

UNITED STATES PATENT AND TRADEMARK OFFICE

---

BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES

---

*Ex parte* PHILIP S. LYREN

---

Appeal 2008-1259  
Application 10/446,069  
Technology Center 3700

---

Decided: March 18, 2008

---

Before TONI R. SCHEINER, DONALD E. ADAMS, and RICHARD M.  
LEBOVITZ, *Administrative Patent Judges*.

LEBOVITZ, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on appeal from the final rejection of claims 1-9 and  
12-18. We have jurisdiction under 35 U.S.C. § 6(b). We affirm-in-part.

## STATEMENT OF THE CASE

The claims are directed to a hip implant comprising a neck body and a bone fixation body. The bone fixation body is formed of a completely porous structure.

Claims 1-9 and 12-18 are pending and appealed. Appellant requests review of the following rejections

1) Claims 1-9, 12, and 14-18 as anticipated under 35 U.S.C. § 102(b) by Shetty (U.S. Pat. No. 5,443,510, Aug. 22, 1995) (Ans. 3);

2) Claims 8, 12, and 13 as anticipated under 35 U.S.C. § 102(b) by Kwong (U.S. Pat. No. 5,702,483, Dec. 30, 1997) (Ans. 5); and

3) Claims 1, 2, 6-9, 12, and 14-18 as anticipated under 35 U.S.C. § 102(b) by Draenert (U.S. Pat. No. 5,522,894, Jun. 4, 1996) (Ans. 4).

Claims 1, 2, 7, 8, 12, 14, 16, and 17 are representative of the appealed subject matter. These claims (and intervening claims upon which they depend) read as follows:

1. A hip implant, comprising:

a neck body extending from a distal end to a proximal end, formed of a biocompatible metal, and having an interface at the proximal end that is adapted to connect to a femoral ball; and

a bone fixation body extending from a proximal end to a distal end and formed of a completely porous structure from the proximal to distal ends of the bone fixation body, the proximal end of the bone fixation body connected to the distal end of the neck body.

2. The hip implant of claim 1 wherein the bone fixation body does not include a solid metal substrate.

6. The hip implant of claim 2 wherein the neck body is formed of a machined metal with a solid metallic structure and further

comprises a collar adapted to seat against the resected end of the femur; and wherein the distal end of the neck body terminates at the resected end of the femur.

7. The hip implant of claim 6 wherein the bone fixation body is sintered, and the neck body is fused to the bone fixation body.

8. A hip implant, comprising:

a neck body formed of a non-porous biocompatible metal having a smooth outer surface and having a neck adapted to connect to a hip component; and

a bone fixation body having one end connected to the neck body and being formed of a completely porous structure throughout the entire bone fixation body.

12. The hip implant of claim 8 wherein neck body comprises a non-porous bone engaging section between the smooth outer surface and bone fixation body.

14. The hip implant of claim 8 wherein the neck body is formed of solid metal and the bone fixation body is formed of sintered metal material.

16. A hip implant, comprising:

a neck body formed of a non-porous machined metal having a neck adapted to connect to a femoral ball; and

a bone fixation body having an elongated shape with one end connected to the neck body and being formed of a completely porous structure throughout the entire bone fixation body.

17. The hip implant of claim 16 wherein the bone fixation body has a cross section formed entirely of the porous structure.

#### ISSUE ON APPEAL

The Examiner contends that each of Shetty, Kwong, and Draenert describe a bone implant having a porous surface, meeting the claim

limitation of “completely porous” as it is defined in the Specification. Appellant contends that the phrase “completely porous” requires the implant to be porous from one end of the implant to the other, a characteristic which is not described in the cited prior art. Thus, this appeal turns on the proper interpretation of the phrase “completely porous” as recited in independent claims 1, 8, and 16. For this reason, we begin our analysis with claim interpretation.

### CLAIM INTERPRETATION

In comparing a claim to the prior art, the first step is to interpret the meaning of the words in the claim. This is essential because it is the claim language which determines a claim’s proper scope. In this case, the dispute between the Examiner and the Appellant rests on the proper interpretation of “completely porous” as recited in all the independent claims on appeal.

During patent examination, claims are given their broadest reasonable interpretation as they would be understood by one of ordinary skill in the art when read in light of the specification. *In re Morris*, 127 F.3d 1048, 1054 (Fed. Cir. 1997); *In re Crish*, 393 F.3d 1253, 1256 (Fed. Cir. 2004). Using this principle as a guide, we turn to the claim interpretation issue before us.

In its “Summary of the Invention,” the Specification describes the bone fixation body portion of the implant as “completely porous” (Spec. 2: 17, 25). The porous structure is characterized as “extend[ing] entirely through the body of the implant . . . . The implant, then, can become fully integrated into surrounding bone with the structure of bone dispersed throughout the body of the implant” (*id.* at 2: 25-30). In describing the bone fixation body – reference numeral 16 in Figures 1 and 2 – the Specification states:

As noted, the bone fixation body 16 has a porous structure that extends throughout the body from the proximal end surface to the distal end surface. By “porous,” it is meant that the material at and under the surface is permeated with interconnected interstitial pores that communicate with the surface.

(Spec. 5: 11-16).

Thus, “porous” is explicitly defined in the Specification, but “completely porous” is not. However, in its ordinary usage the term “completely” means “wholly” or “entirely.”<sup>1</sup> Therefore, we interpret “completely porous” to mean “entirely porous,” consistent with the Specification (above) which describes the porous structure as extending “entirely” through the implant body (*id.* at 2: 25-30; at 5: 11-16).

In reaching this interpretation, we find that the Examiner’s narrower interpretation restricting “porous” to the “material at and under the [implant] surface” (*see* Ans. 6) is improper because it fails to take into account the term “completely” which expressly modifies “porous” as recited in claim 1, 8, and 16. Under the Examiner’s interpretation, the implant would not “become fully integrated into surrounding bone with the structure of bone dispersed throughout the body of the implant” (Spec. 2: 25-30), an explicit goal of the claimed implant as set forth in the “Summary of the Invention.”

#### FINDINGS OF FACT

*Shetty*

1. Shetty describes a prosthetic bone implant having “a thin layer of metal mesh on the surface of the implant and . . . bonding the porous surface layer onto the mesh” (Shetty, at col. 1, ll. 45-47; *see also id.* at col. 2, ll. 1-3).

---

<sup>1</sup> The American Heritage Dictionary 272 (1976).

2. Figure 2 shows a cross-section of the implant having a metal mesh 14 on the surface 12 of a non-porous metal implant 10 (*id.* at col. 3, ll. 3-20).

3. A porous surface layer 16 is bonded to the mesh 14 (*id.*).

*Kwong*

4. Kwong discloses a prosthetic hip assembly having a femoral component 54 which comprises a head 56, neck 58, and elongated stem 60 (Kwong, at col. 4, ll. 37-46).

5. The femoral component is manufactured from titanium alloy or any other suitable material which is known in the art (*id.* at col. 4, ll. 39-42).

6. The surface of the femoral component is treated to produce a porous surface that “promotes the ingrowth and attachment of fibrous tissue to the implanted components (*id.* at col. 5, ll. 3-15; *see also* Abstract).

7. The femoral component prior to surface treatment is non-porous.

*Draenert*

8. Draenert describes a bone replacement material “consisting of a three-dimensional supporting framework of elementary bodies connected to one another and surrounding defined spaces” (Draenert, Abstract)

9. “The bone replacement material . . . is suited to produce coatings for prostheses” (*id.*).

10. The elementary bodies define enclosed spaces “which provide for bone ingrowth and penetration” (*id.* at col. 4, ll. 35-41) and thus is porous.

11. The bone replacement can further comprise porous fillers (*id.* at col. 5, l. 66 to col. 35).

12. Figure 9b shows a cross-section of the implant’s base material which is non-porous coated with the porous bone replacement material (*id.* at col. 9, ll. 49-55).

13. The bone replacement material can also “makes up the entire implant or the anchoring part of a prosthesis (*id.* at col. 9, l. 65 to col. 10, l. 1; *see also* Abstract). In such a case, the implant can be braced by inner struts, outer struts, a pressure absorbing skeleton, or weld points (*id.* at col. 10, ll. 2-13).

14. When the bone replacement material makes up the entire implant, it is given its appropriate shape during production (*id.*).

15. “The simplest form of implant would be sintered spheres” (*id.* at col. 10, ll. 4-5; *see* Ans. 5: 1-4).

16. Figure 10 “shows an anchoring part 100 in which the network 102 [of elementary bodies] can be both a sheath and – following the required stiffening or bracing – anchoring part” (*id.* at col. 10: 14-16; *see also* Ans. 4 and 8 referring to “102” of Figure 10 as the “bone fixation body” of claim 1).

17. Thus, the structure of Figure 10 is made entirely of porous material (FF 13-16; *see* Ans. 4, 8, 9).

18. Figure 10 shows the neck body of the prosthesis fused to the anchoring part (Ans. 9)

## ANALYSIS

### *Anticipation by Shetty*

Claims 1-9, 12, and 14-18 stand rejected as anticipated under 35 U.S.C. § 102(b) by Shetty.

The Examiner contends that Shetty discloses “a bone fixation body extending from a proximal end to a distal end and formed of a completely porous structure, 16”, anticipating the claims (Ans. 3).

We do not agree with the Examiner’s findings. Shetty describes a bone prosthetic comprising a non-porous metal implant coated by a porous

surface layer (FF 1-3). Thus, Shetty's prosthetic is not entirely porous as required by the limitation of claims 1, 8, and 16 that the fixation body is "completely porous" (*see supra* p. 5, "Claim Interpretation"). The Examiner erred in improperly interpreting "completely porous" to mean that only the surface of the implant is porous (Ans. 5-6).

Anticipation requires a showing that each element of the claim is identifiable in a single reference. *Perricone v. Medicis Pharm. Corp.*, 432 F.3d 1368, 1375 (Fed. Cir. 2005). Since the "completely porous" claim limitation is lacking, we cannot sustain the Examiner's rejection. Accordingly, we reverse the rejection of claims 1-9, 12, and 14-18.

*Anticipation by Kwong*

Claims 8, 12, and 13 stand rejected as anticipated under 35 U.S.C. § 102(b) by Kwong.

The Examiner contends that Kwong discloses a bone hip implant having "a bone fixation body having one end connected to the neck body and formed of a completely porous structure (see column 5 lines 29-42, specifically lines 39-40)" (Ans. 5).

We do not agree with the Examiner's findings. At column 5, lines 29-42, Kwong refers to the surface of the implant as being porous. There is no disclosure in Kwong that the implant, itself, is entirely porous as required by the claims (*see supra* p. 5, "Claim Interpretation"). Instead, Kwong teaches that the implant ("femoral component") is non-porous and that surface treatment is utilized to create a "porous surface" (FF 4-7).

Anticipation requires a showing that each element of the claim is identifiable in a single reference. *Perricone*, 432 F.3d at 1375. Kwong does

not describe an implant which is “completely porous” as recited in the claims. For this reason, we reverse the rejection of claim 8, 12, and 13.

*Anticipation by Draenert*

Claims 1, 2, 6-9, 12, and 14-18 stand rejected as anticipated under 35 U.S.C. § 102(b) by Draenert.

Claims 1, 8, 9, 16, 17, and 18

The Examiner contends that Draenert describes “a bone fixation body extending from a proximal end to a distal end and formed of a completely porous structure, 102 [of Figure 10], from the proximal to distal ends of the bone fixation body” which is “completely porous” as required by the claims (Ans. 4).

While we do not agree with the Examiner’s interpretation of “completely porous” (*see supra* p. 5, “Claim Interpretation”), we do find that the Figure 10, as referred to by the Examiner, shows a bone fixation body which is entirely porous – meeting the limitation of “completely porous” as we have properly interpreted the claim.

Draenert states that the bone replacement material – which is a supporting network of elementary bodies (FF 8) – can “make[ ] up the entire implant or the anchoring part of a prosthesis” (FF 13; Draenert, at col. 9, l. 65 to col. 10, l. 1; *see also* Abstract). Thus, it can be “completely porous” as in claims 1, 8, and 16. Figure 10, expressly pointed to by the Examiner (Ans. 4, 8, and 9), shows an anchoring part which is characterized as made up of the network of elementary bodies (FF 16; “both a sheath and . . . anchoring part”) which would therefore be entirely made of porous material (FF 17). The Examiner also cites column 10, lines 4-5, of Draenert where after disclosing that an implant made up entirely of bone replacement

material is given appropriate shape during production (FF 14), it is stated: “The simplest form of implant would be sintered spheres” (*id.* at col. 10, ll. 4-5; FF 15; Ans. 5: 1-4).

Appellant argues that Draenert’s bone fixation body is not completely porous as required by the claims (App. Br. 15). We agree with Appellant that certain embodiments, such as Figure 9 of Draenert, show a *surface* coated implant (FF 8-12; App. Br. 15). However, Figure 10 is expressly described as showing an anchoring part in which the sheath and the anchoring part itself is made of the bone replacement network 102 (FF 16; Draenert, at col. 10: 14-16). Appellant contends

FIG. 10 of Draenert shows a prosthesis having a bone fixation body with a coating or layer. Draenert reiterates that the invention in FIG. 10 is a coating, sheath, sponge, et al. (see col. 10, lines 23-25). Nowhere does Draenert teach or suggest with regard to FIG. 10 that the bone fixation body is formed of “**a completely porous structure** from the proximal to distal ends of the bone fixation body” as required in claim 1. . . . Even with regard to FIG. 10, Draenert refers to the invention as a “coating” or “sheath.”

(App. Br. 16).

We are not persuaded by this argument that the Examiner erred. The full description of Figure 10, at column 10, lines 14-16, reads as follows:

FIG. **10** shows an anchoring part **100** in which the network **102** can be both a sheath and – following the required stiffening or bracing – anchoring part.

Thus, Appellant is not correct that “with regard to FIG. 10, Draenert refers to the invention as a ‘coating’ or ‘sheath’” (App. Br. 16). To the contrary, Draenert explicitly states that the “anchoring part” – which corresponds to the bone fixation body – can also be the porous network of elementary bodies. This statement is consistent with Draenert’s disclosure

elsewhere that the bone replacement material can “make[ ] up the entire implant or the anchoring part of a prosthesis” (FF 13; Draenert, at col. 9, l. 65 to col. 10, l. 1; *see also* Abstract). Accordingly, we affirm the rejection of claim 1, and of claims 8, 9, 16, and 17 which were similarly traversed by Appellant (App. Br. 17-19). Claim 18 depends on claim 17; because claim 18 was not argued separately, claim 18 falls with claim 17. *See* 37 C.F.R. § 41.37(c)(1)(vii).

#### Claims 2 and 6

Claim 2 recites that “the bone fixation body does not include a solid metal substrate.”

We affirm this rejection for similar reasons as for claims 1, 8, 9, and 16. The structure shown in Figure 10 of Draenert is made entirely of a porous bone replacement material (FF 13-17) and thus does not include “a solid metal substrate” as recited in the claim. In arguing the patentability of claim 2, Appellant only addresses the structure shown in Figure 9, but not in Figure 10 (App. Br. 17) which is explicitly referred to by the Examiner (*see* Ans. 4, 8, and 9).

Claim 6 depends on claim 2; because claim 6 was not argued separately, claim 6 falls with claim 2. *See* 37 C.F.R. § 41.37(c)(1)(vii).

#### Claims 7 and 15

Claim 7 recites that the neck body is “fused” to the bone fixation body. The Examiner finds that Figure 10 shows the neck body fused to the bone fixation body as recited in claims 7 and 15 (FF 18; Ans. 9). Appellant

argues that “Draenert never discusses fusing the neck to the bone fixation body. Draenert does not even mention fusing whatsoever” (App. Br. 18).

The Examiner has the better argument. Figure 10, as noted by the Examiner, clearly shows a neck body which is connected to the bone fixation body. Giving the term “fused” its broadest reasonable interpretation, we interpret the term to mean that the neck body is attached to the bone fixation body, which would be necessary if the bone fixation body were made of the bone replacement material and the neck body of another material routinely used in implants. Thus, we affirm the rejection of claim 7. Claim 15 falls with claim 7 because separate reasons for its patentability were not provided. *See* 37 C.F.R. § 41.37(c)(1)(vii).

#### Claim 12

Claim 12 recites that the neck body has a “non-porous bone-engaging section between the smooth outer surface and bone fixation body.”

The Examiner points to Draenert’s Figure 10 which shows a solid smooth surface where the neck body engages the bone fixation body (Ans. 10).

Appellant contends that the “Office Action has not even cited a location in Draenert teaches this recitation . . . . The porous layer 102 transitions directly to a smooth surface of the neck region” (App. Br. 18).

We do not find Appellant’s argument persuasive. The Examiner has clearly identified a structure in Figure 10 that appears to be smooth, non-porous, and which is held against the bone fixation body (Ans. 10). Appellant argues this region does not satisfy the claimed limitation of a “non-porous bone-engaging section”, but provides no explanation as to what

specific structure is lacking in Figure 10. Accordingly, we affirm the rejection of claim 12.

#### Claim 14

Claim 14 recites that “the neck body is formed of solid metal and “the bone fixation body is formed of sintered metal material.”

The Examiner states that “Draenert discloses the bone fixation body being formed of completely sintering metal material (see column 11, lines 9-21)” (Ans. 10).

Appellant contends that “[a]s clearly shown in Draenert, the bone fixation body has a solid metal substrate with a porous coating. . . . Draenert, however, never discusses the bone fixation body is formed of completely sintered material” (App. Br. 18).

We do not agree. The structure shown in Figure 10 of Draenert is made entirely of a porous bone replacement material (FF 13-17), which as pointed out by the Examiner, can be made of a sintered material (Ans. 10). Appellant’s arguments are directed to Figure 9, but fail to take into account Figure 10 and the disclosure that the bone fixation body can be made entirely porous. Thus, we affirm the rejection of claim 14.

### CONCLUSION

We reverse the rejection of claims 1-9, 12, and 14-18 as anticipated by Shetty, and the rejection of claims 8, 12, and 13 as anticipated by Kwong. We affirm the rejection of claims 1, 2, 6-9, 12, and 14-18 as anticipated by Draenert.

Appeal 2008-1259  
Application 10/446,069

TIME PERIOD

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-IN-PART

Philip S. Lyren  
2208 Harcourt Drive  
Cleveland Heights OH 44106

lp