

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte RICHARD L. FINK, ZVI YANIV,
IGOR PAVLOVSKY, and LEIF THUESEN

Appeal 2008-2803
Application 10/838,698
Technology Center 1700

Decided: September 29, 2008

Before HUBERT C. LORIN, JENNIFER D. BAHR and JOHN C. KERINS,
Administrative Patent Judges.

KERINS, *Administrative Patent Judge.*

DECISION ON APPEAL

STATEMENT OF THE CASE

Richard L. Fink et al. (Appellants) seek our review under 35 U.S.C. § 134 of the final rejection of claims 2-5. We have jurisdiction under 35 U.S.C. § 6(b) (2002).

SUMMARY OF DECISION

We AFFIRM.

THE INVENTION

Appellants' claimed invention is to an apparatus that comprises an electron beam source positioned at a distance from a work piece, and a power supply employed to cause a beam of electrons to emit from the electron beam source toward the work piece. The electron beam source is a scanning probe microscope, an AFM microtip probe, a STM microtip probe, or a hopping electron cathode. The claims also call for the beam of electrons to cause local heating on the work piece to create a weld joint.

Claim 2, reproduced below, is representative of the subject matter on appeal.

2. An apparatus comprising:

an electron beam source positioned a distance from a work piece to be welded; and

a power supply for causing a beam of electrons to emit from the electron beam source towards the work piece causing local heating at a desired spot on the work piece to thereby create a weld joint on the work piece, wherein the electron beam source is a scanning probe microscope.

THE REJECTION

The Examiner relies upon the following as evidence of unpatentability:

Wolfe
Yedur

US 4,541,055
US 6,354,133 B1

Sep. 10, 1985
Mar. 12, 2002

The following rejections are before us for review:

1. Claims 2 and 3 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Yedur.
2. Claims 2-5 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Yedur.
3. Claims 2-5 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Wolfe.

ISSUES

A first issue raised in this appeal is whether Appellants have shown that the Examiner erred in rejecting claims 2 and 3 as being anticipated by, and in rejecting claims 4 and 5 as being unpatentable over, the Yedur patent. This issue turns on whether the Yedur patent discloses an apparatus capable of heating a workpiece to create a weld joint thereon.

A second issue raised in this appeal is whether the Examiner has established that the Wolfe patent discloses or suggests the specific types of electron beam sources set forth in each of the claims, and whether Appellants have established whether the Wolfe patent teaches away from the use of electron beams in welding.

FINDINGS OF FACT

The following enumerated findings of fact (FF) are supported by at least a preponderance of the evidence. *Ethicon, Inc. v. Quigg*, 849 F.2d 1422, 1427 (Fed. Cir. 1988) (explaining the general evidentiary standard for proceedings before the Office).

FF 1. The Yedur patent discloses a scanning probe microscope used for welding, measuring, and manipulation. (Yedur, col. 7, ll. 16-23; col. 8,

ll. 27-37). Appellants present no evidence that their claimed scanning probe microscope is structurally different from that disclosed in Yedur.

FF 2. The Wolfe patent discloses the use of a laser beam source for welding using an Nd:YAG laser. Wolfe discloses that the emission wavelength (~ 1.06 μm) of the Nd:YAG source permits a coaxial microscope to be used therewith. (Wolfe, col. 4, ll. 32-38).

PRINCIPLES OF LAW

Anticipation of a claim exists when each and every element set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Bros. v. Union Oil Co.*, 814 F.2d 628, 631 (Fed. Cir. 1987), *cert. denied*, 484 U.S. 827 (1987); *In re Cruciferous Sprout Litig.*, 301 F.3d 1343, 1349 (Fed. Cir. 2002). Once a prima facie case of anticipation has been established, the burden shifts to the Appellant to prove that the prior art product does not necessarily or inherently possess the characteristics of the claimed product. *In re Best*, 562 F.2d 1252, 1255 (CCPA 1977); *In re Spada*, 911 F.2d 705, 708-09 (Fed. Cir. 1990).

Patent application claims are given their broadest reasonable interpretation during the application process, for the simple reason that before a patent is granted the claims may be readily amended, for the purpose of distinguishing cited references, or in response to objections raised under § 112, as part of the examination process. *Burlington Indus., Inc. v. Quigg*, 822 F.2d 1581, 1583 (Fed. Cir. 1987). This broadest reasonable construction is to be assessed in light of the specification as it would be interpreted by one of ordinary skill in the art. *In re Am. Acad. of Sci. Tech. Ctr.*, 367 F.3d 1359, 1364 (Fed. Cir. 2004). Further, in making this

assessment, embodiments or features present in the specification will not be read into the claims in determining their scope. *Phillips v. AWH Corp.*, 415 F.3d 1303, 1323 (Fed. Cir. 2005) (*en banc*); *see also In re Trans Texas Holdings Corp.*, 498 F.3d 1290 (Fed. Cir. 2007).

While features of an apparatus may be recited either structurally or functionally, claims directed to an apparatus must be distinguished from the prior art in terms of structure rather than function. *In re Schreiber*, 128 F.3d 1473, 1477-78 (Fed. Cir. 1997) (absence of a disclosure in a prior art reference relating to function did not defeat the Board's finding of anticipation of claimed apparatus because the limitations at issue were found to be inherent in the prior art reference); *see also, In re Danly*, 263 F.2d 844, 847 (CCPA 1959)(claims drawn to an apparatus must distinguish from the prior art in terms of structure rather than function).

In *Graham v. John Deere Co. of Kansas City*, 383 U.S. 1, 17-18, (1966), the Supreme Court set out a framework for applying the statutory language of §103:

[T]he scope and content of the prior art are to be determined; differences between the prior art and the claims at issue are to be ascertained; and the level of ordinary skill in the pertinent art resolved. Against this background the obviousness or nonobviousness of the subject matter is determined. Such secondary considerations as commercial success, long felt but unsolved needs, failure of others, etc., might be utilized to give light to the circumstances surrounding the origin of the subject matter sought to be patented.”

While the sequence of these questions might be reordered in any particular case, the factors continue to define the inquiry that controls. If a court, or patent examiner, conducts this analysis and concludes that the

claimed subject matter was obvious, the claim is invalid or unpatentable under §103. *See KSR Int'l v. Teleflex Inc.*, 127 S.Ct. 1727, 1734 (2007).

ANALYSIS

Anticipation Rejection—Claims 2 and 3—Yedur patent

Appellants do not separately argue the patentability of these claims. We will take claim 2 as the representative claim for deciding the appeal as to this ground of rejection, and claim 3 will stand or fall with claim 2. 37 C.F.R. §41.67(c)(1)(vii) (2007).

Appellants assign error to the Examiner's rejection under 35 U.S.C. § 102(b) in view of Yedur, asserting that, "Yedur does not teach such a process [electron beam source causing local heating at a desired spot on work piece] for creating a weld joint." (Appeal Br. 4). Appellants go on to describe the nanowelding process disclosed in Yedur, and assert that their process is distinguishable because the claimed invention, "uses heating to create a weld joint." (*Id.*).

The Examiner's rejection is grounded in the finding that the Yedur patent discloses the claimed electron beam source and power supply in the form of an electron beam scanning probe microscope (claim 2), using an AFM tip (claim 3). (Answer 3). The Examiner counters Appellants' process-focused arguments by noting that, if a prior art structure meeting the structural claim limitations is capable of performing the stated intended use, then those claim elements are met. (Answer 5).

We are not persuaded that the claim elements directed to the process to which Appellants' apparatus is intended to be used patentably distinguish the invention over the Yedur disclosure. Like the Examiner, we see no

difference between the claimed structural elements and the corresponding apparatus disclosed in Yedur. Appellants have not demonstrated how the scanning probe microscope recited in their claims is any different from the scanning probe microscope disclosed in Yedur. (FF 1). It is therefore a reasonable position that the Yedur device is capable of causing local heating on a work piece and is capable of creating a weld joint on the work piece.¹ *In re Schreiber*, 128 F.3d at 1477-78. Appellants argue only that such a process is not disclosed in Yedur; they do not argue or present evidence that Yedur is not capable of performing such a process.

We will therefore sustain the rejection of claims 2 and 3 under 35 U.S.C. § 102(b).

Obviousness Rejection—Claims 2-5—Yedur patent

The Examiner asserts, in rejecting the claims as being obvious over Yedur, that Yedur discloses a device employing a scanning probe microscope and an ATM tip used in welding and inspection, and that the disclosed device, having no difference in structure from the claimed structure, would be capable of performing the intended process steps. (Answer 3, 4). The only difference among claims 2-5 is that each claim recites the electron beam source in a different manner. (*See*, Appeal Br., Claims Appendix). The Examiner asserts that the claimed scanning probe microscope (claim 2), AFM microtip probe (claim 3), STM microtip probe (claim 4), and hopping electron cathode (claim 5), are equivalents in the art and that substitution of any of these for the scanning probe microscope

¹ Claims 2 and 3 are not limited to a work piece of a specific material, such that a distinction might be drawn on that basis.

disclosed in Yedur would have been obvious to a person of ordinary skill in the art.

Appellants do not contest this latter finding and conclusion.² Appellants simply repeat the argument made in contesting the anticipation rejection that Yedur does not teach localized heating caused by an electron beam source to create a weld joint. Again, however, Appellants fail to present any evidence or argument showing or tending to show that the device in Yedur is structurally distinguishable from that which is claimed, nor that the Yedur device is not capable of producing such localized heating.

The rejection of claims 2-5 under 35 U.S.C. § 103(a) in view of Yedur will be sustained.

Obviousness Rejection—Claims 2-5—Wolfe patent

The Examiner asserts that Wolfe teaches electron beam welding using an electron beam source in conjunction with a coaxial microscope. The Examiner contends that the claimed arrangement of an electron beam source positioned at a distance from a workpiece, wherein the electron beam source is a scanning probe microscope, would have been obvious, “because the apparatus elements and their functional configuration is well known in the art.” (Answer 4).

Appellants respond that Wolfe does not disclose or suggest the use of any of the recited electron beam sources (scanning probe microscope, ATM microprobe tip, STM microprobe tip, hopping electron cathode), and that Wolfe teaches away from the use of electron beams for welding, by noting

² Indeed, Appellants admit that atomic force microscopes (ATMs) and scanning tunneling microscopes (STMs) fall under the more general term scanning probe microscopes (SPMs). (Specification, p. 10, ll. 21-23).

disadvantages associated with using pulsed electron beams. (Appeal Br. 4, 5). The Examiner asserts, in reply, that Wolfe describes both laser welding and electron beam welding, as well as using a coaxial microscope for beam delivery, and that, because both laser and electron beam welding were considered by Wolfe, it would have been obvious to use one in place of the other. (Answer 5).

We are persuaded by Appellants' arguments that error was committed in rejecting claims 2-5 as being obvious in view of Wolfe. The Examiner appears to be relying on the disclosure of a coaxial microscope in Wolfe as evidence that Wolfe discloses the use of one of the claimed electron beam sources (*e.g.*, a scanning probe microscope). The Examiner has not, however, established that the coaxial microscope and electron beam generator in Wolfe is, in fact, the same as any one of the claimed electron beam sources, nor is it established that the claimed electron beam sources would have been obvious substitutes for the disclosed source.

Further, while we do not conclude, as Appellants' appear to urge, that Wolfe teaches away from the use, in general, of electron beam welding, we also do not believe that Wolfe provides support for the Examiner's position. The Examiner contends that an electron beam source and a laser beam source are obvious substitutes for one another in the context of being used with the coaxial microscope cited by the Examiner. (Answer 5). However, Wolfe specifically notes that the use of a coaxial microscope is made possible due to a specific inherent characteristic (emission wavelength on the order of 1.06 μm) of an Nd:YAG laser. (FF 2). No evidence or reasoning is presented by the Examiner that an electron beam source would operate, in conjunction with a coaxial microscope, in a manner similar to

this laser beam source, and thus the allegation that one could obviously be substituted for the other lacks the articulated reasoning supported by rational underpinnings required in a rejection based on obviousness.

The rejection of claim 2-5 under 35 U.S.C. § 103(a) in view of Wolfe will not be sustained.

CONCLUSION

We conclude that Appellants have failed to establish that reversible error exists in the rejection of claims 2 and 3 under 35 U.S.C. § 102(b), and have failed to establish that reversible error exists in the rejection of claims 2-5 under 35 U.S.C. § 103(a), in view of Yedur. We further conclude that Appellants have established that reversible error exists in the rejection of claims 2-5 under 35 U.S.C. § 103(a) in view of Wolfe.

ORDER

The decision of the Examiner to reject claims 2 and 3 under 35 U.S.C. § 102(b) as anticipated by Yedur is **AFFIRMED**.

The decision of the Examiner to reject claims 2-5 under 35 U.S.C. § 103(a) as unpatentable over Yedur is **AFFIRMED**.

The decision of the Examiner to reject claims 2-5 under 35 U.S.C. § 103(a) as unpatentable over Wolfe is **REVERSED**.

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

Vsh

Appeal 2008-2803
Application 10/838,698

FISH & RICHARDSON, P.C.
P.O. BOX 1022
MINNEAPOLIS, MINNESOTA 55440-1022