, as developed during trial.

A. Related Matters

The '482 patent is the subject of litigation styled *LifePort Sciences LLC v. Endologix, Inc.*, D. Del. No. 12-cv-1791. Pet. 1; Paper 6, 2.

B. The ’482 Patent (Ex. 1001)

The ’482 patent is titled “Endoluminal Stent.” Ex. 1001, Title. The invention is described as providing “a stent connecting means for connecting two intraluminal stents one to the other to define a continuous lumen through the two stents.” *Id.* at 2:21–24. According to the ’482 patent, prior art stents and prostheses are “generally satisfactory for the treatment of aneurysms, stenosis and other angeological diseases at sites in continuous un-bifurcated portions of arteries or veins.” *Id.* at 1:60–63. The ’482 patent, however, proceeds to discount the known stents and prostheses as “not wholly satisfactory” in situations “where the site of desired application of the stent or prosthesis is juxtaposed or extends across a bifurcation in an artery or vein such, for example, as the bifurcation in the mammalian aortic artery into the common iliac arteries.” *Id.* at 1:64–2:1.

Figures 1A and 4A of the ’482 patent are reproduced below.

FIG. 1A

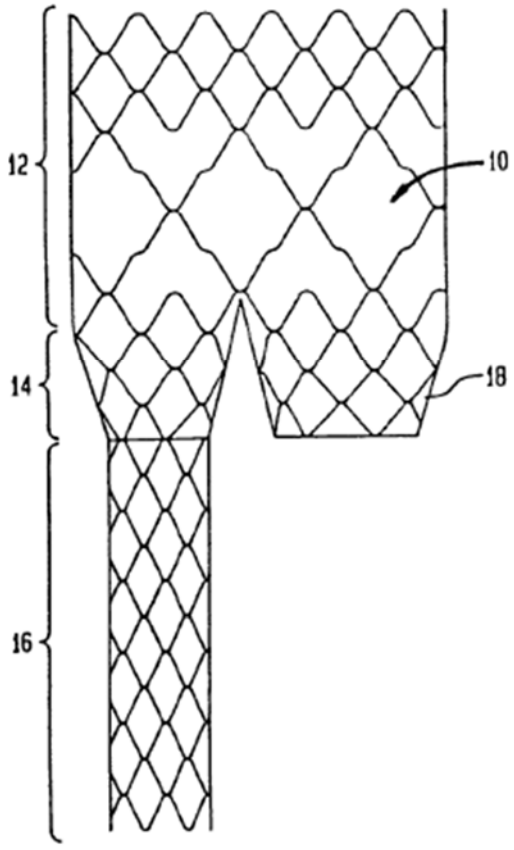


FIG. 4A

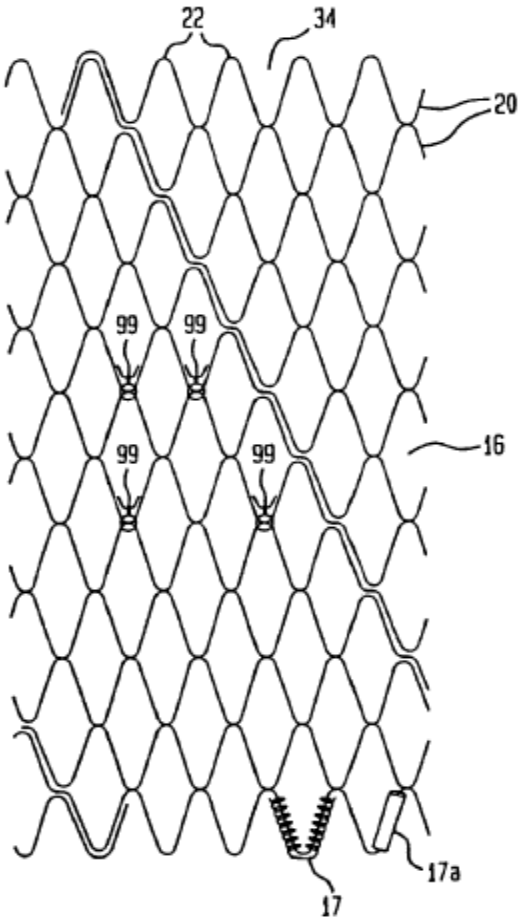


Figure 1A depicts “a front view of a bifurcated intraluminal stent in accordance with the present invention constituting part of an endoluminal prosthesis.” Ex. 1001, 7:33–35. Figure 4A depicts a side view of a “part of the bifurcated stent of FIG. 1*a* opened up to show its construction.” *Id*. at 7:44–45. As depicted in Figure 1A, bifurcated stent 10 is composed of a wire skeleton that is constructed of four separate parts: proximal part 12, frustoconical part 14, first distal part 16, and second frustoconical part 18. *Id.* at 8:33–35. As depicted in Figure 4A, the stent includes hoops 20 formed of nitinol wire that “follows a sinuous path to define a plurality of

circumferentially spaced apices 22." *Id*. at 8:51–55. The '482 patent also explains that "juxtaposed apices 22 of neighboring hoops 20 are secured together by securing means 99." *Id*. at 9:22–25.

C. Illustrative Claims

Claims 1 and 30 are independent. Claims 2–9, 12, 13, 21, and 22 ultimately depend from claim 1. Claims 1 and 30 are illustrative of the claimed subject matter, and are reproduced below:

> 1. A stent comprising:
>
> a plurality of hoops aligned along a common axis, each of said hoops being non-helical and oriented in a plane substantially perpendicular to the longitudinal axis of the stent, and each of said hoops including a plurality of elongate elements joined to one another and forming apices that point in a direction along the longitudinal axis of the stent, and wherein at least one elongate element in each hoop is a continuation of an elongate element of an adjacent hoop; and
>
> means for securing an apex of one hoop to an abutting a juxtaposed apex of a neighboring hoop.
>
> 30. A stent comprising a tubular member having a plurality of hoops aligned adjacent one another along the longitudinal axis of said tubular member, each of said hoops comprising a plurality of elongate elements, with pairs of said elongate elements meeting one another and forming vertices axially pointing in a direction along the longitudinal axis of the stent, wherein at least some of said vertices axially abut and are individually connected to oppositely pointed vertices of elongate elements of an adjacent hoop, wherein the vertices of each hoop pointed in the axial direction lie in a common plane perpendicular to the longitudinal axis of the tubular member, and wherein at least one elongate element in each hoop is a continuation of an elongate element of an adjacent hoop.

D. References Relied Upon

The Petition relies on the following references:

Ryan	US 8,317,854 B1	Nov. 27, 2012	Ex. 1004
Cragg	US 5,405,377	Apr. 11, 1995	Ex. 1005
Porter	US 5,064,435	Nov, 12, 1991	Ex. 1006
MacGregor	US 4,994,071	Feb. 19, 1991	Ex. 1007
Hillstead	US 5,135,536	Aug. 4, 1992	Ex. 1008
Palmaz	US 4,733,665	Mar. 29, 1988	Ex. 1009
Fontaine	US 5,370,683	Dec. 6, 1994	Ex. 1010
Schnepp-Pesch	US 5,707,386	Jan. 13, 1998	Ex. 1011
Lau	US 5,421,955	June 6, 1995	Ex. 1012
Andersen	US 5,234,457	Aug. 10, 1993	Ex. 1013

E. The Alleged Grounds of Unpatentability

Petitioner contends that claims 1–9, 12, 13, 21, 22, and 30 of the ’482 patent are unpatentable under 35 U.S.C. on the following grounds:

Reference(s)	Basis	Claims challenged
Ryan	§ 102	1–9, 12, 13, 21, 22, and 30
Ryan	§ 103	1–9, 12, 13, 21, 22, and 30
Ryan and Cragg	§ 103	1–9, 12, 13, 21, 22, and 30
Ryan and Porter	§ 103	2–4, 6, 7, and 12
Ryan and MacGregor	§ 103	2, 5, and 7–9
Hillstead	§ 102	1–3, 5, 6, 12, 13, 21, and 30
Hillstead and Palmaz	§ 103	1–3, 5, 6, 12, 13, 21, and 30
Hillstead, Palmaz, and Ryan	§ 103	1–9, 12, 13, 21, 22, and 30

II. ANALYSIS

A. Claim Construction

1. Standard of Claim Construction

In an *inter partes* review, a claim in an *unexpired* patent is given its broadest reasonable construction in light of the specification of the patent in which it appears. 37 C.F.R. § 42.100(b). The Board's review of the claims of an *expired* patent, however, is similar to that of a district court's review. *See In re Rambus, Inc.*, 753 F.3d 1253, 1255–56 (Fed. Cir. 2014) ("If, as is the case here, a reexamination involves claims of an expired patent, a patentee is unable to make claim amendments and the PTO applies the claim construction principles outlined by this court in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005)" (en banc)).

Citing to 35 U.S.C. § 154(a), Petitioner contends that "the '482 Patent expired on September 27, 2014." Pet. 19. In a Notice filed January 28, 2016, Patent Owner represented that the '482 patent has expired, but contends that the date of expiration was September 1, 2015. Paper 8, 2.[1] Thus, although the parties disagree as to the correct date, there is no dispute that the '482 patent has now expired.[2] For purposes of this Decision, we will construe claim terms under the principles in *Phillips*, 415 F.3d at 1312–13 (words of a claim "are generally given their ordinary and customary meaning" as understood by a person of ordinary skill in the art in question at

[1] Patent Owner's Notice was requested by the panel in an Order dated January 28, 2016. *See* Paper 7.

[2] We do not discern that it is necessary, at this time, to resolve the dispute between the parties as to the correct expiration date.

the time of the invention). We, however, will not apply a rule of construction that claims should be construed to preserve their validity. *See, e.g.*, *Google Inc. v. Createads LLC*, IPR2014-00200, slip op. at 2 (PTAB July 16, 2014) (Paper 19) ("[n]o presumption of validity is applied" to interpreting claims in an expired patent). The different standard we use in construing the claims in an expired patent does not change the statutory requirement in this proceeding that Petitioner has the burden of proving a proposition of unpatentability by a preponderance of the evidence. *See* 35 U.S.C. § 316(e).

2. Specific Constructions

Although, as noted above, we construe the claim terms of the '482 patent in accordance with *Phillips*, only terms that are in controversy in this proceeding need to be construed, and then only to the extent necessary to resolve the controversy. *Vivid Techs., Inc. v. Am. Sci. & Eng'g, Inc.*, 200 F.3d 795, 803 (Fed. Cir. 1999). For purposes of this Decision, we determine that it is necessary only to make explicit a construction for the following terms/phrases: (1) "a plurality of hoops aligned along a common axis, each of said hoops . . . oriented in a plane substantially perpendicular to the longitudinal axis of the stent"; (2) "segment"; and (3) "means for securing."

a. "a plurality of hoops aligned along a common axis, each of said hoops . . . oriented in a plane substantially perpendicular to the longitudinal axis of the stent"

This phrase is recited in claim 1. Petitioner did not offer a construction for the phrase, however, we construe it expressly below. In the context of the Specification of the '482 patent, the disclosed stents are, by

and large, tubular or somewhat cylindrical in shape. Figure 2B of the '482 patent is reproduced below (as annotated by the panel for explanatory purposes):

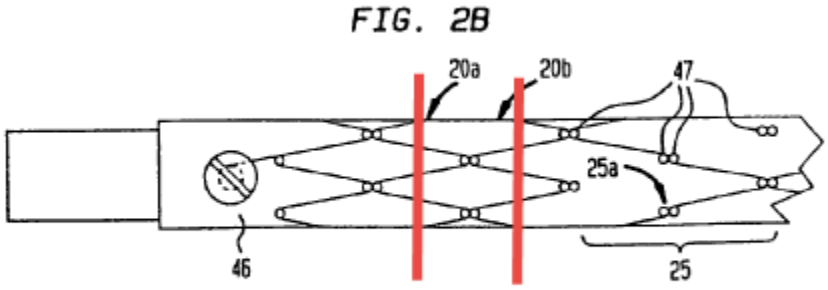


Figure 2B depicts mandrel 46 used to form a stent of the '482 patent. As depicted in Figure 2B, a plurality of hoops (*e.g.*, 20a and 20b) are formed from winding wire around mandrel 46. A stent so formed, thus, would have a series of hoops forming rings that are positioned along the longitudinal axis of a stent. With the above in mind, we conclude that the hoops oriented in a plane substantially perpendicular to the longitudinal axis of a stent, means that with respect to the reproduced annotated Figure 2B above, the hoops are oriented in at least one plane extending into and out of the page, which are represented by the solid vertical lines added by the panel.

b. "segment"

Petitioner contends the following with respect to the construction of the term "segment":

> Petitioner submits that the claim term "segment" (*see* Claims 2-5, 8-9, and 12) means "portion." The '482 Patent makes clear that those terms are synonymous when used to describe a segment or portion of a stent: "straight stent 400 comprises proximal stent portion (or segment) 401, distal stent portion 402, and an

> intermediate portion 403." '482 Patent at 16:33-35 (emphasis added).

Pet. 20.

Thus, in the context of the '482 patent, Petitioner proposes that the term "segment" and "portion" are synonymous, when used to describe a part of a stent.

At this time, we are satisfied that the ordinary meaning of "segment" with respect to the stents set forth in the '482 patent conveys that a "segment" of a stent also is understood as a "portion" of a stent. Accordingly, for purposes of this Decision, we accept the construction of "segment" advanced by Petitioner.

c. "means for securing"

Claim 1 recites "means for securing an apex of one hoop to an abutting a juxtaposed apex of a neighboring hoop." A claim limitation that uses the word "means" invokes a rebuttable presumption that § 112, sixth paragraph applies.[3] *CCS Fitness, Inc. v. Brunswick Corp.*, 288 F.3d 1359, 1369 (Fed. Cir. 2002). Further, the limitation describes the "means" in terms of the function it performs, i.e., "securing." The presumption that § 112, sixth paragraph, applies is not rebutted in this case because there is insufficient structure recited in the claim to perform the recited function. Thus, we conclude that this limitation is recited in a mean-plus-function format.

[3] Paragraph six of 35 U.S.C. § 112 was replaced with newly designated § 112(f) when § 4(c) of the America Invents Act (AIA), Pub. L. No. 112–29, took effect on September 16, 2012. Because the application resulting in the '482 patent was filed before that date, we refer to the pre-AIA version of § 112.

Such a limitation is "construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof." 35 U.S.C. § 112, sixth paragraph; *see Lockheed Martin Corp. v. Space Systems/Loral, Inc*. 324 F.3d 1308, 1318 (Fed. Cir. 2003). Here, Petitioner contends that the claimed function is "securing the apex of one hoop to a juxtaposed apex of a neighboring loop." Pet. 19–20. Petitioner contends that the following structure corresponds to that function:

> (1) loop formed of thermoplastic material; (2) a suture; (3) bead formed of a thermoplastic material; (4) loop formed of wire; (5) ring formed of wire; and (6) staple formed of wire; and equivalents.

Pet. 20.

Although Petitioner makes no citation to the Specification of the '482 patent in support of its contention, we observe that that Specification provides support for Petitioner's contention. In particular, the Specification describes securing means 99 that operates to secure together juxtaposed apices 22 of neighboring hoops 20 (Ex. 1001, 9:21–30), and also states the following:

> In addition to polypropylene filaments, the securing means may comprise a loop element 99*a* of a suture material, for example, to tie the juxtaposed apices together, as shown in FIG. 4(*b*). The securing means may also comprise bead 99*b* formed of a thermoplastic material around juxtaposed apices, as shown in FIG. 4(*c*). Also alternatively, the securing means may be a loop 99*c*, ring 99*d*, or staple 99*e* formed of wire such as nitinol, as shown in FIGS. 4(*d*), 4(*e*), and 4(*f*) respectively.

Id. at 9:31–38.

The Specification, thus, sets forth concrete structures operable to perform the securing function required by claim 1. Accordingly, for purposes of this

Decision, we regard the above-noted structures, and their equivalents, as constituting the pertinent structures covered by claim 1.

B. Anticipation by Ryan

Petitioner contends that claims 1–9, 12, 13, 21, 22, and 30 are anticipated by Ryan. Anticipation requires that each and every element in a claim, arranged as is recited in the claim, must be found in a single prior art reference. *Karsten Mfg. Corp. v. Cleveland Golf Co.*, 242 F.3d 1376, 1383 (Fed. Cir. 2001).

1. Overview of Ryan

Ryan is titled "Apparatus and Methods for Endoluminal Graft Placement." Ex. 1004, Title. Ryan describes its disclosed invention as being "for the endoluminal placement of intraluminal grafts for the treatment of disease conditions, particularly aneurysms." Ex. 1004, 2:31–33. Ryan's Figure 2 is reproduced below:

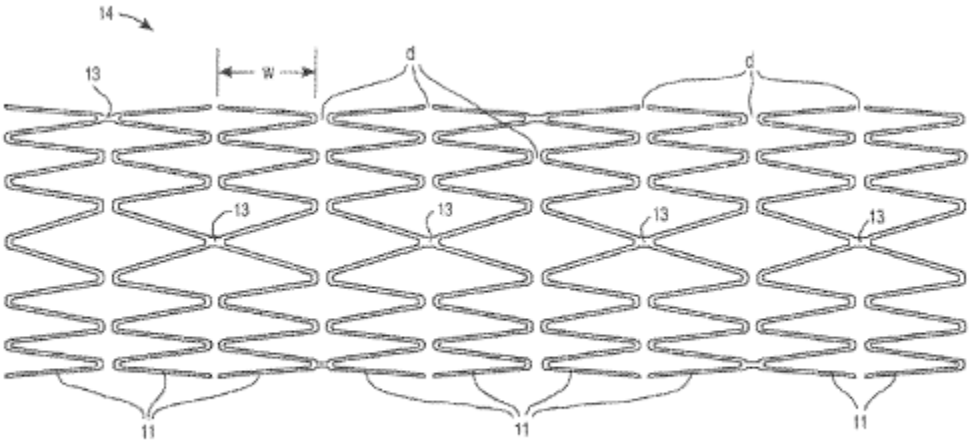


FIG. 2

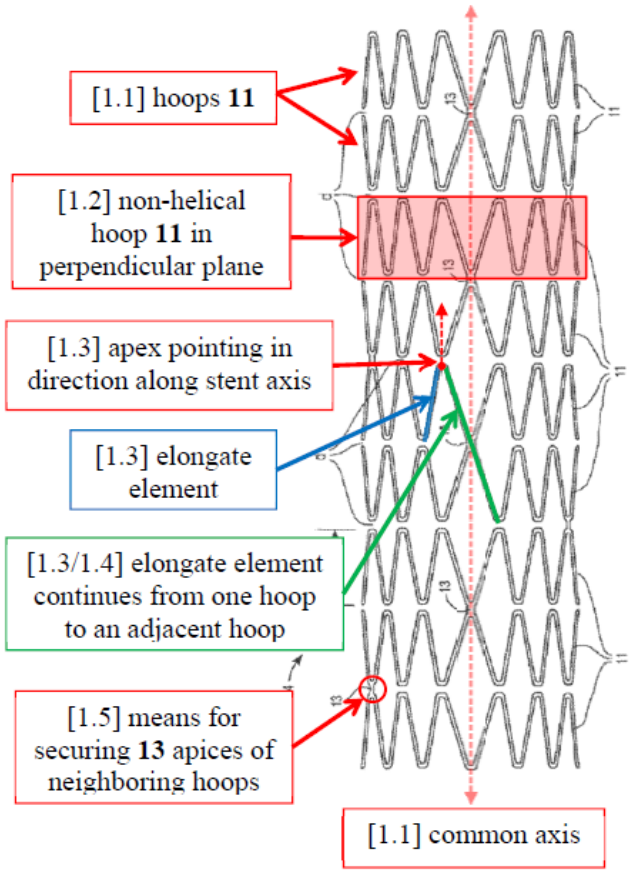
Figure 2 is a "side view of a radially compressible perforate tubular frame." *Id*. at 4:45–47. Figure 2 depicts tubular frame 14 which includes "a

plurality of radially compressible band members 11, each of which comprises a zig-zag or Z-shaped element which forms a continuous circular ring." *Id*. at 7:49–52. The figure also depicts bridge elements 13. *Id*. at 54–57. The '482 explains that "[a]djacent band members 11 are preferably spaced-apart from each other by a short distance d and are joined by bridge elements 13." *Id*.

2. Discussion - Ryan

Petitioner lays out in detail where it believes Ryan discloses all the elements of the above-noted claims. Pet. 21–36.[4] For instance, with respect to claim 1, Petitioner identifies the claim as having elements designated 1.0–1.5 and relies on an annotated version of Ryan's Figure 2 setting forth where Petitioner believes those elements are disclosed. Petitioner's claim chart for claim 1, which includes that annotated figure, is reproduced below:

[4] Petitioner also relies on the Declaration of Dr. Richard A. Hillstead (Ex. 1002).

Claim 1	Ryan
[1.0] A stent comprising:	[1.0] Tubular Stent Frame (Ryan, Fig. 2) 
[1.1] a plurality of hoops aligned along a common axis,	
[1.2] each of said hoops being non-helical and oriented in a plane substantially perpendicular to the longitudinal axis of the stent, and	
[1.3] each of said hoops including a plurality of elongate elements joined to one another and forming apices that point in a direction along the longitudinal axis of the stent, and	
[1.4] wherein at least one elongate element in each hoop is a continuation of an elongate element of an adjacent hoop; and	
[1.5] means for securing an apex of one hoop to an abutting a juxtaposed apex of a neighboring hoop.	

Pet. 22.

As shown in the claim chart reproduced above, Petitioner makes explicit reference to portions of Ryan's Figure 2 in urging that all of the elements of claim 1 are disclosed by Ryan. In connection with the elements designated 1.0–1.4, we are satisfied, at this time, that they are disclosed by

Ryan.[5] In connection with the "means for securing" limitation of claim 1 (identified as claim element 1.5), Petitioner draws attention to Ryan's bridging elements 13. *Id*. As noted above, bridging elements 13 are structural components that function to join adjacent band members 11. Petitioner urges that bridging elements 13 perform the "securing" function recited by claim 1. Pet. 25. Petitioner also contends that the bridging elements constitute "equivalent structure" to that covered by the claim.[6] *Id*. On the record before us, we are persuaded that Ryan's bridging elements 13 account for the "means for securing" recited in claim 1.

We also are persuaded, at this time, that Petitioner has shown where the remaining features of claim 1 are found in Ryan, as well as the features of claims 2–9, 12, 13, 21, 22, and 30. *See* Pet. 21–36. For instance, we are persuaded that Ryan discloses "at least one stent segment in combination with one or more additional stent segments," as required by claim 2. *See* Pet. 25–26 (citing Ryan 6:62–7:39; Ex. 1002 ¶ 60–62). We also are persuaded that Ryan discloses: (1) that its stent segments may be axially aligned (claims 3, 4), or arranged "axially parallel to, but non-common coaxial with" one another (claim 8); (2) the use of fabric components as a

[5] With respect to element 1.2, we regard the required "perpendicular plane" as being a plane that extends into and out of the page. *See supra* Section II.A.2.a.; *contra* Pet. 22 (highlighted plane *parallel* to longitudinal axis, depicted in claim chart). We understand Ryan's hoops 11 as oriented in such a plane.

[6] With respect to § 112, sixth paragraph, "an equivalent results from an insubstantial change which adds nothing of significance to the structure, material, or acts disclosed in the written description." *See Valmont Industries, Inc. v. Reinke Manufacturing Company, Inc.*, 983 F.2d 1039, 1043 (Fed Cir. 1993).

part of the stent (claims 4, 22); (3) the presence of various hoop connection configurations (claims 5, 12, 21, 30); and (4) the presence of adjacent hoops having the same (claim 6) and different (claim 7) diameters.

Having evaluated the Petition, and its supporting evidence, we are persuaded, for purposes of this Decision, that Petitioner has shown a reasonable likelihood of prevailing in its challenge to claims 1–9, 11, 12, 21, 22, and 30 as anticipated by Ryan.

C. Obviousness Based on Ryan

Petitioner proposes the following grounds of obviousness based on Ryan: (1) claims 1–9, 12, 13, 21, 22, and 30 as unpatentable over Ryan taken alone; (2) claims 1–9, 12, 13, 21, 22, and 30 as unpatentable over Ryan and Cragg; (3) claims 2–4, 6, 7, and 12 as unpatentable over Ryan and Porter; and (4) claims 2, 5, and 7–9 as unpatentable over Ryan and MacGregor.

The Supreme Court has made clear that "[t]he combination of familiar elements according to known methods is likely to be obvious when it does no more than yield predictable results." *KSR Int'l Co. v. Teleflex Inc.*, 550 U.S. 398, 416 (2007). To reach that conclusion, however, requires more than a mere showing that the prior art includes separate references covering each separate limitation in a claim under review. *Unigene Labs., Inc. v. Apotex, Inc.*, 655 F.3d 1352, 1360 (Fed. Cir. 2011). "Rather, obviousness requires the additional showing that a person of ordinary skill at the time of the invention would have selected and combined those prior art elements in the normal course of research and development to yield the claimed invention." *Id.* Indeed, in many cases a person of ordinary skill, who is also a person of ordinary creativity, "will be able to fit the teachings of multiple patents together like pieces of a puzzle." *KSR*, 550 U.S. at 420.

Furthermore, the question of obviousness is resolved on the basis of underlying factual determinations, including: (1) the scope and content of the prior art; (2) any differences between the claimed subject matter and the prior art; (3) the level of skill in the art[7]; and (4) objective evidence of nonobviousness, i.e., secondary considerations. *See Graham v. John Deere Co.*, 383 U.S. 1, 17–18 (1966). Against that general background, we consider the references, other evidence, and arguments on which Petitioner relies.

1. Ryan Taken Alone

Petitioner also proposes a ground of obviousness applied to claims 1–9, 12, 13, 21, 22, and 30 based on Ryan taken alone. In that respect, Petitioner contends that, even if Ryan's bridging elements 13 are not considered equivalent structures to the securing means structures disclosed in the Specification of the '482 patent, those claims remain unpatentable.

At the outset, we observe that a disclosure that anticipates under 35 U.S.C. § 102 also generally renders the claim unpatentable under 35 U.S.C. § 103, because anticipation is the epitome of obviousness. *Jones v. Hardy*, 727 F.2d 1524, 1529 (Fed. Cir. 1984). As discussed above, on this record, we are persuaded that Petitioner has established a reasonable likelihood of prevailing in showing that Ryan anticipates claims 1–9, 12, 13, 21, 22, and 30. Thus, we also are persuaded that Petitioner has established a reasonable likelihood of prevailing in showing that Ryan renders those claims obvious.

[7] Petitioner proposes a definition for a person of ordinary skill in the art. Pet. 18–19 (citing Ex. 1002 ¶¶ 19, 20). Patent Owner does not yet propose an alternative definition. To the extent necessary and for purposes of this Decision, we accept Petitioner's definition.

Nevertheless, even were we not persuaded that Petitioner has established a reasonable likelihood of prevailing in showing that Ryan anticipates claims 1–9, 12, 13, 21, 22, and 30, and, in particular, that Ryan's bridging means 13 do not constitute equivalent structures to the securing means in the '482 patent, we are persuaded that Petitioner has established reasonably that structures corresponding to the "means for securing" were known in the art. In making that determination *at this stage*, we are cognizant of Dr. Hillstead's testimony to that effect (*see* Ex. 1002 ¶¶ 85, 86). In that regard, the record demonstrates that Dr. Hillstead has considerable experience in the pertinent field and meets or exceeds Petitioner's definition of a person of ordinary skill in the art. Ex. 1002 ¶¶ 1–20; Ex. 1003. We also observe that Dr. Hillstead is the named inventor of U.S. Patent No. 5,135,536 (Ex. 1008),[8] which is titled "Endovascular Stent and Method" and describes that "welding, soldering, tying or suturing" were known means for attaching portions of stents to one another. Ex. 1008, 3:28–36. Thus, Dr. Hillstead's recognition in 1992 that suturing was a known means of attachment in the field of stents supports his testimony that, at the time of the invention of the'482 patent, "sutures" were well known structures for securing neighboring loops in a stent. *See* Ex. 1002 ¶ 86.

For the foregoing reasons, we are persuaded that Petitioner has shown a reasonable likelihood of prevailing in its challenge that claims 1–9, 12, 13, 21, 22, and 30 are unpatentable, as rendered obvious over Ryan.

[8] U.S. Patent No. 5,135,536, issued August 4, 1992.

2. Ryan and Cragg

Petitioner also proposes that claims 1–9, 12, 13, 21, 22, and 30 are unpatentable over Ryan and Cragg. Cragg is titled "Intraluminal Stent." Ex. 1005, Title. Cragg's Figure 1 is reproduced below:

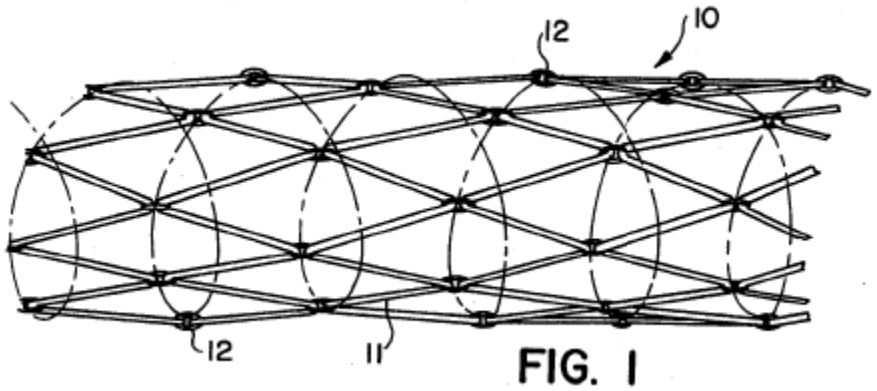


FIG. 1

Cragg's Figure 1 is described as "a perspective view of the intraluminal stent of the present invention." Ex. 1005, 2:10–11. Cragg explains that its stent 10 includes wire body 11 having "a sinuous or zig-zag configuration and defining a continuous helix with a series of connected spirals or hoops." *Id.* at 2:40–45. Cragg further explains that "loop members 12" connect adjacent apices of adjacent helix hoops to help define the tubular stent." *Id.* at 2:45–47. Cragg also discloses that "sutures" may be so used for the purpose, and "other connecting means such as staples and rings made of metal or plastic" may be used. *Id.* at 3:1–4. Structures such as a "loop," "suture," "ring," or "staple" are those identified in the '482 patent as constituting a securing means. Ex. 1001, 9:31–38. Petitioner contends that one of ordinary skill in the art would have appreciated that known securing structures, such as Cragg's loop members, sutures, rings, or

staples, may be used in place of Ryan's bridging elements 13 to secure adjacent hoops to one another in a stent. Pet. 39–40; *see id.* at 37–38.

In considering the Petition, and its supporting evidence, we are persuaded that Petitioner has shown a reasonable likelihood of prevailing in its assertion that claims 1–9, 12, 13, 21, 22, and 30 are unpatentable, as rendered obvious over Ryan and Cragg.

3. Obviousness Based on Ryan and Porter

Petitioner contends that claims 2–4, 6, 7, and 12 are unpatentable on a ground based on Ryan and Porter. In connection with that ground, Petitioner contends that, "[t]o the extent any claims is not anticipated by Ryan alone, it is at least rendered obvious by Ryan in view of Porter." Pet. 40 (citing Ex. 1002 ¶¶ 94–103). In that respect, although noting that Ryan discloses stents incorporating "segments," as required by the above noted claims, Petitioner reasons that "one of skill in the art would have also known that the stents described in Ryan could be used in the alternative segmented structures disclosed by Porter." *Id.*

Petitioner, thus, offers its ground based on Ryan and Porter *contingent* on a determination that Ryan does *not* anticipate claims 2–4, 6, 7, and 12. *Id.* As discussed above, however, we are persuaded that Petitioner has shown a reasonable likelihood of succeeding on its challenge that Ryan anticipates claims 2–4, 6, 7, and 12. *See supra* Section II.B. Petitioner also does not explain what perceived potential deficiency in Ryan that Porter is offered to cure. *See Graham*, 383 U.S. at 17–18 (the obviousness analysis includes any differences between the claimed subject matter and the prior art). To that end, Petitioner does not explain what claim features the "alternative segmented structures disclosed by Porter" address.

Whether to institute trial on a particular ground of unpatentability proposed is in our discretion. *See* 35 U.S.C. § 314(a); 37 C.F.R. § 42.108(a) ("When instituting *inter partes* review, the Board may authorize the review to proceed on all or some of the challenged claims and on all or some of the grounds of unpatentability asserted for each claim."). We also observe that we construe our rules "to secure the just, speedy, and inexpensive resolution of every proceeding." 37 C.F.R. § 42.1(b). The presence of additional, inadequately explained grounds as a part of a trial generally does not lend itself to that goal.

We conclude that because: (1) Petitioner already has shown a reasonable likelihood of prevailing with respect to claims 2–4, 6, 7, and 12 based on Ryan; (2) Petitioner does not explain what potential shortcomings in Ryan that Porter is offered to correct; (3) we have discretion with respect to grounds on which we institute; and (4) we construe our rules to secure the just, speedy, and inexpensive resolution of this proceeding, we decline to institute trial based on Ryan and Porter.

4. Ryan and MacGregor

Petitioner also urges that claims 2, 5, and 7–9 are unpatentable over Ryan and MacGregor. As with the ground based on Ryan and Porter, Petitioner contends that the Ryan and MacGregor ground is offered "[t]o the extent any claim is not anticipated by Ryan." Pet. 43 (citing Ex. 1002 ¶¶ 104–111). In particular, Petitioner states the following:

> MacGregor discloses a non-helical "bifurcating stent for insertion into a bifurcating vessel such as a blood vessel" similar to that of Ryan. MacGregor at Abstract, Fig 1; Hillstead Decl. ¶ 105. One of skill in the art would have known that MacGregor's bifurcated stent design was an alternative to the

> bifurcated stent design of Ryan and that it would have been a simple substitution to replace the fabric legs 26 and 28 of Ryan with the "cylindrical lattices 20, 22" of MacGregor to arrive at the predictable result of a branched prosthesis for "insertion into a branching blood vessel." MacGregor at 2:50-52; Hillstead Decl. ¶ 105.

Pet. 43.

Thus, according to Petitioner, it would have been known to a skilled artisan to incorporated "MacGregor's bifurcated stent design" (*id*.) into Ryan's stent, yet, we observe that, while the '482 describe bifurcated stents in its Specification, none of the claims involved in this proceeding includes recitation of a "bifurcated stent design." Petitioner does not articulate what meaningful purpose MacGregor's teachings of an "alternative" "bifurcated stent design" has vis-à-vis claims 2, 5, and 7–9 of the '482 patent beyond the teachings of Ryan alone. In that respect, Petitioner does not explain adequately what circumstances here support institution of trial on a ground based on Ryan and MacGregor.

On the record before us, we decline to institute trial based on Ryan and MacGregor.

D. Anticipation by Hillstead

Petitioner contends that claims 1–3, 5, 6, 12, 13, 21, and 30 are anticipated by Hillstead. Hillstead describes its invention as "[a] stent for reinforcing a vessel wall." Ex. 1008, Abstract. In particular, Hillstead describes that stent 10 is formed from an elongated wire filament 17. *Id*. at 3:14–16.

Hillstead's Figures 6, 7, and 2 are reproduced below:

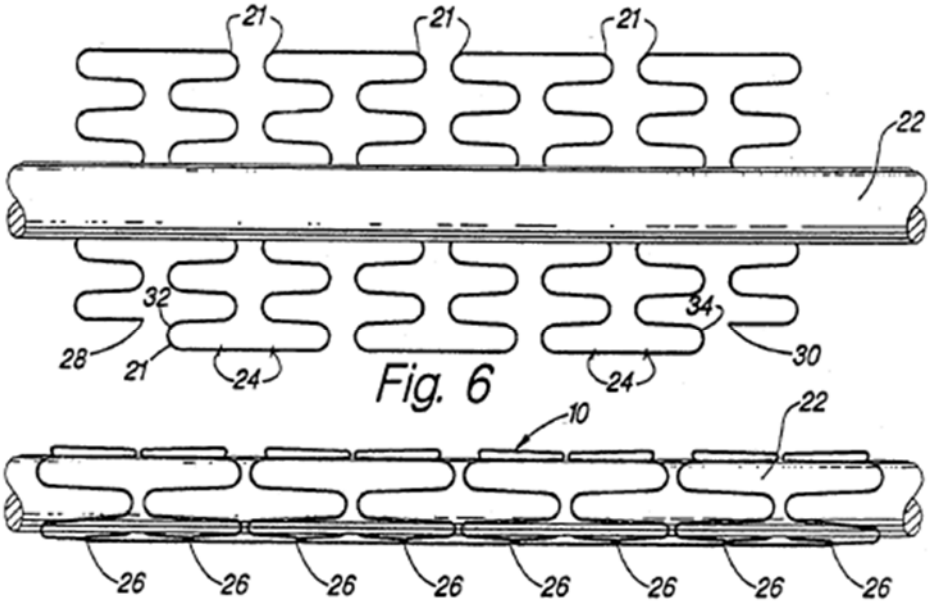


Fig. 6

Fig. 7

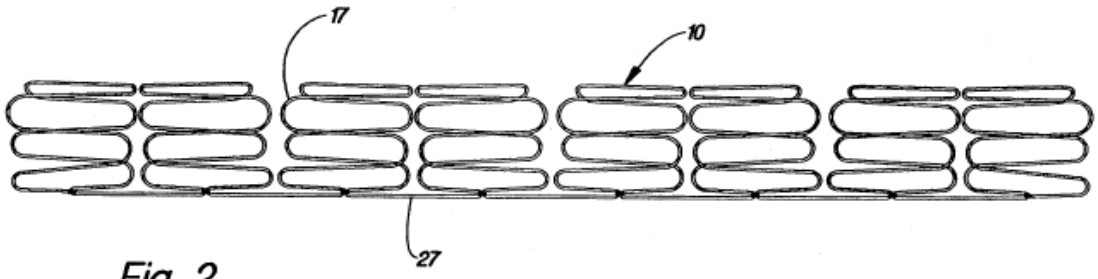


Fig. 2

Figures 6 and 7 depict plan view of a filament wrapped around a mandrel. Ex. 1008, 2:49–53. Figure 2 depicts an elevation view of a stent according to the invention of Hillstead. *Id*. at 2:40–41. More particularly, filament 17 is rolled around mandrel 22 and is formed with a series of bends 18 and ends 21. *Id*. at 3:14–27. Hillstead states that "[f]ilament portions at the each end 21 and location 24 are permanently adhered together to form junctions 26 to prevent the unrolling of the stent 10 upon the removal of the mandrel 22." *Id*. at 3:28–31. Hillstead also states that "[t]he junctions 26

are generally aligned to form a backbone 27." *Id*. at 3:36–37. Petitioner alleges that junctions 26, which form backbone 27, constitute the claimed "means for securing an apex of one hoop to an abutting [] juxtaposed apex of a neighboring hoop." Pet. 46.

We observe that the function attributed to the pertinent means is securing the apex of one hoop to the abutting and juxtaposed apex of a neighboring hoop. Although Petitioner generally points to the operation of junctions 26 in satisfying that function, it is not apparent to us that the formation of backbone 27 reasonably constitutes an act of joining or securing the apices of neighboring hoops. In that respect, it is not evident readily that the portions of Hillstead's filament that are joined are actually hoop apices, nor is it evident that the structures that are connected via backbone 27 are neighboring apices.

Given the deficiency noted above, and noting that we have concluded already that Petitioner has shown a reasonable likelihood of prevailing in its challenged to claims 1–9, 12, 13, 21, 22, and 30 based on Ryan, we decline to institute trial on those claims as anticipated by Hillstead.

E. Obviousness Based on Hillstead

Petitioner contends that claims 1–9, 12, 13, 21, 22, and 30 are unpatentable over Hillstead and Palmaz, and also over Hillstead, Palmaz, and Ryan.

Palmaz discloses an "expandable intraluminal vascular graft." Ex. 1009, Abstract. Palmaz describes that such a graft 70 may include elongate members 75, 76 with intersection points 77. *Id*. at 5:58–68. Palmaz further describes that the intersection points may be formed by "welding, soldering, or gluing." *Id*. at 6:36–44.

With respect to the grounds premised on Hillstead and Palmaz, Petitioner generally contends that a person of ordinary skill in the art would have implemented Palmaz's teachings concerning intersection points 77 onto Hillstead's stent, but would have maintained Hillstead's teachings concerning sutures as a securing means. Pet. 56–57. Petitioner then contends that the combination of Hillstead and Palmaz would constitute a "simple modification" that would "achieve a predictable result, *i.e.*, increased support and stability of the stent." *Id*. at 57 (citing Ex. 1002 ¶ 136). It is not apparent readily, however, what modification is envisioned by Petitioner. Nor it is apparent why Petitioner and Dr. Hillstead conclude that a skilled artisan would have looked to "increased support and stability of the stent" of the stent of Hillstead. *Id*. Indeed, we discern that Hillstead presents a configuration already characterized as "providing structure and strength" to the stent. Ex. 1008, 2:16–18.[9]

With respect to the combination of Hillstead, Palmaz, and Ryan, Petitioner generally contends that combining the teachings of those references results in a bifurcated stent having a particular configuration. Pet. 58. In that respect, Petitioner presents an illustration, apparently constructed by Petitioner, which amounts to an amalgamation of various aspects of the prior art. *Id.* Petitioner, however, does not explain how it arrived at the stent configuration it presents in illustration. For example, Petitioner does not articulate how it derived the placement and depiction of the "Securing means of Hillstead/Palmaz" presented as a part of the illustration. *See id*.

[9] We observe that Hillstead issued in 1992, four years after the issuance of Palmaz in 1988.

In light of the deficiencies noted above concerning the prior art combinations proposed involving Hillstead, and considering that we have concluded already that Petitioner has shown a reasonable likelihood of prevailing in its challenged to claims 1–9, 12, 13, 21, 22, and 30 based on as obvious based on Ryan, we decline to institute trial to those claims as unpatentable based on the proposed combinations of prior art involving Hillstead.

III. CONCLUSION

For the foregoing reasons and on this record, we determine that the information presented in the Petition establishes a reasonable likelihood that Petitioner would prevail in showing that claims 1–9, 12, 13, 21, 22, and 30 are unpatentable. We have not made a final determination with respect to the patentability of claims 1–9, 12, 13, 21, 22, and 30, or the construction of any claim term.

IV. ORDERS

Accordingly, it is:

ORDERED that pursuant to 35 U.S.C. § 314(a), an *inter partes* review is hereby instituted on the grounds that:

A. Claims 1–9, 12, 13, 21, 22, and 30 are unpatentable under 35 U.S.C. § 102 as anticipated by Ryan;

B. Claims 1–9, 12, 13, 21, 22, and 30 are unpatentable under 25 U.S.C. § 103 as rendered obvious over Ryan; and

C. Claims 1–9, 12, 13, 21, 22, and 30 are unpatentable under 25 U.S.C. § 103 as rendered obvious over Ryan and Cragg;

FURTHER ORDERED that no other grounds are authorized for this *inter partes* review as to claims 1–9, 12, 13, 21, 22, and 30; and

FURTHER ORDERED that pursuant to 35 U.S.C. § 314(c) and 37 C.F.R. § 42.4, notice is hereby given of the institution of a trial. The trial will commence on the entry date of this Decision.

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